

KG

11366
v.1062

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Plate	Date	Page	
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14408

Star Measures

1	17100	16994	16628	16280
12.4	12742 ⁴⁶	11364 ⁵⁸	9988 ⁸⁴	12922
14.7	50	52	80	22
	00	94	28	80
	<u>12.4354</u>	<u>12.4364</u>	<u>14.7644</u>	<u>14.6642</u>
2	16832	17940	16278	16620
17.4	13520 ²⁴	11254	11774 ⁷⁶	11114 ¹⁸
28.4	28	54	78	22
	32	40	78	20
	<u>17.3308</u>	<u>17.3314</u>	<u>28.4502</u>	<u>28.4498</u>
3	16022	16378	16676	16730
27.9	6172	16228	8348 ⁴⁶	15056
16.8	72	28	44	56
	22	78	76	30
	<u>27.9850</u>	<u>27.9850</u>	<u>16.8330</u>	<u>16.8326</u>

Moon

1		16634	16008
23		16438 ⁴⁰	6188
16.0		42	88
		34	08
		<u>16.0194</u>	<u>16.0180</u>
2	17135	16104	
23.8	9954 ⁵⁵	13280	
17.	56	80	
	35	04	
	<u>23.7180</u>	<u>23.7176</u>	
3	17130	16204	
23.8	8950 ⁵⁴	14374	
17.5	58	74	
	30	04	
	<u>23.8176</u>	<u>23.8170</u>	

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Star Measures

L	17100	16994	16628	16280
12.4	12742.46	11364.58	9988.44	12922
14.7	50	52	80	22
	00	94	28	80
	<u>12.4354</u>	<u>12.4364</u>	<u>14.7644</u>	<u>14.6642</u>
3	16832	17940	16278	16620
17.4	13520.24	11254	11774.76	11114.8
28.4	28	54	78	22
	32	40	78	20
	<u>17.3308</u>	<u>17.3314</u>	<u>28.4502</u>	<u>28.4498</u>
3	16022	16378	16676	16730
27.9	6172	16228	8348.46	15056
16.8	72	28	44	56
	22	78	76	30
	<u>27.9850</u>	<u>27.9850</u>	<u>16.8330</u>	<u>16.8326</u>

Moon

L		16634	16008
23		16438.40	6188
160		42	88
		34	08
		<u>16.0194</u>	<u>16.0180</u>
3	17135	16104	
38	9954.55	13280	
17	56	80	
	35	04	
	<u>23.7180</u>	<u>23.7176</u>	
3	17130	16204	
238	8950.54	14374	
175	58	74	
	30	04	
	<u>23.8176</u>	<u>23.8170</u>	

6
2
19
7
2
19
8
2
19

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2

Moon

4.	1 7 6 6 7	1 6 2 0 8
23.7	9 8 8 2 8 6	1 3 9 8 0
18	9 0	8 2 8 1
	6 7	0 8
	<u>23.7781</u>	<u>23.7773</u>

5.	1 6 2 5 8	1 6 5 8 0
23	1 4 2 3 2 14	8 6 1 2
19.1	3 6	1 2
	5 8	8 0
	<u>19.2024</u>	<u>19.2032</u>

6.	1 6 9 0 4	1 8 0 0 6
22	1 1 2 1 2	1 3 7 0 0
19.4	1 2	0 0
	0 4	0 6
	<u>19.5708</u>	<u>19.5694</u>

7.	1 6 4 3 2	1 8 2 1 0
21.8	1 0 7 1 4 12	1 3 9 3 8
19.4	1 0	5 8
	3 2	1 0
	<u>19.5720</u>	<u>19.5728</u>

8.	1 7 8 8 0	1 8 9 6 0
21	1 4 0 9 8	1 2 2 2 8
19.3	9 8	2 8
	8 0	6 0
	<u>19.3782</u>	<u>19.3768</u>

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2

Moon

4.	1 7 6 6 7	1 6 2 0 8
23.7	9 8 8 2 8 6	1 3 9 8 0 8 1
18	9 0	8 2
	6 7	0 8
	<u>23.7781</u>	<u>23.7773</u>

S.	1 6 2 5 8	1 6 5 8 0
23	1 4 2 3 2 1 4	8 6 1 2
19.1	3 6	1 2
	5 8	8 0
	<u>19.2024</u>	<u>19.2032</u>

2	1 6 9 0 4	1 8 0 0 6
12	1 1 2 1 2	1 3 7 0 0
99	1 2	0 0
	0 4	0 6
	<u>19.5708</u>	<u>19.5694</u>

18	1 6 4 3 2	1 8 2 1 0
8	1 0 7 1 4 1 2	1 3 9 5 8
	1 0	3 4
	3 2	1 0
	<u>19.5720</u>	<u>19.5728</u>

1	1 7 8 8 0	1 8 9 6 0
3	1 4 0 9 8	1 2 2 2 8
	9 8	2 8
	8 0	6 0
	<u>19.3782</u>	<u>19.3768</u>

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Times etc

3

Date Nov. 28, 1917

Exp & Stars	2	52	3	04
" to Moon	2	58	2	58
Clock Slow		01		55.70
H. Sid. Time	3	0		07.90
" True	4	44		31.05
S. Sid. Time	7	44		38.95
" " " M.N.	16	27		15.44
Interval	15	17		23.51
Red		02		30.29
Q. m. T	15	14		53.22
			15	2481

From Naut. Alman. R.A.

Dec

Moon 15-h	04	35	14.55	+23	54	34.2
Motion 1"			2.4737			+1.99
" 14.8870			+36.83			29.6
Fatular Place	4	35	51.38	+23	55	03.8

Moon's Age 14d.

934" = 14"

$$\begin{array}{r}
 a: -499.6 \\
 +24.0 \\
 \hline
 -475.6
 \end{array}$$

Parallax	57	49.7
Semi-dian	15	46.9
R		946.9
Aug		14.4
Sum 2		-0.5
R		960.8
R		2.059.6
a.R		980
(174) R		1.9616
R2		3.8478

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Junes etc

3

Date Nov 28, 1917

Exp to Stars	2	52		3	04"	
" to Moon	2	58	12.00	2	58	12.4
Clock slow		01	55.10			

H Sid Time	3	0	07.90		
" Yaws	4	44	31.05		
S Sid Time	7	44	38.95		-1h 35m
" " " M.N	16	27	15.44		
Interval	15	17	23.51		
Red		02	30.29		
G M T	15	14	53.22		15h 24.81

From Nant Alman RA

Moon 15h	04	35	14.55
Motion 1			2.4737

" 14h 88.70

Tabular Place	4	35	51.38
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Dec

+23	54	34.2
		+1.99
		29.6
+23	55	03.8

Moon Age 14d.

934" = 14

a:	-499.6
	+24.0
	-475.6

Parallax	57	49.7
Semi diam	15	46.9
R		946.9
Ang		14.4
Inv 2		-0.5
R		960.8
R		205.96
a.R		980
174 R		1.9616
R2		38478

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Plate Constants

4

$$\begin{array}{r} x \\ y \\ x-y \end{array} \begin{array}{r} 12.4359 \\ 12.8090 \\ - .3731 \end{array}$$

$$\begin{array}{r} 17.3311 \\ 17.9000 \\ - 5689 \end{array}$$

$$\begin{array}{r} 27.9850 \\ 29.1272 \\ - 1.1422 \end{array}$$

$$\begin{array}{r} y \\ y \\ y-y \end{array} \begin{array}{r} 14.6643 \\ 14.3256 \\ +.3387 \end{array}$$

$$\begin{array}{r} 28.4500 \\ 28.8174 \\ - 3674 \end{array}$$

$$\begin{array}{r} 16.8328 \\ 16.6530 \\ +.1798 \end{array}$$

$$\begin{array}{r} x-S \quad +5.00x \\ -3731 + 6218 = 2487 \\ -5689 + 8666 = 2977 \\ -11422 + 13992 = 2570 \\ 21.8548 + 10927 = \end{array} \begin{array}{r} -3548 \\ -519 \\ -1007 \\ -596 \\ -623 \end{array} \begin{array}{r} -4x \\ -5 = 1968 \\ -7 = 1970 \\ -11 = 1974 \\ -8 = 22.6881 \end{array} \begin{array}{r} -1963 \\ -5 = 1963 \\ -7 = 1963 \\ -11 = 1963 \end{array}$$

$$\begin{array}{r} y-y \quad +5.00y \\ +3387 + 7332 = 10719 \\ -3674 + 14225 = 10551 \\ +1798 + 8416 = 10214 \\ 17.6118 + 8806 = \end{array} \begin{array}{r} +32.4x \\ +403 \\ +562 \\ +905 \\ +708 \end{array} \begin{array}{r} +.7y \\ +10 = 11132 \\ +20 = 11132 \\ +12 = 11131 \\ +12 = 17.4512 \end{array} \begin{array}{r} -11132 \\ -10 = 11132 \\ -20 = 11132 \\ -12 = 11131 \end{array}$$

Tables $a = +0.1$
 $als. -499.6$

$b = -0.1$
 -500.7

$a-b = +0.2$
 $+1.1$

$b+d = +0.7$
 $= +3.0$

-499.7

-500.6

$+0.9$

$+2.3$

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Plate Constants

4

$$\begin{array}{r} x \\ s \\ x-s \end{array} \begin{array}{r} 12.4359 \\ 12.8090 \\ -3.3731 \end{array}$$

$$\begin{array}{r} 17.3311 \\ 17.9000 \\ -5.5689 \end{array}$$

$$\begin{array}{r} 27.9850 \\ 29.1272 \\ -1.1422 \end{array}$$

$$\begin{array}{r} y \\ \eta \\ y-\eta \end{array} \begin{array}{r} 14.6643 \\ 14.3256 \\ +3.3387 \end{array}$$

$$\begin{array}{r} 28.4500 \\ 28.174 \\ -3.274 \end{array}$$

$$\begin{array}{r} 16.8328 \\ 16.6530 \\ +.1798 \end{array}$$

$$\begin{array}{r} x-s \\ -37.31 + 6.218 = 24.87 \\ -56.89 + 8.666 = 29.77 \\ -114.22 + 139.92 = 25.70 \\ 1.8548 + 109.27 \end{array} \begin{array}{r} +5.001 \\ -35.48 \\ -519 \\ -1007 \\ -596 \\ -623 \end{array} \begin{array}{r} -41 \\ -5 \\ -7 \\ -11 \\ -8 \end{array} \begin{array}{r} -1963 \\ 1968 \\ 1970 \\ 1974 \\ 226881 \end{array}$$

$$\begin{array}{r} y-\eta \\ +33.87 + 73.32 = 107.19 \\ -367.4 + 142.25 = 105.51 \\ +179.8 + 84.16 = 102.14 \\ 17.6118 + 88.06 \end{array} \begin{array}{r} +5.004 \\ +32.41 \\ +403 \\ +562 \\ +905 \\ +708 \end{array} \begin{array}{r} +.74 \\ +10 \\ +20 \\ +12 \\ +12 \end{array} \begin{array}{r} -11132 \\ 11122 \\ 11113 \\ 11119 \\ 17.4512 \end{array}$$

$$\begin{array}{r} \text{Tables } a = +0.1 \\ \text{Ans. } -499.6 \end{array}$$

$$\begin{array}{r} l = -0.1 \\ -500.7 \end{array}$$

$$\begin{array}{r} a-l = +0.2 \\ +1.1 \end{array}$$

$$\begin{array}{r} l+d = +0.7 \\ +3.0 \end{array}$$

1.4408

Mean Center

 Δx

0 - 5

1	23.0000	+1.1440	+0	1.3087	3.8441	-	37
2	23.7178	+1.8618	+0	3.4663	3.8396	-	82
3	23.8173	+1.9613	0	3.8467	3.8467	-	11
4	23.7777	+1.9217	-0	3.6928	3.8441	-	37
5	23.0000	+1.1440	-1	1.3085	3.8424	-	54
6	22.0000	+0.1440	-1	0.0206	3.8587	+109	
7	21.8560	0.0000	-1	0.0000	3.8471	-	7
8	21.0000	-0.8560	-1	0.7329	3.8535	+57	

R² 3.8478

4765

anc

dy=0

1	16.0187	-1.5923	2.5354	144
2	17.0000	-0.6110	0.3733	108
3	17.6110	0.0000	0.0000	90
4	18.0000	+0.3890	0.1513	79
5	19.2028	+1.5918	2.5339	36
6	19.5701	+1.9591	3.8381	4
7	19.5724	+1.9614	3.8471	0
8	19.3775	+1.7665	3.1206	-26

3097

Range 170

y = 23 f = 16.0187

19.2028

352215

y₀ 17.6108

y max 19.5724

R 1.9616

Cum R 1.9616

y max 23.8173

x₀ 21.8557

Mean Center

x₀ 21.8560y₀ 17.6110

14408

Mean Center

 Δt

0-5

1	23.0000	+1.1440	+0	131.87	38441	-	37
2	23.7178	+1.8618	+0	34663	38396	-	82
3	23.8173	+1.9613	0	38467	38467	-	11
4	23.7777	+1.9217	-0	36928	38441	-	37
5	23.0000	+1.1440	-1	13085	38424	-	54
6	22.0000	+0.1440	-1	00206	38587	+	109
7	21.8560	0.0000	-1	00000	38471	-	7
8	21.0000	-0.8560	-1	07329	38535	+	57

 $R^2 = 3.8478$

anc

01-0

1	16.0187	-1.5923	2.5354	144
2	17.0000	-0.6110	0.3733	108
3	17.6110	0.0000	0.0000	90°
4	18.0000	+0.3890	0.1513	79
5	19.2028	+1.5918	2.5339	36
6	19.5701	+1.9591	3.8381	4
7	19.5724	+1.9614	3.8471	0
8	19.3775	+1.7665	3.1206	-26

Range 170

$x = 23$ $y = 16.0187$
 19.2028
 3.52215
 $y_0 = 17.6108$

$y_{max} = 19.5724$
 $R = 1.9616$
 $Calc R = 1.9616$
 $y_{max} = 23.8173$
 $x_0 = 21.8557$

Mean Center

 $x_0 = 21.8560$ $y_0 = 17.6110$

Formation of Normals

1	- 1.81	- 42.2	+ 58.8
2	- 1.13	- 152.5	+ 50.0
3	0.00	- 21.6	0.0
4	+ 0.75	- 71.0	- 14.4
5	+ 1.81	- 61.5	- 85.8
6	+ 0.27	+ 15.2	+ 214.0
7	+ 0.00	0.0	- 13.7
8	- 1.52	- 49.0	+ 101.0
	<u>+ 2.83</u>	<u>+ 15.2</u>	<u>+ 423.8</u>
	<u>- 4.46</u>	<u>- 397.8</u>	<u>- 113.9</u>
	- 1.63	- 382.6	+ 309.9

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Conditional Equations

6

								O-C
1	+1.14	-1.59 = -	37	- 28	- 26 = -	54	+ 17	
2	+1.86	- 0.61 = -	82	- 46	- 10 = -	56	- 26	
3	+1.96	0.00 = -	11	- 48	0 = -	48	+ 37	
4	+1.92	+ 0.39 = -	37	- 47	+ 6 = -	41	+ 4	
5	+1.14	+1.59 = -	54	- 28	+ 26 = -	2	- 52	
6	+0.14	+ 1.96 = +	109	- 3	+ 32 = +	29	+ 80	
7	0.00	+ 1.96 = -	7	0	+ 32 = +	32	- 39	
8	- 0.86	+ 1.77 = +	57	+ 21	+ 29 = +	50	+ 7	

+145 - 117

or 33

$$+1448 - 1163 = -3826$$

$$- 1163 + 1640 = +3099$$

$$+ () - 0.18 = - 43.1$$

$$+1622 = +2668$$

$$L = +164$$

$$+1448 = -3826 + 268 = -35589 = -246$$

arc 170

$$\frac{P}{n} = 28^\circ$$

$$\frac{35}{n} = +3.5^\circ$$

$$+ \frac{35}{28} = +12.5^\circ$$

$$AR = +0.15^\circ$$

1 + 408

Conditional Equations

6

								O-C
1	+1.14	-1.59	= -	37	- 28	- 26	= - 54	+ 17
2	+1.86	- 0.61	= -	82	- 46	- 10	= - 56	- 26
3	+1.96	0.00	= -	11	- 48	0	= - 48	+ 37
4	+1.92	+ 0.39	= -	37	- 47	+ 6	= - 41	+ 4
5	+1.14	+1.59	= -	54	- 28	+ 26	= - 2	- 52
6	+0.14	+1.96	= +	109	- 3	+ 32	= + 29	+ 80
7	0.00	+1.96	= -	7	0	+ 32	= + 32	- 39
8	- 0.86	+1.77	= +	57	+ 21	+ 29	= + 50	+ 7

+ 145 = 117

or 33

$$+ 1448 - 1163 = - 3826$$

$$- 1163 + 1640 = + 309.9$$

$$+ (1 - 0.18) = - 43.1$$

$$+ 16.22 = + 266.8$$

$$L = + 16.4$$

$$+ 1448 = - 3826 + 26.8 = - 3659.2 = - 24.6$$

are 170

$$\frac{P}{m} = 28$$

$$\frac{28}{m} = + 35$$

$$+ \frac{35}{28} = + 12.5$$

$$AR = + 0.15$$

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7

Moss Mean Position

$$\begin{array}{r} \chi_0 \quad 21.8560'' \\ \quad \quad -12'' \\ \hline 21.8548'' \end{array}$$

$$\begin{array}{r} \chi_0 \quad 17.6110'' \\ \quad \quad +8'' \\ \hline 17.6118'' \end{array}$$

From Plate Constants.

$$\begin{array}{r} 22.6881'' \\ 22. \\ \hline + 0.6881'' \end{array}$$

$$\begin{array}{r} 17.4512'' \\ 18. \\ \hline - 0.5488'' \end{array}$$

$$\begin{array}{r} 9.83765'' \\ 9.96212'' \\ 8.50724'' \\ 1.36829'' \end{array}$$

$$\begin{array}{r} 9.6400'' \\ 9.6753'' \\ 7.0534'' \\ 6.3687'' \end{array}$$

$$+ 23.35''$$

$$\begin{array}{r} \eta_1 \quad + 0.0002 \\ \eta_0 \quad - 0.5490 \end{array}$$

$$A = 4 \quad 36 \quad 40.00$$

$$\alpha_0 \quad 4 \quad 37 \quad 03.35$$

$$\text{Red} \quad + 5.92''$$

$$\alpha' \quad 4 \quad 37 \quad 09.27''$$

$$\begin{array}{r} 9.73957'' \\ 7.33115'' \\ 2.40842'' \\ - 256.1 \end{array}$$

$$- 04 \quad 16.1''$$

$$\theta = +23 \quad 39 \quad 15.0$$

$$S_0 \quad 23 \quad 34.589''$$

$$\text{Red} \quad + 11.6''$$

$$\delta' \quad + 23 \quad 35 \quad 10.5''$$

14405

7

Moon Mean Position

$$\begin{array}{r} X_0 \quad 21.8560 \\ \quad \quad -1.2 \\ \hline 21.8548 \end{array}$$

$$\begin{array}{r} Y_0 \quad 17.6110 \\ \quad \quad +8 \\ \hline 17.6118 \end{array}$$

From Plate Constants.

$$\begin{array}{r} 22.6881 \\ 22. \\ \hline + 0.6881 \end{array}$$

$$\begin{array}{r} 17.4512 \\ 18. \\ \hline - 0.5998 \end{array}$$

$$\begin{array}{r} 9.83765 \\ 9.96212 \\ 8.50714 \\ 1.36829 \end{array}$$

$$\begin{array}{r} 9.6400 \\ 9.6753 \\ 7.1539 \\ 6.3687 \end{array}$$

$$+ 23.35$$

$$\begin{array}{r} \eta_1 + 0.0002 \\ \eta_0 - 0.5490 \end{array}$$

$$A \quad 4 \quad 36 \quad 40.00$$

$$Q_0 \quad 4 \quad 37 \quad 03.35$$

$$Red \quad + 5.92$$

$$\alpha' \quad 4 \quad 37 \quad 09.27$$

$$\begin{array}{r} 9.73957 \\ 7.33115 \\ 2.90842 \end{array}$$

$$- 256.1$$

$$- 04 \quad 16.1$$

$$E - +23 \quad 39 \quad 15.0$$

$$S_0 \quad 23 \quad 39 \quad 58.9$$

$$Red \quad + 11.6$$

$$\delta' \quad + 23 \quad 35 \quad 10.5$$

$$\begin{array}{r}
 1 \quad 4 \quad 27 \quad 41.277 \\
 \underline{34.256} \\
 + 7.021
 \end{array}$$

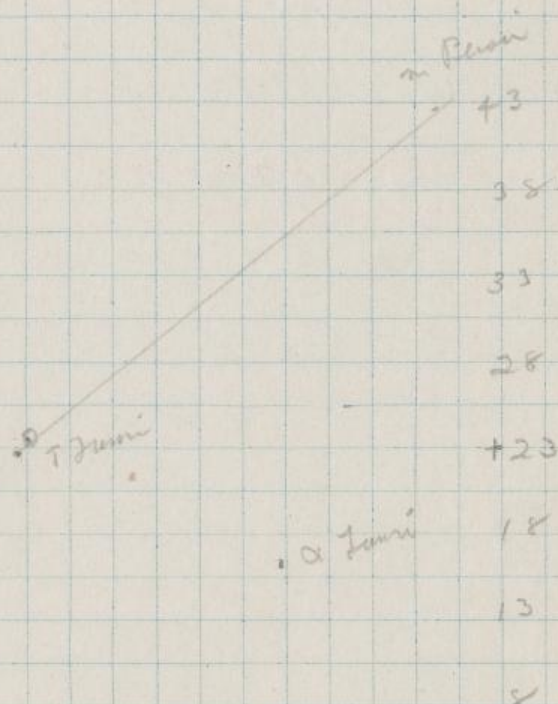
$$\begin{array}{r}
 4 \quad 37 \quad 21.580 \\
 \underline{15.692} \\
 + 5.888
 \end{array}$$

$$\begin{array}{r}
 7.021 \\
 \underline{5.888} \\
 1.133
 \end{array}$$

$$\begin{array}{r}
 42 \quad 53 \quad 28.51 \\
 \underline{15.99} \\
 + 12.52
 \end{array}$$

$$\begin{array}{r}
 22 \quad 48 \quad 7.02 \\
 \underline{47 \quad 55.34} \\
 + 11.68
 \end{array}$$

$$\begin{array}{r}
 12.52 \\
 \underline{11.68} \\
 0.84
 \end{array}$$



48 46 44 42 40 38 36 34 32 30 28 26

42

Reduction & Apparent Place

8.

$H + \alpha'$	6	04.5	91°	$7.5'$	δ_0	23	35.0
H	1	27.4					
α_0	4	37.1			$\log \cos \delta_0$		9.9621
G	23	59.4			$\log 1$		0.5136
$G + \alpha_0$	4	36.5	69°	$7.5'$	" (11)		0.4757
					$\log \sin \delta_0$		9.6021
$\cos G + \alpha_0$		9.5518			$\cos H + \alpha_0$		8.2930m
$\log g$		1.3918			$\log h$		1.3055-
$\sin G + \alpha_0$		9.9705-			$\sin H + \alpha_0$		9.9999
$\tan \delta_0$		9.6400			$\sec \delta_0$		0.0379
		8.8239					8.8239
$\log g'$		0.9436			$\log h'$		9.2006m
$\log g$		9.8262			h		0.1672
f		+3.785-			g'		+8.782-
g		+0.670-			h'		-0.159-
h		+1.470			i		+2.990-
Red.		+5.925-			Red.		+11.613-

Reduction to Apparent Place

8.

$H + \alpha$	6	04.5	$91^{\circ} 7.5'$	S_0	23	350
H	1	27.4		$\log \cos S_0$		9 46 21
α_0	4	37.1		$\log 1$		0 51 36
G	23	59.4		" (1)		0.4757
$G + \alpha_0$	4	36.5	$69^{\circ} - 7.5'$			

$\cos G + \alpha_0$	9.5518
$\log g$	1.3918
$\sin G + \alpha_0$	9.9705
$\tan S_0$	9.6400
	8.8239

$\log \sin S_0$	9.6021
$\cos H + \alpha_0$	8.2930m
$\log h$	1.3055
$\sin H + \alpha_0$	9.9999
$\sec S_0$	0.0379
	8.8239

$\log g'$	0.9436
$\log g$	9.8262

$\log h'$	9.2006m
h	0.1672

f	+3.785
g	+0.670
h	+1.470
Red.	+5.925

g'	+8.782
h'	-0.159
i	+2.990
Red.	+11.613

14408

Lunar Parallax

9.

α	4	37	09.27 ^v
θ	3	0	07.90 ^v
$\theta - \alpha$	-1	37	01.37
$=$	-24	15	20.55 ^v
$\frac{1}{2}\alpha - \alpha'$		09	36.75 ^v
$\theta - \alpha - \frac{1}{2}\alpha - \alpha'$	-24	05	43.80 ^v

 π 57 49.7^v

9.86913
8.22584 ^v
9.61363 ^v
0.03899 ^v
7.74759 ^v

 $\alpha - \alpha'$ - 19 13.5^v $=$ - 1 16.9^v

9.95727

000000

003959

9.99686^v γ 44 47 33.6^v δ' +23 35 10.5^v $\gamma - \delta'$ 21 12 23.1^v

9.82640

8.22584^v9.55839^v015209^v7.76272^v $\delta - \delta'$ +19 54.4 δ +23 55 04.9 $\gamma - \delta$ +23 55 03.8^v $\theta - \theta'$ +1.1curr. +0.0^v

2nd Ed. Ref. 0.0

 α 4 35 52.37^v $\gamma - \alpha$ 4 35 51.38^v $\theta - \theta'$ +0.99^vcurr. +0.02^v α 4 35 52.37^v

+1.01

14408

Lunar Parallax

9

α 4 37 09.27
 θ 3 0 07.90
 $\theta \cdot x$ -1 37 01.37
 $=$ -29 15 20.55
 $1/2 \lambda \cdot x$ 09 36.75
 $\theta \cdot x - 1/2 \lambda \cdot x$ -29 05 43.80

 π 57 49.1

986913

822584

961363

003894

774759

995727

995727

000000

003959

999686

 $\lambda \cdot x$ -19 13.5

 $=$ -1 16.9

 y 44 47 33.6

 δ +23 35 10.6

 $y - \delta$ 21 12 23.1

982640

822584

955839

015209

776264

 $\delta - \delta$ 19 54.4

 δ +23 55 04.9

 $\delta - \delta$ +23 55 03.8

 $\delta - \delta$ +1.1

 $\delta - \delta$ +0.0

 $\delta - \delta$ 0.0

 $\delta - \delta$ 0.0

 x 4 35 523.7

 $\delta \cdot x$ 4 35 513.8

 $\delta - \delta$ +0.99

 $\delta - \delta$ +0.02

 $\delta - \delta$ 523.7

 $\delta - \delta$ +1.09

Cafe no 1191 mly 64.

8 28 12.74

12.78

12.67

8 28 12.73

56.57

 α 8 29 09.30

A 8 29 57.00

- 47.70

- 47.70

1.67852 m

9.98775

0.17351 m

-1.4911

-7

3 205082

X 20.0676 10034

X-5 - 4406 5628

+13 35 58.1

57.9

57.0

13 35 57.7

- 03 26.2

13 32 31.5

15 26 18.0

- 1 53 46.5

- 6829.0

3.83436 m

1.16551 m

9.3817

0.3470

6.7821

-14.6390

+0.0006

m 3.3616

y 4.0315 2016

y-m +.6699 8715

14416				Star Measures.				11			
Cafe 40. 1181 mg 59				Cafe 40 3386 mg 85				Cafe 40. 1207 mg 82			
C	8	23	02.57	8	26	40.86	8	35	02.42		
g			02.59						02.46		
z			02.55						02.36		
m	8	23	02.57					8	35	02.41	
Prec			+56.97			+57.68			56.87		
α	8	23	59.54	8	27	38.54	8	35	59.28		
β	8	29	57.00	8	29	57.00	8	29	57.00		
$\alpha-A$	-	5	57.46	-	2	18.46	+6		02.28		
$\beta-A$	-		357.42	-		138.46	+36		2.24		
log	2.55	31.8	m	2.14	133	m	2.55	900	m		
log	9.98	597	m	9.98	175	m	9.98	560	m		
log	1.04	639	m	0.63	032	m	1.05	184	m		
S_0	-11.12	72	m	-4.26	90	m	+11.26	79	m		
S_1	-48			-9			+44				
S_2	10.86	80	m	17.73	01	m	33.27	23	m		
S_3	10.97	12		17.67	37		32.31	67			
$Y-S$	+103	2	m	-05	64	m	-95	56	m		
C	+14	32	31.2	+16	33	03.1	+14	43	57.5		
g			30.7						58.2		
z			30.8						57.9		
m	+14	32	30.9				14	43	57.9		
Prec	-03	20.0		-03	22.5		-03	33.9			
S_0	14	29	10.9	+16	29	40.6	14	40	24.0		
S_1	15	26	18.0	15	26	18.0	15	26	18.0		
$\tan \delta$	-	57	07.1	+1	03	22.6	-	45	54.0		
log	-34	27.4		+38	03.0		-27	54.2			
log	3.53	496	m	3.58	013	m	3.43	999	m		
log	0.86	611	m	0.91	128	m	0.77	114	m		
$\tan \delta$	9.41	22	m	9.47	14	m	9.41	80	m		
S_0	20	928		126	06		210	37			
n_1	98.55	84		7.78	54	m	8.57	51			
n_0	-7.34	70	m	+8.15	23	m	-5.90	39	m		
n_1	+0.03	62	m	+0.00	61	m	+0.03	76	m		
n_2	10.68	92	m	26.15	84	m	12.13	37	m		
n_3	11.11	62	m	25.75	94	m	12.23	92	m		
$Y-Y$	+42	70	m	-39	90	m	+10	55	m		

14416				Star Measures.				11			
Cape 40	1181	mg 59		Cape 40	3386	mg 85		Cape 40	1207	mg 82	
C	8	23	02.57	8	26	40.86	8	35	02.42		
g			02.59						02.46		
z			02.55						02.36		
m	8	23	02.57				8	35	02.44		
Dec			+56.97			+57.68			56.87		
x	8	23	59.54				8	35	59.28		
D	8	29	57.00	8	29	57.00	8	29	57.00		
1-A	-	5	57.46	-	2	18.46	-	6	02.28		
m			-35.742			-138.46			+36.229		
log	2.55	3.18	m	2.14	1.33	m	2.55	9.00			
log	9.98	5.97		9.98	1.75		9.98	5.60			
log	1.04	6.39	m	0.63	0.32	m	1.05	1.84			
S ₀	-11.12	72		-4.26	90		+11.26	79			
S ₁	-48			-9			-44				
3	10.86	80		17.73	01		33.27	23			
x	10.97	12		17.67	37		32.31	67			
y-S	+103	2		-05	64		-95	56			
C	14	32	31.2	+16	33	03.1	+14	43	57.5		
g			30.7						58.2		
z			30.8						57.9		
m	14	32	30.9				14	43	57.9		
Dec	-03		20.0	03		22.5	-03		33.9		
S	14	29	10.9				14	40	24.0		
D	15	26	18.0	15	26	18.0	15	26	18.0		
log	-	57	07.1	+1	03	22.6	-	95	59.0		
log			-34.27.4			+38.03.0			-27.54.2		
log	3.55	34.96	m	3.55	80.13		3.43	99.9	m		
log	0.86	6.11	m	0.91	1.28		0.77	1.14	m		
log	9.41	22		9.47	14		9.41	80			
log	20.92	8		1.26	06		2.10	37			
log	18.55	84		7.78	54		8.57	51			
log	-7.34	70		+8.15	23		-5.90	39			
log	+0.03	62		+0.00	61		+0.03	76			
log	10.68	92		26.15	84		12.13	37			
log	11.11	62		25.75	94		12.23	92			
log	-9.27	0		-3.99	90		-1.05	55			

$$\begin{array}{r} 16982 \\ 14585 \\ \hline 23947 \end{array}$$

$$\begin{array}{r} 2 \\ 1267 \\ \hline 1289 \end{array}$$

14416

Star Measures

12

1	19082	16966	17480	16210
109	9370	16678	16316	736470
112	70	78	16	76
	82	66	80	10
	<u>10.9712</u>	<u>10.9712</u>	<u>11.1164</u>	<u>11.1160</u>

2	17368	16147	19520	16590
177	10624	12879	1192622	14180
258	2826	79	18	80
	68	47	20	90
	<u>17.6742</u>	<u>17.6732</u>	<u>25.7598</u>	<u>25.7590</u>

3	16568	17650	16150	17650
323	1340264	10820	1376056	10040
12.3	66	20	52	40
	68	50	50	50
	<u>32.3164</u>	<u>32.3170</u>	<u>12.2394</u>	<u>12.2390</u>

4	16062	16088	16708	16610
20	15388	676266	16396	693028
4	88	70	96	26
	62	88	08	10
	<u>20.0674</u>	<u>20.0678</u>	<u>4.0312</u>	<u>4.0318</u>

Moon.

1	16142	16908
20.5	14752	8290
167	52	80
	42	08
	<u>16.1390</u>	<u>16.1382</u>

2	16354	17632
21	14072	9912
163	72	12
	54	32
	<u>16.2282</u>	<u>16.2280</u>

14416

Star Measures

12

1	19082	16966	17480	16210
108	9370	16678	16316	736970
112	70	78	16	76
	82	66	80	10
	<u>10.9712</u>	<u>10.9712</u>	<u>11.1164</u>	<u>11.1160</u>

2	17368	16147	19520	16590
177	10624	12879	1192622	14180
258	2826	79	18	80
	68	47	20	90
	<u>17.6742</u>	<u>17.6732</u>	<u>25.7598</u>	<u>25.7590</u>

3	16568	17650	16150	17650
323	1340264	10820	1376052	10040
23	06	20	52	40
	68	50	50	50
	<u>3.23164</u>	<u>32.3170</u>	<u>12.2894</u>	<u>12.2390</u>

4	16062	16088	16708	16610
5	15388	676266	16396	693028
4	88	70	96	26
	62	88	08	10
	<u>20.0674</u>	<u>20.0678</u>	<u>4.0312</u>	<u>4.0318</u>

Moon.

1	16142	16908
5	14752	8290
2	52	90
	42	08
	<u>16.1390</u>	<u>16.1382</u>
2	16354	17632
1	14072	9912
23	72	12
	54	32
	<u>16.2282</u>	<u>16.2280</u>

14417

Moon Measures

13

3

22

16.9

16628

17260

667274

1720806

76

04

28

60

16.995416.9946

4

18780

17256

22.0

874044

7288

17.0

48

88

80

56

22.003622.0032

5

17342

16982

22.3

14334

9986

18

34

86

42

82

22.300822.3004

6

16814

17950

22

16684

808076

19

84

72

14

50

22.013022.0126

7

18082

18294

22

17890

847842

19.0

9492

86

82

94

19.019019.0188

8

16393

16668

21

856967

14502

19.8

70

02

93

68

19.782619.7834

14417

Moon Measures.

13

3
22
16.9

16628	17260
667274	1720806
76	04
28	60
<u>16.9954</u>	<u>16.9946</u>

4
20
17.0

18780	17256
874044	7284
48	88
80	56
<u>220036</u>	<u>220032</u>

5
223
18

17342	16482
14334	9986
34	86
42	82
<u>223008</u>	<u>223014</u>

6
22
19

16814	17950
16684	808076
84	72
14	50
<u>220130</u>	<u>220126</u>

7
2
9.0

18082	18294
17890	84784
9492	86
82	94
<u>190180</u>	<u>190184</u>

8
21
19.8

16393	16668
856467	14502
70	02
92	68
<u>19.7826</u>	<u>19.7834</u>

11416

14

Times etc

Date Dec 2, 1917

Exp. & Stars	10	18	✓	10	30	✓
" " Moon	10	23	42.0	✓	10	23 + 2.4
Clock Slow		1	57.7	✓		

H. Sid. Time	10	25	39.9	✓		
" " Young	04	44	31.05	✓	" - + 1 ^h 55 ^m	
G. Sid. Time	15	10	10.95	✓		
" " " M.N.	16	43	01.67	✓		
Subsolar	22	27	09.28	✓		
Ref.		03	40.70	✓		
G. M. T	22	23	28.58	✓	22 ^h 39 ^m 13 ^s	✓

From Naut. Alman. R.A. Dec

Moon 22 ^h	8	29	54.90	✓	+ 15	5-6	18.2	✓
Motion 1 ^m			2.0128	✓			- 9.66	✓
" 23 ^h 47 ^m 63 ^s			47.25	✓		- 03	46.8	✓
Tabular Place	8	30	42.15	✓	15	52	31.4	✓

934^m = 12.7^mMoon's Age 18^d

a = -502.5

$$\begin{array}{r} + 240 \\ - 478.5 \end{array}$$

Parallax	55	0.38	✓
Semi-diam	15	01.8	✓
R		901.8	✓
Aug		11.8	✓
Dist 2		-0.7	✓
R		912.9	✓
R		1956.9	✓
a.R		-936	✓
11 ^h 10 ^m 10 ^s R		1.8633	✓
R 2		3.4719	✓

11416

14

Times etc

Date Dec 2, 1917

Exp to stars	10	18		10	30
" " Moon	10	23	42.0	10	23 + 2.4
Clock slow		1	57.7		

H Sid Time	10	25	39.9	
" Young	04	44	31.05	"G- + 1 ^h 55 ^m
G Sid Time	15	10	109.5	
" " " M N"	16	43	01.67	
Subtotal	22	27	09.28	
Red.		03	40.70	
G M.T	22	23	28.58	22 ^h 39 ^m 13 ^s

From Naut Alman R A

Moon 22 ^d	8	29	5490	+ 15° 5' 6"	18.2
Motion 1 ^m			20128		- 9.66
" 23 ^d 4763			47.25	- 03	46.8
Tabular Place.	8	30	4215	15° 5' 2"	31.4

934 = 12.7

Moon Age 18^d

G: -50 21.5

$$\begin{array}{r} + 24.0 \\ - 478.5 \end{array}$$

Parallax	55°	03.8
Semi-diam	15°	01.8
R		901.8
Aug.		11.8
Sub 2		-0.7
R		912.9
R		1956.9
AR		-93.6
11 + AR		1863.3
R 2		3471.9

S_0	H_0	ΔS	-3.85	-4.14	-3
-11.13	-7.35	-41	+ 42 = +1	+ 3 = +4	
- 4.27	+8.15	-10	+ 16 = +6	- 3 = +3	
- 1.49	-14.64	- 8	+ 6 = -2	+ 6 = +4	
+11.27	-5.90	+44	- 43 = +1	+ 2 = +3	
M - 1.27	+0.05		+ 5	0 = +2 = +0.01	

ΔH_0	-4.14	-1.15	+8
-32	+38 = -2	+1 = -1	
+18	-33 = -15	+0 = -15	
-76	+60 = -16	+0 = -16	
-24	+24 = +0	-1 = -1	
	0	0 = +8 = +0.4	

14416

Plate Center + Constants

15

17.6737	25.7594	8 27	38.54	16	29	40.6
22.	18.	+0.2	18.44	-0.1	03	22.1
+4.3263	-7.7594					
32	440					
+138.44	-3802.1					

Plate Center

A = 8 29 56.98

D = +15 26 18.5

$y-s$	$+500x$	-121.58	$+25x$	-51.92
$+1032 + 5486 = 6518$	$-1350 = 5168$	$+27 = 5195$		
$-0564 + 8837 = 8273$	$-3130 = 5143$	$+44 = 5187$		
$-4406 + 10034 = 5628$	$-490 = 5138$	$+50 = 5188$		
$-9556 + 16158 = 6602$	$-1487 = 5115$	$+81 = 5196$		
$20.4363 + 10218$	-2188	$+51 = 20.7252$		

$y-y$	$+500x$	$+1239x$	$+5.64$	-112.37
$+4270 + 5558 = 9828$	$+1359 = 11187$	$+62 = 11249$		
$-3990 + 12880 = 8890$	$+2190 = 11080$	$+145 = 11225$		
$+6699 + 2016 = 8715$	$+2487 = 11203$	$+23 = 11225$		
$+1055 + 6120 = 7175$	$+4004 = 11179$	$+69 = 11248$		
$18.0053 + 9003$	$+2532$	$+101 = 18.0452$		

Tables	$a = -1.0$	$e = -1.9$	$a-e = +0.9$	$h+d = -1.5$
Obs.	$a = -502.5$	-505.6	$+3.1$	-2.4
	-501.5	-503.7	$+2.2$	-0.9

4416

Plate Center + Constants

15"

17.6737	25.7594	8.27	38.54	16	29	40.6
22	18	+0.2	18.44	-0.1	03	22.1
+4.3263	-7.7594					
32	44.0					
138.44	-380.21					

Plate Center

A. 8 29 56.98

D. +15 26 18.5

1-S	+5.007	-121.53	+2.51	-51.92
+1032	+5.486	= 6.518	-135.0	= 51.68
+0564	+8.837	= 8.273	-31.30	= 51.43
-4406	+10.034	= 5.628	-49.0	= 51.38
95.58	+16.158	= 66.02	-1487	= 81.15
2043.63	+10.218	-2188	+51	= 20.7252

-3.15008	+123.98	+5.64	-112.37
+4270	+5.358	= 9.828	+135.9
-3990	+12.880	= 8.890	+219.0
+6699	+20.16	= 8.715	+248.7
-1055	+6.120	= 71.75	-400.4
18.0053	+9.003	+25.32	+101

2nd plus a = -1.0 E = -1.4 c-c = +0.9 h+d = -1.5
 cts. u = -502.5 -505.6 + 3.1 -2.4

14406

Moon Center

16

0 - c

1	20.4360	0.0000	-3	0.0000	3.4801	+	82
2	21.0000	+0.5640	-3	0.3178	3.4720	+	1
3	22.0000	+1.5640	-2	2.4455	3.4636	-	83
4	22.0034	+1.5674	-2	2.4561	3.4641	-	78
5	22.3006	+1.8646	-0	3.4767	3.4767	+	46
6	22.0128	+1.5768	+1	2.4866	3.4786	+	67
7	22.0000	+1.5640	+2	2.4467	3.4767	+	48
8	21.0000	+0.5640	+3	0.3184	3.4846	+	127
				139478	34719		

arc.

1	16.1386	-1.8654	-1	3.4801	1800
2	16.2281	-1.7759	-1	3.1542	162
3	16.9950	-1.0090	-0	1.0181	123
4	17.0000	-1.0040	-0	1.0080	122
5	18.0040	0.0000		0.0000	90
6	19.0000	+0.9960	+0	0.9920	58
7	19.0189	+1.0149	+0	1.0300	57
8	19.7830	+1.7793	+1	3.1662	180
				138486	Range 162

$$\begin{aligned}
 X &= 21 & y &= 16.2281 \\
 & & & 19.7830 \\
 & & & 36.0111 \\
 & & y_0 & 18.0055 \\
 & & y_{\min} & 16.1386 \\
 & & R & 1.8669 \\
 & & \cos R & 1.8633
 \end{aligned}$$

$$\begin{aligned}
 X_{\max} & 22.3006 \\
 X_0 & 20.4337
 \end{aligned}$$

Moon Center

$$X_0 = 20.4360$$

$$y_0 = 18.0040$$

14446

Moon Center

16

0 - C

1	20.4360	000000 - 3	0.00000	34801	+	82
2	21.0000	+05640 - 3	0.3178	34720	+	1
3	22.0000	+15640 - 2	2.4455	34636	-	8
4	22.0039	+1.5674 - 2	2.4561	34641	-	7
5	22.3006	+1.8646 - 0	34767	34767	+	4
6	22.0128	+1.5768 + 1	2.4866	34786	+	67
7	22.0000	+1.5640 + 2	2.4467	34767	+	48
8	21.0000	+05640 + 3	0.3189	34846	+	12
				34719		

are

1	16.1386	-1.8654 - 1	34801	1800
2	16.2281	-1.7759 - 1	3.1542	162
3	16.9950	-1.0090 - 0	1.0181	123
4	17.0000	-1.0140 - 0	1.0080	122
5	18.0040	0.0000	0.0000	90°
6	19.0000	+0.9960 + 0	0.9920	58
7	19.0189	+1.0189 + 0	1.0300	57
8	19.7830	+1.7793 + 1	3.1662	18°

Range 162

$$\begin{aligned}
 X &= 21 & y &= 16.2281 \\
 & & & 19.7830 \\
 & & & 36.0111 \\
 & & y_0 &= 18.0055 \\
 y_{\min} & & & 16.1386 \\
 R & & & 1.8669 \\
 \text{Corr } R & & & 1.8633
 \end{aligned}$$

$$\begin{aligned}
 X_{\max} &= 22.3006 \\
 X_0 &= 20.4337
 \end{aligned}$$

Moon Center

$$X_0 = 20.4360$$

$$y_0 = 18.0040$$

Formation of Normals.

1	- 0.0 0	+	0 0.0	-	153.2
2	- 1.0 0	+	0.6	-	1.8
3	- 1.5 7	-	129.2	+	83.9
4	- 1.5 7	-	122.2	+	78.0
5	0.0 0	+	85.5		0.0
6	+ 1.5 8	+	106.0	+	67.0
7	+ 1.5 7	+	75.4	+	48.5
8	+ 1.0 0	+	71.2	+	236.0
	<u>+ 4.1 5</u>		<u>+ 338.7</u>		<u>+ 503.4</u>
	<u>- 4.1 4</u>		<u>- 251.4</u>		<u>- 155.0</u>
	+ 0.0 1		+ 87.3		+ 348.4

14416

Conditional Equations

17

							0 - c
1	0.00	-1.87 = +82	+ 0	- 47 = - 47			+ 129
2	+0.56	-1.78 = + 1	+ 3	- 45 = - 42			+ 43
3	+4.56	-1.01 = - 83	+ 10	- 25 = - 15			- 68
4	+1.57	-1.00 = - 78	+ 10	- 25 = - 15			- 63
5	+1.86	0.00 = + 46	+ 12	0 = + 12			+ 34
6	+1.58	+1.00 = + 67	+ 10	+ 25 = + 35			+ 32
7	+1.56	+1.01 = + 48	+ 10	+ 25 = + 35			+ 13
8	+0.56	+1.78 = +127	+ 3	+ 45 = + 48			+ 79

+ 330 - 131
or 5-8

$$+ 13.95 + 0.01 = + 87.3$$

$$+ 0.01 + 13.85 = + 348.4$$

$$- 0.01 + 0.00 = 0.6$$

$$+ 1385 = + 348.4$$

$$t = + 25.2^{\circ}$$

$$+ 13.95 = + 87.3 - 0.2 = + 87.1$$

$$a = + 6.2^{\circ}$$

ARC 162

$$P_n = .23^{\circ}$$

$$\frac{\Sigma V}{n} = + 24.9^{\circ}$$

$$+ \frac{24.9}{23} = + 108^{\circ}$$

$$\Delta R = + 1.3^{\circ}$$

14416

Conditional Equations

1.

							0 - c
1	0 00	-1.87	= +82	+ 0	-47	= -47	+129
2	+0.56	-1.78	= +1	+ 3	-45	= -42	+43
2	+1.56	-1.01	= -83	+10	-25	= -15	-68
4	+1.57	-1.00	= -78	+10	-25	= -15	-63
5	+1.86	0 00	= +46	+12	0	+12	+34
6	+1.58	+1.00	= +67	+10	+25	= +35	+32
7	+1.56	+1.01	= +48	+10	+25	= +35	+13
8	+0.56	+1.78	= +127	+ 3	+45	= +48	+79

+330 - 131

$$+13.95 + 0.01 = +87.3$$

av 5-8

$$+ 0.01 + 13.85 = +348.4$$

$$- 0.01 + 0.00 = 0.6$$

$$+13.85 = +348.4$$

$$h = +25.2$$

$$+13.95 = +87.3 - 0.2 = +87.1$$

$$g = +6.2$$

ARC 162

$$\frac{P}{n} = 23$$

$$\frac{\Sigma K}{n} = +249$$

$$+ \frac{249}{23} = +10.8$$

$$\Delta R = +1.3$$

14416

Moon's Mean Position

18

$$\begin{array}{r} \lambda_0 \quad 20.4360^{\circ} \\ \quad \quad + 3 \\ \hline 20.4363 \end{array}$$

$$\begin{array}{r} \gamma_0 \quad 18.0040^{\circ} \\ \quad \quad + 13 \\ \hline 18.0053 \end{array}$$

From Plate Constants.

$$\begin{array}{r} 20.7252^{\circ} \\ 22. \\ \hline -1.2748^{\circ} \end{array}$$

$$\begin{array}{r} 18.0452^{\circ} \\ 18. \\ \hline +0.0452 \end{array}$$

$$\begin{array}{r} 0.10544^{\circ} \\ 9.98403^{\circ} \\ 8.50724 \\ 1.61417^{\circ} \end{array}$$

$$\begin{array}{r} 9.4415^{\circ} \\ 0.2109^{\circ} \\ 7.0534 \\ 6.7058^{\circ} \end{array}$$

$$-41.13^{\circ}$$

$$\begin{array}{r} \eta_1 + 0.0005 \\ \eta_0 + 0.0447^{\circ} \end{array}$$

$$A = 8 \quad 29 \quad 54.00^{\circ}$$

$$\alpha_0 = 8 \quad 29 \quad 15.87^{\circ}$$

$$\text{Red} \quad \quad \quad + 5.00^{\circ}$$

$$\alpha' = 8 \quad 29 \quad 20.87^{\circ}$$

$$\begin{array}{r} \log \eta_0 \quad 8.65031^{\circ} \\ \quad \quad 7.33115^{\circ} \\ \quad \quad 1.31916^{\circ} \end{array}$$

$$+ 2.09^{\circ}$$

$$\delta = +15 \quad 26 \quad 18.0^{\circ}$$

$$\delta_0 + 15 \quad 26 \quad 38.9^{\circ}$$

$$\text{Red} \quad \quad \quad - 17.0$$

$$\delta' + 15 \quad 26 \quad 21.9^{\circ}$$

14416

Moon's Mean Position

18

$$\begin{array}{r} \lambda_0 \quad 20\ 43\ 60 \\ \quad \quad + 3 \\ \hline 20\ 43\ 63 \end{array}$$

$$\begin{array}{r} \eta_0 \quad 18.0040 \\ \quad \quad + 1.3 \\ \hline 18.0053 \end{array}$$

From Plate Constants.

$$\begin{array}{r} 20.7252 \\ 22. \\ \hline -1.2148 \end{array}$$

$$18.0452$$

$$\begin{array}{r} 18. \\ \hline +0.0452 \end{array}$$

$$0.10544 \sim$$

$$998403$$

$$850724$$

$$1.61417 \sim$$

$$94415$$

$$02109$$

$$70534$$

$$6.7058$$

$$+ 41.13$$

$$\eta_1 + 0.0005$$

$$\eta_0 + 0.0447$$

$$A. \quad 8\ 29\ 57.00$$

$$\alpha_0 \quad 8\ 29\ 15.87$$

$$\text{Red} \quad + 5.00$$

$$\alpha' \quad 8\ 29\ 20.87$$

$$\log \eta_0 \quad 8.65031$$

$$7.33115$$

$$1.31916$$

$$+ 20.9$$

$$\oplus + 15^\circ \quad 26 \quad 18.0$$

$$\delta_0 + 15^\circ \quad 26 \quad 38.9$$

$$\text{Red} \quad - 17.0$$

$$\delta' + 15^\circ \quad 26 \quad 21.9$$

14416

Lunar Parallax.

19

$$\begin{array}{rcl}
 \alpha' & 8 & 29 & 20.87'' \\
 \theta & 10 & 25 & 39.90'' \\
 \theta - \alpha' & +1 & 56 & 19.03'' \\
 = & +29 & 04 & 45.45'' \\
 \frac{1}{2}\alpha\alpha' & & +10 & 17.50'' \\
 \theta - \alpha' - \frac{1}{2}\alpha\alpha' & 28 & 54 & 27.95'' \\
 & & & 9.95727 \\
 & & & 0.00000 \\
 & & & 0.05779'' \\
 & & & 0.01506''
 \end{array}$$

$$\begin{array}{rcl}
 \gamma & 45 & 59 & 36.0'' \\
 \delta' & 15 & 26 & 21.9'' \\
 \gamma - \delta' & 30 & 33 & 14.1'' \\
 & & & 9.82640 \\
 & & & 8.20457 \\
 & & & 9.70616'' \\
 & & & 0.14312'' \\
 & & & 7.88025''
 \end{array}$$

$$\delta - \delta' \quad +26 \quad 05.6''$$

$$\delta \quad +15 \quad 52 \quad 27.5''$$

$$\text{app } \delta \quad +15 \quad 52 \quad 31.4''$$

$$O-C \quad -3.9''$$

$$\text{curr.} \quad +0.3''$$

$$\text{2nd Aided Ref.} \quad 0.0$$

$$\delta + 15 \quad 52 \quad 27.8''$$

$$O-C \quad -3.6$$

$$\Pi \quad 5-5 \quad 03.8''$$

$$\begin{array}{r}
 9.86913 \\
 8.20457'' \\
 9.68665'' \\
 0.01689'' \\
 7.77724''
 \end{array}$$

$$\alpha - \alpha' \quad +20 \quad 35.0$$

$$= \quad +1 \quad 22.33$$

$$\alpha \quad 8 \quad 30 \quad 43.20''$$

$$\text{app } \alpha \quad 8 \quad 30 \quad 42.15''$$

$$O-C \quad +1.05''$$

$$\text{curr.} \quad +0.01''$$

$$\alpha - \delta \quad 30 \quad 43.21$$

$$O-C \quad +1.06$$

14918

Lunar Parallax

17

α 8 29 20.84
 δ 10 25 39.90
 $\delta - \lambda$ +1 56 19.03
 $=$ +29 04 45.75
 $1/\lambda$ +10 17.50
 $\delta - \lambda$ 28 54 29.95
 9.93727
 000000
 005779
 0.01506

γ 45 59 36.0
 δ 15 26 21.9
 $\gamma - \delta$ 30 33 14.1
 9.82640
 820457
 910616
 014312
 7.88025

$\delta - \delta'$ +26 056

δ +15 52 27.5

α/λ +15 52 31.4

$\delta - \alpha$ -3.9

curr +0.3

2nd Ord Ref 0.0

δ +15 52 27.8

$\delta - \alpha$ -3.6

π 55 03.8

9.86913

820457

958665

001689

7.77729

$\alpha - \alpha$ +20 35.0

$=$ +1 22.33

α 8 30 43.20

α/λ 8 30 42.15

$\delta - \alpha$ +1.05

curr +0.01

δ 8 30 43.21

$\delta - \alpha$ +1.06

1
1
11-
10
2
17
25
3
20
38
4
32
12
4
21
15
2
2
15

14417

Star Measures

21

1	16260	18448	16372	18780
11.0	15730	8988	798486	1715861
109	30	8084	88	64
	60	48	72	80
	<u>11.0530</u>	<u>11.0536</u>	<u>10.8386</u>	<u>10.8381</u>
2	19404	17050	18820	17282
17.6	1356670	12878	1322016	1288886
256	74	7476	12	84
	04	50	20	82
	<u>17.5834</u>	<u>17.5826</u>	<u>25.5604</u>	<u>25.5604</u>
3	18732	17410	19072	16330
20.3	1640812	972824	10462	14942
38	16	20	62	42
	32	10	72	30
	<u>20.2320</u>	<u>20.2314</u>	<u>3.8610</u>	<u>3.8612</u>
4	16144	19930	16648	18612
324	12310	13770	14532	1073536
122	10	70	32	3736
	44	30	48	12
	<u>32.3834</u>	<u>32.3840</u>	<u>12.2116</u>	<u>12.2124</u>

Moon

1	16612	16220
210	988884	12950
157	80	50
	12	20
	<u>15.6728</u>	<u>15.6730</u>
2	16080	16010
22	6330	15764
159	30	64
	80	10
	<u>15.9750</u>	<u>15.9754</u>

14417

Star Measures

21

L	16260	18448	16372	18780
11.0	15730	8988	798486	17158
108	30	8084	88	64
	60	48	72	80
	<u>11.0530</u>	<u>11.0536</u>	<u>10.8386</u>	<u>10.8381</u>
3	19404	17050	18820	17282
7.6	1356670	12878	1322016	1288886
25.6	74	7476	12	84
	04	50	20	82
	<u>17.5834</u>	<u>17.5826</u>	<u>25.5604</u>	<u>25.5604</u>
3	18732	17410	19072	16330
20.3	1640812	972824	10462	14942
58	16	20	62	42
	32	10	72	30
	<u>20.2320</u>	<u>20.2314</u>	<u>3.8610</u>	<u>3.8612</u>
4	16144	19930	16648	18612
324	12310	13770	14532	10735
12.2	10	70	32	37
	44	30	48	12
	<u>32.3834</u>	<u>32.3840</u>	<u>12.2116</u>	<u>12.2124</u>

mean

16612	16220
988884	12950
80	50
12	20
<u>15.6728</u>	<u>15.6730</u>
16080	16010
6330	15764
30	64
80	10
<u>15.9750</u>	<u>15.9754</u>

3
2
1

4
2
1

5
2
17

6
2
18

7
2
19

8
2
19

14417

3	16155	16552
22	15785	681216
16	85	20
	55	52
	<u>22.0370</u>	<u>22.0364</u>

4	16140	16578
228	8488	14228
17	88	28
	40	78
	<u>22.7652</u>	<u>22.7650</u>

5	17152	16584
228	8740	14992
17.5	40	92
	52	84
	<u>22.8412</u>	<u>22.8408</u>

6	17510	16270
22.7	968084	14098
18	88	98
	10	70
	<u>22.7826</u>	<u>22.7828</u>

7	16780	16288
227	15472	7592
19	72	92
	80	88
	<u>22.1308</u>	<u>22.1304</u>

8	18292	16484
22	17370	7408
19	70	08
	92	84
	<u>19.0922</u>	<u>19.0924</u>

14417

$$\begin{array}{r}
 3 \\
 \hline
 22 \quad 16 \ 1 \ 5 \ 5^- \quad 16 \ 5 \ 5 \ 2 \\
 16 \quad 15 \ 7 \ 8 \ 5^- \quad 6 \ 8 \ 1 \ 2 \ 16 \\
 \quad \quad 8 \ 5^- \quad \quad 20 \\
 \quad \quad 5 \ 5^- \quad \quad 5 \ 2 \\
 \hline
 22.0 \ 3 \ 70 \quad 22.0 \ 3 \ 64
 \end{array}$$

$$\begin{array}{r}
 4 \\
 \hline
 22.8 \quad 16 \ 1 \ 4 \ 0 \quad 16 \ 5 \ 7 \ 8 \\
 17. \quad 8 \ 4 \ 8 \ 8 \quad 14 \ 7 \ 2 \ 8 \\
 \quad \quad 8 \ 8 \quad \quad 2 \ 8 \\
 \quad \quad 40 \quad \quad 7 \ 8 \\
 \hline
 22.7 \ 6 \ 5 \ 2 \quad 22.7 \ 6 \ 5 \ 0
 \end{array}$$

$$\begin{array}{r}
 5 \\
 \hline
 22.8 \quad 17 \ 1 \ 5 \ 2 \quad 16 \ 5 \ 8 \ 4 \\
 17.5^- \quad 8 \ 7 \ 4 \ 0 \quad 14 \ 9 \ 4 \ 2 \\
 \quad \quad 40 \quad \quad 9 \ 2 \\
 \quad \quad 5 \ 2 \quad \quad 8 \ 4 \\
 \hline
 22.8 \ 4 \ 1 \ 2 \quad 22.8 \ 4 \ 0 \ 8
 \end{array}$$

$$\begin{array}{r}
 6 \\
 \hline
 22.7 \quad 17 \ 5 \ 1 \ 0 \quad 16 \ 2 \ 7 \ 0 \\
 18 \quad 9 \ 6 \ 8 \ 0 \ 8 \ 4 \quad 14 \ 0 \ 9 \ 8 \\
 \quad \quad 8 \ 8 \quad \quad 9 \ 8 \\
 \quad \quad 10 \quad \quad 70 \\
 \hline
 22.7 \ 8 \ 2 \ 6 \quad 22.7 \ 8 \ 2 \ 8
 \end{array}$$

$$\begin{array}{r}
 7 \\
 \hline
 22.7 \quad 16 \ 7 \ 8 \ 0 \quad 16 \ 2 \ 8 \ 8 \\
 19 \quad 15 \ 4 \ 7 \ 2 \quad 7 \ 5 \ 9 \ 2 \\
 \quad \quad 7 \ 2 \quad \quad 9 \ 2 \\
 \quad \quad 80 \quad \quad 8 \ 8 \\
 \hline
 22.1 \ 3 \ 0 \ 8 \quad 22.1 \ 3 \ 0 \ 4
 \end{array}$$

$$\begin{array}{r}
 8 \\
 \hline
 22 \quad 18 \ 2 \ 9 \ 2 \quad 16 \ 4 \ 8 \ 4 \\
 19 \quad 17 \ 3 \ 7 \ 0 \quad 7 \ 4 \ 0 \ 8 \\
 \quad \quad 70 \quad \quad 0 \ 8 \\
 \quad \quad 9 \ 2 \quad \quad 8 \ 4 \\
 \hline
 19.0 \ 9 \ 2 \ 2 \quad 19.0 \ 9 \ 2 \ 4
 \end{array}$$

11417

Times etc.

23

Date Dec. 2, 1917

Exp. & Stars.	10	31		10	43	
" " Moon	10	37	0 3.8	10	37	0 4.1
Clock slow		01	57.7			
H. Sid. Time	10	39	0 1.65			
" Long	4	44	31.85			
G. Sid. Time	15	23	32.70			
" " " M.N.	16	43	0 1.67			
Interval	22	40	31.03			
Red		03	42.89			
C. m. T.	22	36	48.14	22	61	33.7

From Naut. Alman.	R. A.	Dec.	
Moon 22 ^h 8	29	54.90	15° 5' 6" 18.2
Motion 1 ^m		2.0123	-9.667
" 36 ^m 80.23	01	14.06	05° 55' 8"
Tabular Place	8	31	08.96 15° 50' 22.4

Moon's age 18

$$934'' = 12.4''$$

$$a: -503.4$$

$$+ 24.0$$

$$- 479.4$$

Parallax	55-03.6
Semi-dia	15-01.7
R.	901.7
ang	11.6
2R 4	-04
R	912.9
R	1,956.9
2R	-93.8
0+4R	1,863.1
R 2	3.4712

11417

Times Etc.

23

Date Dec 2, 1917

Exp & Stars	10	31		10	43
" Moon	10	37	0 3 8	10	37 0 4 1
Clock slow		01	57.7		
		3	11.5		
H Sid Time	10	39	0 1.65		
" Low	4	44	31.15		+ 2 8"
C Sid Time	15	23	32 70		
" " M.N	16	43	0 1.67		
Interval	22	40	31.03		
Red		03	42.89		
C.M.T.	22	36	48.14	22	61 33 7

From Naut Alman.	R. A.	Dec.
Moon 22 ^h 8	29 59 90	15° 5' 6" 182
Motion 1 ^m	2.0123	-9.667
" 36 ^m 8023	01 14.06	05° 53' 8"
Latuloe Place	8 31 08 96	15° 50' 22 4

Moon age 18

$$934' = 12.4$$

$$a = -5^{\circ} 03.4$$

$$+ 24.0$$

$$- 479.4$$

Parallax	55 03.6
Semi-diam	15 01.7
R	901.7
ang	11.6
2R 4	- 04
R	912.9
R	1.9569
aR	-938
4+R	1.8631
R2	34712

11417

Plate Constants.

24.

X	11.0533	17.5830	20.2317	32.3837
Y	10.8680	17.7301	20.5082	33.2723
X-Y	+1.853	-1.471	-2.765	-8.886

η	10.8384	25.5604	3.8611	12.2120
η	10.6892	26.1584	3.3616	12.1337
$\eta - \eta$	+1.492	-5.980	+4.995	+0.783

$y-S$	$+5.00X$	$+1.88$	$+3.4X$	-7.432		
$+1.853$	$+5.527$	$= 7.380$	$+1.9$	$= 7.399$	$+3.8$	$= 7.437$
-1.471	$+8.792$	$= 7.321$	$+4.6$	$= 7.367$	$+6.0$	$= 7.427$
-2.765	$+1.0116$	$= 7.351$	$+7$	$= 7.358$	$+6.9$	$= 7.427$
-8.886	$+1.6192$	$= 7.306$	$+22$	$= 7.328$	$+11.0$	$= 7.438$
20.9792	$+10.490$	$+32$	$+71$	$= 21.2953$		

$y-z + 5.00z$	$+1.7x$	$+5.98$	-6.972
$+1.492 + 5.419 =$	$6.911 + 8 =$	$6.919 + 6.4 =$	6.983
$-5.980 + 1.2779 =$	$6.799 + 12 =$	$6.811 + 15.1 =$	6.962
$+4.995 + 1.930 =$	$6.925 + 14 =$	$6.939 + 23 =$	6.962
$+0.783 + 6.106 =$	$6.889 + 22 =$	$6.911 + 72 =$	6.983
$17.5345 + 8.767$	$+14$	$+103 =$	17.7257

Tables	a = -1.0	b = -2.0	a-c = +1.0	b+d = -1.8
Obs.	-5.03.4	-5.05.9	+2.5	-2.5
	-5.02.4	-5.03.9	+1.5	-0.7

11417

Plate Constants.

24.

X	11.0533	17.5830	20.2317	32.3837
Y	10.8680	17.7301	20.5082	33.2723
X-Y	+1.8553	-1.471	-2.765	-8.886

η	10.8384	25.5604	3.8611	12.2120
η	10.6892	26.1584	3.3616	12.1337
$\eta-\eta$	+1.492	-5.980	+4.995	+0.783

Y-S	+5.00X	+1.8y	+34X	-7432
-1.853 + 5.527	=	7380 + 19	=	7399 + 38 = 7437
1.471 + 8.792	=	7321 + 46	=	7367 + 60 = 7427
-2.765 + 10.116	=	7351 + 7	=	7358 + 69 = 7427
-8.886 + 16.192	=	7306 + 22	=	7328 + 110 = 7438
20.9792 + 10480		+32		+71 = 21,2953

$\eta-\eta$ + 5.00y		+1.71		+5.9y	-6972
+1.492 + 5.419	=	6911 + 8	=	6919 + 64	= 6983
-5.980 + 12.779	=	6789 + 12	=	6811 + 151	= 6962
+4.995 + 19.30	=	6925 + 14	=	6939 + 23	= 6962
+0.783 + 6.106	=	6889 + 22	=	6911 + 72	= 6983
17.5345 + 8767		+14		+103	= 17,7257

Tables	a = -1.0	b = -2.0	a-b = +1.0	L+d = -1.8
Obs.	-5.034	-5.059	+2.5	-2.5

14417

Moon Center

25

 ΔX

1	21.0000	+0.0210	-3	0.0004	3.4681	-	31
2	22.0000	+1.0210	-2	1.0418	3.4751	+	39
3	22.0367	+1.0577	-3	1.1194	3.4759	+	47
4	22.7651	+1.7861	-1	3.1898	3.4760	+	48
5	22.8410	+1.8620	0	3.4670	3.4670	-	42
6	22.7827	+1.8037	+1	3.2537	3.4699	-	13
7	22.1306	+1.1516	+2	1.3266	3.4728	+	16
8	22.0000	+1.0210	+3	1.0430	3.4685	-	27

 R^2 3.4712

44417

 Δy

1	15.6729	-1.8621	-1	3.4677
2	15.9752	-1.5598	-1	2.9333
3	16.0000	-1.3330	-1	2.3565
4	17.0000	-0.5350	-0	0.2862
5	17.5350	0.0000	0	0.0000
6	18.0000	+0.4650	+0	0.2162
7	19.0000	+1.4650	+0	2.1462
8	19.0923	+1.5573	+1	2.4255

arc

180°

147

145

107

90°

76

38

33

Range 147

 $x = 22$ $y = 15.9752$

19.0923

35.0675

 y_0

17.5338

 y_{max}

15.6729

 R

1.8609

Corr R

1.8631

 x_{max}

22.8410

 x_0

20.9801

Moon Center

 x_0 20.9790 y_0 17.5350

14417

Moon Center

23-

 ΔX

1	21.0000	+0.0210	-3	0000.4	3.4681	-	3
2	22.0000	+1.0210	-3	40418	3.4751	+	3
3	22.0367	+1.0577	-3	1.1194	3.4759	+	4
4	22.7651	+1.7861	-1	31898	3.4760	+	4
5	22.8410	+1.8620	0	34670	3.4670	-	4
6	22.7827	+1.8037	+1	32537	3.4699	-	1
7	22.1306	+1.1516	+2	1.3266	3.4728	+	1
8	22.0000	+1.0210	+3	1.0430	3.4685	-	2

R = 3.4712

 Δy

arc

1	15.6729	-1.8621	-1	34677	120°
2	15.9752	-1.5598	-1	2.9333	147
3	16.0000	-1.3330	-1	23565	145
4	17.0000	-0.5350	0	02862	107
5	17.5350	0.0000	0	00000	90°
6	18.0000	+0.4650	+0	02162	78
7	19.0000	+1.4650	+0	2.1462	38
8	19.0928	+1.5573	+1	2.4255	33

Range 147

$$x = 22 \quad y = 15.9752$$

$$19.0923$$

$$350675$$

$$y_0 = 17.5338$$

$$y_{max} = 15.6729$$

$$R = 1.8609$$

$$\text{Corr } R = 1.8631$$

$$x_{max} = 22.8410$$

$$x_0 = 20.9801$$

Moon Center

$$x_0 = 20.9790$$

$$y_0 = 17.5350$$

1	- 0.04
2	- 1.59
3	- 1.63
4	- 0.97
5	0.00
6	+ 0.85
7	+ 1.69
8	+ 1.59
	+ 4.13
	- 4.23
	- 0.10

-	0.6
+	39.8
+	49.8
+	86.0
-	78.0
-	23.4
+	18.4
-	27.5
	+ 194.0
	- 129.5
	+ 64.5

+	57.7
-	60.8
-	72.5
-	25.9
	0.0
-	6.1
+	23.6
-	42.1
	+ 81.3
	- 217.4
	- 126.1

14417

Conditional Equations

26

								0-c
1	+0.02	-1.86	= -31	+	0	+17	= +17	-48
2	+1.02	-1.56	= +39	+	4	+15	= +19	+20
3	+1.06	-1.54	= +47	+	4	+14	= +18	+29
4	+1.79	-0.54	= +48	+	8	+5	= +13	+35
5	+1.86	0.00	= -42	+	8	0	= +8	-50
6	+1.80	+0.47	= -13	+	8	-4	= +4	-17
7	+1.15	+1.47	= +16	+	5	-14	= -9	+25
8	+1.02	+1.56	= -27	+	4	-15	= -11	-16
								+109 - 131

or 30

$$+1.444 - 0.10 = +64.5$$

$$-0.10 + 13.33 = -126.1$$

$$+(1) - 0.0 = +0.4$$

$$+13.33 = -125.7$$

$$A = -9.4^{\circ}$$

$$+1.444 = +64.5 - 0.9 = +63.6$$

$$a = +4.4^{\circ}$$

arc 147

$$\frac{p}{m} = .14^{\circ}$$

$$\frac{\Sigma v}{n} = -2.75^{\circ}$$

$$\frac{-2.75}{.14} = -19.7^{\circ}$$

$$\Delta R = -0.2^{\circ}$$

14417

Conditional Equations

26

							0-c
1	+0.02	-1.86	= -31	+	0	+17	= +17 - 48
2	+1.02	-1.56	= +39	+	9	+15	= +19 + 20
3	+1.06	-1.54	= +47	+	4	+14	= +18 + 29
4	+1.79	-0.54	= +48	+	8	+5	= +13 + 35
5	+1.86	0.00	= -42	+	8	0	= +8 - 50
6	+1.80	+0.47	= -13	+	8	-4	= +4 - 17
7	+1.15	+1.47	= +16	+	5	-14	= -9 + 25
8	+1.02	+1.56	= -27	+	9	-15	= -11 - 16
							+109 = 131

or 30

$$+1444 - 0.10 = +64.5$$

$$-0.10 + 13.33 = -126.1$$

$$+1 - 0.0 = +84$$

$$+1333 = -125.7$$

$$A = 94$$

$$+1444 = +64.5 - 0.9 = +636$$

$$9 = 74.4$$

arc 147

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

$$\frac{\Sigma v}{n} = -2.75$$

$$\frac{-2.75}{.19} = -14.7$$

$$\Delta R = -0.2$$

14417

Moon's Mean Position

27

$$\begin{array}{r} X_0 \quad 20.9790'' \\ \quad \quad + \quad 2 \\ \hline 20.9792'' \end{array}$$

$$\begin{array}{r} Y_0 \quad 17.5350'' \\ \quad \quad - \quad 5 \\ \hline 17.5345'' \end{array}$$

From Plate Constants

$$\begin{array}{r} 21.2953 \\ 22 \\ \hline -0.7047 \end{array}$$

$$\begin{array}{r} 17.7257 \\ 18 \\ \hline -0.2743 \end{array}$$

$$\begin{array}{r} 9.84800m \\ 9.98412'' \\ 8.50724'' \\ 1.35664m \\ \hline -22.73'' \end{array}$$

$$\begin{array}{r} 9.4400'' \\ 9.6960'' \\ 7.0534'' \\ 6.1894'' \end{array}$$

$$A \quad 8 \quad 29 \quad 57.00''$$

$$\begin{array}{r} m_1 + 0.0002'' \\ m_0 - 0.2745'' \end{array}$$

$$\alpha_0 \quad 8 \quad 29 \quad 34.27''$$

$$\begin{array}{r} 9.43854m \\ 7.33115'' \\ 2.10739'' \\ -1281'' \end{array}$$

$$\text{Red} \quad \quad \quad + 5.00''$$

$$\delta' \quad 8 \quad 29 \quad 39.27''$$

$$-0.2 \quad 08.1''$$

$$\theta = 15 \quad 26 \quad 18.0''$$

$$\delta_0 \quad 15 \quad 24 \quad 09.9''$$

$$\text{Red} \quad \quad \quad -17.0$$

$$\delta' \quad 15 \quad 23 \quad 52.9$$

14417

Moon's Mean Position

21

$$\begin{array}{r} X_0 \quad 209790 \\ \quad \quad \quad + \quad 2 \\ \hline 209792 \end{array}$$

$$\begin{array}{r} Y_0 \quad 17.5350 \\ \quad \quad \quad - \quad 5 \\ \hline 17.5345 \end{array}$$

From Plate Constants

$$\begin{array}{r} 21.2953 \\ 22. \\ \hline -0.1047 \end{array}$$

$$\begin{array}{r} 17.7257 \\ 18. \\ \hline -0.2743 \end{array}$$

$$\begin{array}{r} 9.84800 \\ 998412 \\ 850724 \\ 1.35669 \\ \hline -22.73 \end{array}$$

$$\begin{array}{r} 9.4400 \\ 9.6960 \\ 7.0534 \\ 6.1894 \end{array}$$

$$A \quad 8 \quad 29 \quad 57.00$$

$$\begin{array}{r} m. + \quad 00002 \\ n_0 - \quad 02745 \end{array}$$

$$\alpha_0 \quad 8 \quad 29 \quad 39.27$$

$$\begin{array}{r} 9.43854 \\ 7.33115 \\ 2.10739 \\ -1281 \end{array}$$

$$\text{Red} \quad \quad \quad + \quad 5 \quad 00$$

$$\delta' \quad 8 \quad 29 \quad 39.27$$

$$-0.2 \quad -08.1$$

$$D = 15 \quad 26 \quad 18.0$$

$$S_0 \quad 15 \quad 24 \quad 09.9$$

$$\text{Red} \quad \quad \quad -17.0$$

$$S' \quad 15 \quad 23 \quad 52.9$$

$$\begin{array}{r} 8 \quad 27 \quad 59.872 \\ \underline{34.709} \\ + 5.163 \\ \hline \end{array}$$

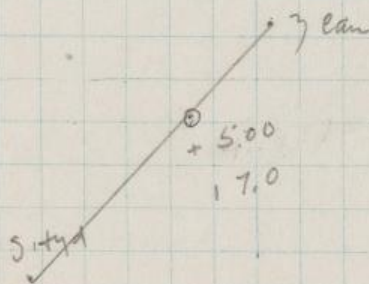
$$\begin{array}{r} 20 \quad 43 \quad 07.78 \\ \underline{26.13} \\ - 18.35 \\ \hline 1.35 \end{array}$$

$$\begin{array}{r} 8 \quad 33 \quad 20.537 \\ \underline{15.820} \\ + 4.717 \\ \hline 1.60 \end{array}$$

$$\begin{array}{r} 5 \quad 59 \quad 23.79 \\ \underline{38.31} \\ - 14.52 \\ \hline \end{array}$$

$$\begin{array}{r} + 5.163 \\ \underline{4.717} \\ 4.46 \end{array}$$

$$\begin{array}{r} = 18.35 \\ \underline{14.52} \\ 3.83 \end{array}$$



40 38 36 34 32 30 28 26 24 22 20 18 16

82

14417

Red. to app. Place

28

$H + \alpha_0$	9	40.6	145	9.0	δ_0	15"	24.3
H	1	11.0					
α_0	8	29.6			$\cos \delta_0$		9.9841
$G +$	23	59.6			$\log l'$	+	0.4286
$G + \alpha_0$	8	29.2	127°	18.0	$\log(l)$		0.4127

$\cos G + \alpha_0$	9.7825 ^m
$\sin G + \alpha_0$	1.3990
$\tan \delta_0$	9.9006
	9.4402
	8.8239

$\sin \delta_0$	9.4243
$\cos H + \alpha_0$	9.9142 ^m
$\tan$	1.3073
$\sin H + \alpha_0$	9.7570
$\sec \delta_0$	0.0159
	8.8239

g'	-	1.1815 ^m
g		9.5637

$\log l'$	0.6458 ^m
l	9.9041

f	+3830
g	+0366
h	+0802
Red.	+4.998

g'	-15.190
l'	4.424
l	+2.586
Red.	-17.028

14417

Red. to app. Place

28

$H + \alpha_0$	9	40.6	145°	90	δ_0	15°	24.3
H	1	11.0					
α_0	8	29.6			$\cos \delta_0$		99841
$C +$	23	59.6			$\log i$	+	04286
$G + \alpha_0$	8	29.2	127°	180	$\log(i)$		0.4127

$\cos G + \alpha_0$	97825~
$\sin G + \alpha_0$	13990
$\tan \delta_0$	99006
	94402
	88239

$\sin \delta_0$	94293
$\cos H + \alpha_0$	99142~
$\tan$	13073
$\sin H + \alpha_0$	97570
$\sec \delta_0$	00159
	88239

g'	- 1.1815~
g	9.5637

$\log L'$	0.6458~
L	9.9041

f	+ 38.30
g	+ 0366
L	+ 0802
Red.	+ 4.998

$g' + 15.190$	
$L' - 4.424$	
$L + 25.86$	
Red	-17.028

14417

Jupiter Parallax

29

α 8 29 39.27 ✓
 δ 10 39 01.65 ✓
 $\Delta \alpha$ +2 9 22.38 ✓
 $\Delta \delta$ +32 20 35.70 ✓
 $\frac{1}{2} \Delta \alpha$ +11 19.53 ✓
 $\Delta \alpha - \Delta \delta$ +32 09 16.17 ✓

Π 55 03.6 ✓
 9.86913
 820459 ✓
 9.72835 ✓
 0.01679 ✓
 7.81881 ✓

9.95727
 $\cos \frac{1}{2} \Delta \alpha$ 0.00000
 $\sec \Delta \alpha$ 0.07231
 $\tan \gamma$ 0.02958

$\alpha - \alpha'$ +22 39.06 ✓
 ϵ +1 30.60

γ 46 57 00
 δ' +15 23 52.9 ✓
 $\gamma - \delta'$ 31 33 07.1

9.82640
 $\sin \Pi$ 8.20954 ✓
 $\sin \gamma - \delta'$ 9.71872
 $\cos \gamma$ 0.13623 ✓
 $\sin \delta - \delta'$ 7.88589

$\delta - \delta'$ +26 26.0 ✓

δ +15 50 18.9 ✓ α 8 31 09.87 ✓
 $\gamma - \delta$ +15 50 22.4 ✓ $\gamma - \alpha$ 8 31 08.96 ✓

$\delta - \epsilon$ -3.5 ✓ $\delta - \alpha$ +0.91 ✓

corr. +0.3 ✓ corr. +0.01 ✓

2nd Cor. Ref. 0.0 δ 31 09.88

δ +15 50 19.2 +0.92

$\delta - \epsilon$ -3.2

α 8 29 39.28
 δ 10 39 01.65
 $\Delta\alpha$ +2 9 22.38
 $\Delta\delta$ +32 20 35.70
 $\frac{1}{2}\Delta\alpha$ +11 19.53
 $\Delta\alpha$ +32 09 16.47

π 55 03.6

9.86913

8.20459

9.72835

0.01679

7.81888

9.95727

$\cos \frac{1}{2}\Delta\alpha$ 0.00000

$\sin \Delta\alpha$ 0.07231

$\tan \gamma$ 0.02958

$\alpha - \alpha'$ +22 39.06

$\delta - \delta'$ +1 30.60

γ 46 57 0.0

δ' +15 23 52.9

$\gamma - \delta'$ 31 33 07.1

9.82690

$\sin \pi$ 8.20459

$\sin \gamma - \delta'$ 9.71872

$\cos \gamma$ 0.13625

$\sin \delta - \delta'$ 7.88588

$\delta - \delta'$ +26 26.0

δ +15 50 19.9

α 8 31 09.83

$\gamma - \delta$ +15 50 22.4

$\gamma - \alpha$ 8 31 08.96

$\delta - \alpha$ -3.5

$\delta - \alpha$ +0.81

$\cos \gamma$ +0.3

$\cos \gamma$ +0.01

$\sin \delta - \delta'$ 0.0

$\delta - \alpha$ 8 31 09.88

δ +15 50 19.2

+0.92

$\delta - \alpha$ -3.2

