

KG

11366

v.1037

CLXXXVI

186



13125

13173

13195

1
14
11
2
2
9
3
3
2
1
24
12
2
2
1
1
27
11

13125-	Star	Measure	Star	Measure	1,
d	d	d	d	d	
1 19450	20528	19220	19766		
17.6 126 9600	1769493	1287982	16094101		
11.7 19100	9293	87	108		
56	28	24	68		
14.7754	14.7165	11.6371	11.6333		

2 16057		18374	20189
25.1 14840	15342	1482927	13752
9.4 3638	42	25	52
	14111	86	97
25.1219	25.1231	9.3551	9.3559

3 15230	20294	20488	16232
33 15713834	19508	1126266	1633935
21.9 3034	08	7066	32
	306	91	
33.0096	21.9213	21.9225	33.0103

Moon Measures

1 19072	20086	19878	20046
26.7 111 1106	1802021	1190202	17992
13 0006	2221	02	92
79	92	88	54
26.7972	26.7934	26.7984	26.7944

2 16530	20058
27.0 1282027	1176257
15.1 34	5257
	61
15.1703	15.1696

3 20780	19600
27.4 1583736	1453030
16.0 38	30
90	10
27.4949	27.4925

13123-	Star	Measure	1	2
1	19850	20528	19120	19766
7.6	126 76 00	17694	12879	18094
1.7	09	9293	27	108
	56	28	24	68
	<u>14.7154</u>	<u>14.7165</u>	<u>11.6341</u>	<u>11.6333</u>

2	16057		18374	20189
15.1	14840	15342	14829	13752
9.4	3638	92	25	52
		14111	86	94
	<u>25.1219</u>	<u>25.1231</u>	<u>9.3551</u>	<u>9.3559</u>

3	15230	20294	20488	16232
33	154 28 34	19308	11262	16339
4.9	3034	087	7066	32
		15308	91	
	<u>33.0096</u>	<u>21.9213</u>	<u>21.9225</u>	<u>230103</u>

m

Star	Measure	1	2
1	19072	20086	19878
26.7	111 1106	18020	11902
15	00	2221	02
	79	92	88
	<u>26.7972</u>	<u>26.7934</u>	<u>26.7984</u>

2		16530	20058
27.0		14820	11762
5.1		34	52
			61
		<u>15.1703</u>	<u>15.1696</u>

2	20780	19600
7.4	15839	14530
16.0	38	30
	90	10
	<u>27.4949</u>	<u>27.4925</u>

5
2
1
5
2
1
6
2
18
2
1
+2
2
1

13125

Moon Measures

2

5	19790	20590
27.6	13918	16468
16.7	1215	68
+1	88	92
	<u>27.5877</u>	<u>27.5878</u>

5
27
18.1

18766	14806
18010	0209
12	

180455	14327
	<u>180477</u>

6
26
18.6

20630	18893
1462623	1491013
2023	1613
40	92
<u>186013</u>	<u>186021</u>

1
25.5
18.7
+4

19620	18880
13080	1571720
7879	26
20	89
<u>186571</u>	<u>186537</u>

8
23
18.6

19610	19870
13800	1566867
79095	66
11	78
<u>185816</u>	<u>185789</u>

13125

Moon Measures

2

9	19790	20590
27.6	13918	16468
16.9	1215	68
+1	88	96
	<u>27.5874</u>	<u>21.5898</u>

5
27
18.1

18766

18710

12

180455

20650

19626

2023

40

18.6013

19620

13080

7879

20

18.6541

19610

13800

79095

11

18.5816

19806

0209

14327

18.0477

18893

14910

1613

92

18.6021

18880

15714

2026

89

18.6537

19878

15668

6667

78

18.5489

6
26
18.6

1
25.5
18.7
+4

8
25
18.6

131255 *Diurnal* *etc*

3

Data Aug 5 '17

Exp. to stars	21	39	21	51
" " Moon	21	44	36.8	21 44 37.1
clock slow		0	14.0	

H. Sid Time	21	44	50.95	9-4 = - 1 ^h 5.2 ^m
H Long	4	44	31.05	
A Sid T.	26	29	22.00	
Sid T. M. H.	8	53	51.70	
Antenat	17	35	30.30	
Reduction		2	52.92	
9 M. T.	17	32	37.38	

From Naut. Alman.

R. A.

Dec

Moon - 17 ^h	23	35	29.02	+2	49	27.3
Moon in 1 ^m			2.2405			+ 15.456
32.6230		1	13.09	+8		24.2
Tabular Place	23	36	42.11	+2	57	51.5

Moon's

Age

18 days

Parallax

60 28.00

Semi-d

16 30.1

H

99 0.1

Aug.

12.1

2nd 5

- 0.3

R

1.0019

A

2.1477

aR

- 10.28

(1+a)/R

2.0449

R~

4.1816

93 42 10.8

a = -502.8

+24

-478.8

13125

Times Etc

3

Date Aug 5 '17

Exp. to stars	21	39		21	51
" " Moon	21	44	36.8	21	44 37.1
Clock slow		0	14.0		

H Sid Time	21	44	50.95	8-42-14	5.2"
H Long	4	44	31.05		
G Sid 1	26	29	22.00		
Sid 1 M H	8	53	51.70		
Interval	17	35	30.30		
Reduction		2	52.92		
G M. 1	17	22	37.38		

From Hunt alm.

R. A.

Dec

Moon - 17"	23	35	29.02	+2	49	27.3
Moon in 1"			2,2905			+15.756
" " 32.62138		1	13.09		+8	27.2
Jabular Place	23	36	42.11	+2	57	51.5

Moon's Age 18 days

Parallax	60	28.05
Semi-d	16	30.1
R		99 0.1
ang		12.1
hor 5		- 0.3
R		100 19
R ₁		2,1977
aR		- 1028
(1+a)/R		2,0449
R ₂		4,1816

$$93.4 = 10.8$$

$$a = -502.8$$

$$+29$$

$$-478.8$$

13125 Plate Constants

9

$$\begin{array}{rcl}
 x & 14.7159 & 25.1225 \\
 y & 14.0999 & 25.0112 \\
 x-y & +6210 & +1113 \\
 & & -3596
 \end{array}$$

$$\begin{array}{rcl}
 y & 11.6337 & 9.3555 \\
 x & 11.6339 & 9.1748 \\
 y-x & -2 & +1807 \\
 & & -8099
 \end{array}$$

$$\begin{array}{rcl}
 x-y & +500x & +59.1y & +2.8x & -19297 \\
 +6210 & +7358 & +13568 & +688 & +14254 + 91 = +19297 \\
 +1113 & +12561 & +13674 & +553 & +14227 + 70 = 97 \\
 -3596 & +16503 & +12909 & +1296 & +14205 + 92 = 97 \\
 25.5428 & +12771 & +982 & +71 & 25.4953
 \end{array}$$

$$\begin{array}{rcl}
 y-x & +500y & -63.1x & +5.6y & -4952 \\
 -2 & +5817 & +5815 & -929 & +7886 + 65 = +7951 \\
 +1807 & +8678 & +6485 & -1525 & +7900 + 52 = 4952 \\
 -8099 & +10961 & +6912 & -2085 & +7829 + 123 = 4952 \\
 16.6097 & +8305 & -1612 & +93 & 16.7931
 \end{array}$$

$$\begin{array}{rcl}
 \text{Tables} & a = -1.4 & e = -3.4 & a-e = +2.0 & b+d = +3.5 \\
 \text{Obs} & = -502.8 & = -505.6 & = +2.8 & = +8.0 \\
 & -501.4 & -502.2 & +0.8 & +0.5
 \end{array}$$

-7

13125 Plate Constants

9

λ	19.7159	25.1228	33.0099
γ	14.0999	25.0112	33.3695
$\lambda - \gamma$	+6210	+1113	-3596

η	11.6337	9.3555	21.9219
η	11.6339	9.1798	22.3268
$\eta - \lambda$	-2	+1807	-9099

$\lambda - \gamma$	+5001	+39.14	+2.81	-19297
+6210	+7358	=+13568	+685	=+14254
+1113	+12561	=13674	+553	=14227
-3596	+16505	=12909	+1296	=14205
25.5428	+12771	+982	+71	25.4953

$\eta - \lambda$	+5004	-63.11	+5.64	-4952
-2	+5817	=+5815	-929	=+7886
+1807	+7678	=6985	-1585	=7900
-9099	+10961	=6912	-2085	=7829
16.6097	+8305	-1612	+93	16.7931

Tables	$a = -1.4$	$e = -3.4$	$a - e = +2.0$	$b + d = +3.5$
(Obs)	$= -502.8$	$= -505.6$	$= +2.8$	$= +9.0$

13125

Approx Center

5

X	$X - X_0$	ΔX	$(X - X_0)^2$	$(X - X_0) \cdot (Y - Y_0)$	$D - C$
1 26.7958	+1.2538	+4	1.5730	4.1593	-2.23
2 27.0000	+1.4580	+3	2.1267	4.1951	+1.35
3 27.4937	+1.9517	+1	3.8095	4.1793	-2.3
4 27.5876	+2.0456	0	4.1849	4.1844	+2.8
5 27.0000	+1.4580	-3	2.1249	4.1950	+1.34
6 26.0000	+0.4580	-3	0.2093	4.1849	+3.3
7 25.5420	0.0000	-3	0.0000	4.1869	+3.3
8 25.0000	-0.5420	-3	0.2943	4.1850	+3.7

 $R = 4.1816$

Y	$Y - Y_0$	ΔY	$(Y - Y_0)^2$	$\angle$	$\checkmark$
1 15.0000	-1.6080	-2	2.5863	14.2	
2 15.1700	-1.4380	-2	2.0684	13.5	
3 16.0000	-0.6080	-1	0.3698	10.7	
4 16.6080	0.0000	0	0.0000	9.0	
5 18.0466	+1.4386	+2	2.0701	7.5	
6 18.6017	+1.9937	+2	3.9756	13	
7 18.6539	+2.0459	+3	4.1869	0	
8 18.5802	+1.9722	+3	3.8907	34.5	

157

Approx Center

$$X = 27 \quad Y = 15.1700$$

$$18.0466$$

$$33.2166$$

$$Y_0 = 16.6083$$

$$Y_{max} = 18.6539$$

$$R = 2.0456$$

$$2.0449$$

$$X_{max} = 27.5876$$

$$X_0 = 25.5420$$

$$\begin{cases} X_0 & 25.5420 \\ Y_0 & 16.6080 \end{cases}$$

$$A = -2.3$$

$$B = +1.3$$

13125

Moon's Center

5

$-X$	$X - X_0$	ΔX	$(X - X_0)^2$	$(X - X_0) \tilde{y} / (y - y_0)$	$\tilde{y} - y_0$
1 26.7958	+1.2538	+4	1.5730	4.1593	-2.23
2 27.0000	+1.4580	+3	2.1267	4.1961	+1.35
3 27.4937	+1.9517	+1	3.8095	4.1793	- .23
4 27.5876	+2.0456	0	4.1849	4.1844	+ .28
5 27.0000	+1.4580	-3	2.1299	4.1950	+1.39
6 26.0000	+0.4580	-5	0.2093	4.1849	+ .33
7 25.5920	0.0000	-5	0.0000	4.1869	+ .53
8 25.0000	-0.5920	-5	0.2943	4.1852	+ .39

$$R = 4.1816$$

y	$y - y_0$	Δy	$(y - y_0)^2$	L
1 15.0000	-1.6080	-2	2.5863	14.2
2 15.1700	-1.4380	-2	2.0684	13.5
3 16.0000	-0.6080	-1	0.3698	10.5
4 16.6080	0.0000	0	0.0000	9.0
5 18.0466	+1.4386	+2	2.0701	9.5
6 18.6017	+1.9937	+2	3.9756	13
7 +18.6539	+2.0459	+3	4.1869	0
8 18.5802	+1.9722	+3	3.8907	39.5

Approx Center

$$X = 27$$

$$y = 15.1700$$

$$18.0466$$

$$33.2166$$

$$y_0 = 16.6080$$

$$y_{max} = 18.6539$$

$$R = 2.0456$$

$$2.0799$$

$$X_{max} = 27.5876$$

$$X_0 = 25.5920$$

$$\begin{cases} X_0 & 25.5920 \\ y_0 & 16.6080 \end{cases}$$

$$A = -2.3$$

$$B = +1.3$$

Formation of Normals

1	-201	-278.5	+35.9
2	-210	+197.0	-197.5
3	-119	-95.0	+17.0
4	0	+37.0	0
5	+210	+196.0	+193.0
6	+091	+15.0	+63.5
7	+00	+0.0	+108.5
8	-106	-18.5	+67.0
	+301	+465.0	+807.0
	-636	-342.0	-197.5
	-335	+123.0	+612.5

121205

Conditional Equations

D-C 6

1 + 1.25	- 1.61	= -22.3	+ 21	- 56	= -35	-188
2 + 1.46	- 1.44	= +13.5	+ 25	- 51	= -26	+171
3 + 1.95	- 0.61	= -23	+ 33	- 21	= +12	-35
4 + 2.04	0.00	= +28	+ 37	0	= +34	-6
5 + 1.46	+ 1.44	= +13.4	+ 24	+ 51	= +75	+59
6 + 0.76	+ 1.99	= +1.33	+ 8	+ 70	= +78	-95
7 + 0.00	+ 2.05	= +5.3	0	+ 72	= +72	-19
8 - 0.54	+ 1.97	= +3.7	- 9	+ 69	= +60	-26

+230

$$14.32 - 3.35 = +123.0$$

-319

$$-3.35 + 19.14 = +612.5$$

$$+ [] - .48 = +28.8$$

$$+18.36 = +641.3$$

$$b = +35.5$$

$$14.32 = +123 + 117.2 = +240.2$$

$$a = +16.8$$

arc 157

$$\frac{F}{m} = 20^\circ$$

$$\frac{S.V.}{m} = -11.1^\circ$$

$$\frac{-11.1}{20} = -55.5^\circ$$

$$\Delta R = -0.7^\circ$$

13125

Conditional Equations

U-C 6

1	+ 1.25	- 1.61	= -223	+ 21	- 56	= -35	-188
2	+ 1.96	- 1.99	= +135	+ 25	- 51	= -36	+171
3	+ 1.95	- 0.61	= -23	+ 33	- 21	= +12	-35
4	+ 2.04	0.00	= +28	+ 39	0	= +39	-6
5	+ 1.96	+ 1.99	= +139	+ 29	+ 51	= +75	+59
6	+ 0.96	+ 1.99	= +33	+ 8	+ 70	= +78	-95
7	+ 0.00	+ 2.05	= +53	0	+ 72	= +72	-19
8	- 0.59	+ 1.97	= +39	- 9	+ 69	= +60	-26

$$19.32 - 3.35 = +123.0$$

$$-3.35 + 19.19 = +612.5$$

$$+ [] - 78 = +28.8$$

$$+18.36 = +641.3$$

$$b = +35.$$

$$19.32 = +123 + 117.2 = +290.2$$

$$a = +16.8$$

arc 157

$$\frac{P}{m} = +2.01$$

$$\frac{E-V}{m} = -11.1$$

$$\frac{-11.1}{.20} = -55.5$$

$$\Delta R = -0.7$$

13125- Moon's Mean Position

$$\begin{aligned} X_0 & 25.5420'' \\ & + 8'' \\ & 25.5428'' \end{aligned}$$

$$\begin{aligned} Y_0 & 16.6080'' \\ & + 17'' \\ & 16.6097'' \end{aligned}$$

From Plate Constants

$$X_2 25.4955''$$

$$Y_2 16.7931''$$

$$Z_2 +3.4955''$$

$$Z_2 -7.2069''$$

$$\log \gamma 0.54351''$$

$$\log \tan \delta 8.6038''$$

$$\cos \delta 99.9965''$$

$$\gamma -1.0870''$$

$$8.50727''$$

$$7.0537''$$

$$2.03662''$$

$$6.7742''$$

d-A

$$108.80''$$

$$h_1 +0006''$$

$$A 23 36 15.00''$$

$$h_0 -1.2045''$$

$$q_0 23 38 03.80''$$

$$\log h 00.08189''$$

$$7.33115''$$

Red

$$+3.89''$$

$$2.75074'' -543.3''$$

$$q 1.23 38 7.69''$$

$$S-D - 9 23.3''$$

$$D +2 28 00.8''$$

$$S_0 +2 18 36.7''$$

Red

$$+29.0''$$

$$S' +2 19 00.7''$$

13125- Moon's Mean Position

7

$$\begin{array}{r} x_0 \quad 25.5420 \\ \quad + 8 \\ \hline 25.5428 \end{array}$$

$$\begin{array}{r} y_0 \quad 16.6080 \\ \quad + 17 \\ \hline 16.6097 \end{array}$$

From Plate Constants

$$x_0 \quad 25.4955$$

$$y_0 \quad 16.7931$$

$$z \quad +3.4955$$

$$h \quad -1.2069$$

$$\begin{array}{r} \log z \quad 0.54351 \\ \text{csc } z \quad 99.9965 \\ \hline 85.0729 \\ \hline 2.03662 \end{array}$$

$$\begin{array}{r} \log \tan \delta \quad 8.6038 \\ \quad + 1.0870 \\ \hline 7.0539 \\ \hline 6.7442 \end{array}$$

$$x - A \quad 1.0880$$

$$h \quad +.0006$$

$$A \quad 23 \quad 36 \quad 15.00$$

$$h_0 \quad -1.2075$$

$$x_0 \quad 23 \quad 38 \quad 03.80$$

$$\log h \quad 0.08189 \quad h$$

$$7.33115$$

$$\text{Red} \quad +3.89$$

$$2.75074 \quad h - 5.63.3$$

$$x \quad 1.23 \quad 38 \quad 7.69$$

$$\delta - D \quad - \quad 9 \quad 23.3$$

$$D \quad +2 \quad 28 \quad 00.0$$

$$\delta_0 + 2 \quad 18 \quad 36.7$$

$$\text{Red} \quad +24.0$$

$$\delta' + 2 \quad 19 \quad 00.7$$

13126-

Lunar

Parallax

8

α' 23 38 7.69^v
 δ 21 44 50.95^v
 $\delta - \alpha'$ -1 53 16.74^v
 $=$ -28 29 11.10^v
 $\frac{1}{2}(\delta - \alpha')$ -10 38.77^v
 $\frac{2}{2}$ -28 08 38.33

π 60 28 05^v
 $\frac{1}{2}(\delta - \alpha')$ -1 53 16.74^v
 $=$ -28 29 11.10^v
 $\frac{1}{2}(\delta - \alpha')$ -10 38.77^v
 $\frac{2}{2}$ -28 08 38.33

9.95727^v
 0.00000^v
 0.05867^v
 0.01491^v

$\delta - \alpha'$ -21 15.56^v
 $=$ -1 25.07^v

δ 45 49 07.2^v

δ +2 19 00.9^v

$\delta - \alpha'$ 43 28 06.5^v

9.82680^v
 8.24573^v
 9.83756^v
 0.17465^v
 8.05708^v

$\delta - \alpha'$ 38 56.0^v

δ +2 57 56.7^v

Eph δ +2 57 51.3^v

$\delta - \alpha'$ +5.2

curr. 0.0^v

2nd Cond. Ref. -0.0

α 23 36 42.65^v

Eph α 23 36 42.11^v

$\delta - \alpha$ +0.57^v

curr. -0.04^v

α 23 36 42.61

$\delta - \alpha$ +0.50

13125

Lunar Parallax

8

α' 23 38 7.69
 δ 21 49 20.93
 $\delta - \alpha'$ -1 53 16.79
 $= -28$ 28 11.10
 $\frac{1}{2}(\delta - \alpha')$ -10 37.77
 $\frac{2}{2} -28$ 08 33.93

π 60 28.05
 "

9.86913
 8.29592
 9.67073
 0.00058
 7.79126

9.95727
 0.00000
 0.03868
 0.01488

$\delta - \alpha'$ -21 20.53

$= -1$ 25.04

δ 45 49 00.8

$\delta + 2$ 19 00.9

$\delta - \delta$ 43 27 58.3

9.82670
 8.29592
 9.83755
 0.17466
 8.05403

$\delta - \delta'$ 38 55.9

$\delta + 2$ 57 56.8

Eph $\delta + 2$ 57 51.3

$\delta - C$ 414.1

Curr. 0.0

2nd Ord Ref -0.0

α 23 36 42.83

Eph α 23 36 42.16

$\delta - C$ 410.59

Curr. -0.04

α 23 36 42.61

$\delta - C$ 410.50

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13143

Star Measures

9

	d	x	n	d	y	z
1	29420		19350	20010		19972
20.4	15990		13080	13108		16853
21.7	89		7879	0406		5855
	26		30	07		40
	<u>203732</u>		<u>203749</u>	<u>216900</u>		<u>216917</u>
3	19660		20770	16740		
34.3	17428		12990	16708		14450
19.9	2627		8688	08		4648
	50		40			14932
	<u>34.2231</u>		<u>34.2241</u>	<u>140032</u>		<u>14.0016</u>
4	19730		20350	19774		20392
34.8	11782	83	18280	13857	50	16302
29.7	87		7879	76		29297
	10		12	62		62
	<u>34.7932</u>		<u>34.7937</u>	<u>29.5917</u>		<u>29.5919</u>

Moon Measures

1				20033		19290
25				10289		19017
13.9				9190		1012
				32		82
				<u>13.9772</u>		<u>13.9723</u>
2	14067					
26.1	13812	800	14111	15		
17	788		21			
			13862			
	<u>25.0264</u>		<u>25.0265</u>			
3	20426		20410			
25.7	13567		17267	66		
15	6062		68			
	18		400			
	<u>25.6858</u>		<u>25.6859</u>			

13193		Star Measures		P	
$\frac{1}{d}$	$\frac{x}{d}$	$\frac{1}{d}$	$\frac{y}{d}$	$\frac{1}{d}$	$\frac{y}{d}$
1	197.20	19350	20010	19972	
20.4	15990	13080	13108	16853	
21.7	89	7879	0406	5855	
	28	30	08	40	
	<u>203732</u>	<u>20.3749</u>	<u>21.6900</u>	<u>21.6917</u>	
3	19660	20770	16740		
34.3	17428	12990	16708	14950	
A.P.	2627	8638	08	4618	
	50	40		14932	
	<u>34.2231</u>	<u>34.2291</u>	<u>14.0032</u>	<u>14.0016</u>	
4	19730	20350	19774	20392	
34.6	11788	18280	13859	16302	
29.7	89	7879	4650	29297	
	10	12	62	62	
	<u>34.7932</u>	<u>34.7937</u>	<u>29.5917</u>	<u>29.5919</u>	

Moon Measures

$\frac{1}{d}$					
25			20033	19290	
139			10289	19019	
			9190	1012	
			32	82	
			<u>13.9792</u>	<u>13.9723</u>	
2	14064				
25.1	13812	14111			
17	788	21			
		13862			
	<u>25.0264</u>	<u>25.0258</u>			
3	20926	20410			
25.7	13567	17267			
15	6062	68			
	18	400			
	<u>25.6858</u>	<u>25.6859</u>			

4
2
1
3
2
1
6
2
1
7
2
2
1
8
2
1
1
1

Moon Measures

10

4	20421	20392
25.8	128.38	12962
15.5	3235	7066
+X	16	91
	<u>25.7582</u>	<u>25.7577</u>

5	19412	19977
25.7	123.9895	1700999
16	92	16994
	02	9867
	<u>25.7010</u>	<u>25.7028</u>

6	16750	19184
25.0	1583733	10120
17.1	32	18
		72
	<u>17.0917</u>	<u>17.0938</u>

7	20238	20181
24.0	1513935	1528039
17.2	3135	3839
	38	48
	<u>17.5103</u>	<u>17.5095</u>

8	19241	20180
23.8	13964	15408
17.6	64	08
+4	32	20
	<u>17.5272</u>	<u>17.5268</u>

9
2
1
+
5
2
1
6
2
1
7
2
11
8
2
11
+

Miron Measures

10

<u>9</u>	20.421	20.392
25.8	128.38	17962
15.5	3235	7066
+X	16	91
	<u>25.7582</u>	<u>25.7579</u>

<u>5</u>	19412	19979
25.7	1239895	1700999
16	92	16994
	02	9868
	<u>25.7010</u>	<u>25.7028</u>

<u>6</u>	16750	19174
25.0	1583933	10120
17.1	32	18
	-	72
	<u>17.0919</u>	<u>17.0938</u>

<u>7</u>	20238	20141
29.0	1513935	152903
17.5	3135	38
	38	48
	<u>17.5103</u>	<u>17.5095</u>

<u>8</u>	19241	20170
23.8	13964	15408
17.6	64	08
+4	32	20
	<u>17.5272</u>	<u>17.5268</u>

13143

Times Etc.

11

Late Aug 7

Exp. to stars

23

18

23

30

" Moon

23

23

45.4"

23

23

75.6"

Clock slow

0

15.7"

H. Sid Time

23

24

01.2"

4-4 - - 2" 03"

H. Long

4

44

31.05"

G. Sid 7

28

08

32.25"

Sid J.M.W.

9

01

47.81"

External

19

06

47.44"

Reduction

3

7.87"

G.M.T.

19

03

39.57"

From Naut Alm.

R. A.

Dec.

Moon 19"

1

27

18.00"

+17

33

32.7"

Moon in 1"

2,2522

+

" 3.6595"

8,29"

44.5"

Tabular Place

1

27

26.29"

+17

34

17.2"

- Moon's Age 20 days

Perallap 58 50.83"

Sunid 16 03.6"

H. 96.3.6"

Aug. 13.1"

Gr. 6 - 0.7"

R 97.6.3"

R 2.0928"

all - 1003"

(1+a)/R 19925"

R 37690"

3.9700"

937 - 12.3"

a - 503.3"

+ 27

- 479.3"

131 4 3 Times Etc

Date Aug 7

Exp. to stars 23 18 23 30

" Moon 23 23 45.4" 23 23 45.6"

Clock slow 0 15.7"

H sid time 23 29 01.7 8-1-2" 0.2

H long 9 49 31.05"

G sid 7 28 08 32.25"

sid 1 M.H. 9 01 49.81"

Internal 19 06 44.44

Reduction 3 57.87

G.M.T. 18 03 39.57

From Naut Alman. R. A. Dec.

Moon 19" 1 29 18.00 +19 30 32.7

Motion in 1^h 2,252.2

" " 3.6595" 8.29 44.5"

Tabular place 1 29 26.29 +19 34 17.2"

Moon's Age 20 days

Parallax 58 52.83

Semi-d 16 03.2"

H. 963.6

Aug. 13.

Dist 6 - 0.

R 976.3

R 2092.8

aR -1003

(1+a)/R 1992.5

R - 39690

937 - 12.3"

a = 503.3

+ 29

- 479.3

S_0	η_0	ΔS	-5.35	-2.87	$+3$
-1.79	$+3.91$	-1	$+9 = +8$	$-11 = -3$	
$+12.75$	-4.22	$+53$	$-68 = -15$	$+12 = -3$	
$+13.35$	$+12.15$	$+102$	$-71 = +31$	$-34 = -3$	
$M + 1.76$	-2.56		-9	$+7 = +1$	$= +0.00^v$

	-7.07	-2.55	$+22$
$\Delta \eta$			
$+2$	$-28 = -26$	$+4 = -22$	
-20	$+30 = +10$	$-32 = -22$	
$+95$	$-85 = +10$	$-33 = -23$	
$+18$		$-4 = +36 = +1.8^v$	

13173

Standard Deviation

12

Cape No	207	Mag	3.8	Cape No	231	Mag	6.9	Cape No	232	Mag	6.1
C	1	26	07.87	1	33	53.83		1	37	17.02	
L			7.87			53.83				17.07	
L	1902.9		7.86		1905.3	83		1902.3		16.98	
Mean	1	26	07.87	1	33	53.83		1	37	17.01	
Prec			54.78			54.55				54.89	
X	1	27	02.35	1	37	48.38		1	35	11.90	
A	1	28	00.0	1	28	00.0		1	28	00.0	
A-A	-		57.65	+	6	48.38		+	07	11.90	
Sum (A-A)	-		57.65	+		408.32		+		431.83	
log u	1	76	08.07	2	61	10.0		2	63	53.1	
log v	9	98	51.1	9	98	7.15		9	98	28.8	
log w	0	25	31.57	1	10	33.9		1	12	54.3	
log z	-1	79	12	+12	78	65		+	13	37	84
log y	-1			+	55			+	102		
log x	20	20	87	37	75	20		35	35	86	
log y	20	37	70	37	22	36		37	79	35	
log z	+	16	53	-	52	87		-	56	51	
C	+17	49	49.3	+13	46	41.0		+15	53	54.8	
L			48.9			41.7				54.1	
C			48.8			40.7				54.1	
Mean	17	49	49.0	+13	46	40.9		15	53	54.3	
Prec	+	5	16.7	+	5	17.9		+	5	11.9	
L	17	55	05.7	+13	51	52.8		15	59	06.2	
D	17	24	40	17	27	40		17	27	40	
A-A	+	30	25.7	-	32	47.2		+	1	37	26.2
Sum (A-A)	+		1825.7	-		1967.3		+		5667.6	
log u	3	26	17.3	3	29	38.7		3	75	37.1	
log v	0	59	25.8	0	62	50.2		1	08	45.6	
log w	9	42	56	9	39	2.4		9	45	71	
log x	0	50	63	2	21	08		2	25	09	
log y	6	98	53	8	65	66		8	76	14	
log z	+	39	13.6	-	42	17.2		+	12	18	94
log y	+	00	40	+	04	53		+	05	77	
log x	21	91	46	13	82	81		30	20	71	
log y	21	69	07	17	00	27		29	59	18	
log z	-	22	39	+	17	73		-	61	53	

Standard Coordinates

	Cape H 207 mag 3.5	Cape H 231 mag 6.9	Cape H 232 mag 6.1
C	1 26 07.87	1 33 53.83	1 37 17.02
L	7.87	53.83	17.07
E	7.86	53.83	16.98
Mean	1 26 07.87	1 33 53.83	1 37 17.01
Dec	59.48	59.55	59.89
x	1 27 02.35	1 37 48.38	1 35 11.90
H	1 28 00.0	1 28 00.0	1 28 00.0
H-A	- 57.65	+ 6 48.38	+ 07 11.90
tan(H-A)	- 57.65	+ 20.8326	+ 7.31.83
log "	1.760809	2.81190	2.63531
" cos	9.98511	9.98715	9.98288
" sin	0.253154	0.10438	1.12543
z ₀	-1.7912	+1278.65	+13.3784
z ₁	-1	+55	+102
z	20.2087	37.7620	35.3586
A	20.3790	37.2236	37.1938
X-7	+1653	-5287	-3651
C	+17 99 99.3	+13 96 91.0	+15 53 59.8
L	98.9	91.9	59.1
E	98.8	90.8	59.1
Mean	17 99 99.0	+13 96 90.9	15 53 59.3
Dec	+5 16.7	+5 11.9	+5 11.9
s	17 55 05.7	13 51 52.8	15 59 06.2
D	17 29 90	17 29 90	17 29 90
S-D	+30 257	-32 972	+1 39 262
tan(S-D)	+1825.7	-1967.3	+5667.6
log "	3.26193	3.293874	3.75391
H ₀	0.59258	0.625024	1.08456
log tan	9.9256	9.3724	9.9571
" z ₀	0.5063	2.2108	2.2509
" z ₁	6.9853	8.6566	8.7614
H ₀	+3.9136	-42172	+12.1799
H ₁	+0040	+04256	+0577
H	21.9176	13.8289	30.2071
y	21.6907	17.0029	29.5918
y-H	-2239	+1793	-6153

13/13

Plate Center & Constants

13

X	Y	S	S
26.3740	21.6957		
39.2236	14.0024	1	39 48.4 13" 51 53
39.7930	29.5918		
		- 6	51.0 + 32 70
- 12.2236	+ 3.9976		
33.6	490"	1	27 57.4 17 27 33
411.0	1960"		

Center { 1 27 60.0
14 24 40.0

$$\begin{aligned}
 X-3 & + 500X & + 5.14 & + 33X & - 12012 \\
 + 165.3 + 1018.2 & = + 11835 - 110 & = + 11945 + 87 & 12012 & 0 \\
 - 528.9 + 1711.2 & = 11828 + 71 & = 11899 + 113 & 12012 & 0 \\
 - 565.1 + 1739.7 & = 11746 + 151 & = 11897 + 145 & 12012 & 0 \\
 23.7633 & + 11882 & + 79 & + 78 & 23.7660
 \end{aligned}$$

$$\begin{aligned}
 Y-11 & + 500Y & - 6.24 & + 6.74 & - 8625 \\
 - 2239 + 10845 & = + 8606 - 126 & = + 8780 + 145 & + 8625 & 0 \\
 + 1743 + 7001 & = + 8744 - 212 & = + 8532 + 99 & 8626 & + 1 \\
 - 6153 + 14796 & = + 8643 - 216 & = + 8427 + 198 & 8625 & 0 \\
 15.5341 & + 7767 & - 197 & + 107 & 15.4470
 \end{aligned}$$

$$\begin{aligned}
 \text{Tables } a & = -1.4 & e & = -2.4 & a-c & = +1.0 & b+d & = +1.7 \\
 \text{Obs } & = -503.3 & & = -506.7 & & = +3.7 & & = +1.1 \\
 & - 501.9 & & 524.3 & & + 2.4 & & - 0.6
 \end{aligned}$$

-1.9

Plate Center + Constants

α	γ	δ	ϵ
20.3790	21.6907		
39.2236	19.0029	1 34 48.4	13" 51 53
39.7935	29.5918		
		- 6 51.0	+ 32 70
- 12.2236	+ 3.9976		
33.6	490"	1 27 57.4	14 29 33
911.0	1960"		

Center { 1 27 57.4
14 29 33.

$$\begin{aligned}
 &X-3 \quad +500X \quad +57.4 \quad +3.3X \quad -1201 \\
 &+165.3 + 1018.2 = +1183.5 + 110 = +1194.5 + 107 = 1201.2 \\
 &-528.9 + 1711.2 = 1182.3 + 71 = 1189.4 + 113 = 1201.2 \\
 &-56.51 + 1739.7 = 1179.6 + 151 = 1189.7 + 113 = 1201.2 \\
 &23.7633 + 1188.2 + 79 = 1189.7 + 113 = 1201.2 \\
 &23.7633 + 1188.2 + 79 = 1189.7 + 113 = 1201.2
 \end{aligned}$$

$$\begin{aligned}
 &Y-11 \quad +500Y \quad -6.2X \quad +6.7Y \quad -8625 \\
 &-2239 + 10895 = +8606 - 126 = +8780 + 175 = +8625.0 \\
 &+1793 + 7001 = +8794 - 202 = +8592 + 99 = 8625 + 1 \\
 &-6153 + 14796 = +8643 - 216 = +8727 + 198 = 8625.0 \\
 &15.5391 + 7767 = -197 = +109 = 15.4420
 \end{aligned}$$

$a = -1.4$ $e = -2.4$ $a-c = +1.0$ $b+d = +1.7$
 Obs $= -503.3$ $= -506.7$ $= +3.7$ $= +1.1$

13/9/3

Moor's Center

17

	X	$X - X_0$	$2X$	$(X - X_0)^2$	$(X - X_0) + (Y - Y_0)^2$	$O - C$
1	25 00 00	+1 23 60	+3	1 5284	3 9614	-131
2	25 02 58	-1 26 18	+3	1 5929	3 9433	-315
3	25 08 58	-1 21 18	+1	3 6937	3 9748	+34
4	25 15 78	-1 99 38	0	3 9752	3 9752	+4
5	25 17 01 9	-1 93 79	-1	3 7550	3 9731	-17
6	25 00 00	-1 23 60	-3	1 5269	3 9599	-149
7	24 00 00	+0 23 60	-3	0 5555	3 9640	-108
8	23 76 40	-0 00 00	-3	0 0000	3 9764	+16

$R = (3.97748)$
 3.9700 Covid

	Y	$Y - Y_0$	$4Y$	$(Y - Y_0)^2$	
1	13 97 32	-15 598	-1	24333	142
2	14 00 00	-13 330	-1	23504	140
3	15 00 00	-0 330	0	02841	105
4	15 53 30	0 0000	0	00000	90
5	16 00 00	+0 670	+0	02181	76
6	17 09 27	+15 597	+1	24330	38
7	17 50 99	+19 769	+1	39085	4
8	17 52 70	+19 940	+1	39764	0

142

Approx Center

 $X = 25$ $Y = 13.9732$

17.0927

31.0659

 $Y_0 = 15.5329$ $Y_{max} = 17.5270$ $R = 1.9941$

14.937

 $Y_{max} = 25.7578$ $X_0 = 23.7637$

Center $\{ X_0 = 23.7640$
 $Y_0 = 15.5330$

 $A = -1.7$ $B = +.6$

1
2
3
4
5
6
7
8

13193

Moons Center

17

	X	$X - X_0$	ΔX	$(X - X_0)^2$	$(X - X_0) + (Y - Y_0)^2$	O.C
1	25.0000	+1.2360	+3	1.5289	3.9617	-131
2	25.0258	+1.2618	+3	1.5929	3.9433	-315
3	25.6858	+1.9218	+1	3.6937	3.9778	+34
4	25.7578	+1.9938	0	3.9752	3.9752	+4
5	25.7019	+1.9379	-1	3.7550	3.9731	-17
6	25.0000	+1.2360	-3	1.5269	3.9599	-199
7	29.0000	+0.2360	-3	0.0555	3.9640	-108
8	23.7690	-0.0000	-3	0.0000	3.9764	+16

R (3.9778)

3.9700. Cloud

	Y	$Y - Y_0$	ΔY	$(Y - Y_0)^2$	
1	13.9732	-15.598	-1	243.33	142
2	14.0000	-15.330	-1	235.09	140
3	15.0000	-0.330	0	0.2891	105
4	15.5330	0.0000	0	0.0000	90
5	16.0000	+0.670	+0	0.2181	76
6	17.0927	+15.597	+1	243.30	38
7	17.5099	+19.769	+1	390.85	7
8	17.5270	+19.740	+1	3.9764	0

Approx Center

$$X = 25 \quad Y = 13.9732$$

$$17.0927$$

$$31.0659$$

$$Y_0 = 15.5329$$

$$Y_{max} = 17.5270$$

$$R = 1.9941$$

$$1.1737$$

$$Y_{min} = 25.7578$$

$$X_0 = 23.7637$$

$$\text{Center} \begin{cases} X_0 & 23.7690 \\ Y_0 & 15.5330 \end{cases}$$

$$A = -1.7$$

$$B = +.6$$

Formation of Normals

1	- 193	- 162.5	+ 204.0
2	- 193	- 396.5	+ 482.0
3	- 102	+ 65.0	- 18.0
4	0	+ 80	0
5	+ 091	- 33.0	- 8.0
6	+ 193	- 185.0	- 232.5
7	+ 048	- 20.0	- 214.0
8	0	+ 0	+ 32.0
	+ 332	+ 73.0	+ 718.0
	- 488	- 803.0	- 473.5
	- 156	- 730.0	+ 243.5
		+ 472.0	+ 114.2
		- 258.0	+ 359.7

1314.3

Conditional Equations

+48

15

0-0

0-5

1	+ 1.24	- 1.56	= -131	- 35	+ 15	= -40	- 61	= 13
2	+ 1.26	- 1.53	= -315	- 56	+ 17	= -73	- 142	= 94
3	+ 1.92	- 0.53	= +38	- 85	+ 6	= -91	+ 125	= +173
4	+ 1.99	0.00	= +4	- 88	0	= -88	+ 92	= +140
5	+ 1.94	+ 0.97	= -17	- 86	+ 5	= -81	+ 68	= +112
6	+ 1.24	+ 1.56	= -189	- 55	+ 18	= -37	- 112	= -64
7	+ 0.24	+ 1.98	= -108	- 11	+ 22	= +11	- 97	= -49
8	0.00	+ 1.99	= +16	0	+ 23	= +23	- 7	= +41
+ 983 + 2.38								

$$+16.12 - 1.56 = -258.0$$

$$+281 + 446$$

$$-419 - 220$$

$$-1.56 + 15.60 = +359.7$$

E.P.

$$+1.3 - 0.15 = -25.0$$

$$+ 15.75 = +334.7$$

$$b = +21.7$$

$$+16.12 = -258.0 + 33.8 = -224.2$$

$$a = -13.9$$

Arc 142.

$$R = .11^{\circ}$$

$$\frac{\Sigma r}{n} = +31.3$$

$$\frac{+31}{.11} = +280$$

$$\Delta R = + 3.5$$

13143

Conditional Equations

+48

$\begin{matrix} & & 15^\circ \\ 0 - P & & 0 - E \end{matrix}$

[illegible]

$$+16.12 - 1.56 = -258.0$$

$$-1.56 + 15.60 = +359.7$$

$$+ [J] = 0.15 \div - 25.0$$

$$+ 15.95 = +334.7 + 361.2 \text{ lb} = + 21.7 - 25.9$$

$$+116,12 = -258,0 + 33,8 = -224,2 \quad -a = -13,9 - 1,5$$

Ans 1 & 2

11

$$\frac{2}{3} \cdot 37.3$$

$$\begin{array}{r} + 1313 \\ \hline 2807 \end{array}$$

$$\Delta R = + 3.5^\circ$$

13178

Mars's Mean Position

16

$$\begin{array}{r} x_0 \ 23.7640 \\ - \ 7 \\ \hline 23.7633 \end{array}$$

$$\begin{array}{r} y_0 \ 15.5330 \\ + 11 \\ \hline 15.5341 \end{array}$$

From Plate Constants

$$\begin{array}{r} x = 23.7694 \\ 23.7660 \text{ corr'd} \\ y + 1.7684 \end{array}$$

$$\begin{array}{r} y = 15.2935 \\ 15.2770 \text{ corr'd} \\ n - 2.5565 \end{array}$$

$$\begin{array}{r} \log q \ 0.24660 \\ \log 8998676 \\ 8.50727 \\ 1.75260 \end{array}$$

$$\begin{array}{r} \log \tan \delta \ .94000 \\ 2.2 \ 0.4932 \\ 7.0539 \\ \hline 6.9466 \end{array}$$

$$q - A \quad 56.57$$

$$A \quad 1 \ 28 \ 00.00$$

$$q_0 \quad 1 \ 28 \ 56.57$$

$$\text{Red} \quad + \ 3.51$$

$$q' \quad 1 \ 29 \ 00.08$$

$$\text{Corr from P13} \quad + .05$$

$$1 \ 29 \ 00.13$$

$$\begin{array}{r} n \ +.0009 \\ n_0 - 2.5574 \end{array}$$

$$\begin{array}{r} \log \mu_0 \ 0.40780 \\ 7.33115 \\ 3.07665 \end{array}$$

$$z - D \quad - 19 \ 53.0$$

$$D + 17 \ 27 \ 40.0$$

$$z_0 + 17 \ 09 \ 47.0$$

$$\text{Red} \quad + 19.7$$

$$\begin{array}{r} z_1 + 17 \ 05 \ 06.7 \\ + .2 \end{array}$$

$$+ 17 \ 05 \ 06.9$$

13195-

Moon's Mean Position

16

$$\begin{array}{r}
 X_0 \ 23.7690 \\
 - \ 7 \ - \ 7 \\
 \hline
 23.7633 \\
 23.7636
 \end{array}$$

$$\begin{array}{r}
 Y_0 \ 15.5330 \\
 +11 \ +12 \\
 \hline
 15.5341 \\
 15.5342
 \end{array}$$

From Plate Constants

$$\begin{array}{r}
 x = 23.7694 \\
 23.7660 \text{ corr't'd} \\
 y + 1.7689
 \end{array}$$

$$\begin{array}{r}
 y = 15.5333 \\
 15.5370 \text{ corr't'd} \\
 y - 2.5565
 \end{array}$$

$$\begin{array}{r}
 \log z \ 0.29660 \\
 \dots \cos 8998676 \\
 8.50727 \\
 1.75260
 \end{array}$$

$$\begin{array}{r}
 \log \tan \delta \ 9.4000 \\
 z = 0.7932 \\
 7.0539 \\
 \hline
 6.9466
 \end{array}$$

$$\begin{array}{r}
 q - A \ 56.57 \\
 A \ 1 \ 28 \ 00.00
 \end{array}$$

$$\begin{array}{r}
 n. + 0.0009 \\
 110 - 2.5574 n
 \end{array}$$

$$\begin{array}{r}
 X_0 \ 1 \ 28 \ 56.57 \\
 Red + 3.51
 \end{array}$$

$$\begin{array}{r}
 \log \mu \ 0.70780 \\
 7.33115 \\
 3.07665 n - 1193.0
 \end{array}$$

$$q' \ 1 \ 29 \ 00.08$$

$$\delta - D \ -19 \ 53.0$$

$$\text{Corr from p13} \ +0.6$$

$$D + 17 \ 27 \ 40.0$$

$$1 \ 29 \ 00.13$$

$$20 \ 119 \ 09 \ 47.0$$

$$\text{Red} \ +19.7$$

$$\delta' + 17 \ 05 \ 06.7 \\
+ .2$$

$$+ 17 \ 05 \ 06.8$$

$$\begin{array}{r}
 1 \quad 09 \quad 24.16 \\
 \quad 23.60 \\
 \hline
 + 3.56
 \end{array}$$

$$\begin{array}{r}
 +7 \quad 08 \quad 34.7 \\
 \quad 12.7 \\
 \hline
 + 22.3
 \end{array}$$

$$\begin{array}{r}
 1 \quad 27 \quad 5.88 \\
 \quad 2.34 \\
 \hline
 + 3.54
 \end{array}$$

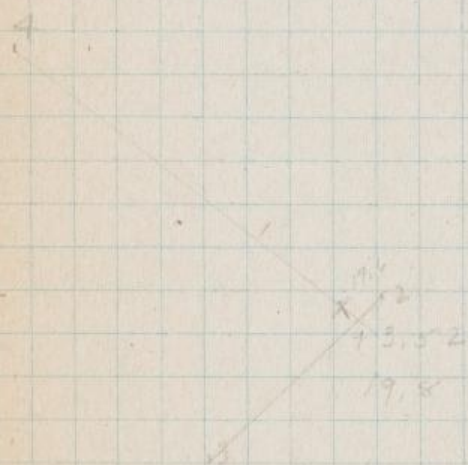
$$\begin{array}{r}
 17 \quad 55 \quad 26.8 \\
 \quad 6.1 \\
 \hline
 + 19.3
 \end{array}$$

$$\begin{array}{r}
 1 \quad 37 \quad 10.03 \\
 \quad 6.62 \\
 \hline
 + 3.41
 \end{array}$$

$$\begin{array}{r}
 +5 \quad 7 \quad 27.2 \\
 \quad 4.9 \\
 \hline
 + 22.3
 \end{array}$$

$$\begin{array}{r}
 1 \quad 18 \quad 24.39 \\
 \quad 20.75 \\
 \hline
 + 3.64
 \end{array}$$

$$\begin{array}{r}
 +29 \quad 10 \quad 43.7 \\
 \quad 30.1 \\
 \hline
 + 13.6
 \end{array}$$



30

25

20

15

10

5

0

4

40 35 30 25 20 15 10 5 0

13193⁺ Reduction to Apparent Place

17

$$= 159^{\circ} 33.0$$

$$H+K 10 \quad 38.2$$

$$H \quad 9 \quad 09.3$$

$$K \quad 1 \quad 28.9$$

$$C \quad 23 \quad 71.4$$

$$G+K \quad 1 \quad 00.6$$

$$= 15^{\circ} 09.0$$

$$\log \cos(G+K) 9.9846$$

$$q \quad 1.2851$$

$$\sin \quad 9.4172$$

$$\cos \quad 9.3997$$

$$8.8239$$

$$\log q' \quad 1.2697$$

$$q \quad 8.9256$$

$$p + 2.955$$

$$q + 0.085$$

$$h + 0.772$$

$$+ 3.512$$

$$\sin 7' 17 \quad 23^h$$

$$+ 19 \quad 07.8$$

$$\log \cos 9.9867$$

$$h + 7.616$$

$$0.7483$$

$$\log \sin 9.3861$$

$$\sin(H+K) 9.9717n$$

$$h \quad 1.2931$$

$$\sin(H+K) 9.5433$$

$$\sec 0.0133$$

$$8.8239$$

$$\log h' \quad 0.6509n$$

$$h \quad 9.6736$$

$$q' + 18.61$$

$$h' - 4.776$$

$$+ 5.601$$

$$19.735$$

13193⁻ Reduction to Apparent Place

17

$$= 139^{\circ} 33.0$$

$$H + 10 \quad 38.2$$

$$H \quad 9 \quad 09.3$$

$$\delta \quad 1 \quad 28.9$$

$$C \quad 23 \quad 91.7$$

$$C + \delta \quad 1 \quad 00.6$$

$$= 15^{\circ} 09.0$$

$$\log \cos(C + \delta) \quad 9.9896$$

$$q \quad 1.2851$$

$$\text{" Sum " } \quad 9.4172$$

$$\text{" Hurd " } \quad 9.3997$$

$$8.8229$$

$$\log q' \quad 1.2697$$

$$\text{" } \quad 8.9256$$

$$f + 2.955$$

$$g + 0.085$$

$$h + 0.772$$

$$+ 3.512$$

$$\log \cos \delta \quad 9.9867$$

$$L + 7.616$$

$$0.7483$$

$$\log \sin \delta \quad 9.3861$$

$$\text{" } \cos(H + \delta) \quad 9.9717$$

$$\text{" } L \quad 1.2931$$

$$\text{" Sum (H + \delta) } \quad 9.5433$$

$$\text{" Secd } \quad 0.0133$$

$$8.8239$$

$$\log h' \quad 0.6509$$

$$\text{" } \quad 9.6736$$

$$g' + 18.61$$

$$h' - 4.776$$

$$L + 5.601$$

$$28.735$$

13143

Lunar

Parallax

18

α^1 1 29 00.13^v
 β 23 29 01.20^v
 $\delta - \alpha^1 - 2$ 07 58.93^v
 $= - 31$ 17 49.95^v
 $\gamma(1 - \delta^1)$ -11 39.82^v
 δ 31 0.3 04.13^v

π 58 50.83^v
 γ 86 9.13^v
 δ 23 334^v
 γ 71 49.2^v
0.01420^v
 7.837159

9.95727^v
 0.00000^v
 0.06717^v
 0.02444^v

$\delta - \alpha^1 - 23$ 19.64

$= - 1$ 33.31

δ 46 36 40.8^v

$\delta + 14$ 05 06.9^v

$\delta - \beta$ 32 31 33.9^v

9.82640^v
 8.23334^v
 9.73052^v
 0.13864^v
 7.92890^v

$\delta - \alpha^1$ + 29 11.2^v

δ 14 34 18.1^v

Eph δ + 14 34 17.2^v

O-C + 0.9^v

curr. + 1.5^v

2nd Aid. Ry 0.0

$\delta - \alpha$ 14 34 19.6

O-C + 2.4

α 1 27 26.82^v

Eph α 1 27 26.24^v

O-C + 0.58^v

curr. 0.00^v

13143

Lunar

Parallax

18

$\alpha' 1 29 00.43''$
 $\delta 23 29 01.20''$
 $\theta - 1' - 2 0'' 58.83''$
 $= -31 19 48.25''$
 $\frac{1}{2} (1 - \alpha') - 11 39.98''$
 $\alpha 31 0.3 09.113''$

$\pi 58 53.83''$
 $9.86913''$
 $8.23334''$
 $9.71492''$
 $0.01420''$
 $778.37604''$

$9.95727''$
 $0.00000''$
 $0.06717''$
 $0.02444''$

$\alpha - \alpha' 231 197.68''$
 $= 11 33.331''$

$\delta + 6 36 40.8''$

$\delta + 19 05 06.9''$

$\delta - 232 31 33.9''$

$9.82670''$
 $8.23334''$
 $9.73052''$
 $0.13864''$
 $77.922962960''$

$\alpha - \alpha' + 29 111.2''$

$\delta 19 39 118.1''$

Eph $\delta + 114 242 117.2''$

O-C $+ 0.9''$

Curr. $+ 1.5''$

2nd Ord Ry. 00

$\delta = 14 34 19.6''$

O-C $+ 2.4''$

$\alpha 1 27 268.12''$

Eph $\alpha 1 2275 26.24''$

O-C $+ 0.578''$

Curr 000

13145

Star Measurements

19

	d	x	d	x	d	x	d	x
1	20207		20162		19528		19520	
19.3	17742		12610		13939		15076	
20.7	42		12		3456		4877	
	189		40		20		498	
	<u>19,2461</u>		<u>19,2467</u>		<u>20,5585</u>		<u>20,5567</u>	
2	14462		15932		19473		19088	
33.0	14201		16176		12040		16511	
12.7	30		76		5045		10	
					54		78	
	<u>33,0232</u>		<u>23,0244</u>		<u>12,7415</u>		<u>12,7425</u>	
3	19840		19898		19579		20066	
33.6	12488		17188		16320		13282	
28.4	4049		6466		24		82	
	18		744		52		36	
	<u>33,7381</u>		<u>33,7384</u>		<u>28,3245</u>		<u>28,3237</u>	

Moon Measurements

1	19808		20320	
25.6	13098		16682	
14	9094		9694	
	76		298	
	<u>25,6395</u>		<u>25,6383</u>	
2	13990		14	
26.1	13382		90	
13	82		14590	
			13988	
	<u>26,0608</u>		<u>26,0602</u>	
3	14003		13982	
26.1	13250		14724	
15.1	50		3027	
+x				
	<u>26,0453</u>		<u>26,0445</u>	

13195 ⁺		Stars Measured		19	
d		d		d	
1	20207	20162	19522	19520	
19.3	17742	12610.1	13939	15076	77
20.7	42	12	3456	9877	
	189	40	20	498	
	<u>19,2461</u>	<u>19,2467</u>	<u>20,5585</u>	<u>20,5567</u>	
2	14462	15932	19473	19088	
330	14231	16176	12040	16511	
12.4	30	76	5045	10	
			59	78	
	<u>33,0232</u>	<u>23,0244</u>	<u>12,7415</u>	<u>12,7425</u>	
3	19840	19898	19574	20066	
33.6	12988	17188	16320	13282	
28.4	4049	6766	24	82	
	18	744	52	36	
	<u>33,7381</u>	<u>33,7387</u>	<u>28,3245</u>	<u>28,3231</u>	

		Moon Measurements	
1	19808	20320	
25.6	13348	16682	99
14	9099	9699	
	76	298	
	<u>25,6395</u>	<u>25,6383</u>	
2	13990	14	
26.1	13382	90	
15	82	14590	
		13988	
	<u>26,0608</u>	<u>26,0602</u>	
3	14003	13982	
26.1	13250	14724	27
15.1	50	3027	
+X	<u>26,0753</u>	<u>26,0745</u>	

$$\begin{array}{r}
 8 \\
 25.9 \\
 16 \\
 \hline
 20092 \\
 10789 \\
 8085 \\
 60 \\
 \hline
 25,9278
 \end{array}
 \qquad
 \begin{array}{r}
 19249 \\
 12530 \\
 30 \\
 22 \\
 \hline
 25,9289
 \end{array}$$

$$\begin{array}{r}
 5 \\
 25.1 \\
 17 \\
 \hline
 14314 \\
 13960 \\
 7065 \\
 \hline
 250349
 \end{array}
 \qquad
 \begin{array}{r}
 14979 \\
 15212 \\
 1815 \\
 \hline
 25,0236
 \end{array}
 \qquad
 \begin{array}{r}
 14360 \\
 14077 \\
 5966 \\
 \hline
 25,0294
 \end{array}
 \qquad
 \begin{array}{r}
 13382 \\
 13818 \\
 18 \\
 \hline
 25,0236
 \end{array}$$

$$\begin{array}{r}
 6 \\
 25 \\
 17.1 \\
 \hline
 15272 \\
 15408 \\
 08 \\
 \hline
 17,0164
 \end{array}
 \qquad
 \begin{array}{r}
 15359 \\
 15522 \\
 2624 \\
 \hline
 17,0165
 \end{array}$$

$$\begin{array}{r}
 7 \\
 25.1 \\
 17.2 \\
 44 \\
 \hline
 15314 \\
 12926 \\
 08 \\
 \hline
 17,2397
 \end{array}
 \qquad
 \begin{array}{r}
 20232 \\
 12627 \\
 1710 \\
 18 \\
 \hline
 17,2395
 \end{array}$$

$$\begin{array}{r}
 8 \\
 24 \\
 17.1 \\
 \hline
 18030 \\
 15922 \\
 30 \\
 24 \\
 \hline
 17,2398
 \end{array}
 \qquad
 \begin{array}{r}
 20262 \\
 12626 \\
 2320 \\
 48 \\
 \hline
 17,2372
 \end{array}$$

$$\begin{array}{r}
 4 \quad 20092 \quad 19299 \\
 15.9 \quad 10789 \quad 18530 \\
 16 \quad 8085 \quad 30 \\
 \quad 60 \quad 22 \\
 \hline
 25.9278 \quad 25.9289
 \end{array}$$

$$\begin{array}{r}
 5 \quad 14314 \quad 14979 \quad 14360 \quad 13582 \\
 25.1 \quad 13960 \quad 15212 \quad 14074 \quad 13818 \\
 17 \quad 7065 \quad 1815 \quad 3966 \quad 18 \\
 \hline
 25.0349 \quad 25.0236 \quad 25.0284 \quad 25.0234
 \end{array}$$

$$\begin{array}{r}
 6 \quad 15272 \quad 15359 \\
 25 \quad 15108 \quad 15528 \\
 17.1 \quad 08 \quad 262
 \end{array}$$

$$\begin{array}{r}
 17.0164 \quad 17.0165
 \end{array}$$

$$\begin{array}{r}
 7 \quad 15314 \quad 20232 \\
 29.1 \quad 12926 \quad 126271 \\
 17.2 \quad 08 \quad 10 \\
 + \gamma \quad 18 \\
 \hline
 17.2397 \quad 17.2395
 \end{array}$$

$$\begin{array}{r}
 8 \quad 18330 \quad 20262 \\
 24 \quad 15932 \quad 126262 \\
 17.1 \quad 30 \quad 20 \\
 \quad 27 \quad 48 \\
 \hline
 17.2398 \quad 17.2372
 \end{array}$$

13145- *James* *Eto* 21
 Date Aug 7
 Exp. writers 23 48 0 00
 " " When 23 55 59.2 23 55 59.7
 Clock slow 0 15.7

H. Sid Time 23 56 15.0 8-9 = -14 32
 H. Long 7 44 31.05
 G. Sid T. 7 40 46.05
 Sid T. Mean 9 01 44.81
 External 19 39 01.24
 Reduction 3 13.15
 G.M.T. 19 35 48.09

From Mount Alon
 Moon 194 1 24 18.00 +14 33 32.7
 Motion w.l. 2.2526 12.125
 " 35.8015 1 20.65 +7 14.1
 Tabular Place 1 28 38.65 +14 40 46.8

Moore's *Acc* 20 days

Tabular 58 49.65
 Summed 16 03.3
 H 9633
 Aug 13.8
 R 6 -0.4
 12 976.7
 12 2.0937
 all -10.04
 12/11 1.9933
 H 2 3.9734

$$93.7 = 13$$

$$\begin{aligned} 9 &= 503.6 \\ + 24 \\ - 479.6 \end{aligned}$$

13145-

Lunar Etc.

21

Date Aug 7

Eph. W. Stars	23	48	0	00"
" " Moon	23	55	59.2	23 55 59.7
Clock slow		0	15.7	

H. Sid Time	23	56	15.0	8-9 = -1 ^h 32"
H Long	7	49	31.05	"
g Sid 1	7	40	46.05	"
Sid J. Mean II	9	01	49.81	
Internal	19	39	01.24	
Reduction		3	13.15	
g M.T.	19	35	48.09	

From Hunt Alm.

Moon 19 ^h	1	27	18.00	+14	33	32.7
Motion ml			2.2526			12.125
" " 35.8015		1	20.65		+7	19.1
Sublunar Place	1	28	38.65	+14	40	46.8

Moon's Age 20 days

Parallax	58	49.65
Semi-d	16	03.3
H		96.33
Aug		13.8
Par 6		-0.9
R		976.7
R		2.0937
alt		-10.09
Altitude		1.9933
H 2		3.9739

$$934 = 13$$

$$a = 5^{\circ} 03.6$$

$$+ 24$$

$$= 479.6$$

13175

Plate Constants

22

X	19.2467	33.0238	33.7382
Y	20.2087	34.7320	33.3386
X-Y	-0.9623	-1.7282	-1.6204

q	20.5576	12.7720	28.3281
q	21.9146	13.8281	30.2071
q-11	-1.3570	-1.0861	-1.8830

X-Y	+500X	-92.27	+3.6X	+1826
-9623 + 9623 =	0	-1890	+69 =	-1824 0
-1.7282 + 1.6512 =	-0.0770	-1170	+119 =	26 0
-1.6204 + 1.6869 =	+0.0665	-2611 =	-1976 + 121 =	25 +1
24.0826 + 120X1	-1706	+87		25.3374

q-11	+500Y	+91.2X	+7.3Y	+1380
-1.3570 + 1.0279 =	-0.3291	+1755 =	-1536 + 150 =	-1386 -1
-1.0861 + 0.6371 =	-0.4490	+3012 =	-1478 + 93 =	-1385 0
-1.8830 + 1.4162 =	-0.4668	+3077 =	-1591 + 206 =	-1385 0
15.2461 + 762.3	+2196	+111		16.3776

Tables $a = -9$ $e = -2.2$ $a-e = +1.3$ $b+d = +1.2$
 Obs $= +503.6$ $= -507.3$ $= +3.7$ $= +1.0$

-502.1 -505.1 +2.4 -0.2

-9

[over]

With New Plate Center

X-7	500A	-90.67	+561	-10052	
+2184	+9623	= 11807	-1862	= 9945 + 101 = +10052	0
-5489	+16512	= 11023	-1154	= 9869 + 184 = 10053	+1
-4990	+16869	= 11879	-2566	= 9313 + 188 = 10052	0
24.0826	+12091	-1381	+135	24.1569	

Y-4	+5007	+83.6X	+6.24	-11229	
-786	+10279	= 9493	+1609	= +11102 + 127 = +11229	0
2018	+6371	= 8389	+2760	= +11149 + 79 = 11228	-1
-929	+19162	= 8233	+2820	= +11053 + 176 = 11229	0
15.2461	+7623	+2013	+99	15.0962	

X-8 from last page

13175

Plate Constants

22

λ	19.2967	33.0238	33.7382
η	20.2087	34.7520	35.5586
$\lambda - \eta$	-0.9623	-1.7282	-1.6204

η	20.5576	12.7720	28.3291
η	21.9176	13.8281	30.2071
$\eta - \lambda$	-1.3570	-1.0861	-1.8830

$\lambda - \eta$	+500 λ	-92.27	+3.6 λ	+1826
-9623 + 9623 =	0	-1895	+69 =	-1826
-17282 + 16512 =	-770	-1175	+119 =	26
-16209 + 16869 =	+660	-2611	+121 =	25
29.0826 + 12071	-1706	+87		25.3374

$\eta - \lambda$	+500 η	+91.2 λ	+7.34	+1385
-13570 + 10279 =	-3291	+1755 =	-1536	+150 = -1386
-10861 + 7.6371 =	-3490	+3012 =	-1478	+93 = -1385
-18830 + 19162 =	+332	+3077 =	-1591	+206 = -1385
15.2961 + 7623	+2196	+111		16.3776

Tables $a = -.9$ $e = -2.2$ $a.e = +1.3$ $b+d = +1.2$
 Obs $= +503.6$ $= -507.3$ $= +3.7$ $= +1.0$

-9

[over]

With New Plate Center

$$\begin{array}{rclcl}
 X-7 & 500X & -906Y & +36X & -10052 \\
 +218.4 + 9623 = 11807 - 1862 = 9945 + 107 = +10052 & 0 \\
 -54.89 + 10512 = 11023 - 1154 = 9869 + 189 = 10053 & +1 \\
 -4490 + 16869 = 12429 - 2566 = 9863 + 189 = 10052 & 0 \\
 24.0826 + 12091^{\checkmark} & -1381^{\checkmark} & +135^{\checkmark} & 24.1569^{\checkmark}
 \end{array}$$

$$\begin{array}{rclcl}
 Y-11 & +500Y & +83.6X & +6.2Y & -11229 \\
 -786 + 10279 = 9493 + 1609 = +11102 + 127 = +11229 & 0 \\
 +2018 + 0371 = 8389 + 2760 = +11149 + 79 = 11228 & -1 \\
 -5929 + 19162 = 8233 + 2820 = +11053 + 176 = 11229 & 0 \\
 15.2961 + 7623^{\checkmark} & +2013^{\checkmark} & +94^{\checkmark} & 15.0962^{\checkmark}
 \end{array}$$

X-8 from last page

13145

Myanmar Center

23

X	$X - X_0$	ΔX	$(X - X_0)$	$(X - X_0) + (Y - Y_0)$	$O - C$
1 256389	+15579	+1	2.2277	3.9801	+67
2 260605	+19795	+0	3.9187	3.9789	+55
3 260749	+19939	0	3.9756	3.9756	+22
4 259281	+18471	-1	3.7117	3.9800	+66
5 250265	+09455	-2	0.8936	3.9707	-30
6 250000	+09190	-2	0.8442	3.9788	+54
7 240810	00000	-2	0.0000	3.9748	+17
8 240000	-00810	-2	0.0065	3.9769	+35

R 3.9734

L

Y	$Y - Y_0$	ΔY	$(Y - Y_0)^2$	
1 170000	-12760	-1	1.5527	129
2 150000	-02460	-0	0.0605	97
3 152460	00000	0	0.0000	90
4 160000	+07640	+1	0.5686	68
5 170000	+17540	+1	3.0768	28
6 170167	+17704	+1	3.1346	27
7 172396	+19936	+1	3.9778	0
8 172380	+17926	+1	3.9707	-1

130

Approx. Center

$$X_{\text{max}} = 26.0779$$

$$R = 1.9933$$

$$Y_{\text{max}} = 17.2396$$

$$X_0 = 24.0810$$

$$Y_0 = 15.2460$$

$$A = -1$$

$$B = +7$$

13195- Moon's Center 23

x	$x - x_0$	Δx	$(x - x_0)^2$	$(x - x_0) + (y - y_0)^2$	$O - C$
1 25.6389	+1.5579	+1	2.4279	3.9801	+67
2 26.0605	+1.9795	+0	3.9189	3.9789	+55
3 +26.0799	+1.9939	0	3.9756	3.9756	+22
4 25.9281	+1.8471	-1	3.7114	3.9800	+66
5 25.0265	+0.9455	-2	0.8936	3.9704	+30
6 25.0000	+0.9190	-2	0.8442	3.9788	+54
7 24.0810	0.0000	-2	0.0000	3.9748	+14
8 24.0000	-0.0810	-2	0.0065	3.9769	+35

R 3.9739

y	$y - y_0$	Δy	$(y - y_0)^2$	
1 14.0000	-1.2460	-1	1.5527	129
2 15.0000	-0.2460	-0	0.0605	97
3 15.2460	0.0000	0	0.0000	90
4 16.0000	+0.7540	+1	0.5686	68
5 17.0000	+1.7540	+1	3.0768	28
6 17.0167	+1.7704	+1	3.1346	27
7 +17.2396	+1.9936	+1	3.9778	0
8 17.2385	+1.9925	+1	3.9704	-0

Approx Center
 $x_{\text{max}} = 26.0779$
 $R = 1.9933$
 $y_{\text{max}} = 17.2396$

$$x_0 = 24.0810$$

$$y_0 = 15.2460$$

$$A = -1$$

$$B = +7$$

Formation of Normal

1	-	1.95	+	109.5	-	99.0
2	-	0.89	+	109.0	-	13.5
3	+	0	+	49.0		0
4	+	1.38	+	121.5	+	49.5
5	+	1.66	-	28.5	-	52.5
6	+	1.63	+	49.5	+	95.5
7		0.0	+	0.0	+	28.0
8	-	0.16	-	3.0	+	70.0
	+	7.67	+	428.0	+	273.0
	-	2.60	-	31.5	-	151.0
	+	2.07	+	497.0	+	93.0

13145

Conditional Equations

27

1	+1.56	-1.25	= +67	+50	-2	= +48	+19
2	+1.98	-0.25	= +53	+63	-0	= +63	-8
3	+1.99	0.00	= +22	+64	0	= +64	-42
4	+1.84	+0.75	= +66	+59	+1	= +60	+6
5	+0.95	+1.75	= -30	+29	+3	= +32	-62
6	+0.92	+1.77	= +54	+28	+3	= +31	+23
7	+0.00	+1.99	= +14	+0	+3	= +3	+11
8	-0.08	+1.99	= +33	+2	+3	= +5	+30

+89

-112

$$13147 + 2.07 = +497.0$$

$$+2.07 + 16.33 = +18.4$$

$$+ [] + .28 = + 66.5$$

$$+ 16.05 = + 26.5$$

$$b = + 1.6$$

$$13147 = + 497.0 - 3.4 = + 493.6 \quad a = + 31.9$$

Arc 1.30

$$P_2 = .04$$

$$\frac{\Sigma V}{n} = -2.9$$

$$\frac{-2.9}{.04} = -72.7$$

$$PR = -0.9$$

18175-

Conditional Equations

27

1	+ 1.56	- 1.25	= +67	+ 50	- 2	= +98	+19
2	+ 1.98	- 0.23	= +55	+ 63	- 0	= +63	- 8
3	+ 1.99	0.00	= +22	+ 69	0	= +69	- 92
4	+ 1.89	+ 0.75	= +66	+ 59	+ 1	= +60	+ 6
5	+ 0.93	+ 1.75	= -30	+ 29	+ 3	= +52	- 62
6	+ 0.92	+ 1.77	= +59	+ 28	+ 3	= +31	+23
7	+ 0.00	+ 1.99	= +19	+ 0	+ 3	= +3	+11
8	- 0.08	+ 1.99	= +33	+ 2	+ 3	= +5	+30

$$15.87 + 2.07 = +17.94$$

$$+ 2.07 + 16.33 = + 93.0$$

$$+ [] + .28 = + 66.5$$

$$+ 16.05^\circ = + 26.5^\circ$$

$$b = +1.6$$

$$15.47 = +497.0 - 34 = +493.6$$

$$q = +31.9$$

arc 130

$$P = .04$$

$$\frac{\Sigma V}{3} = 29$$

$$\frac{-2.9}{.04} = -72.7$$

$$PR = 0.9$$

131 45-

Moon's Mean Position

25-

 γ_0 24,0810"

+16"

24,0826"

 γ_0 152960"

+1"

152961"

from Plate Constants

 X 25.3374 η 16.3776 Y +3.3374 η -1.6224 $\log \gamma$ 0.52341 $\log \tan \delta$ 9.4032 $\cos \delta$ 998652 γ^2 10768

8.50727

 γ 7.0537

202965

7.5034

 $\zeta-A$ +107.66 η +0.0032 η_0 7.6256 A 1 28 00.00 $\log h_0$ 0.21101

7.33115

 α_0 1 29 47.66

2879863 - 758.3

 μ_{α} +3.51 $S-D$ -12 38.3 α 1 29 51.17 $D+14$ 24 40.0 S_0+14 12 01.7 μ_{δ} +19.7 $S'14$ 12 21.4

[over]

New Plate Center
Moon Mean Position

From Plate Constants

$$x \ 29.1569$$

$$y \ 15.0962$$

$$z \ +2.1569$$

$$h \ -2.9038$$

$$\log \zeta \ 0.33383$$

$$\log \tan \delta \ 9.4016 \quad 17^{\circ}13'$$

$$\log \delta \ 9.98652$$

$$\zeta^2 \ 0.6677$$

$$8.50729$$

$$7.0539$$

$$184007$$

$$7.1227$$

$$x - A \quad 69.19$$

$$h \ +0.0013$$

$$A \ 1 \ 28 \ 38.00$$

$$\log h \ 0.463164$$

$$x_0 \ 1 \ 29 \ 47.19$$

$$7.33115$$

$$7.132014 \ -135^{\circ}5.2'$$

$$\text{Red} \quad +3.51$$

$$\delta - D \quad -22 \ 35.2$$

$$x' \ 1 \ 29 \ 50.70$$

$$D \ +14 \ 34 \ 37.0$$

$$\delta_0 \ +14 \ 12 \ 01.8$$

$$\text{Red} \quad +19.7$$

$$\delta' \ +14 \ 12 \ 21.5$$

131 95-

Moon's Mean Position

25-

10 29.0810

+16

29.0826

30 12.2960

+1

13.2961

from Plate Constants

X 25.3379

Y 16.3776

Z +3.3379

W -1.6229

log 3 0.52391

log tan 8 9.4032

cos 998.652

32 10768

8.50728

7.0538

1.02965

7.5034

A -A +107.66

h +0.0032

A 1 28 00.00

h 1.6256

10 1 29 47.66

log h 0.21101

7.33115

2.879865 - 758.3

Red +3.51

S-D -12 38.3

1 1 29 51.29

D+19 24 40.0

S+19 12 01.7

Red +19.7

S'19 12 21.4

[over]

New Plate Center Moon Mean Position

From Plate Constants

$$X \ 24.1569''$$

$$Y \ 15.0962''$$

$$Z \ +2.1569''$$

$$W \ -2.9038''$$

$$\log \gamma \ 0.33383''$$

$$\log \tan \delta \ 9.4016'' \ 17^{\circ}13'$$

$$\log \delta \ 9.98652''$$

$$\gamma^2 \ 0.6677''$$

$$8.50724''$$

$$7.0538''$$

$$1.84007''$$

$$7.1227''$$

$$\alpha - A \ 69.19''$$

$$h \ +0.0013''$$

$$-2.9051''$$

$$A \ 1 \ 28 \ 38.00''$$

$$\log h \ 0.46316''$$

$$7.33115''$$

$$\alpha_0 \ 1 \ 29 \ 47.19''$$

$$3.13201'' \ -135^{\circ}5.2'$$

$$\text{Red} \ +3.51''$$

$$\delta - D \ -22 \ 35.2''$$

$$\alpha' \ 1 \ 29 \ 50.70''$$

$$D \ +14 \ 34 \ 37.0''$$

$$\delta_0 \ +14 \ 12 \ 01.8''$$

$$\text{Red} \ +19.7''$$

$$\delta' \ +14 \ 12 \ 21.5''$$

13145

Lunar Parallax

26

$\alpha' - 1 \quad 29 \quad 57.17$
 $\delta - 23 \quad 56 \quad 15.0$
 $\delta - \alpha' - 1 \quad 33 \quad 36.17$
 $- - 23 \quad 27 \quad 02.55$
 $\delta - \alpha' - 8 \quad 56.01$
 $\delta - - 23 \quad 15 \quad 06.54$

 $T_1 \quad 58 \quad 49.65$

9.86913
 8.23328
 9.59896
 1.01741
 7.71578

9.95727
 0.00000
 0.03679
 9.99406

 $\delta - \alpha' - 17 \quad 52.02$
 $- - 1 \quad 11.47$
 $\delta \quad 47 \quad 36 \quad 28.8$
 $\delta + 17 \quad 12 \quad 21.7$
 $\delta - 2 \quad 30 \quad 24 \quad 07.4$

9.82670
 8.23328
 9.40420
 0.15351
 7.91739

 $\delta - 5' - \quad 28 \quad 25.4$
 $\delta \quad 14 \quad 40 \quad 46.8$
 $\text{Eph } \delta \quad 14 \quad 40 \quad 46.8$

O-C

0.0

 $\alpha \quad 1 \quad 28 \quad 39.70$
 $\text{Eph } \alpha \quad 1 \quad 28 \quad 38.65$

O-C

See other side

Lunar Parallax

α'	1	29	50.70	π	58	49.65
δ	23	56	15.00			
$\alpha - \alpha'$	-1	33	35.70		9.86913	
$\delta - \delta'$	-23	23	55.50		8.23329	
$\frac{1}{2}(\alpha - \alpha')$	-8	56	15.00		9.59893	n
$\frac{1}{2}(\delta - \delta')$	-23	19	59.02		<u>6.01941</u>	
					7.71576	n

9.95727	$\alpha - \alpha'$	-17	52.97
0.00000			
<u>003678</u>	$=$	-1	11.53
9.99405			

δ	49	36	26.4
δ	19	12	21.5
$\delta - \delta'$	30	24	04.9

9.82690
8.23329
9.70420
<u>0.15351</u>
7.91740

$\delta - \delta'$	28	25.4	α	1	28	39.17
δ	14	40	46.9			

Ephs	19	90	46.8	Ephs	1	28	38.65
------	----	----	------	------	---	----	-------

O-C	+0.1	O-C	+0.52
-----	------	-----	-------

curr.	+1.3	curr.	0.00
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2nd (Old Ref)	0.0
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$\delta + 14$	40	48.4
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O-C	-0.6
-----	------

13145

Lunar Parallax

26

$\alpha' \quad 11 \quad 29 \quad 51.17$
 $\delta \quad 23 \quad 56 \quad 15.0$
 $\delta - \alpha' - 1 \quad 33 \quad 36.17$
 $\quad \quad \quad - 23 \quad 29 \quad 42.55$
 $\delta - \alpha' - 1 \quad 33 \quad 36.17$
 $\quad \quad \quad - 23 \quad 29 \quad 42.55$
 $\delta - \alpha' - 1 \quad 33 \quad 36.17$
 $\quad \quad \quad - 23 \quad 29 \quad 42.55$

 $\tau \quad 58 \quad 49.65$

9.86913
 8.23328
 9.59896
 0.01771
 771.548

995.727
 0.00000
 0.03679
 999.706

 $\delta - \alpha' - 17 \quad 52.02$
 $\quad \quad \quad - 1 \quad 11.99$
 $\delta \quad 77 \quad 36 \quad 28.8$
 $\delta \quad +17 \quad 12 \quad 21.7$
 $\delta - \alpha \quad 30 \quad 24 \quad 07.9$

9.82670
 8.23328
 9.70420
 0.15351
 7.91739

 $\delta - \alpha' \quad 28 \quad 25.4$
 $\delta \quad 17 \quad 40 \quad 46.8$
 $\text{Eph} \delta \quad 17 \quad 40 \quad 46.8$
 $\text{O-C} \quad 0.0$
 $\alpha \quad 1 \quad 28 \quad 39.70$
 $\text{Eph} \alpha \quad 1 \quad 28 \quad 38.65$
 O-C

See other side

Lunar Parallax

α 1 29 50.70^v
 δ 23 56 15.00^v
 $\alpha - \delta$ -1 33 35.70^v
 $= -23$ 23 53.50^v
 $\delta - \alpha$ -8 56.78^v
 $\delta - 23$ 17 59.02^v

π 58 49.65^v

9.86913^v
 82.3329^v
 9.9893^v
 801441^v
 7.71576^v

9.95727^v
 0.00000^v
003678^v
 9.99405^v

$\alpha - \delta$ -17 52.97^v

$= -1$ 11.53^v

γ 47 36 26.4^v

δ 14 12 21.5^v

$\gamma - \delta$ 30 24 04.9^v

9.82690^v
 82.3329^v
 9.70420^v
 015351^v
 79.1770^v

$\delta - \delta'$ +28 25.4^v

$\delta + 14$ 40 46.9^v

Ephd +19. 40 46.8^v

O-C +0.1^v

curr. +1.5^v

2nd (Old. Ref) 0.0

$\delta + 14$ 40 46.4

O-C +0.6

α 1 28 39.17^v

Ephd 1 28 38.65^v

O-C +0.52^v

curr. 0.00^v

13195

Tilt corrections

$$\Delta x = -\left(x_i - \frac{1}{2}x_i\right) \frac{(x_i x_i + y_i y_i)}{f^2}$$

$$\Delta y = \left(y_i - \frac{1}{2}y_i\right) \frac{(x_i x_i + y_i y_i)}{f^2}$$

13143

Tilt Corrections

$$\Delta x = -\left(x_1 - \frac{1}{2}x_1\right) \frac{(x_1 x_1 + y_1 y_1)}{f^2}$$

$$\Delta y = \left(y_1 - \frac{1}{2}y_1\right) \frac{(x_1 x_1 + y_1 y_1)}{f^2}$$

13125

Cape No

Standard Coordinates

Mag

Cape No

Mag

Cape No

25

Mag

C	1	27	02.35	1	34	48.38	1	35	11.90		
A	1	28	38.00	1	28	38.00	1	28	38.00		
(A-A)	-	1	35.65	+ 6	10.38	-	6	33.90			
Sin(A-A)	-	95.65	+ 370.34	-	393.85						
log "	1	98	06.8	2	56	86.0	2	59	53.3		
" And	9	98	51.1	9	98	71.5	9	98	28.8		
" 3.	0	47	30.3	1	06	29.9	1	08	54.5		
3.	-	2	97	19	+1	15	68	1	2	17	48
			-1		+4			+78			
	19	02	80	33	57	27	37	18	22		
X	19	27	67	33	02	38	33	73	82		
X-3.	+2	18	4	-0	57	89	-	77	70		

S	14 35 05.7	13 51 52.8	15 59 06.2
D	14 34 37.0	14 34 37.0	14 34 37.0
(D-D)	+ 20 28.7	- 72 47.2	+ 1 27 29.2
tan(D-D)	+ 12 28.7	- 25 67.3	+ 50 70.2
log	3.08949	3.40897	3.70503
4.	0.42059	0.47012	1.03618
log 4.	9.4256	9.3927	9.4571
5.	0.9461	2.1240	2.1709
6.	7.4231	8.5698	8.6814
3.	+ 26 33.8	- 57 96.9	+ 10.86 88
4.	+ 00 02.7	+ 0.0371	+ 0.048.2
5.	20 63 62	12.5402	28.9170
6.	20 55 76	12 77 20	28.3271
7-8	- 78 8	+ 20 18	- 57 29

13195
Cape HwStandard Coordinates
Mag Cape Hw Mag Cape Hw25
Mag

L	1	27 02.35	1	39 48.38	1	35 11.90
A	1	28 38.00	1	28 38.00	1	28 38.00
(A-A)	-	1 35 65	+ 6	10.38	+ 6	33.90
Sim(A-A)		-95.65	+370.37		+393.85	
log "		1.98068	2.56860		2.59333	
" Cosd		9.98511	9.98715		9.98288	
" S ₀		0.47303	0.06299		1.08545	
S ₀	-	2.9719	+47.5684		+12.1798	
"		-1	+46		+48	
"		19.0280	38.5727		39.1822	
"		19.2967	33.0238		33.7382	
A-3		+2184	-05489		-4790	

S	14	55 05.7	13	51 52.8	15	59 06.2
D	14	39 37.0	14	39 37.0	14	39 37.0
S-D	+20	28.7	-	72 47.2	+1	24 29.2
tan(S-D)		+1228.7		-2569.3		+5070.2
log "		3.08999		3.40897		3.70503
" S ₀		0.42057		0.74012		1.03618
log tan		9.42256		9.3924		9.4571
S ₀		0.9461		21240		21709
" S ₀		7.4251		85698		86814
h ₀	+26	338	-57	969	+10	8688
h ₁	+00	027	+00	374	+00	982
h	20	6362	12	5802	28	9188
q	20	5576	12	7720	28	3271
q-h	-	788	+20	18	-59	29

