

KG
11366
v.983

CXXX

130

9079

9080

9086

1915 June 1902

1
10
2
2
1
2
2
1
2
1
+

9079

Stellar Measures

1

1	20154	18592	20976	17870
10.7	13508	15262	11170	17150
9.9	08	5257	70	5653
	52	602	80	80
	<u>10.6644</u>	<u>10.6662</u>	<u>19.9310</u>	<u>9.9282</u>

2	18152	18834	20836	17466
13.3	14480	12526	19800	1348076
0.6	78	3028	06	72
	50	28	32	72
	<u>13.3642</u>	<u>13.3698</u>	<u>3.6030</u>	<u>3.6008</u>

3	18082	15998	17286	18386
27.7	11976	12698	13696	14792
22.9	6872	98	700	8890
Wrong	100	6002	310	90
Star	<u>27.6620</u>	<u>27.6648</u>	<u>22.3596</u>	<u>22.3602</u>

Moon Measures

1	23.148	18052	16900
		10920	13582
		12	78
		56	28
		<u>14.7438</u>	<u>14.7152</u>

2	20322	20026
23.1	18976	11382
15	6269	9287
	32	38
	<u>23.1354</u>	<u>23.1350</u>

3	20386	20018
23.2	17712	12682
15.0	0810	82
+X	88	16
	<u>23.2676</u>	<u>23.2666</u>

Star Measure

17472

20060

18732

20170

28.3 14328

13202

10636

18500

229 2528

1207

4239

492

52

69

50

202

28.311828.319922.830822.8326

9079

Star Measures

1

1.	20154	18592	20976	17870
10.7	13508	12262	11170	17150
9.9	08	5257	70	5653
	52	602	80	80
	<u>106699</u>	<u>106662</u>	<u>189310</u>	<u>99282</u>

2.	18152	18834	20836	17966
13.3	19980	12526	19800	1398076
2.6	78	3028	06	72
	50	28	32	72
	<u>133672</u>	<u>133698</u>	<u>36030</u>	<u>36008</u>

3.	18082	15998	17286	18386
27.7	11976	12698	13696	14792
12.9	6872	98	700	8896
Wrong Star	100	6002	310	90
	<u>276620</u>	<u>276698</u>	<u>223596</u>	<u>223602</u>

Moon Measures

1.	2319.8	18152	16900
		10920	13582
		12	78
		56	28
		<u>197238</u>	<u>197152</u>

2.	20322	20026
23.1	18976	11382
15	62	92
	32	38
	<u>231359</u>	<u>231350</u>

3.	20386	20018
23.2	17712	12682
15.5	08	82
+8	88	16
	<u>232676</u>	<u>232666</u>

Star Measure

17472
 28.3 14328
 22.9 2828
 52

28,3118

20060
 13202
 1207
 64

28,3194

18932
 10636
 4239
 50

22,8308

20170
 18500
 492496
 202

22,8320

9079

Moon Measures

2

<u>8</u>	19414	20012
23.1	16978	1295861
16	6873	6961
	12	12
	<u>23.2440</u>	<u>23.2450</u>

5
23
16.7

19852	19876
13092	1669288
92	89
69	79
<u>16.6768</u>	<u>16.6819</u>

<u>6</u>	20270	18562
22.7	12606	1622832
17	08	3632
	76	72
	<u>22.7668</u>	<u>22.7668</u>

7
22
17.6

19186	20736
1900608	1590212
1008	22
86	79
<u>17.5178</u>	<u>17.5172</u>

<u>8</u>	17220
21.4	17830
17.7	4075
+4	28
	6380

19220	19716
1285045	1607879
4045	8079
28	02
<u>17.6380</u>	<u>17.6386</u>

9
21
17.6

19236	19679
1316256	1576257
5056	5257
50	62
<u>17.6088</u>	<u>17.6088</u>

<u>10</u>	18912	16966
20.5	1597075	991211
17.5	80	1011
36	18	76
	<u>17.2938</u>	<u>17.2938</u>

20186	17630
16820805	1299087
790805	8987
90	50
<u>17.3382</u>	<u>17.3382</u>

9079

Moon Measures

2

19919

20012

16978

12958

6843

6961

12

12

23.249023.2450

19852

19876

13092

1669288

92

84

64

79

16.676816.6819

20270

18262

12606

16228

08

3632

76

72

22.766822.7668

19186

20736

1900608

1090212

1008

22

86

99

17.517817.5172

19220

19716

1285045

1607879

90

8079

28

02

17.638017.6386

19236

19679

1316256

1076257

5056

5257

50

62

17.608817.6088

18912

16966

1097075

9912

80

1011

18

76

17.293817.2938

20186

17630

16820805

1299037

790805

8937

90

50

17.338217.3397

9079 Junes & Etc.

3.

Aug 25 '15

Eps. to Stars	0	22		0	37
" Moon	0	28	17.7	0	28 17.9
clock fast		1	38.4		

H. Sid Time	0	26	36.90	$\delta - \alpha = +1^h 10^m$
H Long	9	49	31.05	
G. Sid Time	5	11	07.95	
G. J. M. Moon	10	10	40.49	
Interval	19	00	26.96	
Reduction		3	6.84	
G. M. J.	18	57	20.12	

From Naut Alman.		P. A.		Dec.	
Moon 18 ^h	23	19	35.25	-1	53 25.1
Motion in 1 ^m			1.9720		+ 15.379
" in 57 ^m 3353		+1	53.08	+19	41.76
Tabular Place	23	16	28.31	-1	38 43.4

Moon's Age 15 days

Palatkat	57	17.7
Semidia	15	38.2
R		938.2
Aug		10.9
En. 7		-0.6
R.		948.5
R		2,033.2
ak		-968
(H)R		1,936.4
R ²		3,750.7
		3,749.7

$$934 = 10.8$$

$$\begin{array}{r}
 a = -500.2 \\
 \quad 29 \\
 \hline
 -476.2
 \end{array}$$

9079 *Jupiter* + Etc.

3.

Aug 25 '15

Epp. to Stars	0	22		0	39	
" Moon	0	28	19.7	0	28	19.9
Clock fast		1	38.9			

H. Sid Time	0	26	36.90	$\delta - \alpha = +1^h 10^m$
H Long	9	99	31.05	
G. Sid Time	5	11	07.95	
G. T M. Moon	10	10	90.99	
Interval	19	00	26.96	
Reduction		3	6.89	
G. M. T.	18	57	20.12	

From Naut Alman

R. A.

Dec.

Moon 18^h	23	19	35.25	-1	53	25.1
Motion in 1^m			1.9720			+15.379
" in $57^m 33.53$		11	53.08		49	41.76
Tabular Place	23	16	28.31	-1	38	43.8

Moons Age 15 days

Parallax	57	17.9
Semidiameter	15	38.2
R		938.2
Aug		10.9
R ₁		-0.6
R		998.5
R		2,033.2
AR		-968
(H ₁)R		1,936.9
R ₂		3,750.7
		3,749.7

$$934 = 10.8$$

$$\begin{array}{r}
 a = -500.2 \\
 \underline{29} \\
 -476.2
 \end{array}$$

9079

Plate Center
Wrong Star -

See other side

9

x	y	z	d
10.6653	9.9296	23 09	49.03 - 3 05 50.7
13.3685	3.6019	23 11	11.57 3 57 35.9
27.6639	22.3599	23 19	22.16 1 20 56.7
3) 51.6972	35.8914	3) 39	77.78 7 82 192.8
17.2327	11.9638	23 13	25.92 - 2 78 7.6
22	78	+ 2	27.81 + 96 57.7
+ 4.7676	+ 6.0362	23 15	53.73 - 2 01 09.9
315	766.5		
+ 197.81			
28.3131	22.8314		

Plate Center { A = 23 15 59
D = - 2 01 40

Tables $a = -2$ $c = -3.2$ $a - c = +3$ $b + d = -2$
Obs = = = =

9079

Plate Center

9

10 66 53

9.9296

23 09 44.05 -3 05 50.7

13 06 80

36079

23 11 11.57 3 57 35.9

28 31 31

228.314

23 19 22.16 1 20 56.7

52 34 69

363629

39 77.78 7 82 192.8

17 99 67

12.1209

23 13 25.92 -2 98 7.6

22

18

+2.2705 +95 93.0

+ 45 533

+ 58791

23 15 46.97 -2 02 29.6

318 18

466.5

191.05

45 43.0

Plate Center { A = 23 15 42.07
D = - 2 02 29.6

X-3 +500X

+38.94

+2X

-8909

+3228 +5333 = +8561 +391 = +8902 +2 = +8909 = 0

+2093 +6689 = +8777 +129 = +8901 +3 = +8909 = 0

-6073 +19157 = +8119 +785 = +8899 +6 = +8905 = +1

3309 +10.666

+590

+9

21.5618

Y-n +500Y

-29.8X

+2.64

-5650

+975 +4965 = +5940 -318 = +5622 +28 = +5650 = 0

+9237 +1801 = +6038 -398 = +5640 +9 = +5649 = +1

-7983 +11916 = +6933 -893 = +5990 +60 = +5650 = 0

7008 +7.850

-638

+41

= 15.8615

Tables a = -1 e = -3.2 a-e = +3.1 b+d = -2.2
lbs = +500.2 = -502.6 = +2.7 = -5.6

9019

Plate Center
Wrong Star -

See other side

9

α	γ	δ	δ
10.16653	9.9296	23 09 49.05	-3 05 50.7
13.3685	3.6019	23 11 11.57	2 57 35.9
27.6639	22.3599	23 19 22.16	1 20 56.7
3) 51.6972	35.8919	3) 39 77.78	7 82 192.8
17.2329	11.9638	23 13 25.92	-2 48 7.6
22	78	+ 2 27.81	+ 96 57.7
+ 9.7676	+ 6.0362	23 15 53.73	-2 05 09.9
315	966.5		
+ 197.81			

Plate Center { A = ~~23 15 59~~
D = ~~-2 01 10~~

Tables $a = -2$ $c = -3.2$ $a \cdot c = +3$ $b + d = -2$
 Obs $=$ $=$ $=$ $=$

9079

Plate Center

7

10.6653	99296	23.09	44.05	-3	05	50.7
13.3680	36079	23	11	11.57	3	57 35.7
28.3131	228314	23	19	22.16	1	20 56.7
3) 52.3469	363629	39	77.78	7	82	192.8
17.4467	12.1209	23	13	25.92	-2	48 7.6
22	18	+2	21.05	+45		43.0
+ 4.5533	+ 5.8791	23	15	46.97	-2	02 24.6
313	466.5					
147.85	45' 43.0					

Plate Center { A = 23 15 47.00
 { B = - 2 02 24.6

$X-7$	$+500X$	$+3974$	$+12X$	-8907			
$+3228$	$+5333$	$=+8561$	$+391$	$=+8902$	$+2$	$=+8907$	$=0$
$+2093$	$+6684$	$=+8777$	$+127$	$=+8901$	$+3$	$=+8907$	$=0$
-6073	$+14157$	$=+8114$	$+785$	$=+8899$	$+6$	$=+8905$	$=+1$
21.3312	$+10.666^k$	$+590^k$	$+4$				21.5618^k

$y-n$	$+500y$	$-29.8x$	$+2.64$	-5650			
$+975$	$+4965$	$=+5940$	-318	$=+5622$	$+28$	$=+5650$	$=0$
$+4237$	$+1801$	$=+6038$	-398	$=+5670$	$+9$	$=+5679$	$=+1$
-7983	$+11716$	$=+6733$	-843	$=+5590$	$+60$	$=+5650$	$=0$
15.7010	$+7.850$	-636	$+41$				$=15.8615$

Tables	a = -1	e = -3.2	a-e = +3.1	b+d = -2.2
lbs	= +500.2	= -502.6	= +2.7	= -5.6
O-C	-500.1	-499.4		-3.4

9079	Standard	Coordinates	5-
Cape No	3233-mg 7.2	Cape No 3240-5.5	Cape No 3268-mg 8.5
C	23 08 57.71	23 10 25.16	23 18 35.99
L	57.74	25.22	36.01
E	57.70	25.17	35.96
Mean	23 08 57.72	23 10 25.18	23 18 35.99
Prece	+96.33	+46.39	+46.17
α	23 09 44.05	23 11 11.57	23 19 22.16
A	23 15 34	23 15 54	23 15 54
$\alpha-A$	-06 09.95	-04 42.93	+03 28.16
$\sin(\alpha-A)$	-369.91	-282.92	+208.15
\log	2.56809 n	2.45089 n	2.31837
Quas	9.99936	9.99896	9.99988
\log	1.07469 n	0.95709 n	0.82549

Wrong star used - see other side.

γ_0	-11'8 765	-9.0592	+6.6910
γ_1	-60	-53	+12
γ_2	10.1.175	12.9355	28.6922
γ_3	10.6653	13.3685	28.3131
γ_4	+5478	+4330	-03791
E	-3 10 43.9	-4 02 29.4	-1 25 52.7
L	44.0	29.2	52.6
E	44.7	29.0	52.6
Mean	-3 10 44.1	-4 02 29.2	-1 25 52.6
Prece	+4 53.4	+4 53.8	+4 55.9
δ	-3 05 50.7	-3 57 35.4	-1 20 56.7
D	-2 01 10.	-2 01 10	-2 01 10
$\delta-D$	-1+04 40.7	-1 56 25.4	+0 40 13.3
\sin	-3881.2	-68679	+2413.4
\log	3.58896 n	3.83682 n	3.38263
\log	0.92011 n	1.16797 n	0.71378
$\log \tan \delta$	87.333 n	8.8392 n	8.3720 n
γ_0	2.1494	1.9142	1.6509
γ_1	7.9361 n	7.8068 n	7.0763 n
γ_2	-83198	-147224	+51739
γ_3	-0.0086	-0.0064	-0.0012
γ_4	9.6716	3.2745	23.1722
γ_5	9.9296	3.6019	22.8314
γ_6	+2580	+03304	-0.3408

Standard Coordinates

9079

Cape No 3233 - Mag 7.2

Cape No 3290 - Mag 5.5

Cape No 3268 - Mag 8.0

α	23 09 49.05	23 11 11.57	23 19 22.16
A	23 15 47.00	23 15 47.00	23 15 47.00
-A	-06 02.95	-04 35.43	+03 35.16
δ	-362.91	-275.91	+215.15
μ	2.55980 n	2.93998 n	2.33278
κ	9.99936	9.99896	9.99988
ρ	0.06640 n	0.09618 n	0.83986

γ	-116519	-88394	+169161
β	-56	-69	+13
λ	10.3925	13.1592	28.9199
χ	10.6653	13.3685	28.3131
ψ	-43.3228	+20.93	-56.093

δ	-30550.7	-35735.9	-12056.7
D	-20229.6	-20229.6	-20229.6
-D	-10326.1	-15510.8	+09127.9
μ	-3806.5	-6913.9	+2488.0
κ	3.58052 n	3.83969 n	3.39580
ρ	0.91167 n	1.17089 n	0.72700

α	8.7333 n	8.8400 n	8.3720 n
β	21328	18923	16797
γ	79185 n	77857 n	71051 n

δ	-8159.6	-14819.6	+3333.9
μ	-00083	-00062	-00013
κ	9.8321	3.1742	23.3321
ρ	9.9296	3.6019	22.8317
ψ	+97.5	+92.3	-99.83

9079	Standard	Coordinates	-5
Cape No	3233-Mg 7.2	Cape No 3240-5.5	Pape No 3268-Mg 8
C	23 08 57.71	23 10 25.16	23 18 35.99
L	57.74	25.22	36.01
C	57.70	25.17	35.96
Mean	23 08 57.72	23 10 25.18	23 18 35.99
Prec	+96.33	+46.39	+96.17
α	23 08 44.05	23 11 11.37	23 19 22.16
Δ	23 45 09	23 15 34	23 15 39
$\alpha-A$	-06 09.95	+09 42.93	+03 28.16
$\sin(\alpha-A)$	-369.91	-282.92	+208.15
log	2.56809 n	2.45089 n	2.31837
Cred	9.99936	9.99896	9.99988
σ	1.07469 n	0.95709 n	0.82599
σ_{10}	Wrong star used - see other side		
σ_{10}	-118765	-90592	+66910
σ_{10}	+60	+53	+12
σ_{10}	10 1175	12 9355	28 6922
σ_{10}	10.6653	13.3685	28.3434
σ_{10}	+5478	+4330	-03794
C	-3 10 43.9	-4 02 29.4	-1 25 52.7
L	44.0	29.2	52.6
C	44.9	29.0	52.6
Mean	-3 10 49.1	-4 02 29.2	-1 25 52.6
Prec	+953.9	+453.8	+455.9
δ	-3 05 50.7	-3 57 35.4	-1 20 56.7
D	-2 01 10	-2 01 10	-2 01 10
$\delta-D$	-1 04 40.7	-1 56 25.4	+0 40 13.3
\sin	+38812	-68678	+2713.9
log	3.58896 n	3.83892 n	3.38263
No	0.92011 n	1.08997 n	0.71378
log tans	87333 A	88392 n	83720 n
σ_{10}	21494	19192	16509
σ_{10}	79361 n	78068 n	70763 n
σ_{10}	-83178	-147224	+51739
σ_{10}	-00086	-00067	-00012
σ_{10}	9.6716	3.2715	23.1722
σ_{10}	9.9276	3.6019	22.8319
σ_{10}	+2580	+42244	+0.8788
σ_{10}			-8123

5"

Standard Coordinates

9079

Cape No 3233 - Mag 7.2

Cape No 3240 - Mag 5.5

Cape No 3268 - Mag 8.0

α	23 09 44.05	23 11 11.57	23 19 22.16
A	23 15 47.00	23 15 47.00	23 15 47.00
$\alpha - A$	-06 02.95	-04 35.43	+03 35.16
$\sin(\alpha - A)$	-362.91	-275.91	+215.15
$\log "$	2.55980 n	2.43998 n	2.33277
$\log "$	9.99936	9.99896	9.99988
$\log "$	1.06640 n	0.94618 n	0.83986
$\log "$	-11.6519	-8.8344	+16.9161
$\log "$	-56	-67	+13
$\log "$	10.3425	13.1592	28.9174
$\log "$	10.6653	13.3685	28.3131
$\log "$	+3.228	+2.093	-6.043

δ	-3 05 50.7	-3 57 35.4	-1 20 56.7
B	-2 02 24.6	-2 02 24.6	-2 02 24.6
$\delta - B$	-1 03 26.1	-1 55 10.8	+0 41 27.9
$\tan(\delta - B)$	-3806.5	-6913.4	+2488.0
$\log "$	3.58052 n	3.83969 n	3.39585
$\log "$	0.91167 n	1.17084 n	0.72700
$\tan \delta$	8.7333 n	8.8400 n	8.3720 n
$\log "$	27.328	18.923	16.797
$\log "$	7.9195 n	7.7857 n	7.1051 n
$\log "$	-8.1596	-14.8196	+5.3334
$\log "$	-0.0083	-0.0062	-0.0013
$\log "$	9.8327	3.1742	23.3327
$\log "$	9.9296	3.6019	22.8317
$\log "$	+9.75	+4.237	-4.983



9079		Moon's Center					6
x		$x - x_0$	Δx	$(x - x_0)^2$	$(x - x_0)(y - y_0)$	$y - y_0$	
1 23.0000	+ 1.6790	- 2	2.7915	3.7592	+ 85		
2 23.1352	+ 1.8062	- 1	3.2620	3.7495	- 12		
3 +23.2671	+ 1.9381	- 0	3.7562	3.7562	+ 55		
4 23.2995	+ 1.9155	+ 0	3.6691	3.7604	+ 97		
5 23.0000	+ 1.6940	+ 2	2.7929	3.7559	+ 52		
6 22.7668	+ 1.9378	+ 2	2.0678	3.7638	+ 131		
7 22.0000	+ 0.6710	+ 3	0.4506	3.7626	+ 119		
8 21.3290	0.0000	+ 3	0.0000	3.7663	+ 156		
9 21.0000	- 0.3290	+ 3	0.1080	3.7607	+ 100		
10 20.2938	- 1.0352	+ 3	1.0710	3.7563	+ 56		

y	$y - y_0$	Δy	$(y - y_0)^2$	R^2		
1 14.7195	- 0.9835	- 2	0.9677	3.7507		
2 13.0000	- 0.6980	- 2	0.4873	3.7497	-	
3 15.6980	- 0.0000	- 0	0.0000		+ 120	✓
4 16.0000	+ 0.3020	+ 1	0.0913		1.11	✓
5 16.6791	+ 0.9811	+ 2	0.9630		90	✓
6 17.0000	+ 1.3020	+ 3	1.6960		81	✓
7 17.5175	+ 1.8195	+ 4	3.3120		60	✓
8 +17.6383	+ 1.9403	+ 4	3.7663		78	✓
9 17.6088	+ 1.9108	+ 4	3.6527		20	✓
10 17.3363	+ 1.6383	+ 4	2.6853	152°	0	✓
					350	✓
					328	✓

Approximate Center

$$x = 23 \quad y = 14.7195$$

$$16.6791$$

$$3.13936$$

$$y_0 = 15.6968$$

$$y_{\max} = 17.6383$$

$$1.9415$$

$$y_{\max} = 23.2671$$

$$y_0 = 21.3291$$

$$\text{Moon's Center} \begin{cases} x_0 = 21.3290 \\ y_0 = 15.6980 \end{cases}$$

ξ	η	ξ	-2.5ξ	-1.6η	$+1.5$			
1	-11.65	-8.16	-5.6	+3.9	-2.7	+1.3	-1.8	+1
2	-8.83	-1.82	-6.4	+2.2	-7.2	+2.7	-1.8	-3
3	+6.92	+5.33	+1.3	-1.7	-7	-9	-1.3	+2
4	-0.97	-2.17	0	0	+3			<u>+18</u>
		$\Delta\eta$	-7.61		+2.5\xi		+8	
		-3.9	+6.2	=	+2.3	-2.9	=	-6
		-10.5	+1.3	=	+8	-2.2	=	-1.8
		+10	-4.1	=	3.1	+1.7	=	-1.7
		0	+1.6		0			<u>+2.7</u>

9079		Moons	center				
	x	$x - x_0$	Δx	$(x - x_0)^2$	$x - N/10$	$(x - N/10)^2$	$(x - N/10)$
1	23.0000	+ 1.6770	- 2	2.7915	3.7592	+ 80	
2	23.1352	+ 1.8062	- 1	3.2620	3.7495	- 12	
3	+23.2671	+ 1.9381	- 0	3.7562	3.7562	+ 55	
4	23.2995	+ 1.9155	+ 0	3.6691	3.7609	+ 97	
5	23.0000	+ 1.6770	+ 2	2.7929	3.7559	+ 52	
6	22.7668	+ 1.4378	+ 2	2.0678	3.7638	+ 131	
7	22.0000	+ 0.6710	+ 3	0.4506	3.7626	+ 119	
8	21.3290	0.0000	+ 3	0.0000	3.7663	+ 156	
9	21.0000	- 0.3290	+ 3	0.1080	3.7607	+ 100	
10	20.2938	- 1.0352	+ 3	1.0710	3.7563	+ 56	

	y	$y - y_0$	Δy	$(y - y_0)^2$	R^2	
					3.7507	
					3.7497	
1	19.7195	- 0.9835	- 2	0.9677		
2	13.0000	- 0.6950	- 2	0.4875		
3	15.6980	- 0.0000	- 0	0.0000		
4	16.0000	+ 0.3020	+ 1	0.0913		
5	16.6791	+ 0.9811	+ 2	0.9630		
6	17.0000	+ 1.3020	+ 3	1.6960		
7	17.5175	+ 1.8195	+ 4	3.3120		
8	+17.6383	+ 1.9403	+ 4	3.7663		
9	17.6088	+ 1.9108	+ 4	3.6527		
10	17.3363	+ 1.6383	+ 4	2.6850		

Approximate center

$$\begin{aligned}
 x &= 23 & y &= 19.7195 \\
 & & & \underline{16.6791} \\
 & & & 3.13936 \\
 y_0 &= 15.6968 \\
 y_{\max} &= 17.6383 \\
 & & & \underline{1.9415} \\
 x_{\max} &= 23.2671 \\
 y_0 &= 21.3291
 \end{aligned}$$

$$\begin{aligned}
 \text{Moons center} & \left\{ \begin{aligned} x_0 &= 21.3290 \\ y_0 &= 15.6980 \end{aligned} \right.
 \end{aligned}$$

Formation of Normals.

1	-1.67	+172.0	-	83.5
2	-1.27	-21.5	+	8.5
3	-0.00	+106.5	-	0.0
4	+0.58	+186.5	+	29.0
5	+1.67	+187.0	+	51.0
6	+1.87	+189.0	+	170.0
7	+1.22	+79.5	+	217.0
8	+0.00	+00.0	+	302.5
9	-0.67	-33.0	+	191.0
10	-1.71	-58.0	+	92.0
	+5.31	+890.5		+1061.0
	-3.26	-112.5		-83.5
	+0.05	+778.0		977.5
		+97.5		+82.1
		+875.5		+1059.6

$$+0.05 + 17.62 = +8.21 \Delta$$

$$+ 3$$

$$-1.38'$$

$$\text{In } 7. \quad 18.198$$

$$-2PC = -0.78$$

$$= (-7)$$

$$\Delta b = -0.36$$

$$= (-7)$$

$$\Delta a = -0.37$$

$$= (-7)$$

$$\Delta \delta = -0.2$$

$$\Delta \eta = -3.001$$

New Residuals -16

-a	-b	(-a-b+c)
1 +12	-7	-11 ✓
2 +13	-5	-8 ✓
3 +14	-0	-2 ✓
4 +13	+2	-1 ✓
5 +12	+7	+3 ✓
6 +10	+9	+3 ✓
7 +5	+13	+2 ✓
8 +0	+14	-2 ✓
9 -2	+13	-5 ✓
10 -7	+11	-12 ✓

9079

Conditional Equations

						c	$b-c$	$\frac{new}{0-c}$
1	+ 1.67	- 0.98	= + 85	+ 73	- 59	= + 17	+ 76	+ 65
2	+ 1.81	- 0.70	= - 12	+ 79	- 92	= + 37	- 99	- 54
3	+ 1.94	- 0.00	= + 55	+ 85	- 0	= + 85	- 30	- 32
4	+ 1.92	+ 0.30	= + 97	+ 89	+ 18	= + 102	- 05	- 6
5	+ 1.67	+ 0.98	= + 52	+ 73	+ 59	= + 132	- 80	- 77
6	+ 1.94	+ 1.30	= + 131	+ 63	+ 78	= + 141	- 110	- 7
7	+ 0.67	+ 1.82	= + 119	+ 29	+ 109	= + 138	- 19	- 17
8	+ 0.00	+ 1.94	= + 156	+ 0	+ 116	= + 116	+ 90	+ 38
9	- 0.33	+ 1.91	= + 100	- 19	+ 114	= + 100	0	- 5
10	- 1.04	+ 1.64	= + 56	- 45	+ 98	= + 53	+ 3	- 9
	+ 9.75	+ 8.21				+ 119	- 193	

Average 31

$$+19.97 + 1.05 = +778.0 = +875.5$$

$$+ 1.05 + 17.62 = +977.5 = +1059.6$$

$$+ 1.05 + 0 = + 1.9$$

$$+ 17.62 = + 975.6$$

$$b = + 55.7 + 0.864$$

$$+19.975 + 778.0 + 2.8 = +776.2$$

$$a = + 38.9$$

$$+ 1.05 + 17.62 = +1059.6 \quad + 9.75 \Delta$$

$$+ [] + 0 = + 2.2 \quad + 8.21 \Delta$$

$$+ 17.62 = +1057.9$$

$$b = + 60.0 + 0.96 \Delta$$

$$+19.97 + 3.0 = +875.5$$

$$a = + 43.7 + 0.78 \Delta$$

Arc Measured 15.2

$$\frac{p}{h} = .16$$

$$\frac{\Sigma v}{h} = -7.9$$

$$\frac{-7.9}{.16} = -49.4$$

$$\Delta P = -0.6$$

$$\text{Corr} = +0.2$$

$$\Delta P = -0.18$$

9079

Conditional Equations

0 + 10

e

b-c

1	+1.67	-0.98	= +8.5	+73	-59	= +14	+76
2	+1.81	-0.70	= -12	+79	-92	= +37	-99
3	+1.99	-0.00	= +5.5	+85	-0	= +85	-30
4	+1.92	+0.30	= +1.97	+89	+18	= +107	+0.5
5	+1.67	+0.98	= +5.2	+73	+59	= +132	-80
6	+1.99	+1.30	= +1.31	+63	+78	= +141	+11.0
7	+0.67	+1.82	= +1.19	+29	+109	= +138	+119
8	+0.00	+1.99	= +1.56	+0	+116	= +116	+90
9	-0.33	+1.91	= +1.00	-19	+118	= +100	+0
10	-1.09	+1.69	= +5.6	-93	+98	= +53	+3
	+9.75	+8.21			+119	= 19.3	

Average 31

$$+19.97 + .05 = +778.0 = +875.5$$

$$+1.05 + 17.62 = +977.5 = +1059.6$$

$$+1.05 + 0 = +1.9$$

$$+17.62 = +975.6$$

$$b = +55.9$$

$$+19.97 = +778.0 + 2.8 = +775.2$$

$$a = +38.9$$

$$+1.05 + 17.62 = +1059.6$$

$$+1 + 0 = +2.2$$

$$+17.62 = +1057.9$$

$$b = +60.0$$

$$+19.97 + 3.0 = +875.5$$

$$a = +93.7$$

Are Measured 1520

$$\frac{p}{h} = .16$$

$$\frac{2v}{h} = -7.9$$

$$\frac{-7.9}{.16} = -49.4 \quad \Delta P = -0.6$$

9079 Moon's Mean Position

8

$$\begin{array}{r} \lambda_0 = 21.3290 \\ + 22 \\ \hline 21.3312 \end{array}$$

$$\begin{array}{r} \alpha_0 = 15.6980 \\ + 30 \\ \hline 15.7010 \end{array}$$

From Plate Constants

$$\lambda = 21.5618$$

$$\alpha = 15.8615$$

$$\zeta = 0.7382$$

$$\eta = 2.1385$$

$$\begin{array}{r} \log \zeta \quad 9.64167 \\ \cos \delta \quad 9.99968 \\ \hline 8.50727 \\ 1.13879 \end{array}$$

$$\begin{array}{r} \log \tan \delta \quad 8.6070 \\ \log \zeta^2 \quad 9.2833 \\ \hline 7.0537 \\ 4.9837 \end{array}$$

$$\alpha - A = -13.68$$

$$\begin{array}{r} \eta - \eta_0 = -0.0002 \\ \eta_0 = 2.1385 \end{array}$$

$$A \quad 23 \quad 15 \quad 47.00$$

$$\begin{array}{r} \log \eta_0 \quad 0.33015 \\ 7.33115 \\ \hline 2.99896 \end{array}$$

$$\alpha_0 \quad 23 \quad 15 \quad 33.35$$

$$\text{Red} \quad + 7.00$$

$$\begin{array}{r} 997.6 \\ \delta - D \quad - 16 \quad 37.6 \end{array}$$

$$\alpha_1 \quad 23 \quad 15 \quad 37.36$$

$$B \quad - 2 \quad 02 \quad 27.6$$

$$\delta_0 \quad - 2 \quad 19 \quad 02.2$$

$$\text{Red} \quad + 23.8$$

$$\delta' \quad - 2 \quad 18 \quad 38.4$$

9079 Throms Mean Position

8

$$\begin{array}{r} \lambda_0 = 21.3290 \\ + 24 - \\ \hline 21.3342 - \end{array}$$

$$\begin{array}{r} \eta_0 = 15.6980 \\ + 30 - \\ \hline 15.7040 - \end{array}$$

From Plate Constants

$$\lambda = 21.5618 -$$

$$\eta = 15.8815 -$$

$$\xi = 0.9382$$

$$\eta = 2.1385$$

$$\begin{array}{r} \log \xi \quad 9.64167 - \\ \cos \delta \quad 9.99968 - \\ \hline 8.50729 \\ 1.13899 - \end{array}$$

$$\begin{array}{r} \log \tan \delta \quad 8.6070 - \\ \log \xi^2 \quad 9.2833 - \\ \hline 7.0537 \\ 9.9437 - \end{array}$$

$$h \cdot h_0 = 0.0000 -$$

$$h_0 = 2.1385$$

$$\lambda - A = -13.64 -$$

$$4 \quad 23 \quad 15 \quad 97.00$$

$$\log h_0 \quad 0.33015 -$$

$$7.33115$$

$$\lambda_0 \quad 23 \quad 15 \quad 33.35 -$$

$$2.99896 -$$

$$997.6 -$$

$$\text{Red} \quad + 9.00 -$$

$$\delta - D = -16 \quad 37.2 -$$

$$C \quad 23 \quad 15 \quad 37.36 -$$

$$D = -2 \quad 02 \quad 29.6$$

$$\delta_0 = -2 \quad 18 \quad 02.3 -$$

$$\text{Red} \quad + 23.8 -$$

$$\delta' = -2 \quad 18 \quad 33.7 -$$

$$\begin{array}{r}
 23 \quad 12 \quad 49.49 \\
 \underline{45.51} \\
 + 3.98 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 + 2^0 \quad 49 \quad 26.8 \\
 49 \quad \underline{3.7} \\
 + 23.1 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 22 \quad 48 \quad 15.00 \\
 \underline{10.85} \\
 + 4.15 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 -8 \quad 01 \quad 32.8 \\
 \underline{55.9} \\
 + 23.1 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 23 \quad 57 \quad 40.01 \\
 \underline{36.06} \\
 + 3.95 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 -6 \quad 28 \quad 44.8 \\
 29 \quad \underline{11.2} \\
 + 26.5 \\
 \hline
 \end{array}$$

.1

+20

0

-20

9

6

8

-10

3.

.2

80 50 40 30 20 10 0 234. 30 40 30 20 10 0

9079

Reduction to Apparent Place

9

$= 109^{\circ} \quad 1.5$
 $H + \alpha \quad 7 \quad 16.1$
 $H \quad 8 \quad 0.4$
 $\alpha \quad 23 \quad 15.7$
 $G \quad 22 \quad 39.7$
 $G + \alpha \quad 21 \quad 50.1$
 $= 327^{\circ} \quad 31.5$

$\log \cos (G + \alpha) \quad 9.9261$
 $g \quad 1.2877$
 $\sin \quad 9.7299^h$
 $\tan \delta \quad 8.6032^h$
 $\quad \quad 8.8239$

$\log g' \quad 1.2438$
 $g \quad 8.7497^h$

$f. \quad +2.762$
 $g \quad +0.028$
 $h + 1 \quad 209$
 $\quad + 3989^{\checkmark}$

$\delta \quad -2 \quad 17 \quad 98$

$\log \cos \delta \quad 9.9997$
 $i \quad 0.8567^+$
 $i' \quad 0.8567$

$\log \sin \delta \quad 8.6029^h$
 $\cos (H + \alpha) \quad 9.5132^h$
 $h \quad 1.2825$
 $\sin (H + \alpha) \quad 9.9756$
 $\sec \delta \quad 0.0003$
 $\quad \quad 8.8239$

$h' \quad 9.3986$
 $h \quad 0.0823$

$g' + 16.36$
 $h' + 0.250$
 $i' + 7.189$
 $\quad + 23.799^{\checkmark}$

9079

Reduction to Apparent Place

9

$\delta = 109^\circ 15'$
 $H + \alpha = 7 \quad 16.1$
 $H = 8 \quad 0.9$
 $\lambda = 23 \quad 15.7$
 $G = 22 \quad 39.9$
 $G + \alpha = 21 \quad 50.1$
 $\delta = 327^\circ 31.5$

$\cos(G + \alpha) \quad 9.9261$
 $g \quad 1.2877$
 $\sin \quad 9.7299^h$
 $\tan \delta \quad 8.6032^h$
 $\quad \quad 8.8239$

$\log g' \quad 1.2138$
 $g \quad 8.9497^+$
 f

$f \quad +2.762$
 $g \quad +0.028$
 $h \quad +1.209$
 $\quad +3.999$

$S = 2 \quad 17 \quad 98$

$\log \cos \delta \quad 9.99997$
 $\alpha \quad 0.8567^+$
 $\alpha \quad 0.8567$

$\log \sin \delta \quad 8.6029^h$
 $\cos(H + \alpha) \quad 9.5132^h$
 $h \quad 1.2825$
 $\sin(H + \alpha) \quad 9.9756$
 $\sec \delta \quad 0.0003$
 $\quad \quad 8.8239$

$h' \quad 9.3986$
 $h \quad 0.0823$

$g' \quad +16.38$
 $h' \quad +0.250$
 $\alpha' \quad +7.199$
 $\quad +23.799$

98079

Lunar Parallax

10

α'	23	15	37.36 \checkmark	π	57'	17.9 \checkmark
θ	24	26	36.90 \checkmark			
$\delta - \alpha'$	1	10	59.04 \checkmark		9.86913	
$=$	17 $^{\circ}$	44	45.60 \checkmark		8.22178 \checkmark	
	1	6	27.70 \checkmark		9.48401 \checkmark	
$\frac{1}{2}(\alpha - \delta)$	17	38	17.90 \checkmark		0.00018 \checkmark	
					7.57510 \checkmark	

9.95727
 0.00000 \checkmark
 0.02091 \checkmark
 9.97818 \checkmark

$\alpha - \delta'$ +12' 55.39 \checkmark
 $=$ +51.69 \checkmark
 37.36

γ 43 33 40.8 \checkmark

δ -2 18 38.4 \checkmark

$\delta - \gamma$ 45 52 19.2 \checkmark

9.82670
 8.22178 \checkmark
 9.85600 \checkmark
 0.16170 \checkmark
 8.06568 \checkmark

$\delta - \delta'$ + 40 00.6 \checkmark

δ -1 38 34.8 \checkmark

δ 23 16 29.05 \checkmark

Ann Ephs -1 38 43.9 \checkmark

Ann Ephs 23 16 28.31 \checkmark

$\delta - \epsilon$ +5.6

$\delta - \epsilon$ +0.73 \checkmark

Curv. of Plate +1.2
 2nd Order Ref +0.1

+0.06

In Corr -0.2

-0.01

δ -1 38 38.0

δ 23 16 29.07

$\delta - \epsilon$ +5.5

+0.73

98079

Zurab Karallat

α'	23	15	37.30"	π	57	17.4"
δ	29	26	36.90"			
$\delta - \alpha'$	1	10	59.05"		9.86913	
$=$	170	95	95.60"		8.22178"	
	1	6	27.70"		9.98901"	
$\delta - \alpha'$	17	38	19.90"		0.00018"	
					7.57510"	

9.95727
 0.00000
 0.02091
 9.97818

$\delta - \alpha'$ +12' 59.39"
 = +51.69"
 37.30"

δ 43 33 40.8"

$\delta - 2$ 18 38.8"

$\delta - 3$ 40 52 19.2"

9.82690
 8.22178
 9.85600
 0.16170
 8.06578

$\delta - 5'$ 40 00.6"

$\delta - 1$ 38 39.8"

δ 23 16 29.05"

δ
 Ann Ephel -1 38 9.3.9"

Ann Ephel 23 16 28.31"

$\delta - C$ +9.8

$\delta - C$ +0.78"

Curv. of Plate +1.2
 2nd Order Ref +0.1

+0.06

1
9.
9.

2
12.
3.

3
27
22

1
2.
14

2
2.
12

3
2.
12

9080

Star Measures.

10 = 4

11

$\frac{1}{d}$	$\frac{1}{\lambda}$	$\frac{1}{\mu}$	$\frac{1}{\nu}$	$\frac{1}{\omega}$
1	20770	19886	20350	19899
9.9	12322	18322	19868	15368
9.5	22	2025	7270	7873
	62	84	98	10
	<u>9.8492</u>	<u>9.8436</u>	<u>9.5522</u>	<u>9.5572</u>

See
Second
Measure

$\frac{2}{d}$	$\frac{2}{\lambda}$	$\frac{2}{\mu}$	$\frac{2}{\nu}$	$\frac{2}{\omega}$
12.6	13822	14490	15584	12682
3.2	28	92	86	98
	88	36	88	68
	<u>12.5768</u>	<u>12.5756</u>	<u>3.2302</u>	<u>3.2322</u>

$\frac{3}{d}$	$\frac{3}{\lambda}$	$\frac{3}{\mu}$	$\frac{3}{\nu}$	$\frac{3}{\omega}$
27.5	16822	19252	19486	17782
22.6	12552	13552	14168	13110
	46	52	70	09
	26	59	92	82
	<u>27.9274</u>	<u>27.9298</u>	<u>22.5324</u>	<u>22.5320</u>

Moon Measures

$\frac{1}{d}$
22
17.2 rough

$\frac{2}{d}$	$\frac{2}{\lambda}$	$\frac{2}{\mu}$
22.9	20796	18684
15	11352	17532
	6056	3835
	98	98
	<u>22.8840</u>	<u>22.8898</u>

$\frac{3}{d}$	$\frac{3}{\lambda}$	$\frac{3}{\mu}$
23	79792	18292
15.2	17278	10728
	6270	5039
	78	302
	<u>15.2520</u>	<u>15.2789</u>

now measured again

L	20076	20072	20022	19938
1.9	84650	1851207	1853053	1539694
1.5	6658	202	18556	9294
1.2	82	68	18	32
	<u>9.8422</u>	<u>9.8436</u>	<u>9.5966</u>	<u>9.5928</u>
L	20108	17804	19952	20580
1.6	14392	13088	17620	12892
1.2	5297	7855	1015	92
	00	12	40	76
	<u>12.5756</u>	<u>12.5776</u>	<u>3.2334</u>	<u>3.2316</u>
L	17884	18226	19838	19720
1.5	13608	12520	1451815	1504939
1.2	0009	20	12	34
	86	18	30	12
	<u>27.9280</u>	<u>27.9298</u>	<u>22.5318</u>	<u>22.5322</u>

9080

Star Measures

1.

d	1	2	3	4
1	20770	19886	20350	19899
9.9	12322	12322	19868	12368
9.2	22	2025	7276	7873
	62	84	98	10
	<u>92492</u>	<u>98936</u>	<u>95022</u>	<u>95572</u>

Seg
Second
Measure

2	1	2	3	4
12.6	19598	18732	19886	20368
3.2	13822	14490	15284	12682
	28	9271	8685	98
	88	36	88	68
	<u>125768</u>	<u>125756</u>	<u>32302</u>	<u>32322</u>
3	1	2	3	4
27.5	16822	19252	19986	17782
22.6	12552	13252	19168	13110
	49	52	7065	092
	26	59	92	82
	<u>279274</u>	<u>279298</u>	<u>225324</u>	<u>225320</u>

Moon Measures

1
22
19.2 rough

3	1	2
22.9	20796	18689
15	11352	17532
	6056	3835
	98	98
	<u>228840</u>	<u>228898</u>

3	1	2
23	79792	18292
15.2	17278	10728
	62710	54139
	78	302
	<u>152520</u>	<u>152939</u>

Stars Measured again.

1	20076	20072	20022	19938
1.9	11650	1851207	1855053	15396
9.5	6658	02	18556	9294
	82	68	28	32
	<u>9.8422</u>	<u>9.8436</u>	<u>9.5466</u>	<u>9.5458</u>
2	20108	17804	19952	20580
12.6	14372	13588	17620	12892
3.2	5247	7882	1015	92
	00	12	40	76
	<u>12.5756</u>	<u>12.5776</u>	<u>3.2334</u>	<u>3.2316</u>
3	17884	18226	19838	19720
27.5	13608	12320	1451815	1504439
22.6	0007	20	12	34
	86	18	30	12
	<u>27.9280</u>	<u>27.9298</u>	<u>22.5318</u>	<u>22.5322</u>

9080

Moon Measures

12

d	X	~	d	~
4	17468		20392	
23.1	16062	59	11798	800
16	56		802	
X+	70		86	
	<u>23.1410</u>		<u>23.1414</u>	

5		19016	20399
23		12160	17288
16.7		52	6275
		06	89
		<u>16.6854</u>	<u>16.6889</u>

6	19100	20329
22.8	10730	18706
17	10	2013
	00	16
	<u>22.8380</u>	<u>22.8390</u>

7		20588	20589
22		13322	17890
17.7		18	08
		88	70
		<u>17.7268</u>	<u>17.7320</u>

8		19540	19552
21.1		10550	18540
17.9		38	60
+9		42	90
		<u>17.8998</u>	<u>17.8998</u>

9	19399	20638	19498	20368
20.2	11610	13910	12880	16968
17.7	10	0206	58	78
SC	92	38	64	60
	<u>20.2789</u>	<u>20.2768</u>	<u>17.6596</u>	<u>17.6598</u>

9080

Moon Measures

12

	d	x	~		d	y	~
L		17468		20392			
3.1		16062	59	11798	800		
6		56		802			
+		70		86			
		<u>23.1910</u>		<u>23.1914</u>			

5		19016		20394			
3		121.60	56	17288	75		
6.7		52		6275			
		06		89			
		<u>16.6854</u>		<u>16.6889</u>			

2		19100		20327			
2.8		10730	20	13706	13		
7		10		20			
		00		16			
		<u>22.8380</u>		<u>22.8390</u>			

L		20588		20589			
2		13322	20	17890	99		
7.7		18		08			
		88		70			
		<u>17.7268</u>		<u>17.7320</u>			

5		19540		19552			
11.1		10550		18540	50		
7.9		38	99	60			
+		42		90			
		<u>17.8998</u>		<u>17.8998</u>			

L		19599		20638			
10.2		11610	10	13910	06		
17.7		10		02	06		
C		92		38			
		<u>20.2789</u>		<u>20.2768</u>			

		19998		20368			
		12880	59	16968	73		
		58		78			
		67		60			
		<u>17.6598</u>		<u>17.6598</u>			

90.80

Times & Etc.

13

Aug 25

Exp. to Stars	0	40		0	52
" Moon	0	46	49.0 ^h	0	46 49.2 ^h
Clock fast.		1	38.9 ^h		

H. Sid Time	0	45	05.7 ^h	$\theta - \alpha = +1^h 28^m$
H. Long	4	24	31.05 ^h	
G. Sid T.	5	29	36.75 ^h	
Sid T.M. Moon	10	10	40.49 ^h	
Interval	19	18	56.26 ^h	
Reduction		3	9.86 ^h	
G. M. T.	19	15	46.80 ^h	

From Naut Alm.		R. A.		Dec.
Moon 19 ^h	23	16	33.56	-1 38 02.3 ^h
Motion in 1 ^m			1.9703 ^h	1 15.377 ^h
" " 15.7733			31.08 ^h	+ 4 2.5 ^h
Tabular Place	23	17	04.69 ^h	-1 33 59.8 ^h

Moon's Age -15 days

934 = 10.5^h

Parallax	57'	16" 86 ^h
Semid.	15'	38.0 ^h
R ₁		938.0 ^h
Aug.		10.6 ^h
Err 4		-0.6 ^h
R		948.0 ^h
R		2.0322 ^h
AR		-971 ^h
(1+AR)		1.9351 ^h
R ₂		3.7476 ^h

$a = -501.7^h$
 24
 -477.7

9080

Lenses & Etc.

13

Aug 23

4 p. T. Stars	0	90		0	32
" Moon	0	96	99.0"	0	96 99.2"
Clock fast		1	389"		
H. Sid Time	0	95	05.7	-8-1 = +1 ^h	28 ^m
H. Long	4	94	31.05"		
G. Sid T.	2	29	36.75"		
Sid T. M. Moon	10	10	90.99"		
Interval	19	18	56.46"		
Reduction		3	9.86"		
G. M. T.	19	15	46.80"		

From Hunt Alm.		R. A.		Dec.	
Moon 19 ^h	23	16	33.56	-1	38 02.3
Motion in 1 ^m			1.9703"	+ 7	15.379"
" " 15.7733 ^h			31.08"	+ 9	2.5"
Saturn Place 23		17	04.68	-1	33 59.8

Moon's Age 15 days

939.10.51"

Parallax	57'	16" 86"
Secund.	15'	38.0"
R.		938.0"
Aug.		10.6"
Trl	7	-0.6"
R.		948.0"
R.		2.0322"
alt		-9.71"
1 + alt		1.9351"
R.		3.7976"

$$\begin{array}{r}
 4 = -501.7 \\
 29 \\
 \hline
 -477.7
 \end{array}$$

9080

Plate Constants

19

X	9.8939	12.5962	27.7286
Y	10.3925	13.1592	28.9174
$X-Y$	-4986	-5830	-17888

α	9.5462	3.2312	22.5322
η	9.8321	3.1792	23.3321
$\alpha-\eta$	-2859	+570	-7999

$X-Y$	+500X	+83.24	+17X	-798
-4986	+4922 = -64	+799 = +730 + 17 = +747	= -1	
-5830	+6288 = +408	+269 = +727 + 21 = +748	= 0	
-17888	+13714 = -1174	+1875 = +701 + 97 = +798	= 0	
21.2052	+10603	+1328	+36	= 22.3271

$\alpha-\eta$	+500Y	-82.2X	+7.24	-1179
-2859	+4773 = +1914	-809 = +1105 + 69 = +1174	= 0	
+570	+1616 = +2186	-1039 = +1152 + 23 = +1175	= +1	
-7999	+11266 = +3267	-2255 = +1012 + 162 = +1174	= 0	
15.9691	+7982	-1743	+115	= 16.9821

Tables	$a = -1$	$c = -3.2$	$a-c = +3.1$	$b+d = -2.5$
1062	$= -501.7$	$= -507.2$	$= +5.5$	$= -1.0$
$a-c$	-501.6	-504.0		$+1.5$

9080

Plate Constants

19

λ	9.8939	12.5762	27.9286
η	10.3925	13.1592	28.9179
$\lambda - \eta$	- 4986	- 5830	- 17888

η	9.5962	3.2312	22.5322
η	9.8321	3.1792	23.3321
$\eta - \lambda$	- 2859	+ 570	- 7999

$$\begin{array}{rclcl}
 \lambda - \eta & + 1000 \times & + 83.24 & + 1.7 \times & - 798 \\
 - 4986 + 4922 = -64 & + 799 = + 730 + 17 = + 747 & & & - 1 \\
 - 5830 + 6288 = + 458 & + 269 = + 727 + 21 = + 748 & & & - 0 \\
 - 17888 + 13719 = - 1179 & + 1875 = + 701 + 97 = + 798 & & & - 0 \\
 1.2052 + 10603 & + 1328 & + 36 & & = 22.3271
 \end{array}$$

$$\begin{array}{rclcl}
 \eta - \lambda & + 1000 \times & - 82.2 \times & + 7.24 & - 1179 \\
 - 2859 + 4773 = + 1914 & - 809 = + 1105 + 69 = + 1174 & & & - 0 \\
 + 570 + 1616 = + 2186 & - 1039 = + 1152 + 23 = + 1175 & & & + 1 \\
 - 7999 + 11266 = + 3267 & - 2255 = + 1012 + 162 = + 1174 & & & - 0 \\
 1.9691 + 7982 & - 1743 & + 115 & & = 16.9821
 \end{array}$$

$$\begin{array}{rclcl}
 \text{Tables} & a = -.1 & c = -3.2 & a \cdot c = +3.1 & b + d = -2.5 \\
 \text{Obs} & = -501.7 & = -507.2 & = +3.5 & = -1.0
 \end{array}$$

$A = +2.5$ $B = +2.6$ 

9080		Moon's Center					15-
x		$x - x_0$	Δx	$(x - x_0)^2$	$(x - x_0) + (y - y_0)^2$	$y - y_0$	$0 - c$
1							
2	228844	+1,6774	-2	2,81,30	3,7485	+39	
3	23,0000	+1,7930	-2	3,2191	3,7318	-128	
4	+23,1412	+1,9342	0	3,7412	3,7412	-39	
5	23,0000	+1,7930	+2	3,2155	3,7340	-106	
6	22,8385	+1,6315	+2	2,6624	3,7301	-145	
7	22,0000	+0,7930	+4	0,6294	3,7336	-110	
8	21,2070	0,0000	+5	0,00,00	3,7377	-69	
9	20,2776	-0,9294	+4	0,8630	3,7299	-147	

$$R = 3,7996$$

y		$y - y_0$	Δy	$(y - y_0)^2$	L
1					
2	15,0000	-0,9670	-2	0,9355	1,20 ^v
3	15,2477	-0,7193	-2	0,5177	1,12 ^v
4	15,9670	0,0020	0	0,0000	90 ^v
5	16,6869	+0,7199	+2	0,5185	68 ^v
6	17,0000	+1,0330	+3	1,0677	58 ^v
7	17,7294	+1,7614	+5	3,1042	24 ^v
8	+17,8998	+1,9328	+5	3,7377	0 ^v
9	17,6598	+1,6928	+4	2,8669	331 ^v 199 ⁰

Approximate Center
 $x = 23$ $y = 15,2477$

$$16,6869$$

$$31,9346$$

$$y_0 = 15,9673$$

$$y_{\max} = 17,8998$$

$$R = 1,9325$$

$$x_{\max} = 23,1412$$

$$x_0 = 21,2087$$

Moon's Center $\begin{cases} x_0 = 21,2070 \\ y_0 = 15,9670 \end{cases}$

9080		Moon's Center			15	
x		$x - x_0$	Δx	$(x - x_0)^2$	$(x - x_0)(y - y_0)$	$y - y_0$
1						
2	228849	+16779 - 2		281.30	37485	+39
3	230000	+17930 - 2		32191	37318	-128
4	+231912	+19392 0		37912	37912	-39
5	230000	+17930 + 2		32155	37340	-106
6	228385	+16315 + 2		26629	37301	-195
7	220000	+07930 + 9		06299	37336	-110
8	212070	00000 + 5		00000	37377	-69
9	202776	-09299 + 9		08630	37299	-197

$$R = 3.7996$$

y		$y - y_0$	Δy	$(y - y_0)^2$	
1					
2	150000	-09670 - 2		09355	120
3	152977	-07193 - 2		05177	112
4	159670	00000 0		00000	90
5	166869	+07899 + 2		05185	68
6	170000	+10330 + 3		10677	58
7	177299	+17619 + 5		31092	29
8	+178998	+19328 + 5		37377	0
9	176598	+16928 + 9		28669	331

Approximate Center
 $x = 23$
 $y = 15.2977$
 16.6869
 31.9396
 $y_0 = 15.9673$
 $y_{max} = 17.8998$
 $R = 1.9325$
 $x_{max} = 23.1912$
 $x_0 = 21.2087$

Moon's Center $\begin{cases} x_0 = 21.2070 \\ y_0 = 15.9670 \end{cases}$

Formation of Normals.

1			
2	-1.63	+ 65.5'	- 38.
3	-1.29	- 229.0	+ 92.
4	0.00	- 65.5'	000
5	+1.29	- 190.0	- 76.5'
6	+1.68	- 236.5	- 149.5'
7	+1.39	- 87.0	- 193.5'
8	0.00	- 000	- 133.0
9	-1.57	+ 137.0	- 298.0
	+ 4.36	+ 202.5	+ 92.0
	- 4.49	- 808.0	- 838.5
	- 0.13	- 605.5	- 746.5

-1.33

$$-0.13 + 12.77 = +5.882$$

+ 0 = + .07				new 0-c		
new	Preceding	new 0-c				
+12	+8	+3	+45	-8	-13	+29
+12	+6	+2	-104	-6	-10	-116
+14	0	-2	+32	0	-2	+33
+12	-6	-10	-10	+6	+2	-02 +2
+11	-8	-13	-40	+8	+3	-29
+6	-14	-20	-5	+17	+3	+23
0	-16	-26	+11	+13	-1	+72
-6	-12	-20	+46	+13	-9	+72
		(-23)				

9080

Conditional Equations.

16
Cor

	D	C	D - C
1			
2	+1.68 - 0.97 = +39	-60 + 57 = -3	+92 +45
3	+1.79 - 0.72 = -128	-69 + 42 = -22	-106 -104
4	+1.93 0.00 = -34	-69 0 = -69	+35 +32
5	+1.79 + 0.72 = -106	-69 - 42 = -106	0 -10
6	+1.63 + 1.03 = -175	-58 - 60 = -118	-27 -40
7	+0.79 + 1.76 = -110	-28 - 102 = -130	+20 -5
8	0.00 + 1.93 = -69	0 - 112 = -112	+43 +11
9	-0.93 + 1.69 = -177	+33 - 99 = -66	+81 +46
		+221	-133

$$+17.14 - 0.13 = -605.5 \quad +8.68 \Delta$$

$$-0.13 + 12.79 = -796.5 \quad +5.44 \Delta$$

$$-0.13 - 0.0 = - -7.6$$

$$+12.79 = -791.9$$

$$+17.14 + 76 = -605.5$$

$$b = -5.8.3 + 0.510$$

$$a = -35.8 + 0.72$$

Are Measured 189°

$$\frac{p}{h} = .15$$

$$\frac{z}{h} = +9.8$$

$$Im = 7 \quad n = 1.97$$

$$+9.8 = +65 \quad \Delta R = +0.8$$

$$-2RC = -0.78$$

$$\Delta C = 16$$

$$err = +0.2$$

$$\Delta \delta = -0.40$$

$$-8$$

$$\Delta S = -0.2$$

$$\Delta P = +0.6$$

$$\Delta q = -0.33$$

$$-7$$

$$\Delta q = 0.01$$

1080

Conditional Equations

16

	D	C	D - C
1			
2	$+1.68 - 0.97 = +39$	$-60 + 37 = -3$	$+42$
3	$+1.79 - 0.72 = -128$	$-69 + 92 = -22$	-106
4	$+1.93 - 0.00 = -34$	$-69 - 0 = -69$	$+35$
5	$+1.79 + 0.72 = -106$	$-69 - 92 = -106$	0
6	$+1.63 + 1.03 = -195$	$-58 - 60 = -118$	-27
7	$+0.79 + 1.76 = -110$	$-28 - 102 = -130$	$+20$
8	$0.00 + 1.93 = -69$	$0 - 112 = -112$	$+43$
9	$-0.93 + 1.69 = -177$	$+33 - 99 = -66$	$+81$
		$+221$	-135

$$117.19 - 0.13 = -605.5$$

$$-0.13 + 12.79 = -796.5$$

$$-0.13 - 0.0 = -9.6$$

$$+12.79 = -771.9$$

$$117.19 + 76 = -605.5$$

$$b = -58.3$$

$$a = -358$$

Are Measured 1990

$$\frac{\beta}{h} = .15$$

$$\frac{\beta}{h} = +9.8$$

$$\frac{+9.8}{.15} = +65 \quad \Delta K = +0.8$$

9080 Moon's Mean Position

17

$$\begin{array}{r} x_0 = 21.2070 \\ - 18 \\ \hline 21.2052 \end{array}$$

$$\begin{array}{r} y_0 = 15.9670 \\ - 29 \\ \hline 15.9641 \end{array}$$

From Plate Constants

$$x = 22.3271$$

$$y = 16.9821$$

$$z = +0.3271$$

$$n = -1.5179$$

$$\log z = 9.51768$$

$$\log \tan \delta = 8.5943$$

$$\log \cos \delta = 9.99967$$

$$z = 9.0293$$

$$\begin{array}{r} 8.50727 \\ \hline 1.00777 \end{array}$$

$$\begin{array}{r} 7.0537 \\ \hline 4.6770 \end{array}$$

$$K-A = +10.18$$

$$n_1 = 0.0000$$

$$n_0 = -1.5179$$

$$A = 23 \quad 15 \quad 47.00$$

$$\log n_0 = 0.18124$$

$$x_0 = 23 \quad 15 \quad 57.18$$

$$7.33115$$

$$2.85009$$

$$\text{Red} = +7.00$$

$$-708.1$$

$$x' = 23 \quad 16 \quad 01.18$$

$$\delta - D = -11 \quad 48.1$$

$$D = -2 \quad 02 \quad 29.6$$

$$S_0 = -2 \quad 14 \quad 12.7$$

$$\text{Red} = +23.8$$

$$S' = -2 \quad 13 \quad 48.9$$

9080 Moon's Mean Position

17

$$\begin{array}{r} 10 = 21.2070'' \\ - 18'' \\ \hline 21.2052'' \end{array}$$

$$\begin{array}{r} 70 = 15.9670'' \\ - 29'' \\ \hline 15.9691'' \end{array}$$

From Plate Constants

$$\kappa = 22.3271''$$

$$\eta = 16.9821''$$

$$\zeta = +0.3271''$$

$$h = -1.5179''$$

$$\log \zeta = 9.51968''$$

$$\log \tan \delta = 8.5993''$$

$$\log \cos \delta = 9.99967''$$

$$\zeta = 9.0293''$$

$$8.50729$$

$$7.0539$$

$$1.00777''$$

$$9.6770''$$

$$\kappa - A = +10.18''$$

$$h_1 = 0.0000''$$

$$h_0 = -1.5179''$$

$$A = 23 \quad 15 \quad 47.00$$

$$\log h_0 = 0.18124''$$

$$\alpha_0 = 23 \quad 15 \quad 57.18''$$

$$7.33115$$

$$2.85009''$$

$$\text{Red} = +7.00''$$

$$-708.1''$$

$$\delta - D = -11 \quad 48.1''$$

$$\delta' = 23 \quad 16 \quad 01.18''$$

$$D = -2 \quad 02 \quad 29.6$$

$$\delta_0 = -2 \quad 14 \quad 12.7''$$

$$\text{Red} = +23.8''$$

$$\delta' = -2 \quad 13 \quad 48.9''$$

9080

Reduction to Apparent Place,

18

	109°	10.5		δ	-2	17	13
$H + \alpha$	31	16.7					
H	8	00.8		$\log \cos \delta$	9.9997		
a	23	15.9		i	0.8568		
G	22	37.4		i'	0.8565		
$G + a$	45	50.3					
	327°	39.5		$\log \sin \delta$	8.3915	n	

$\log \cos G + \alpha$	9.9267		
g	1.2877		
$\sin "$	9.7293	n	
$\tan \delta$	8.5918	n	
	8.8239		

$\cos H + \alpha$	9.5165	n	
h	1.2825		
$\sin "$	9.9752		
$\sec \delta$	0.0003		
	8.8239		

$\log g'$	1.2141		
g	8.7327		

h'	9.3905		
h	0.0819		

f	+2.762		
g	+0.027		
h	+1.207		
	+3.996	v	

g'	+16.37		
h'	+0.295		
i	+7.186		
	+23.801	v	

7080

Reduction To Apparent Place,

18

109° 10.5°
 $H + n$ 31 167
 H 8 00.8
 n 23 15.9
 G 22 37.4
 $G + n$ 45 50.3
 321° 39.5°

$\log \cos G$ 12 99 269
 g 1,2877
 \sin 9,7293 n
 \tan 8,5918 n
 88239

$\log g'$ 1,2141
 g 8,9327

f +2,762
 g +0,027
 h +1,207
 +3,996

δ -2 19 13

$\log \cos \delta$ 99997
 n 0,8568
 n 0,8565

$\log \sin \delta$ 8,3915 n
 $\cos H + n$ 9,5463 n
 h 1,2825
 \sin 9,9752
 $\sec \delta$ 0,0003
 88239

h' 9,3905
 h 0,0819

g' +16,37
 h' +0,245
 n +7,186
 +23,801

7080

Lunar Parallax

19

$$\begin{array}{rcl}
 \alpha' & 23 & 16 \quad 01.18 \checkmark \\
 \delta & 0 & 45 \quad 05.7 \checkmark \\
 \delta - \alpha' & +1 & 29 \quad 08.52 \checkmark \\
 = & +22 & 16 \quad 7.80 \checkmark \\
 \frac{1}{2}(1-\alpha') & & 8 \quad 1.93 \checkmark \\
 & 22 & 8 \quad 5.87 \checkmark
 \end{array}
 \quad
 \begin{array}{rcl}
 \pi & 57' & 16.86 \checkmark \\
 9.86913 \\
 8.22172 \checkmark \\
 9.57858 \checkmark \\
 0.000162 \\
 7.66959 \checkmark
 \end{array}$$

$$\begin{array}{rcl}
 9.95727 \\
 0.00000 \checkmark \\
 0.03325 \checkmark \\
 9.99052 \checkmark
 \end{array}$$

$$\begin{array}{rcl}
 \alpha - \alpha' & 16 & 03.87 \checkmark \\
 = & +1 & 7.26 \checkmark
 \end{array}$$

$$\begin{array}{rcl}
 \delta & 47 & 22 \quad 26.5 \checkmark \\
 \delta & -2 & 13 \quad 98.9 \checkmark \\
 \delta - \delta & 46 & 36 \quad 15.4 \checkmark
 \end{array}$$

$$\begin{array}{rcl}
 9.82670 \\
 8.22172 \checkmark \\
 9.86131 \checkmark \\
 0.13534 \checkmark \\
 8.06494 \checkmark
 \end{array}$$

$$\delta - \delta' \quad +39 \quad 54.3 \checkmark$$

$$\delta \quad -1 \quad 33 \quad 54.8 \checkmark$$

$$\text{Ann Eph} \quad -1 \quad 33 \quad 59.8 \checkmark$$

$$\delta - \epsilon \quad + \quad 5.2 \checkmark$$

$$\begin{array}{rcl}
 \text{Curv. of Plate} & +1.2 \\
 2nd. Order Ref & +0.1
 \end{array}$$

$$\text{In cm} \quad -0.2$$

$$\delta \quad -1 \quad 33 \quad 57.4$$

$$\alpha \quad 23.17 \quad 05.77 \checkmark$$

$$\text{Ann Eph} \quad \alpha \quad 23 \quad 17 \quad 07.68 \checkmark$$

$$\delta - \epsilon \quad +0.80 \checkmark$$

$$+0.06$$

$$-0.01$$

$$\alpha \quad 23 \quad 17 \quad 05.83$$

9080

Lunar Parallax

19

$$\begin{array}{rclcl}
 \alpha' & 23 & 16 & 01.18'' & \\
 + & 0 & 75 & 05.4'' & \pi & 57' & 16.86'' \\
 \delta - \alpha' & +1 & 29 & 04.52'' & \\
 = & +22 & 16 & 7.80'' & 9.86913 \\
 \frac{1}{2}(\alpha + \delta) & & 8 & 1.93'' & 8.22172'' \\
 & 22 & 8 & 5.87'' & 9.57858'' \\
 & & & & 0000162 \\
 & & & & 7.66959''
 \end{array}$$

$$\begin{array}{r}
 9.95727 \\
 6.00000'' \\
 0.03325'' \\
 \hline
 9.99052''
 \end{array}$$

$$\begin{array}{rcl}
 \alpha - \alpha' & 16 & 03.87'' \\
 = & 1 & 7.26''
 \end{array}$$

$$\delta \quad 47 \quad 22 \quad 26.5''$$

$$\delta \quad -2 \quad 13 \quad 98.9''$$

$$\delta - \delta' \quad 46 \quad 36 \quad 15.8''$$

$$\begin{array}{r}
 9.82670 \\
 8.22172'' \\
 9.86131'' \\
 0.13539'' \\
 \hline
 8.06999''
 \end{array}$$

$$\delta - \delta' \quad 139 \quad 59.8''$$

$$\delta \quad -1 \quad 33 \quad 58.6'' \quad \alpha \quad 23 \quad 17 \quad 05.79''$$

$$\text{Ann. Eph.} \quad -1 \quad 33 \quad 59.8'' \quad \text{Ann. Eph.} \quad 23 \quad 17 \quad 07.63''$$

$$\text{O-C} \quad + \quad 5.2'' \quad \text{O-C} \quad + 0.80''$$

$$\begin{array}{r}
 \text{Curv. of Plate} \quad + 1.2 \\
 2nd. \text{ Order Ref.} \quad + 0.1
 \end{array}$$

$$+ 0.06$$

7086

Star Measures

21

	d	x	z		d	m	z	
1	20348			20296	15742		18816	
15.9	11758			1888081	13722	11	1085046	
13.2	5255			82	00		4246	
	56			96	76		08	
	<u>158600</u>			<u>158586</u>	<u>132062</u>		<u>132036</u>	
2	20456			20222	19988		20900	
22.0	1056262			19888	1620202		1417770	
23.4	62			8486	16202		6670	
	52			12	98		00	
	<u>219890</u>			<u>219866</u>	<u>233790</u>		<u>233770</u>	
3	19292			20150	20570		20814	
24.5	1845255			1500009	1237272		1902021	
9.8	58			08	72		2221	
	98			56	72		30	
	<u>245870</u>			<u>249850</u>	<u>98196</u>		<u>98209</u>	

Moon Measures

19366

rough

60

1				20900			
23	19220			15268			
19.3	13978			68			
	6069			02			
	12						
	<u>235296</u>			<u>235266</u>			
2	19220			20000			
23.6	12668			1659081			
15	5260			7281			
	30			992			
	<u>236566</u>			<u>236584</u>			

7086

Star Measures

21

d	x	z	d	y	z
1	20348		20296	13772	18816
15.9	11758		1888081	13722	10850
13.2	5255		82	00	9246
	56		96	76	08
	<u>158600</u>		<u>158586</u>	<u>132062</u>	<u>132036</u>
2	20456		20022	19988	20900
22.0	1056262		19888	1520202	19179
23.4	62		8486	16202	6670
	52		12	98	00
	<u>219890</u>		<u>219866</u>	<u>233790</u>	<u>233770</u>
3	19292		20150	20570	20819
29.2	19952		1500009	1237272	1902021
9.8	5855		08	72	2221
	98		56	72	30
	<u>298870</u>		<u>299850</u>	<u>98196</u>	<u>98209</u>

Moon Measures.

19366

rough

60

2	19220	20908
23.6	13978	15268
15	6069	68
	12	32
	<u>235296</u>	<u>235266</u>
3	19220	20000
23.7	12668	1659081
15.7	5260	7281
+K	30	992
	<u>236566</u>	<u>236589</u>

9086

Moon Measures

22

4	18239	19992
23.6	1186457	1638889
16	50	90
	90	96
	<u>23.6380</u>	<u>23.6396</u>

5	18238	29978
23.2	16720	1451209
17	1015	9609
	46	9972
	<u>23.1529</u>	<u>23.1532</u>

6	18990	20906
23	17090	11850
17.1	3035	3899
	500	19
	<u>17.1956</u>	<u>17.1930</u>

7	17508	20380
22	11972	16906
17.6	6468	06
	12	78
	<u>17.6092</u>	<u>17.6028</u>

8	17408	19398
21.5	11208	15558
17.7	19602	7069
14	08	98
	<u>17.6206</u>	<u>17.6216</u>

9	17436	19318
21	12708	17028
17.4	0009	2029
	30	18
	<u>17.9730</u>	<u>17.9706</u>

9086

Moon Measures

22

<u>9</u>	18239	19992
23.6	1186957	1038889
16	5057	90
	90	96
	<u>23.6380</u>	<u>23.6396</u>

<u>5</u>	18238	19978
23.2	16720	1451209
17	1015	9609
	96	9972
	<u>23.1529</u>	<u>23.1532</u>

<u>6</u>	18990	20906
23	17090	11850
17.1	3035	3899
	500	19
	<u>17.1936</u>	<u>17.1930</u>

<u>7</u>	17508	20380
22	11972	16906
17.6	6968	06
	12	78
	<u>17.6092</u>	<u>17.6028</u>

<u>8</u>	17908	19398
21.5	11208	15558
17.7	19602	7069
19	08	98
	<u>17.6206</u>	<u>17.6216</u>

<u>9</u>	17936	19318
21	12708	17028
17.4	0009	2029
	30	18
	<u>17.9730</u>	<u>17.9706</u>

9086

Times & Etc.

23

Aug 26 15

Epp. to Stars	0	12	0	29
" " Moon	0	18	27.1	0 18 27.3
Clock fast	0	1	40.0	
H. Sid. Time	0	16	47.20	$\theta - \alpha = +0^h 17^m$
H. Long	4	49	31.05	
G. S. T.	5	01	18.25	
Sid. T. M. H.	10	17	37.05	
Interval	18	46	41.20	
Reduction		3	4.58	
G. M. T.	18	43	36.62	

From Naut. Alman.	P. A.	Dec.
Moon 18	0 01 21.02	+9 10 52.2
Motion in 1 ^m	+ 1.9306	
" 43.6103	+1 27.20	+10 47.9
Tabular Place	0 2 45.22	+9 21 40.1

Moon's Age 16 days

Parallax	56" 35.7
Semid	15" 26.9
R.	926.9
Aug.	12.2
R. 3	-03
R.	938.8
R	2.0129
at R.	-95.6
(1+2)R	1.9168
R ²	3.6741

939 = 1.2.35

$$\begin{array}{r}
 \alpha = -499.1 \\
 + 29 \\
 \hline
 -475.1
 \end{array}$$

1080

series x sec

2

Aug 26 15

Eggs to Stars	0	12		0	29	
Moon	0	18	27.1"	0	18	27.3"
Clock fast		01	90.0"			

H. Sid Time	0	16	97.20"	8-9: +0"	19"
H. Long	9	79	31.05"		
G. S. J	5	01	18.25"		
Red I III II.	10	19	37.05"		
Interval	18	76	91.20"		
Reduction		3	9.58"		
g III J	18	73	36.62"		

from Naut alim.			R.A.			Dec
Moon 15 ^h	0	01	21.02	+9	10	52.2
Motion in 1 ^m		1	29.9306			
93.6103		+1	29.00		+10	71.9
Saturn Place	0	2	45.22"	+9	21	90.1"

Moon's Age 16 days

Parallax	56'	35"7
Semi-d	15"	26.9"
R.		926.9
Aug		12.2
Red. 3		-0.3
R.		938.8
R.		2,012.9
alt		-95.6
11.4R		1.7168
R ²		3.6771

939: 72.35

$$\begin{array}{r}
 a = -999.1 \\
 + 29 \\
 \hline
 -975.1
 \end{array}$$

9086

Plate constants

29

x	y	x	y
15.8593	13.2099	23.5918.93 + 3	26.02.3
21.9878	23.3780	00.0240.95	48.37.7
24.9895	9.8200	00.0900.47	2.58.46.4
5) 62.3316	3) 46.7029	3) 00.0560.35	9.132.63.4
20.7772	15.4676	00.0200.12	3.44.21.1
22.315	18	+37.83	+19.26.3
+1.2228	+2.5324	00.02.37.95 + 4	03.47.4
31.5	466.15		
+37.83	+1166.2	Plate center	{ A = 00.02.38 D = +09.03.47

$$\begin{array}{rclcl}
 x-y & +500x & & +99.94 - 9x & -11062 \\
 2994 + 7930 & = +10724 & + 652 - 17 & = +11062 & = 0 \\
 1067 + 10999 & = +9927 & + 1155 - 20 & = +11062 & = 0 \\
 1672 + 12292 & = +10600 & + 985 - 22 & = +11063 & = +1 \\
 21.7917 + 10871 & & + 776 - 19 & & = 21.7983
 \end{array}$$

$$\begin{array}{rclcl}
 x-y & +500y & & -76.74 & +3.84 & -6783 \\
 570 + 6602 & = +7172 & - 790 & = +6932 & + 51 & = +6783 = 0 \\
 9268 + 11689 & = +7721 & - 1027 & = +6394 & + 89 & = +6783 = 0 \\
 2679 + 9910 & = +7589 & - 1193 & = +6476 & + 37 & = +6783 = 0 \\
 15.7035 + 7852 & & - 1015 & & + 60 & = 15.7799
 \end{array}$$

$$\begin{array}{rclcl}
 \text{Tables} & a = -1.3 & c = -2.5 & a-c = +2.2 & b+d = 0 \\
 \text{Obs} & = -999.1 & = -503.8 & = +4.7 & = -2.7 \\
 O-C & -498.8 & -501.3 & & -2.7
 \end{array}$$

7086

Plate Constants

29

x	y	x	y
15.8593	13.2099	23.5918.93 +3	26.02.3
21.9878	233780	00.0290.95	9 98 39.7
29.9895	9.8200	00.0900.97	2 58 46.4
51.623316	51969029	3)00.0560.35	9 132 63.4
20.7772	15.9676	00.0220.12	3 99 21.1
22.713	18.667	+37.83	+19 26.3
+1.2228	+2.5329	00.0237.95 +9	03 97.4
+31.5	966.5	Plate Center { A= 00 02 38 D= +09 03 47	
+37.383	+1166.2		

$$\begin{aligned}
 x-y &+ 500x & +99.94 - 9x & - 11062 \\
 +2797 + 7930 & = +10729 + 652 - 19 & = +11062 & = 0 \\
 -1067 + 10999 & = +9927 + 1155 - 20 & = +11062 & = 0 \\
 -1642 + 12292 & = +10650 + 485 - 22 & = +11063 & = +1 \\
 21.7917 + 10871 & & + 776 - 19 & = 21.79.83
 \end{aligned}$$

$$\begin{aligned}
 y-h &+ 500y & - 96.74 & + 3.84 & - 698 \\
 +570 + 4602 & = +7172 - 790 & = +6382 + 51 & = +6783 = \\
 -9268 + 11689 & = +7921 - 1027 & = +6894 + 89 & = +6783 = 6 \\
 +2679 + 9910 & = +12589 - 1193 & = +11396 + 37 & = +11433 = 1 \\
 15.7035 + 7852 & & - 1015 & + 60 & = 15.7979
 \end{aligned}$$

$$\begin{aligned}
 \text{Tabler } a &= -.3 & e &= -.25 & a-e &= +.22 & b+d &= 0 \\
 \text{Obs } &= -999.1 & &= -503.8 & &= +9.7 & &= -2.7
 \end{aligned}$$

	\bar{y}	η	$\Delta\eta$	-1.6η	0
1	-6.39	-7.85	-1.0	+1.0	~ 0
2	+0.09	+5.80	0	0	0
3	+2.65	-8.75	+5	-4	$= +1$
$\mu\eta$	-0.20	-2.26		0	<u>0</u>

$\Delta\eta$	-1.54		+2
-7	+7	~ 0	-2
+5	-9	~ -4	+2
-16	+13	~ -3	+1
	+3		<u>+5</u>

9086

Standard Coordinates

25-

Cape No 3369-7.9 Cape No 5-8.7 Cape No 10-8.5-

C	23 58 32.85	00 01 54.83	00 03 17.35
L	32.85	54.90	17.92
E	32.84	54.81	17.33
Mean	23 58 32.85	00 01 54.85	00 03 17.37
Rec	+46.08	+46.10	+46.10
a	23 59 18.93	00 02 20.95	00 04 00.47
A	00 02 38.00	00 02 38.00	00 02 38.00
a-A	-03 19.07	+02.95	+1 22.47
sin(a-A)	-199.06	+2.95	+82.77
log n	2.29898 n	0.96982	1.91630
cos d	9.99922	9.99896	9.99942
$\frac{r}{r_0}$	0.80544 n	8.97552	0.92296
$\frac{r}{r_0}$	-6.3891	+0.0945	+2.6782
$\frac{r}{r_0}$	-10	+0	+5
$\frac{r}{r_0}$	15 6098	22.0945	24.6787
X	15 8593	21.9878	24.7845
X-Z	+2494	-1067	-1642

C	+3 21 01.6	+4 43 53.5	+2 53 05.9
L	1.9	54.3	5.9
E	1.4	54.2	5.2
Mean	3 21 01.6	4 43 54.0	2 53 05.7
Rec	+5 00.7	+5 00.7	+5 00.7
a	+3 26 02.3	+4 48 54.7	+2 58 06.4
D	+4 03 47	+4 03 47	+4 03 47
a-D	-37 44.7	+45 07.7	-1 05 40.6
tan(a-D)	-2 267.8	+2707.9	-394.1
log n	3.35503 n	3.43263	3.59562 n
$\frac{r}{r_0}$	0.68618 n	0.76378	0.92677 n
log tan d	8.7782	8.9255	8.7197
$\frac{r}{r_0}$	1.6109	9.9510	0.8459
$\frac{r}{r_0}$	7.7425	5.9299	6.6140
$\frac{r}{r_0}$	-4.8599	+5.8047	-8.9783
$\frac{r}{r_0}$	+0.0028	+0.0001	+0.0007
n	13.1479	23.8078	9.5521
n	13.2099	23.3780	9.8200
n-n	+570	-4268	+2679

9086

Standard Coordinates

25-

Cape No 3369-7.9 Capella 5-8.7 Cape No 10-8.5-

C	23 58 32.80	00 01 54.83	00 03 17.35
L	32.85	54.90	19.92
E	32.84	54.81	19.33
Mean	23 58 32.85	00 01 54.85	00 03 19.37
Pres	196.08	+96.10	+96.10
a	23 59 18.93	00 02 40.95	00 04 00.47
A	00 02 38.00	00 02 38.00	00 02 38.00
a-A	-03 19.07	+02.95	+1 22.77
Sin(a-A)	-199.06	+2.95	+82.97
Log	2.29898 n	0.96982	1.91630
Cos	9.99922	9.99896	9.99992
$\frac{S}{a}$	0.80549 n	8.97552	0.92296

$\frac{S}{a}$	-6.3891	+0.0945	+2.6982
$\frac{S}{a}$	-10	+0	+5
L	15.6099	22.0945	29.6987
L	15.8593	21.9878	29.9895
L-L	+2898	-1067	-1642

C	+3 21 01.6	+9 93 53.5	+2 53 03.9
L	1.9	54.3	5.9
E	1.9	54.2	5.2
Mean	3 21 01.6	9 93 54.0	2 53 03.7
Pres	+5 00.7	+5 00.7	+5 00.7
a	3 26 02.3	9 98 54.7	2 58 06.4
D	+9 03 97	+9 03 97	+9 03 97
a-D	-37 99.7	+95 07.7	-1 05 40.6
Sin(a-D)	-2269.8	+2707.9	-3941.1
Log	3.35503 n	3.93263	3.59562 n
$\frac{S}{a}$	0.68618 n	0.76378	0.92677 n

Log tan	8.7782	8.9255	8.7197
$\frac{S}{a}$	1.6109	9.9510	0.8459
$\frac{S}{a}$	7.9425	5.9299	6.6190

$\frac{S}{a}$	-4.8599	+5.8097	-8.9983
$\frac{S}{a}$	+0.0028	+0.0001	+0.0009
n	13.1979	23.8078	7.5521
n	13.2097	23.3780	7.8200
n-n	+570	-4268	+2679

$$A = +.4$$

$$B = +1.7$$



9086

Moon's Center.

26.

	x	$x - x_0$	Δx	$(x - x_0)^2$	$(x - x_0)(y - y_0)^2$	$O - C$
1	<i>rough</i>					
2	23.5256	+ 1.7876	- 0	3.1878	3.6805	+ 64
3	+ 23.6575	+ 1.9165	+ 0	3.6730	3.6730	- 11
4	23.6388	+ 1.8978	+ 0	3.6016	3.6892	+ 131
5	23.1528	+ 1.4118	+ 0	1.9931	3.6732	- 9
6	23.0000	+ 1.2590	+ 1	1.5853	3.6603	- 138
7	22.0000	+ 0.2590	+ 1	0.0671	3.6763	+ 22
8	21.7410	0.0000	+ 1	0.0000	3.6764	+ 23
9	21.0000	- 0.7410	+ 1	0.5489	3.6751	+ 10

$$\bar{R} = 3.6791$$

	y	$y - y_0$	Δy	$(y - y_0)^2$	
1					
2	15.0000	- 0.7040	- 1	0.4957	112°
3	15.7040	0.0000	+ 0	0.0000	90°
4	16.0000	+ 0.2960	+ 0	0.0876	81°
5	17.0000	+ 1.2960	+ 2	1.6801	47°
6	17.1743	+ 1.4403	+ 2	2.0750	71°
7	17.6035	+ 1.8995	+ 3	3.6092	8°
8	+ 17.6211	+ 1.9171	+ 3	3.6767	0°
9	17.7718	+ 1.7678	+ 3	3.1262	337° 135°

Approximate Center.

$$y_{\max} = 17.6211$$

$$R = 1.9168$$

$$y_0 = 15.7043$$

$$x_{\max} = 23.6575$$

$$x_0 = 21.7407$$

$$\text{Moon's Center} \begin{cases} x_0 = 21.7410 \\ y_0 = 15.7040 \end{cases}$$

9086

Moon's Center.

26

	X	$X - X_0$	ΔX	$(X - X_0)^2$	$(X - X_0)(Y - Y_0)^2$	$O - C$
1	23.5256					
2	23.5256	+ 1.7876 - 0		3.1898	3.6805	+ 69
3	+ 23.6575	+ 1.9165 + 0		3.6730	3.6730	- 11
4	23.6388	+ 1.8978 + 0		3.6016	3.6892	+ 151
5	23.1528	+ 1.4118 + 0		1.9731	3.6732	- 9
6	22.0000	+ 1.2590 + 1		1.5853	3.6603	- 138
7	22.0000	+ 0.2590 + 1		0.0671	3.6763	+ 22
8	21.7910	0.0000 + 1		0.0000	3.6767	+ 23
9	21.0000	- 0.7910 + 1		0.5989	3.6751	+ 10

$$\bar{X} = 3.6771$$

	Y	$Y - Y_0$	ΔY	$(Y - Y_0)^2$	
1					
2	15.0000	- 0.7090 - 1		0.4757	112
3	15.7090	0.0000 + 0		0.0000	90
4	16.0000	+ 0.2960 + 0		0.0876	81
5	17.0000	+ 1.2960 + 2		1.6801	97
6	17.1993	+ 1.4903 + 2		2.0750	91
7	17.6035	+ 1.8995 + 3		3.6092	8
8	+ 17.6211	+ 1.9171 + 3		3.6767	0
9	17.9718	+ 1.7678 + 3		3.1262	337

Approximate Center

$$Y_{max} = 17.6211$$

$$R = 1.9168$$

$$Y_0 = 15.7093$$

$$X_{max} = 23.6575$$

$$X_0 = 21.7907$$

$$\text{Moon's Center} \begin{cases} X_0 = 21.7910 \\ Y_0 = 15.7090 \end{cases}$$

Formation of Normals.

2	- 1.25	+ 114.0	- 45.0
3	0.00	- 21.0	- 00.0
4	+ 0.57	+ 287.0	+ 45.3
5	+ 1.83	- 12.5	- 11.5
6	+ 1.81	- 144.0	- 199.0
7	+ 0.99	+ 5.5	+ 42.0
8	+ 0.00	+ 0.0	+ 44.0
9	- 1.31	- 7.8	+ 17.7
	+ 4.70	+ 406.5	+ 149.0
	- 2.56	- 214.9	- 255.5
	+ 2.14	+ 191.6	- 106.5

change in Residuals

-a	-b	(a-b)	x15
1	-		
2	- 12	+ 5	+ 8 ✓
3	- 13	0	+ 2 ✓
4	- 13	- 2	0 ✓
5	- 10	- 9	- 4 ✓
6	- 9	- 10	- 4 ✓
7	- 2	- 13	0 ✓
8	- 0	- 13	+ 2 ✓
9	+ 5	- 12	+ 8 ✓

.146

$$+ 2.14 + 14.75 = + 7.93$$

$$+ 27 + 0.31 = + 1.12$$

$$+ 14.87 = + 6.81$$

$$14.65 = + 7.69 - 1.00 = + 6.69$$

9086

Conditional Equations.

27

			ϕ		c	$\phi - c$	$\phi - c$		
1									
2	+ 1.78	-	0.70	= +69	+ 26	+ 7	= +33	+39	+ 31
3	+ 1.92		0.00	= -11	+ 27	0	= + 27	+36	+ 38
4	+ 1.90	+	0.30	= +157	+ 27	- 3	= + 24	+127	+127
5	+ 1.41	+	1.30	= - 9	+ 20	- 12	= + 8	-21	- 17
6	+ 1.26	+	1.44	= -138	+ 18	- 13	= + 5	-197	-193
7	+ 0.26	+	1.90	= +22	+ 4	- 18	= -14	+36	+ 36
8	+ 0.00	+	1.92	= +23	+ 0	- 18	= -18	+93	+ 91
9	- 0.74	+	1.77	= +10	- 11	- 16	= - 27	+93	+ 37
								+272	-198

$$+14.65 + 2.14 = +191.6 + 7.69$$

$$+2.14 + 14.75 = -106.5 + 7.93$$

$$+2.14 + 0.31 = +28.0$$

$$+1.97 \Delta$$

$$+14.44 = -134.5$$

$$b = -9.32$$

$$+14.65 = +191.6 + 19.9 = +211.5$$

$$a = +14.5$$

$$+0.96 \Delta$$

Arc Measured 135°

$$\frac{p}{h} = .09$$

$$\frac{\Sigma p}{h} = +8.2$$

$$I_{m3} \quad R \quad 1.92$$

$$-2RC = +0.77$$

$$(+15)$$

$$\frac{+8.2}{.09} = +91$$

$$\Delta R = +1.1$$

$$Corr = -0.2$$

$$\Delta b = +0.36$$

$$(+7)$$

$$\Delta s = +0.2$$

$$\Delta R = +1.3$$

$$\Delta a = +0.35$$

$$(+7)$$

$$\Delta q = +0.01$$

9086

Conditional Equations

27

			D		C	D - C
1						
2	+1.78	-	0.70	= +69	+26 + 7 = +33	+31
3	+1.92		0.00	= -11	+27 0 = +27	-38
4	+1.90	+	0.30	= +107	+27 - 3 = +24	+127
5	+1.91	+	1.30	= -9	+20 - 12 = +8	-17
6	+1.26	+	1.49	= -138	+18 - 13 = +5	-193
7	+0.26	+	1.90	= +22	+9 - 18 = -9	+36
8	+0.00	+	1.92	= +23	+0 - 18 = -18	+91
9	-0.79	+	1.77	= +10	-11 - 16 = -27	+37
					+272	-198

$$+19.65 + 2.19 = +191.6$$

$$+2.19 + 19.75 = -106.5$$

$$+2.19 + 0.31 = +28.0$$

$$+19.79 = -134.5$$

$$b = -93.2$$

$$+19.65 = +191.6 + 19.9 = +211.5$$

$$a = +17.5$$

Arc measured 135°

$$\frac{p}{h} = .09$$

$$\frac{\Sigma V}{h} = +8.2$$

$$\frac{+8.2}{.09} = +91$$

$$\Delta R = +1.1$$

9086 Moon's Mean Position

28

$$\begin{array}{r} \chi_0 = 21.7410'' \\ + 7'' \\ \hline 21.7417'' \end{array}$$

$$\begin{array}{r} \eta_0 = 15.7070'' \\ - 5'' \\ \hline 15.7035'' \end{array}$$

From Plate Constants

$$\chi = 21.7983''$$

$$\eta = 15.7449''$$

$$\begin{array}{r} \xi = -0.2017'' \\ \log \xi \quad 9.30471'' \\ \cos \delta \quad 9.99906'' \\ \hline 8.50729'' \\ 0.79.891'' \end{array}$$

$$\begin{array}{r} \eta = -2.2551'' \\ 1.89'' \\ \log \tan \delta \quad 8.82610'' \\ \xi^2 \quad 8.6094'' \\ \hline 7.0539'' \\ 4.7889'' \end{array}$$

$$\alpha - A \quad -6.29$$

$$\begin{array}{r} A \quad 00 \quad 02 \quad 38'' \\ \eta_1 \quad +0.0000'' \\ \eta_0 \quad -2.2551'' \end{array}$$

$$\begin{array}{r} \delta_0 \quad 00 \quad 02 \quad 31.71'' \\ \log \eta_0 \quad 0.35317'' \\ \hline 7.33115'' \\ 3.02202'' \end{array}$$

$$\text{Red} \quad +3.85''$$

$$\delta' \quad 00 \quad 02 \quad 35.56''$$

$$\begin{array}{r} \delta - D \quad -10.52.0'' \\ -17 \quad 32.0'' \end{array}$$

$$D \quad +0.4 \quad 03 \quad 47''$$

$$\delta_0 \quad +0.3 \quad 46 \quad 15.0''$$

$$\text{Red} \quad +27.8''$$

$$\delta' \quad +0.3 \quad 46 \quad 39.5''$$

9086 Moon's Mean Position

28

$$\lambda_0 = 21.7910''$$

$$+7''$$

$$21.7917''$$

$$\gamma_0 = 15.7070''$$

$$-5''$$

$$15.7035''$$

From Plate Constants

$$\lambda = 21.7983''$$

$$\gamma = 15.7979''$$

$$\epsilon = -0.2017''$$

$$\eta = -2.2551''$$

$$\log \delta 9.30471''$$

$$\cos \delta 9.99906''$$

$$8.50729''$$

$$0.79891''$$

$$\log \tan \delta 8.82610''$$

$$\epsilon^2 8.6097''$$

$$7.0539''$$

$$4.9889''$$

$$\epsilon - A = -6.29$$

$$\eta_1 + 0.0000''$$

$$A = 00 \ 02 \ 38''$$

$$\eta_0 - 2.2551''$$

$$\lambda_0 = 00 \ 02 \ 31.71''$$

$$\log \eta_0 0.35317''$$

$$7.33115''$$

$$\text{Red} + 3.85''$$

$$3.02202''$$

$$\lambda' = 00 \ 02 \ 35.56''$$

$$\delta - D$$

$$-105.20''$$

$$-17 \ 32.0''$$

$$D + 0.9 \ 03 \ 97''$$

$$\delta_0 103 \ 46 \ 15.0''$$

$$\text{Red} + 29.8''$$

$$\delta' + 0.3 \ 46 \ 39.5''$$

$$\begin{array}{r}
 23 \quad 57 \quad 70.02 \\
 \underline{36.06} \\
 + 3.96 \\
 \hline
 \end{array}$$

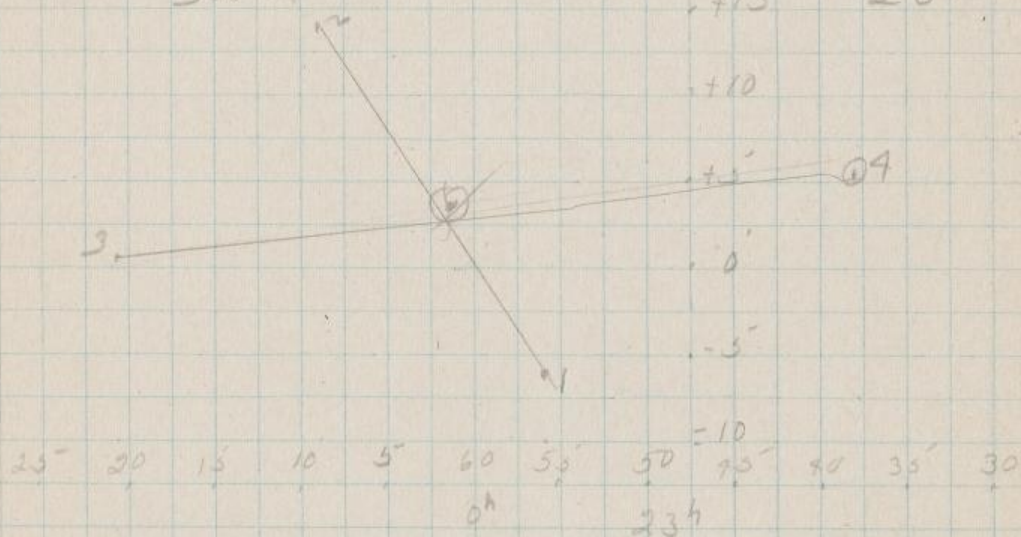
$$\begin{array}{r}
 -6^0 \quad 28 \quad 44.8 \\
 - \quad 29 \quad 11.2 \\
 \hline
 + 26.7
 \end{array}$$

$$\begin{array}{r}
 0 \quad 08 \quad 55.27 \\
 \underline{51.72} \\
 3.82
 \end{array}$$

$$\begin{array}{r}
 +19 \quad 72 \quad 63.1 \\
 \hline
 39.81 \\
 + 23.3
 \end{array}$$

$$\begin{array}{r}
 0 \quad 21 \quad 6.55 \\
 \underline{2.69} \\
 3.86 \\
 23 \quad 35 \quad 38.58 \\
 \underline{37.66} \\
 3.92
 \end{array}$$

$$\begin{array}{r}
 1 \quad 28 \quad 39.2 \\
 \underline{8.3} \\
 29.9 \\
 +5 \quad 09 \quad 79.3 \\
 \hline
 55.8 \\
 +15 \quad 23.5
 \end{array}$$



9086

Reduction to Apparent Place

29

$119^{\circ} 45'$
 $H + \alpha$ 7 59.0
 H 7 56.5
 α 00 02.5
 G 22 34.3
 $G + \alpha$ 22 36.8
 $339^{\circ} 12.0$

 $\delta + 0.3$ 96 15.0

$\log \cos \delta$ 9.99990
 h 0.8606 +
 h' 0.8596

$\log \cos G + \alpha$ 9.9707
 g 1.2879
 $\sin "$ 9.5507 n
 $\tan \delta$ 8.8199
 8.8239

$\log \sin \delta "$ 8.8190
 $\cos (H + \alpha)$ 9.6957 n
 h 1.2820
 $\sin "$ 9.9386
 $\sec \delta$ 0.0010
 8.8239

$\log g'$ 1.2586
 g 8.4821 n

h'' 9.4967 n
 h 0.0455

f +2.770
 g -0.030
 h +1.111
 $+3.851$

g' +18.17
 h' -0.626
 i +7.237
 $+24.751$

9086 Reduction to Apparent Place 27

$119^{\circ} 45'$
 $H + \lambda$ 7 39.0
 H 7 56.5
 λ 00 02.5
 G 22 34.3
 $G + \lambda$ 22 36.8
 $339^{\circ} 12'$

$\delta + 0.3$ 76 15.0

$\log \cos \delta$ 9.99990
 λ 0.8606 +
 λ' 0.8596

$\log \cos G + \lambda$ 9.9707
 g 1.2879
 Sum 9.55.09 n
 $\text{Tan } \delta$ 8.8199
 8.8239

$\log \text{Sum } \delta$ 8.8190
 $\cos (H + \lambda)$ 9.6957 n
 h 1.2820
 Sum 9.9386
 $\text{Sec } \delta$ 0.0010
 8.8239

$\log g'$ 1.2586
 g' 8.9821 n

h' 9.7967 n
 h 0.0755

f +2.770
 g -0.030
 h +1.111

 3.851

$g' + 1.819$
 $h' - 0.626$
 i +7.237

 $+29.731$

9086

Lunar Parallax

30

α' 00 02 35.56"
 δ 0 16 47.20"
 $\theta - \alpha'$ 0 19 11.64"
 $=$ 30 32 57.60"
 $k_2 (T - \alpha')$ 1 17.97
 $\quad \quad \quad 3 31 36.88$

9.95727
 0.00000
 0.00083
 9.95810

δ 42 17 25.4"

$\delta' + 0.3$ 46 39.8"

$\delta - \delta$ 38 27 45.6

9.82640
 8.21679"
 9.79379"
 0.17247"
 8.00815

$\delta - \delta'$ $+ 35$ 39.8"
 $\quad \quad \quad + 35$ 06.7

δ +4 21 46.5

Ann Ephs +4 21 40.1"

$\delta - \delta$ +6.4

Curve of Plate 0
 2nd Order Ref 0.0

In Corr +0.2

δ +4 21 46.7

$\delta - \delta$ +6.6

 δ'

π 56' 35.7"

9.86913"
 $\sin \theta - \alpha'$ 8.79165"
 $\sin \pi$ 8.21679"
 0.00126"
 6.87853"

$\alpha - \alpha'$ +2' 35.97"

$=$ +10.80"

α 0 02 45.96"

Ann Ephs 0 02 45.22"

$\alpha - \alpha$ +0.74"

0

α 0 02 45.97

+0.75"

9086

Lunar

Parallax

30

α' 00 02 35.55
 δ 0 16 47.20 -
 $\alpha - \alpha'$ 0 19 11.64 -
 $=$ 30 32 59.60 -
 α (1-11) 1 1797
 α 3 31 36.23

9.95727

0.00000

0.00083

9.95810

δ 42 17 25.4 -
 $\delta + 0.3$ 46 39.8 -
 $\delta - \delta$ 38 27 45.6

9.82690

8.21699 -

9.79379 -

0.17297 -

8.00915

$\delta - \delta'$ + 35 06.7
 δ + 9 21 76.5

$\alpha - \alpha'$ + 9 21 70.1 -
 $\alpha - \alpha'$ + 6.4

6-C

+ 6.4

6-C

+ 0.79 -

Curve of Plate

0

0

2nd Order Ref

0.0

 δ'

α 56' 35.7 -
 $\alpha - \alpha'$ 8.79165 -
 $\alpha - \alpha'$ 8.21679 -
 α 0.00126 -
 $\alpha - \alpha'$ 6.87853 -
 $\alpha - \alpha'$ + 2' 36.77 -
 $=$ 10.98 -
 α 0 02 45.96 -
 $\alpha - \alpha'$ 0 02 45.22 -
 $\alpha - \alpha'$ + 0.79 -
 α 0

