

KG

11366

v.1008

CLVI

156

11160

~~11161~~

11197

11160

d

x

Star Measures

d

y

z

1.

1

15.9

19.8

2

19.2

4.3

3

31.7

19.9

4

33.5

25.9

Moon Measures.

1

26.3

14

2

26.6

16

+X

11160

d

x

Star Measures

d

y

z

1.

1

15.9

19.8

2

17.2

1.8

3

21.7

19.9

4

33.5

25.9

Moon Measures

1

26.9

19

2

20.6

16

+X

11160

Times Etc.

3

Sept 11

Exp to Stars	21	27		21	39	
Exp to Moon	21	33	27.7	21	33	27.9
Clock fast		9	30.1			

H Sid Time	21	23	577			
H Long	4	44	31.05			
g Sid	26	08	28.75			
Sid J. M. H.	11	20	41.38			
Internal	14	44	47.37			
Reduction		2	25.44			
J. M. L.	14	45	21.93			

From Naut Alm.		R. A.		Dec		
Moon 14	23	29	14.33	+0	39	35.2
Quation in 1 ^m			2.1596			15.902
" 95,36551		31.7	37.79	+12		1.4
Tabular Place 23	23	25	52.07	+0	51	36.6

Moon's age 14.5 days.

Altitude	59	39.17
Semid.	16	15.5
R.		975.5

Aug.

Lr.

R.

R.

ap

H+K

R-

934

at

+27

11160

Times Etc.

3

Sept 11

Exp. to Stars	21	27		21	39
Exp. K-Moon	21	33	27.7	21	33 " 27.9
Clock fast		9	30.1		

H Sid Time	21	23	57.7
H Long	9	49	31.05
G Sid	26	08	28.75
Sid J. M. H.	11	20	41.38
Internal	19	47	47.37
Reduction		2	25.99
G M T.	19	45	21.93

From Naut Alm.	R. A.	Dec
Moon 19	23 29 19.33	+0 39 35.2
Machinist 1 ^m	2.1596	15.902
" 45, 36531	31 7 37.79	+12 1.9
Tabular Place 23	25 7 52.07	+0 51 26.6

Moon's age 19.5 days

Pattah	59	39.17
Scmid	16	12.2
R.		9755
Aug		
Lh		
R		
R		
alt		
1+alt		
R		

934

a:

+27

$$\begin{array}{r} 3.078 \\ .00386 \\ \hline \end{array}$$

$$\begin{array}{r} -.00012 \\ +3.078 \\ \hline \end{array}$$

$$\begin{array}{r} 3.0779 \\ 25 \\ \hline \end{array}$$

$$76.95$$

$$23 \ 22 \ 22.55$$

$$23 \ 23 \ 39.58$$

$$\begin{array}{r} +.0081 \\ 19.785 \\ \hline \end{array}$$

$$\begin{array}{r} 19.7931 \\ 25 \\ \hline \end{array}$$

$$497.83$$

$$+8 \ 17.83$$

$$-1 \ 31 \ 17.3$$

$$-1 \ 22 \ 58.77$$

$$5831$$

1
18
1
2
2
3
31
14
1
23
1
2
2
1
3
2
16
+

11197

Star Measures

21

1	20336	19338	20138	20578
18.5	15965	13740	19689	18062
11.1	69	Remeasured on reverse side.		52
	36	38	30	70
	<u>18.9369</u>	<u>18.4402</u>	<u>11.0430</u>	<u>11.0487</u>

2	19910	19958	19968	19952
21.4	16311	13552	14886	14994
26.6	11	62	88	002
	10	52	52	40
	<u>21.3599</u>	<u>21.3603</u>	<u>26.5077</u>	<u>26.5053</u>

3	20450	20372	20356	20078
31.4	17570	12942	15752	14599
14.6	60	98	68	98
	98	70	56	42
	<u>31.2582</u>	<u>31.2578</u>	<u>14.4586</u>	<u>14.4577</u>

Moon Measures

1	20116	19040
23.4	13690	15446
15	700	40
	18	38
	<u>23.6920</u>	<u>23.6907</u>

2		20320	19827
24		15392	14730
15.6		92	22
		08	19
		<u>15.4922</u>	<u>15.4908</u>

3	19870	19850
24.2	17859	11836
14.2	57	32
4X	78	52
	<u>24.1988</u>	<u>24.1982</u>

Very thin but good

Star 1 remeasured

18.2 19990	20.510	20 338	195.96
11.1 15622	19.876	19892	10022
20.	78	88	14
85	12	28	80
<u>18.9367</u>	<u>18.9367</u>	<u>11.0998</u>	<u>11.0938</u>

11197

Star Measures

21

L	20336	19338	20138	20578
18.5	15965	13792	19699	11062
11.1	69	38	30	52
	36			70
	<u>18.9369</u>	<u>18.9902</u>	<u>11.0930</u>	<u>11.0987</u>

3	19910	19958	19968	19952
21.9	16311	13552	19886	19999
26.6	11	62	88	002
	10	52	52	90
	<u>21.3599</u>	<u>21.3603</u>	<u>26.5077</u>	<u>26.5053</u>

3	20150	20372	20358	20038
11.4	17570	12992	15772	19599
4.6	60	98	68	98
	98	70	56	42
	<u>21.2589</u>	<u>31.2578</u>	<u>19.9586</u>	<u>19.9579</u>

Moon Measures

-	20116	19090
3.9	13690	15946
5	700	40
	18	38
	<u>23.6920</u>	<u>23.6909</u>

-	20320	19829
2.9	15392	19730
5.6	92	22
	08	19
	<u>15.9922</u>	<u>15.9908</u>

3	19890	19850
9.2	17859	11836
6.2	59	32
4.8	98	52
	<u>24.1988</u>	<u>24.1982</u>

Star 1 remeasured

18.5	19990	20510	20338	19596
11.1	15622	14876	19892	10022
	20	78	88	14
	85	12	26	80
	<u>18.4367</u>	<u>18.4367</u>	<u>11.0448</u>	<u>11.0438</u>

Moon Measures

2

3	18890	19808
14.1	18104	10600
17	08	98
	90	12
	<u>24.0784</u>	<u>24.0788</u>

5	18916	20250	20050
24	17054	18407	11858
17.2	50	94	52.55
	16	40	50
	<u>17.1863</u>	<u>17.1750</u>	<u>17.1805</u>

6	19594	20342	19048
23.2	17678	12382	11306
18	78	28	292
	600	52	52
	<u>23.1917</u>	<u>23.1983</u>	<u>23.1947</u>

7	18894	19730
23	17980	10612
18.1	988.84	20
	908	80
	<u>18.0911</u>	<u>18.0877</u>

8	18940	19712	very thin ✓
22.5	16740	11959	
18.2	38	62	
+7	40	00	
	<u>18.2201</u>	<u>18.2258</u>	

Moon Measures

2

<u>9</u>	18890	19808
29.1	18109	10600
17	58	98
	90	12
	<u>24.0789</u>	<u>24.0788</u>

20250	20050
18909	11858
99	5255
40	50
<u>17.1863</u>	<u>17.1805</u>

<u>6</u>	19594	20392	19298
23.2	17678	12582	11306
18	78	28	292
	600	52	52
	<u>23.1917</u>	<u>23.1983</u>	<u>23.1947</u>

18898	19730
17980	10612
98889	20
908	80
<u>18.0911</u>	<u>18.0877</u>

18940	19712	very thin
16740	11959	
38	62	
40	00	
<u>18.2201</u>	<u>18.2258</u>	

7
23
18.1

8
22.5
18.2
+7

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Times Etc

23

Sept 16

Exp to Stars	7	03		7	15	
" " Moon	7	09	15.7	7	09	15.8
Clock fast		9	41.1			

H. Sid. Time	3	59	3 46.5	8	-	0 ^h	2 ^m
H. Long	7	77	31.05				
G. Sid. T.	8	49	05.70				
Red T. M. M.	11	40	29.15				
Internal	21	03	41.55				
Reduction		3	27.03				
G. M. T.	21	00	19.52				

From Naut Alman.

Moon	21 ^h	7	01	37.86	+ 27	53	09.9
Motion in ^h				2.2587			7.514
"	0.2420			0.55			+ 1.1 (0.63)
Tabular Place	7	01	38.91 (90)	27	53	6.0	checked

Moon's Age

19.5 days

Altitude	55	32.50
Sund.	15	9.7
P.		909.7
Aug		18.2
Dis. (6)		-1.1
P.		922.8
P.		1978.1
alt		-999
1+2		1.8832
P.		3.5765

934 = 15

a-503.6

+27

- 479.6

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James etc

23

Sept 16

Epp To Stars	9	03		9	15	
" " Moon	9	09	15.7	9	09	15.8
Clock fast		9	41.1			

H Sid Time	3	59	3965	8 - 2 - - 0 ^h	2 ^m
H Long	7	29	31.03		
G Sid T	8	49	05.70		
Sid T M. H.	11	40	29.15		
Interval	21	03	41.55		
Reductions		3	27.03		
G M. T.	21	00	19.52		

From Nant Allen.

Moon 21 ^h	9	01	37.86	+ 29	53	09.9
Motion in 1 ^h			2.547			9.519
" 0.2420			0.55			+ 1.1
Jabular Place	9	01	38.91	24	53	60

Moon's Age 19.5 days

Palatlas	55	32.50
Sound.	15	9.7
IR		909.7
Aug		17.2
Ex (1)		-1.1
IR		922.8
IR		19781
all		-999
1+R		1.8832
IR		35965

934 = 15

a - 503.6

+ 29

- 4796

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Plate Center and Constants

29

 x y x y

18.9367	11.0893	3	59	20.0	23	52	32.3
21.3601	26.5065	8	00	58.7	25	59	05.6
31.2581	19.9580	9	06	58.0	29	21	08.1
71.0549	52.0088	11	65	136.7	72	132	96.0
23.6899	17.3362	8	2	25.6	27	49	15.3
22	18			-52.2		+5	7.0
-1.6899	+0.6638	9	1	33.4	-24	49	22.3
315	466.5						
-52.23	+5.70						

Plate Center

$$\begin{cases} A = 9 \ 0 \ 1 \ 3 \ 3 \\ D = +27 \ 99 \ 2 \ 2 \end{cases}$$

$$\begin{aligned} x=3 \quad +500x & \quad -101.7y & \quad +3.6x & \quad -11625 \\ +3767 + 9218 & = 12682 - 1123 = 11559 + 66 = 11625 & \quad 0 \\ +3575 + 10680 & = 14255 - 2706 = 11549 + 77 = 11626 & \quad +1 \\ -2676 + 15629 & = 12983 - 1770 = 11513 + 112 = 11625 & \quad 0 \\ 22.3167 + 11158 & = 1661 + 80 = 22.1116 & \end{aligned}$$

$$\begin{aligned} y-n \quad +500y & \quad +102.6x & \quad +7.3y & \quad -10925 \\ +3767 + 5522 & = 8986 + 1892 = 10878 + 47 = 10925 & \quad 0 \\ -4637 + 13253 & = 8619 + 2192 = 10811 + 114 = 10925 & \quad 0 \\ +426 + 7229 & = 7655 + 3207 = 10862 + 62 = 10924 & \quad -1 \\ 16.3370 + 8168 + 2290 & = 16.2973 & \end{aligned}$$

$$\begin{aligned} \text{Tables} \quad a &= -.8 \quad e = -.8 \quad a-e = 0 \quad b+d = +0 \\ \text{Obs} \quad &= -503.6 \quad = -507.3 \quad = +0.7 \quad = -0.9 \\ u-c &= -502.8 \quad -503.5 \quad \quad \quad -0.9 \end{aligned}$$

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Plate Center and Constants

29

γ	γ	γ	γ	γ	γ	γ	γ	γ
18.9367	11.0993	3	59	20.0	23	52	32.3	
21.3601	26.5065	9	00	58.7	25	59	05.6	
31.2581	19.9580	9	06	58.0	29	21	08.1	
71.0599	52.0088	11	65	136.7	72	132	96.0	
23.6899	17.3362	8	2	25.6	29	99	15.3	
22	18			-52.2		+5	7.0	
-1.6899	+0.6638	9	1	33.9	-29	99	22.3	
31.5	466.5							
-52.23	+570							

Plate Center $\{ A = 9 \ 0 \ 1 \ 3 \ 3$
 $\{ D = +29 \ 99 \ 2 \ 2$

$$\begin{aligned}
 &X-3 \quad +500X \quad -101.7Y \quad +3.2X \quad -1162. \\
 &+3769 + 9218 = 12682 - 1123 = 11559 + 68 = 11625 \\
 &+3575 + 10680 = 14255 - 2706 = 11549 + 77 = 11626 \\
 &-2696 + 15629 = 12933 - 1770 = 11163 + 112 = 11275 \\
 &22.3169 + 11158 \quad - 1661 \quad + 80 \quad 22.1111
 \end{aligned}$$

$$\begin{aligned}
 &Y-4 \quad +500Y \quad +102.6X \quad +9.3Y \quad -1092.5 \\
 &+3969 + 5522 = 18986 + 1892 = 10878 + 97 = 10975 \\
 &-9639 + 13253 = 8619 + 2192 = 10811 + 119 = 10930 \\
 &+926 + 7229 = 7655 + 3207 = 10862 + 62 = 10924 \\
 &16.3370 + 8168 + 2290 \quad +70 \quad 16.2973
 \end{aligned}$$

$$\begin{aligned}
 \text{Tables} \quad a &= -.8 \quad c = -.8 \quad a-c = 0 \quad b+d = +0 \\
 \text{Obs} \quad &= -502.6 \quad = -509.3 \quad = +0.7 \quad = -0.9
 \end{aligned}$$

Cur.	Corr	$\Delta \gamma$	-2.9γ	$+1.4$	-1
- 3.91	- 7.31	- 7	+ 9	= + 2	- 1 = + 1
- 1.00	+ 8.97	- 2	+ 2	= 0	+ 1 = + 1
+ 9.52	- 3.63	+ 25	- 29	= + 1	- 0 = + 1
$M =$		+ 0.11	0	- 0	= - 1 = <u>0</u>

$\Delta \gamma$	-2.3γ	$+1.5 \gamma$	$+ \gamma$
- 15	+ 17	= + 2	- 6 = - 9
+ 18	- 21	= - 3	- 1 = - 9
- 25	+ 8	= - 17	+ 14 = - 3

$$M = -1.70 + 9 \quad 0 \quad = +8 = +0.9$$

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Standard Coordinates

25-

Cape No 589-Mg 5.6 Cape No 589-Mg 7.5 Cape No 608 8.7

e 3 58 22.77 4 00 0.46 4 06 0.35

f 22.77 0.99

c 22.71 0.45

Mean 3 58 22.73 4 00 0.47 4 06 0.35

Prec 57.32 +58.19 57.67

a 3 59 20.05 4 00 58.66 4 06 58.02

A 4 01 33.0 4 01 33.0 4 01 33.0

s-A - 2 12.95 - 34.37 + 5 25.02

sin(s-A) - 132.95 - 34.37 + 325.00

log n 2.12368 n 1.53580 n 2.51188

log s 9.96115 9.95573 9.95953

log 30 0.59207 n 9.99877 n 0.97865

z0 - 3.9090 - 0.9972 + 9.5202

z1 - 7 - 2 + 25

z 18.0903 21.0026 31.5227

x 18.7367 21.3601 31.2581

x-y + 3767 + 3575 - 2676

e +23 79 50.8 +25 56 25.7 24 18 35.6

f 51.1 25.7

c 50.1 25.9

Mean 23 79 50.7 +25 56 25.8 24 18 35.6

Prec +2 41.6 +2 39.8 +2 32.5

s 23 52 32.3 25 59 05.6 24 21 08.1

D 24 79 22 24 79 22 24 79 22

s-D -56 79.7 + 109 73.6 - 28 13.9

sin(s-D) -37 10.0 + 4 18.72 - 16 93.9

log n 3.53275 n 3.62161 3.22888 n

log 30 0.86390 n 0.95276 0.56003 n

log tans 9.6760 9.6772 9.6556

z0 1.1841 9.9975 1.9573

n1 7.8835 6.7281 8.6663

n0 - 7.3097 + 8.9699 - 3.6310

n1 + 0.0076 + 0.0005 + 0.0767

n 10.6979 26.9699 17.7154

y 11.0773 26.5065 17.9580

y-n 4 3767 - 4637 + 726

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Standard Coordinates

25

Cape No 589-mq 5.6 Cape No 589-mq 7.5 Cape No 608 8.7

E 3 58 22.79 7 00 0.96 7 06 0.35

I 22.79 0.99

C 22.71 0.95

Mean 3 58 22.73 7 00 0.97 7 06 0.35

Prec 57.32 58.19 57.67

q 3 59 20.05 7 00 38.66 7 06 38.02

A 7 01 33.0 7 01 33.0 7 01 33.0

x-A - 2 12.95 - 39.39 + 5 25.02

tan(A) - 132.95 - 39.39 + 325.00

log 2.12368h 1.53580h 2.51188

log 9.96115 9.95373 9.95953

log 0.59207h 9.99877h 0.97865

Σ 0 - 3.9090 - 0.9972 + 9.5202

Σ 1 - 7 - 2 + 25

Σ 18.0903 21.0026 31.5227

Σ 18.9367 21.3601 31.2551

x-Σ + 3969 + 3575 - 2696

E +23 99 50.8 +25 56 25.7 29 18 35.6

I 51.1 25.7

E 50.1 25.9

Mean 23 99 50.7 +25 56 25.8 29 18 35.6

Prec +2 41.8 +2 39.8 +2 32.5

d 23 52 32.3 25 59 05.6 29 21 08.1

D 29 99 22 29 99 22 29 99 22

d-D -56 99.7 + 1 09 43.6 - 28 13.9

tan(d-D) -39 10.0 +4 189.2 - 1693.7

log 3.53275h 3.62161 3.22888h

log 0.8639.0h 0.93276 0.56003h

log 9.6760 9.6772 9.6556

Σ 0 1.1841 9.9975 1.7573

Σ 1 7.8835 6.7281 8.6663

Σ 0 - 7.3097 + 8.9699 - 3.6310

Σ 1 + 0.0076 + 0.0005 + 0.0969

Σ 10.6979 26.9699 19.7159

Σ 11.0993 26.5065 19.9580

Σ - 3969 - 9639 + 926

A 0
B +.5

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Moon's Center

26.

	x	$x - x_0$	Δx	$(x - x_0)^2$	$(x - x_0)(y - y_0)$	$D - C$
1	23.6912	+1.3272	0	1.7619	3.5517	+52
2	24.0000	+1.6860	0	2.8426	3.5591	+146
3	24.1985	+1.8845	0	3.5513	3.5513	+78
4	24.0786	+1.7646	0	3.1138	3.5520	+53
5	24.0000	+1.6860	0	2.8426	3.5673	+208
6	23.1932	+0.8792	0	0.7730	3.5355	-110
7	23.0000	+0.6860	0	0.4706	3.5383	-82
8	22.3170	0.0000	0	0.0000	3.5536	+71

	y	$y - y_0$	Δy	$(y - y_0)^2$	R	$D - C$
1	15.0000	-1.3380	-1	1.7903	3.5765	135
2	15.4915	-0.8465	-0	0.7165		117
2	16.3380	0.0000	+0	0.0000		90
4	17.0000	+0.6620	+0	0.4382		89
5	17.1837	+0.8454	+0	0.7147		63
6	18.0000	+1.6620	+1	2.7625		28
7	18.0897	+1.7514	+1	3.0677		21
8	18.2230	+1.8850	+1	3.5536		0

Approx. Center

$x = 24$	y	15.4915
		17.1837
		32.6777
	y_0	16.3377
	y_{max}	18.2230
		1.8856 $\sim R$ 1.8832
x_{max}		24.1985
		22.3129

Moon's Center

$\{x_0$	22.3170
$\{y_0$	16.3380

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Moon's Center

26.

x	$x - x_0$	Δx	$(x - x_0)^2$	$(x - x_0)(y - y_0) - \Delta$
1 236912	+1.3272	0	1.7619	3.5517 + 52
2 29.0000	+1.6860	0	2.8926	3.5591 + 196
3 +291985	+1.8895	0	3.5513	3.5513 + 98
4 290786	+1.7696	0	3.1138	3.5520 + 55
5 29.0000	+1.6860	0	2.8926	3.5613 + 208
6 23.1932	+0.8792	0	0.7730	3.5355 - 110
7 23.0000	+0.6860	0	0.4706	3.5383 - 82
8 22.3190	0.0000	0	0.0000	3.5536 + 71

y	$y - y_0$	Δy	$(y - y_0)^2$	Σ
1 15.0000	-1.3380	-1	1.7903	135
2 15.9915	-0.8965	-0	0.7165	117
3 16.3380	0.0000	+0	0.0000	90
4 17.0000	+0.6620	+0	0.4382	89
5 17.1839	+0.8459	+0	0.7177	63
6 18.0000	+1.6620	+1	2.7625	28
7 18.0899	+1.7519	+1	3.0677	21
8 +18.2230	+1.8850	+1	3.5536	0 135

Apparent Center

 $x = 29$ y 15.9915

17.1839

22.6797

 y_0 16.3377 y_{max} 18.2230

18.856

 x_{max} 29.1985

22.3127

 Σ 135

Moon's Center

 $\{ x_0$ 22.3190 $\{ y_0$ 16.3380

Formation of Normals

1	- 1.78	+ 69.0	- 69.5
2	- 1.77	+ 246.5	- 127.0
3	0	+ 90.0	0
4	+ 1.16	+ 96.7	+ 37.0
5	+ 1.77	+ 351.5	+ 177.0
6	+ 1.76	- 96.5	- 182.5
7	+ 1.21	- 56.5	- 173.5
8	0	+ 0.0	+ 133.5
	+ 5.27	+ 85.37	+ 347.5
	- 3.22	- 153.0	- 519.5
	+ 2.05	+ 706.7	- 172.0

		a	b	c	near o-c
a	+ 32	+ 43	- 19	- 29	- 68
b	+ 17	+ 54	- 72	- 11	+ 27
c	- 53	+ 60	0	+ 7	- 36
		+ 56	+ 92	+ 12	+ 4
		+ 54	+ 71	+ 12	+ 156
		+ 28	+ 23	- 2	- 98
		+ 22	+ 24	- 7	- 63
		+ 0	+ 26	- 27	+ 108

.1335

$$+2.05 + 13.07 = +15.12$$

$$+ [] + 0.27 = + 1.32$$

$$+ 12.77 = + 3.29$$

$$+ 15.35 = + 9.92 + 0.53 = + 10.45$$

11197 Conditional Equations.

27

b-c

1	+1.33	-1.37	= +52	+69	+27	= +91	-39
2	+1.69	-0.85	= +196	+82	+17	= +99	+47
3	+1.88	0.00	= +98	+91	0	= +91	-93
4	+1.76	+0.66	= +55	+85	-13	= +72	-17
5	+1.69	+0.85	= +208	+82	-17	= +65	+133
6	+0.88	+1.66	= -110	+92	-33	= +19	-119
7	+0.69	+1.75	= -82	+33	-35	= -62	-80
8	0.00	+1.88	= +71	0	-38	= -38	+109
				+269 - 298			

Average 71

$$15.35 + 2.05 = +700.7 + 9.92 \Delta$$

$$+2.05 + 13.04 = -172.0 + 4.61 \Delta$$

$$+2.27 = +93.5$$

$$+0.26 \Delta$$

$$+13.31 = -265.5$$

$$b =$$

$$-19.9$$

$$15.35 = +700.7 + 39.9 = +740.6$$

$$a =$$

$$+48.3$$

$$+0.61 \Delta$$

Arc Measured $135^{\circ}0$

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

$$\frac{\Sigma V}{h} = -3.6$$

$$I_{26} R 1.88$$

$$-3.6 = -36$$

$$\Delta R = -0.7$$

$$-2RC = -2.63$$

$$.10$$

$$\text{corr} + 0.7$$

$$\Delta b = -0.69$$

$$\Delta d = -0.3$$

$$\Delta R = -1.1$$

$$\Delta a = -1.60$$

$$\Delta q = -0.06$$

11197 Conditional Equations.

27

0.0

1	+1.33	-1.39	+52	+69	+27	+91	-39
2	+1.69	-0.85	+196	+82	+17	+99	+97
3	+1.88	0.00	+78	+91	0	+91	-73
4	+1.76	+0.66	+55	+85	-13	+72	-17
5	+1.69	+0.85	+208	+82	-17	+63	+133
6	+0.88	+1.66	-110	+92	-33	+79	-119
7	+0.69	+1.75	-82	+39	-35	+12	-80
8	0.00	+1.88	+71	0	+38	+38	+109

+269 - 298

Average 71

$$15.35 + 2.05 = +70.07 + 9.92 \quad \Delta$$

$$+2.05 + 13.09 = -172.0 + 9.61 \quad \Delta$$

$$+2.3 + .27 = +93.5$$

$$+0.26 \quad \Delta$$

$$+13.31 = -265.5$$

$$b =$$

$$+19.9$$

$$15.35 = +700.7 + 39.9 = +740.6$$

$$a =$$

$$+98.2$$

$$+0.61 \quad \Delta$$

Arc Measured $135^{\circ}0$

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

$$\frac{\Sigma V}{h} = -3.7$$

$$I n 6 \quad R 1.88$$

$$\frac{-3.7}{.09} = -41.1$$

$$\Delta R = -9.8$$

$$-2RC = -2.63$$

$$\text{Corr} + 0.7$$

$$\Delta C = -0.69$$

$$\Delta S = -0.3$$

$$\Delta H = -1.1$$

$$\Delta a = -1.60$$

$$\Delta T = -0.06$$

11197

Moon's Mean Position

28

$$\begin{aligned} \lambda_0 & 22.3140'' \\ & +24 \\ & 22.3164'' \end{aligned}$$

$$\begin{aligned} \gamma_0 & 16.3380'' \\ & -10'' \\ & 16.3370'' \end{aligned}$$

From Plate Constants

$$\begin{aligned} X & 22.1116'' \\ \gamma & +0.1116'' \end{aligned}$$

$$\begin{aligned} y & 16.2973'' \\ n & -1.7027'' \end{aligned}$$

$$\begin{aligned} \log \xi & 9.09766'' \\ \cos \delta & 9.95867'' \\ & 8.50729 \\ & 0.58175'' \end{aligned}$$

$$\begin{aligned} \log \tan \delta & 9.6607'' \\ \xi^2 & 8.0953'' \\ & 7.0537 \\ & 4.8097 \end{aligned}$$

$$\alpha - A \quad +3.82''$$

$$\eta_1 \quad 0$$

$$A \quad 4 \quad 01 \quad 33.0''$$

$$\log \eta_0 \quad 0.23413''$$

$$\alpha_0 \quad 4 \quad 01 \quad 36.82''$$

$$\begin{aligned} & 7.33115'' \\ & 2.89998'' n - 797.3'' \end{aligned}$$

$$\text{Red} \quad +4.11''$$

$$S-D \quad -13 \quad 17.3''$$

$$\alpha' \quad 4 \quad 01 \quad 40.93''$$

$$D + 24 \quad 49 \quad 22''$$

$$S_0 \quad 24 \quad 36 \quad 7.7''$$

$$\text{Red} \quad +17.1''$$

$$S' \quad 24 \quad 36 \quad 21.8''$$

11197

Mann's Mean Position

28

$$\gamma_0 \quad 22.3190''$$

$$+29$$

$$22.3169''$$

$$\gamma_0 \quad 16.3380''$$

$$-10''$$

$$16.3370''$$

From Plate Constants

$$\lambda \quad 22.1116''$$

$$\gamma \quad 16.2973''$$

$$\gamma \quad +0.1116''$$

$$\eta \quad -1.7027''$$

$$\log \zeta \quad 9.09766''$$

$$\cos \delta \quad 99.5867''$$

$$8.50729$$

$$0.58275''$$

$$\log \tan \delta \quad 9.6607$$

$$\zeta'' \quad 8.0953''$$

$$7.0539$$

$$7.8097$$

$$\gamma - A \quad +3.82''$$

$$\eta_1 \quad 0$$

$$A \quad 9 \quad 01 \quad 33.0$$

$$\log \eta_0 \quad 0.23413''$$

$$7.33115''$$

$$\gamma_0 \quad 9 \quad 01 \quad 36.82''$$

$$2.89998'' - 797.3''$$

$$\text{Red} \quad +9.11''$$

$$\delta - D \quad -13 \quad 17.3''$$

$$\gamma' \quad 9 \quad 01 \quad 40.93''$$

$$D + 29 \quad 99 \quad 22''$$

$$\delta_0 \quad 29 \quad 36 \quad 7.7''$$

$$\text{Red} \quad +19.1''$$

$$\delta' \quad 29 \quad 36 \quad 21.8''$$

3 59 77.77
 73.60
 + 4.17

$$\begin{array}{r} 4 \quad 5 \quad 76.90 \\ 42.73 \\ \hline + 4.17 \end{array}$$

$$\begin{array}{r} 3 \quad \quad \quad 53 \quad \quad \quad 35.20 \\ \quad \quad \quad - \quad \quad \quad 30.67 \\ \hline \quad \quad \quad + 4.56 \end{array}$$

11197

Reduction To Apparent Place 29

$H + \alpha 10$ 31.32 157 49.5° δ 24 36 7.7
 H 6 29.7
 α 4 01.6
 G 23 9.0
 $G + \alpha 23$ 10.62 47 39.0

$\log \cos \delta$ 9.9587
 $h +$ 90 78
 h 0.8665

$\log \cos \delta + d$ 9.8287
 g 1.3185
 $\sin$ 9.8687
 $\tan \delta$ 9.6607
 8.8239

$\log \sin \delta$ 9.6197
 $\cos (H + \alpha)$ 9.9666 n
 h 1.2772
 $\sin (H + \alpha)$ 9.5769
 $\sec \delta$ 0.0713
 8.8239

$\log q'$ 1.1469
 g 9.6718

$\log h' 0.8602$ n
 h 9.7163

$f +$ 3.125
 $g +$ 0.469
 $h +$ 0.520
 $+ 8.117$

$q' 19.025$
 $h' -$ 7.298
 $i' +$ 7.357
 $+ 18.131$ ✓

11197

Reduction to Apparent Place 29

$$H + \alpha 10 \quad 31.3 = 157 \quad 79.5^\circ \delta \quad 29 \quad 36 \quad 7.7$$

$$H \quad 6 \quad 29.7$$

$$X \quad 9 \quad 01.6$$

$$G \quad 23 \quad 9.0$$

$$G + \alpha 23 \quad 10.6 = 97 \quad 39.0$$

$$\log \cos \delta \quad 9.95587$$

$$+ 1.9078$$

$$= 0.8663$$

$$\log \cos C + \alpha \quad 9.8289$$

$$g \quad 1.3185$$

$$\sin \alpha \quad 9.8687$$

$$\tan \delta \quad 9.6607$$

$$8.8239$$

$$\log \sin \delta \quad 9.6197$$

$$\cos (H + \alpha) \quad 9.9666 n$$

$$h \quad 1.2772$$

$$\sin (H + \alpha) \quad 9.5769$$

$$\sec \delta \quad 0.0413$$

$$8.8239$$

$$\log q' \quad 1.1967$$

$$g \quad 9.6718$$

$$\log h' \quad 0.8602 n$$

$$h \quad 9.7163$$

$$f \quad + 3.125$$

$$g \quad + 0.769$$

$$h \quad + 0.520$$

$$+ 7.119$$

$$q' \quad 19.025$$

$$h' \quad - 7.298$$

$$i' \quad + 7.387$$

$$+ 19.131 n$$

11197

Lunar Parallax

30

α 1 7 01 40.93^v
 δ 3 59 37.65^v
 $\delta - \alpha$ - 2 06.28^v
 $-0^{\circ} 31$ 37.20^v
 $\frac{1}{2}(1-40) - 0$ 12.70^v
 $-0 31$ 21.5^v

T_1 55 32.50^v

9.86913
 8.20832^v
 79630.0^v
 007232^v
 6.082774^v

9.95727
 0.00000^v
 0.00002^v
 9.95729^v

$\delta - \alpha$ - 0' 24.96^v
 - - 0 1.66^v

γ 42 11 17.7^v
 δ 27 36 21.8^v
 $\delta - \gamma$ 17 37 52.6^v

9.82670
 8.20832^v
 9.48009^v
 0.17292^v
 7.68773^v

$\delta - \delta'$ 16 45.0^v

$\delta + 27 53 06.8$ α 7 01 39.27^v

$\text{Eph } \delta + 27 53 06.0$ $\text{Eph } \alpha$ 7 01 38.71^v

$\delta - \alpha$ + 00.8^v $\delta - \alpha$ + 0.86^v
 Geom. Corr. + 0.4 0.00
 1st Order Ref 00

In Corr - 0.3 - 0.06

$\delta + 27 53 06.5$ α 7 01 39.21

$\delta - \alpha$ + 0.5^v + 0.86

11197

Lunar

Parallax

30

$91 \ 9 \ 01 \ 90.93''$
 $2 \ 3 \ 59 \ 39.65''$
 $4-4' - 2 \ 06.28''$
 $-0^\circ 31 \ 39.20''$
 $1(1-1') - 0 \ 12.70''$
 $-0 \ 31 \ 21.5''$

 $T_1 \ 55'' \ 22.50''$

9.86913
 $8.20832''$
 $796300''$
 $009232''$
 $6.08277''$

9.95727
 $0.00000''$
 $0.00002''$
 $9.95729''$

$1 \ 4' - 0' \ 29.96''$
 $- - 0 \ 1.66''$

 $x \ 42 \ 11 \ 19.9''$
 $\delta \ 29 \ 36 \ 21.8''$
 $1-8 \ 17 \ 39 \ 52.6''$

9.82690
 $8.20832''$
 $998009''$
 $0.17292''$
 $7.68893''$

 $\delta - \delta' \ 16 \ 45.0''$
 $\delta + 29 \ 53 \ 06.8'' \quad x \ 9 \ 01 \ 39.27''$
 $\delta + 29 \ 53 \ 06.0'' \quad \delta + 9 \ 01 \ 38.71''$

$0-c \quad +0.8'' \quad 0-C \quad +0.86''$
 $Corr. Corr \quad +0.9 \quad 0.00$
 $2nd \ Order \ Ref \quad 0.0$

$In \ Corr \quad -0.3 \quad -0.06$

 $\delta + 29 \ 53 \ 06.5'' \quad x \ 9 \ 01 \ 39.21''$

$0-c \quad +0.5'' \quad +0.86$

