

OBSERVATIONS

FOR

TIME.

U. S. ENGINEER OFFICE.

40 Explorations West of the 100th Meridian.

ASTRONOMICAL DEPARTMENT.

No. ~~57~~ 40 Virginia City - Nevada

1873

W. W. Murray

No. 7)

Approximate Latitude $39^{\circ}17'33''$
7141

Virginia City

Apr. 3

Time & Longitude

W. W. Mangate

Station: Virginia City Nev.

Chronometer No.	Weguo 1499		
Object	ε Ophiuchi	τ Aurigae	η Draconis
Illum and Description	C. West		
Factor	A.	(Azimuth)	
"	B.	(Level)	
"	C.	(Collimation)	
"	F.	(For broken transits)	
Levels	ε 33.8 N. 32.0	ε 35.0 W. 32.0	ε 31.4 E. 35.9
"	ε 30.2 N. 35.1	ε 31.5 W. 35.5	ε 24.0 W. 33.0
Sums			
Threads			
"			
"	53.9	21	9.4
	5.6	19.1	32.1
	18.0	37.0	58.0
	30.2	54.9	24.1
	16 12 42.1	16 17 12.1	16 23 49.0
Means			
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.			
Error of Chron.			
Observed A. R.			

Aug. 9th 1873. Margatt, Observer.

3 Ophiuchi 2 Hercules Pr. 2377 d Hercules
 C. East C. West

E 311 W. 36.2
 E 355 W. 32.1

E 310 W. 37.0 E 305 W. 38.0
 E 36.0 W. 32.3 E 335 W. 35.0

27.2
 39.1
 51.4 (8)
 4.1

42.9
 58.3
 14.0
 29.9

51.4
 13.3
 36.0
 58.2

8.2
 22.2
 37.3
 52.0

Vp 31 W. 3 W 39 45.5 W 44 19.7 W 58 6.0

Station:

Chronometer No.

Object

✓ *Herculis 44 of hincis*

Illum and Description

- Factor A. (Azimuth)
- “ B. (Level)
- “ C. (Collimation)
- “ F. (For broken transits)

Levels

E 340 W. 350 318 352
E 318 W. 372 360 331

Sums

Threads

49.0	8.4	52.7
4.5	20.9	59.1
20.8	33.5	19.1
57.0	46.2	82.9
57.8	17 9	58.317 19 45.5

Means

Transit mean Thread

Cor. for Rate

“ “ Level

“ “ Coll

“ “ Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

Observer.

~~Adhucis Gr 2413 - v' Herculis~~

~~E 32.3 N. 37.0 E 31.0 N. 27.0
E 36.6 N. 33.9 E 28.0 N. 30.0~~

	36.8	50.0(5)	91.6
	56.3	5.3	21.5
	16.5	20.9	34.3
	36.2	36.9	46.9
17 29	55.9	53.0	59.3
		179	

Station: Virginia City, Nev.

Chronometer No.

Object

♄ Herculis + Scorpius 30 phiuchi

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 28.3 W. 27.5 E 28.0 W. 28.2 E 28.6 W. 28.4

"

E 28.3 W. 27.5 E 28.1 W. 28.1 E 28.7 W. 28.5

Sums

Threads

"

"

	3.4	53.4	28.4
	20.2	6.5	40.2
	38.2	20.0	52.8
	56.0	33.9	5.3
16 17 13.5	14 22 47.1	16 31 17.2	

Means

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

August 11th 1873

Margate, Observer.

β Draconis Gr. 2415 + 'Araucaria'

E 32.3	W. 37.0	E 31.0	W. 27.0	E 27.0	W. 31.0
E 36.4	W. 33.9	E 28.0	W. 30.0	E 29.5	W. 30.5

	36.8		50.0(?)		9.6
	56.3		5.3		21.5
	16.5		20.9		34.3
	36.2		36.9		46.9
17 29	55.9		53.0	11 9	59.3

Station: *Virginia City Nev. Aug.*

Chronometer No.	<i>Regno 1499.</i>		
Object	<i>ε of Draco</i>	<i>γ Draconis</i>	<i>ζ of Draco</i>
Illum and Description	<i>C. West</i>		
Factor	A.	(Azimuth)	
"	B.	(Level)	
"	C.	(Collimation)	
"	F.	(For broken transits)	
Levels	<i>E 28.0 W. 28.0</i>	<i>E 30.0 W. 28.0</i>	<i>29.0 E. 29.0 W.</i>
"	<i>E 25.0 W. 30.0</i>	<i>E 27.0 W. 31.0</i>	<i>26.0 W. 32.0</i>
Sums			
Threads			
"			
"	<i>54.7</i>	<i>8.9</i>	<i>27.9</i>
	<i>6.4</i>	<i>33.5</i>	<i>40.2</i>
	<i>18.3</i>	<i>59.3</i>	<i>52.6</i>
	<i>30.9</i>	<i>25.4</i>	<i>5.1</i>
	<i>W 12 43.0</i>	<i>W 23 50.4</i>	<i>W 21 17.0</i>
Means			
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.			
Error of Chron.			
Observed A. R.			

Clouds flying

14th 1873

Wm. Maryatt, Observer.

dt Herculis	v' Herculis	74	Ophiuchi	v' Ophiuchi
	C. West		C. East	

E 25.9 W. 34.1	E 33.0 W. 28.0	E 29.1 W. 36.7	E 31.3 W. 30.2
E 29.2 W. 30.7	E 27.7 W. 33.2	E 26.0 W. 35.0	E 27.3 W. 34.1
	N. B.		

9.1	9.2	53.4	20.8
23.2	21.3	6.8	33.0
37.9	34.1	20.0	45.5
52.3	46.9	33.2	58.0
16 58 7.0	17 9 59.0	17 19 46.1	17 30 10.0

Station:

~~4.7~~
~~8.2~~
~~22.1~~
~~30.3~~
 849.8

Chronometer No.

Object

w Draconis γ *Draconis* μ^2 *Sagittarii* (S)

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 28.3 W 338 E 29.0 W 331

E. W.

"

E 31.8 W 306 E 32.2 W 299

Sums

Threads

"

"

19.8

445

54.7 (S)

53.0

3.8

8.2

26.6

234

221

0.4

43.0

36.3

39 33.0

55 1.9

58 49.8

Means

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

, Observer.

o Hercules

E 278 W 847
E 307 W. 214

51.2

49

18.9

23.8

3 46.0

Station: Virginia City, August 15th

Chronometer No.	S. ² / ₃ ¹ / ₂ E. Negus 1499		46 ^{N.} / ₂₆	
Object	8 α Ophiuchi		E Ophiuchi T Hercules	
Illum and Description	C. West			
Factor	A.	(Azimuth)		
"	B.	(Level)		
"	C.	(Collimation)		
"	F.	(For broken transits)		
Levels	E. 26.0 W. 29.0		28.0 28.3	
"	E. 28.0 W. 27.0		29.1 27.2	
Sums				
Threads				
"				
"		59.9	54.9	3.4
		12.0	7.0	20.6
		24.5	18.9	38.1
		36.3	31.2	56.2
	16 8	48.4	16 12	17 13.7
Means	16 8	24.22	16 12	16 16 38.40
Transit mean Thread				
Cor. for Rate				
" " Level				
" " Coll				
" " Azim				
Reduced Transit				
Tabular A. R.	16 7	42.93	16 15 56.64	
Error of Chron.				
Observed A. R.				

1873

H. H. Mayatt

Observer.

- 26 8

29 9

33' 44'

♄ Scorpio

♃ Hercules

Gr. 2377
J. West

♃ Hercules
G. East

E 28.0 W. 29.5

E 29.0 W. 29.4

E 31.2 W. 29.7

E 30.0 W. 30.8

E 29.5 W. 28.0

E 29.0 W. 29.5

E 30.2 W. 29.7

E 29.1 W. 31.7

53.5

44.6

(5)
53.8

9.3

6.8

59.9

14.0

24.0

20.0

15.5

36.7

38.8

34.0

31.3

59.2

53.2

16 22 47.1

16 39 46.9

16 44 21.0

16 58 7.2

16 22 20.24

16 39 15.64

16 43 36.94

16 57 38.50

16 21 29.12

16 38 34.01

1

16 56 56.46

Station:

Chronometer No.	+4 14 ⁸¹ Venus 1421		- 24 3			
Object	Gr. 2415 (S) v' Hercolis		44 Ophiuchi			
Illum and Description	V.G. Evert					
Factor	A.	(Azimuth)				
"	B.	(Level)				
"	C.	(Collimation)				
"	F.	(For broken transits)				
Levels	E 308	W. 300	E 308	W. 301	29.6	31.6
"	E 310	W. 298	E 290	W. 319	31.1	30.1
Sums						
Threads						
"						
"		50.1	10.1			54.1
		6.0	22.1			7.2
		21.9	35.0			20.6
		38.2	47.8			33.9
	17 4	53.4	17 9	59.9	17 19	47.0
		<u>Very faint.</u>				
Means	17 4	21.92	17 9	34.98	17 19	20.56
Transit mean Thread						
Cor. for Rate						
" " Level						
" " Coll						
" " Azim						
Reduced Transit						
Tabular A. R.			17 8	53.10	17 18	39.00
Error of Chron.						
Observed A. R.						

Exchange of signals with Sub Lt Laker
 Aug 15th 1873, Observer.

52° 25'

Line by Signal No 1499

P. D. Macom's

Received

Sent

		330	0.3
		431	10.2
	First	53.2	20.2
	Series	3.0	30.2
8 29.5 11.317		13.0	40.3
8 31.2 11.30.0		23.2	50.2
	$\frac{18}{18}$ $\frac{34}{34}$	$\frac{334}{3.13}$	$\frac{18}{18}$ $\frac{41}{40}$ 0.3
			$\frac{30.24}{30.24}$
		374	0.3
		43.5	10.1
	Second	53.6	20.2
	Series	3.3	30.2
17 29 37.9		13.5	40.4
17 29 54.3		23.5	50.3
	$\frac{18}{18}$ $\frac{36}{36}$	$\frac{335}{03.47}$	$\frac{18}{18}$ $\frac{43}{42}$ 0.1
17 29 17.86			$\frac{30.23}{30.23}$
		33.6	0.3
	Third	43.6	10.2
	Series	54.0	20.3
		3.4	30.2
		13.6	40.3
		23.6	50.1
17 27 35.47		$\frac{18}{18}$ $\frac{38}{38}$	$\frac{34.0}{3.69}$
			$\frac{18}{18}$ $\frac{45}{44}$ 0.1
			$\frac{30.21}{30.21}$

Chronometer fast 41.90

Station:

Chronometer No.		1° 55'		
Object	♄ Cygni	♄ Aquilae	♄ Aquilae	
Illum and Description	C. Exact.			
Factor	A. (Azimuth)			
"	B. (Level)			
"	C. (Collimation)			
"	F. (For broken transits)			
Levels	E 33.2 W. 30.7	E 31.8 W. 32.0	31.6	32 W. 2
"	E 32.0 W. 31.9	E 31.6 W. 32.2	32.9	31.0
Sums				
Threads				
"				
"	9.2	15.9		5.1
	27.8	28.2		17.0
	46.9	37.3	wrong thread	29.2
	5.7	52.7		41.5
	19 34 24.1	19 59 24.0	20 5	53.2
Means	19 33 46.74	19 58 40.22	20 5 29.20	
Transit mean Thread				
Cor. for Rate				
" " Level				
" " Coll				
" " Azim				
Reduced Transit				
Tabular A. R.	19 57 58.46	19 57 58.46	20 20 5.70	
Error of Chron.				
Observed A. R.				

, Observer.

	-18° 27'	10' 52'	72 5
γ Cygni	π Capricorni C. East	ε Delphinus C. West	γ 3241

ε 329 W. 360	ε 320 W. 319	ε 330 W. 309
ε 329 W. 310	ε 324 W. 315	ε 350 W. 289

531	219	284	0.2
89	345	40.3	38.6
25.0	47.4	52.4	18.8
40.4	0.4	5.1	58.1

20 18 55.9	20 21 12.7	20 28 17.3	20 32 37.0
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20 18 24.6	20 20 2.0	20 27 52.78	20 31 19.44
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20 20 5.71	20 27 11.08	20 30 35.54
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Station:

Chronometer No.	44° 49'		- 9 27
Object	† Cygni (A)	ε Cygni	μ Aquarii
Illum and Description			
Factor	A. (Azimuth)		
"	B. (Level)		
"	C. (Collimation)		
"	F. (For broken transits)		
Levels	E 35.0 W. 29.1	E 32.1 W. 31.3	33.7 E. 30.4 W.
"	E 34.2 W. 29.7	E 33.0 W. 30.7	32.4 31.3
Sums			
Threads			
"			
"	16.9	19.8	8.1
	33.2	33.9	19.9
	50.3	48.5	32.1
	7.8	3.1	44.7
	20 38 24.3	20 40 17.1	20 46 56.8
Means	20 38 50.46	20 41 48.48	20 46 32.22
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.	20 37 42.46		20 45 50.69
Error of Chron.			
Observed A. R.			

Station: Virginia City, Nev. Aug 16th

Chronometer No.	Vigno 1499		
Object	α' Arctis	β Draconis	α Draconis
Illum and Description	C. West	C. West	C. East
Factor	A.	(Azimuth)	
"	B.	(Level)	
"	C.	(Collimation)	
"	F.	(For broken transits)	
Levels	E 29.0 W. 30.3	E 31.1 W. 28.9	E. W.
"	E 29.4 W. 30.0	E 31.8 W. 28.9	
Sums			
Threads			
"			
"			
	43.2	11.6	53.0
	55.1	30.3	25.8
	7.7	50.2	59.9
	20.1	10.2	33.8
	179 32.9	1728 30.1	29 6.0
Means			
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.			
Error of Chron.			
Observed A. R.			

1873

Maryatt, Observer.

Maryatt's
C. East

E 29.3 W 3.8

E 28.0 W 3.2

N 9

33.3

47.2

0.0

1742129

Station: Virginia City Nev. Aug.

Chronometer No.	3910 Regus 1499		33° 45'	14 32
Object	γ Herculis		α Herculis	α Herculis
Illum and Description	C. West			
Factor	A.	(Azimuth)		
"	B.	(Level)		
"	C.	(Collimation)		
"	F.	(For broken transits)		
Levels	E 26.8	W 25.0	E 25.5	W 27.2
"	E 24.9	W 26.9	E 27.8	W 25.0
Sums				
Threads				
"				
"		18.5	43.2	43.8
		33.6	57.1	55.9
		49.5	12.0	8.4
		5.1	26.9	21.0
	16	39 20.7	16 57 41.1	17 9 33.5
Means	16	38 49.48	16 57 12.06	17 9 8.52
Transit mean Thread				
Cor. for Rate				
" " Level				
" " Coll				
" " Azim				
Reduced Transit				
Tabular A. R.	16	38 33.94	16 56 56.40	17 8 53.05
Error of Chron.				
Observed A. R.				

18th 1873

Maryatt, Observer.

24 3

52 24

18 49

51 20

441 of finches

W. Draconis

W. Draconis
C. West

W. Draconis (H)
C. East

E 267 W. 28.0	E 280 W. 26.0	E 270 W. 27.6	E 298 W. 25.0
E 277 W. 26.2	E 281 W. 25.9	E 283 W. 26.4	E 275 W. 27.8

28.1	119	531	182
410.9	31.0	2514	37.4
571.3	51.0	59.0	57.3
7.6	10.9	33.1	16.7
19 20.8	17 28 30.6	29 6.7	17 54 35.3

17 18 54.34	17 27 51.08	17 28 59.46	17 53 56.98
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17 18 38.96	17 27 35.38	17 27 43.61	17 52 41.33
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Station:

Chronometer No.		21	5		
Object	Observations	M. Lagittani Jr. 25.25.			
Illum and Description					
Factor	A.	(Azimuth)			
"	B.	(Level)			
"	C.	(Collimation)			
"	F.	(For broken transits)			
Levels			E. 28.11.270		E. W.
"			E. 26.8.287		
Sums					
Threads					
"					
"		25.0	1.4	26.6	
		38.7	14.3	42.7	
		52.8	27.6	59.0	
		6.5	40.8	15.3	
	A 3	19.9	18.6	53.1	1231.2
Means		18 2 52.58	18 6 27.44		" 57.96
Transit mean Thread					
Cor. for Rate					
" " Level					
" " Coll					
" " Azim					
Reduced Transit					
Tabular A. R.			18 6 12.37		
Error of Chron.					
Observed A. R.					

Exchange of Signals with
 Sub Lt Luke Aug 18th 1873
 , Observer.

-2056

Receiv'd	Received	Sent
	Loss	20.4
	28.5	40.5
First	38.6	50.3
Series	48.4	00.3
263 W. 187	58.3	10.3
277 W. 275	8.4	20.2
18 21	18.3	18 27 30.8
		18 27 00.33
	18.6	30.2
37.6	28.5	40.4
49.5	38.8	50.3
18	48.6	0.3
13.9	58.1	10.3
18 15 25.17	8.8	20.2
18 23	18.8	18 29 30.4
18 22	48.67	18 29 00.30
18 15 1.70	19.0	20.2
Start	29.0	40.4
	39.0	50.3
	49.0	0.1
	59.0	10.0
	9.0	20.2
18 25	19.4	18 31 30.1
18 14 46.30	18 24 49.06	18 31 00.19

Chronometer fast, say 15th

Station:

Chronometer No.	1241		
Object	e. Syrae (p.) Sagittae e. Syrae		
Illum and Description			
Factor	A.	(Azimuth)	
"	B.	(Level)	
"	C.	(Collimation)	
"	F.	(For broken transits)	
Levels	E 29.5 W 26.0	E 28.5 W 26.4	E 42.8 W 5
"	E 28.3 W 26.8	E 27.0 W 28.0	E 28.8 W 26.5
Sums			
Threads			
"			
"	54.2	27.0	33.9
	9.5	39.1	48.3
	25.6	51.9	3.8
	41.3	4.4	18.8
	18 40 56.4	19 0 16.6	19 3 33.2
Means	18 40 25.40	18 59 51.80	19 3 3.60
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.		18 59 26.39	
Error of Chron.			
Observed A. R.			

, Observer.

67 26

- 7 18

♂ *Ducula* *β. Cygnus*
C. East

K *Aquila*
C. West

♂ *Cygnus*

♂ 275 W. 275
♂ 278 W. 283
♂ 288 W. 270

♂ 284 W. 274
♂ 298 W. 266

46.1	26.2	57.3	43.1
17.8	39.8	8.9	11
49.7	53.7	21.2	20.2
21.0	7.1	33.7	39.2
13 52.0	19 26 20.6	30 45.1	33 57.8

19 12 49.32	19 25 53.48	19 30 21.34	19 33 20.28
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19 12 33.63	19 30 5.87
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Station:

Chronometer No.	10	18	8	32	69	57			
Object	γ Aquilae		α Aquilae		Draconis				
Illum and Description									
Factor	A.	(Azimuth)							
"	B.	(Level)							
"	C.	(Collimation)							
"	F.	(For broken transits)							
Levels	E	28.2	W	27.9	E	29.3	W	27.0	
"	E	29.4	W	26.1	E	29.5	W	26.8	
Sums	6.8		28.6		45.3				
Threads	18.9		40.9		19.5				
"	31.7		53.9		54.9				
"	43.6		50		30.8				
	40		45		19		50		
	55.9		17.3		5.4				
Means	19	40	31.20	52.90	19	48	55.1		
Transit mean Thread									
Cor. for Rate									
" " Level									
" " Coll									
" " Azim									
Reduced Transit									
Tabular A. R.	19	40	15.54	19	44	37.47	19	48	38.20
Error of Chron.									
Observed A. R.									

Station: Virginia City, Nev. August,

Chronometer No.			
Object	δ Ophiuchi	ε Ophiuchi	η Draconis
Illum and Description	C, West		
Factor	A.	(Azimuth)	
"	B.	(Level)	
"	C.	(Collimation)	
"	F.	(For broken transits)	
Levels	ε 22.8 W. 26.0	ε 24.2 25.5	25.4 26.4
"	24.2 24.5	ε 23.4 W. 26.3	23.5 28.0
Sums			
Threads			
"			
"	25.2	29.8	43.1
	47.0	41.9	8.0
	59.1	53.9	33.7
	11.4	6.2	59.8
	1/2 8 23.5	1/2 18.2	1/2 23 25.0
Means			
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.			
Error of Chron.			
Observed A. R.			

19th 1873, Maryatts, Observer.

7 Hercules, 4 Hercules, 3 Diacoma
C. West

E 25.3 W 27.2 E 25.0 W 30.0 E 27.0 W 28.7 E 28.0 W 28.0
E 25.0 W 29.0 E 27.0 W 29.0 E 25.9 W 30.0 E 26.7 W 29.3

	19.2		44.0		44.6		121
	34.3		58.1		56.8		31.4
	50.0		12.7		9.3		51.7
	5.9		27.4		21.9		11.8
W 39	21.3	W 57	41.8	179	34.4	17 28	21.6

Station:

Chronometer No.

Object

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

"

Sums

Threads

"

"

52.3

19.5

18.2

25.5

32.9

37.4

59.4

46.9

57.2

33.2

0.4

16.7

17 29 5.4

42 42.0

54

255

Means

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

W. Diacoma's W. Herculis P. Draco (pr)

C. East

E 27.5 W. 9.0 E 26.0 W. 21.0 E 27.3 W. 8.8
 E 28.5 W. 28.0 E 28.4 W. 28.6 E 29.0 W. 28.2

, Observer.

ostreoides n. *lucifera*

E 250 W. 32.7
E 270 W. 30.8

~~19.0~~
25.5 2.2
39.2 15.1
53.1 28.0
7.0 41.0
19.3 20.3 X 6 53.9

Station: Virginia City Nev. Aug. 20th

3° 22' 61' 48'

Transit 1499

Chronometer No.

Object

δ of hirci Draco's α Herculis

Illum and Description

C. West

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 26.7 W. 26.0 E 29.0 W. 27.0 29.0 27.8
E 26.5 W. 26.2 E 29.0 W. 27.0 30.0 26.9

Sums

Threads

"

"

35.4	43.8	46.0
47.2	8.6	1.8
59.3	34.3	18.4
11.6	0.2	35.1
16 8 23.5	16 23 25.5	16 20 30.5

Means

16 7 59.40 16 22 34.48 16 20 18.46

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

16 7 42.86 16 22 17.70

Error of Chron.

Observed A. R.

A73

Margatt, Observer.

9 24 3345 14 32

W Herculis K Ophiuchi d Herculis v' Herculis
C. West C. East.

E 29.1 W. 29.2 E 30.0 W 29.0 E 29.9 W. 30.0
E 29.3 W. 29.0 E 29.6 W. 29.5 E 29.8 W. 30.1

19.4 33.2 44.3 44.2
34.9 45.1 58.4 56.6
50.6 57.4 13.0 9.4
Vp 29 56.3 9.8 27.9 22.0
lost Vp 52 22.1 Vp 57 42.1 17 9 33.9

Too much
windy

16 38 50.58 16 51 57.52 16 57 13.14 17 9 9.22

16 38 33.89 16 51 40.95 16 56 56.36 17 8 53.01

Station:

Chronometer No.	- 24 03	52 24	68 49
Object	44 of church's Dawson's w/ Dawson's		
Illum and Description			
Factor	A. (Azimuth)		
"	B. (Level)		
"	C. (Collimation)		
"	F. (For broken transits)		
Levels	E 28.8 W. 31.1	E 30.0 W. 30.5	E. W.
"	E 28.6 W. 31.3	E 30.3 W. 30.1	
Sums			
Threads			
"			
"	28.4	11.9	52.8
	41.7	31.4	25.6
	55.1	51.8	59.5
	8.3	11.2	33.4
	19 21.1	17 28 31.0	39 5.8
Means	17 18 54.92	17 27 51.54	17 37 59.42
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.	17 18 28.93	17 27 35.22	17 37 43.50
Error of Chron.			
Observed A. R.			

Chronometer fast about 16.4 at time of Ex.

Signals from ~~to~~ Salt Lake
 Aug. 20th 1873. , Observer.

27 48

μ Hercules

		50.2
		0.2
	First	10.1
	Series	20.1
		30.1
		40.1
E 29 W. 320		
E 289 W. 321	18 14	50.0
	<u>18 14</u>	<u>20.11</u>

29.3
40.1
49.7
59.9
9.7
19.8
29.9

Mean 18 22 = 59.7

		50.8	
		0.0	
	Second	10.6	
	Series	20.4	
		30.4	
		40.4	
19 42	14.2	18 11	50.5
	<u>18 11</u>	<u>20.48</u>	

Some operators
 began

49.7
0.3
9.5
20.0
29.9

17 41	47.22		50.7
			0.4
			10.4
			20.5
		18 18	30.5
			Some operators
			Hercules key

30.0
39.6
49.8
0.0
9.8
19.9
29.7

26 59.83
~~27.046~~
~~26 59.83~~
 Mean 18 27 = 59.83

17 41 31.00
 51.5
 17 11
 17 11
 21.0
 41.2
 51.4
 21.11
 18 21 21.11

18 27	29.7
29.6	another
30.9	set
40.9	
50.9	
60.9	
70.9	
80.9	
90.9	
100.9	
110.9	
120.9	
130.9	
140.9	
150.9	
160.9	
170.9	
180.9	
190.9	
200.9	
210.9	
220.9	
230.9	
240.9	
250.9	
260.9	
270.9	
280.9	
290.9	
300.9	
310.9	
320.9	
330.9	
340.9	
350.9	
360.9	
370.9	
380.9	
390.9	
400.9	
410.9	
420.9	
430.9	
440.9	
450.9	
460.9	
470.9	
480.9	
490.9	
500.9	
510.9	
520.9	
530.9	
540.9	
550.9	
560.9	
570.9	
580.9	
590.9	
600.9	
610.9	
620.9	
630.9	
640.9	
650.9	
660.9	
670.9	
680.9	
690.9	
700.9	
710.9	
720.9	
730.9	
740.9	
750.9	
760.9	
770.9	
780.9	
790.9	
800.9	
810.9	
820.9	
830.9	
840.9	
850.9	
860.9	
870.9	
880.9	
890.9	
900.9	
910.9	
920.9	
930.9	
940.9	
950.9	
960.9	
970.9	
980.9	
990.9	
1000.9	

Mean 18 28 = 59.87

Station:

Chronometer No.		33	13		75	17
Object		4 E (Lynx) (p.) Pleyrae			50 Dancour's	
Illum and Description						
Factor	A.	(Azimuth)				
"	B.	(Level)				
"	C.	(Collimation)				
"	F.	(For broken transits)				
Levels		S 310 W. 31.8			29.4 32.4	
"		E 300 W. 32.8			29.8 33.2	
Sums						
Threads						
"						
"		54.3		12.4		109
"		10.2		26.9		58.0
"		25.8		41.5		46.5
"		41.9		56.2		34.0
"		19 40 57.0	18 46 10.3	18 52 22.5		
Means		18 40 26.84	18 45 41.46	18 50 46.34		
Transit mean Thread						
Cor. for Rate						
" " Level						
" " Coll						
" " Azim						
Reduced Transit						
Tabular A. R.			18 45 25.39	18 50 29.98		
Error of Chron.						
Observed A. R.						

, Observer.

13 41

Laquila 2 Lyons

- 19 "

delugitani
C. East

73 7

T. Dreconis
C. West

E 29.2	W. 33.7	E 28.1	W. 34.7	E 30.0	W. 33.0
E 28.5	W. 34.3	E 29.6	W. 33.4	E 31.0	W. 31.9

27.9
40.0
52.6
5.2

34.3
49.2
4.3
19.6

5.2
18.0
30.9
43.8

56.0
36.2
18.5
0.6

19 0 17.2

19 3 34.1

19 W 56.3

19 49 41.7

18 59 52.58

19 3 4.30

19 10 30.84

19 18 19.60

18 59 36.37

19 10 14.71

19 18 01.57

Station:

10 18

Chronometer No.

Object β^2 Cygni θ Cygni γ Aquilae

Illum and Description

Factor A. (Azimuth)
 " B. (Level)
 " C. (Collimation)
 " F. (For broken transits)

Levels E 29.1 N. 33.7 E 29.5 N. 33.2 E. W.

" E 30.0 N. 32.8 E 30.5 N. 32.2

Sums

Threads

"

"

	27.3		43.4		7.7
	40.8		1.8		19.9
	54.5		20.7		32.2
	9.3		39.9		44.4
19 26	21.9	19 33	58.4	19 40	56.5

Means 19 25 54.56 19 33 20.90 19 40 32.4

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

19 40 16.53

Error of Chron.

Observed A. R.

, Observer.

8 32

*Aquiline

E 300 N 331
E 320 N 311

29.8
41.5
53.9
6.3

19 45 18.3

19 44 53.96

19 44 87.46

Station:

Virginia City Nev.

Chronometer No.

Object

♂ Ophiuchi η Draconis η Auriculæ

Illum and Description

C. West

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 83.1 W. 33.8	E 36.0 W 34.1	36.2 25.5
E 35.0 W. 32.0	E 35.9 W. 34.4	26.9 W. 34.9

"

Sums

Threads

"

"

36.1	45.0	20.9
48.4	9.7	36.0
0.5	35.6	51.9
12.9	1.5	7.8
16 8 25.0	16 23 26.9	16 39 23.0

Means

16 7 42.83	16 22 17.61	16 38 33.85
-----------------------	------------------------	------------------------

Transit mean Thread

16 8 0.68	16 22 35.74	16 38 51.92
-----------	-------------	-------------

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

16 7 42.83	16 22 17.61	16 38 33.85
------------	-------------	-------------

Error of Chron.

Observed A. R.

Station:

Chronometer No.

Object

β Draconis μ Herculis γ Draconis

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 38.9 W. 37.0 E 38.4 W. 38.0 29.3 37.0
 E 39.0 W. 37.0 E 38.7 W. 37.8 29.1 37.3

Sums

Threads

"

"

13.6

21.2

20.1

33.1

34.9

39.2

53.0

48.6

59.1

13.0

2.4

18.6

17 28 32.8

17 42 15.8

17 54 37.3

Means

17 27 53.10

17 42 48.58

17 54 58.86

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

17 27 35.26

17 41 30.96

17 53 41.22

Error of Chron.

Observed A. R.

Station: *Virginia City Nevada*

Chronometer No.				
Object	<i>γ Draconis</i>	<i>β Pheicchi</i>	<i>γ Arctis</i>	
Illum and Description	<i>C. West.</i>			
Factor	A.	(Azimuth)		
"	B.	(Level)		
"	C.	(Collimation)		
"	F.	(For broken transits)		
Levels	<i>E 339 W. 371</i>	<i>E 340 W. 381</i>		<i>E. W.</i>
"	<i>E 340 W 37.3</i>	<i>E 338 W. 38.7</i>		
Sums				
Threads				
"				
"	<i>44.8</i>	<i>51</i>		<i>20.9</i>
	<i>9.4</i>	<i>17.0</i>		<i>35.9</i>
	<i>35.1</i>	<i>29.4</i>		<i>51.4</i>
	<i>1.0</i>	<i>41.9</i>		<i>7.3</i>
	<i>16 23 26.0</i>	<i>16 20 54.2</i>		<i>16 39 23.0</i>
Means				
Transit mean Thread				
Cor. for Rate				
" " Level				
" " Coll				
" " Azim				
Reduced Transit				
Tabular A. R.				
Error of Chron.				
Observed A. R.				

Aug. 23rd 1873

Maryatt, Observer.

Pr. 2377

41 Hercules
C. West.

44 Ophionchi v Ophionchi
O. East.

E 340	W 39.3	E 347	W 40.6	E 341	W 41.5	E 350	W 41.0
E 342	W 39.3	E 350	W 40.2	E 350	W 41.0	E 352	W 40.8

28.3

46.1

30.3

57.2

49.9

58.4

43.6

9.3

12.4

10.9

56.9

21.9

34.8

23.3

10.1

84.3

16 43 56.7

17 9 35.8

17 19 22.8(5)

17 29 46.4

Summations accumulated by dials.

Station:

Chronometer No.			
Object	<i>μ Herculis</i>	<i>ε Draconis</i>	<i>γ Draconis</i>
Illum and Description			
Factor	A. (Azimuth)		
"	B. (Level)		
"	C. (Collimation)		
"	F. (For broken transits)		
Levels			36.7 ^{E.} 41.7 ^{W.}
"			35.3 41.7
Sums			
Threads			
"			
"	21.3	54.9	20.0
	34.8	16.7	39.1
	48.6	cloud. —	58.9
	2.4	1.6	18.3
	42 15.7	22.9	54 37.2
Means			
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.			
Error of Chron.			
Observed A. R.			

, Observer.

otterculis

E 367 W 1115

27.2

408

546

8.7

18 3 2260

Station: Virginia City Aug 24th 1873

Chronometer No.

Object

T Herculis γ Draconis δ Ophiuchi

Illum and Description

A west

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

E. (For broken transits)

Levels

E 35.0 W 35.7 E 37.2 W 36.8 E 38.9 W 37.3

"

E 35.7 W 35.0 E 37.9 W 37.2 E 38.1 W 37.9

Sums

S. J.

Threads

"

"

40.2

45.3

56

57.2

10.0

17.6

14.9

35.8

29.8

33.0

1.9

42.3

W 50.1

W 23 27.1

W 30 54.6

Means

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

Maryatt, Observer.

♄ Hercules	♄ Ophiuchi	♄ Hercules	♄ Hercules
	C. West	C. East	C

E 38.7 W 38.3	E 39.8 W 38.0	E 40.0 W 37.9	E 39.8 W 38.6
E 39.1 W 38.0	E 39.7 W 38.1	E 40.1 W 37.5	E 40.1 W 38.3

21.2	35.1	45.7	46.2
36.5	47.0	0.2	58.8
52.3	59.2	14.9	11.3
8.0	11.8	29.8	23.9
16 39 23.4	16 52 23.9	16 57 43.6	17 9 36.0

Station:

Chronometer No.				
Object	44 of Lincoln	8	Draco's	Draco's
Illum and Description				
Factor	A.	(Azimuth)		
"	B.	(Level)		
"	C.	(Collimation)		
"	F.	(For broken transits)		
Levels	E 39.5	W. 39.1	E 40.4	W. 38.2
"	E 40.4	W. 39.1	E 40.7	W. 38.0
Sums				
Threads				
"				
"	30.6		14.1	55.0
	43.8		33.4	28.1
	57.1		53.9	2.3
	10.3		14.0	36.0
	17 19	23.2	17 29	33.1
				17 39
				9.1
Means				
Transit mean Thread				
Cor. for Rate				
" " Level				
" " Coll				
" " Azim				
Reduced Transit				
Tabular A. R.				
Error of Chron.				
Observed A. R.				

, Observer.

μ Hercules γ Draconis o Hercules μ Sagittarii

E 40.2 W 38.7 E 40.0 W 39.4 E 39.9 W 39.8 E 40.1 W 39.3
E 39.6 W 39.4 E 40.1 W 39.3 E 39.1 W 40.3 E 40.2 W 39.2

21.8	20.5	27.8	4.8
35.5	39.9	41.3	17.0
49.2	59.4	55.4	310.1
2.9	19.1	9.2	43.6
17.42 No. 3	17.54 37.9	17.3 22.4	18 p 56.0

Station:

Chronometer No.

Object

pt. 2533

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

East 11 11 29.0
West 12 11 38.9

E.

W.

"

Sums

Threads

"

"

29.3
45.4
18
18.3
18 12 34.0

Means

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

Station: Virginia City Nevada

Chronometer No.

Object

V α Herculis II α Herculis 44 α Phoenicis

Illum and Description

C. West

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 41.7 W 40.7 E 40.1 W 42.9

E.

W.

"

E 40.0 W 42.4 E 42.0 W 41.0

Sums

Threads

"

"

46.6

28.2

51.0

58.7

42.0

43.9

11.3

57.1

57.0

23.9

12.2

10.5

17 9 36.2 17 11 27.3 17 19 23.9

Means

17 9 11.34 17 10 57.36 17 18 57.26

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

17 8 52.95

17 18 38.75

Error of Chron.

Observed A. R.

Aug 25th 1873.

Maryath, , Observer.

Draconis
C West

f *Draconis*
C West

Arcturus
C East

wg *Arcturus*

841.0 W 42.3 E
E 42.3 W 41.1

E 29.7 W 44.3
E 42.1 W 41.0

14.3

43.8

21.6

11.0

33.6

15.2

35.2

27.9

53.7

47.9

49.0

37.4

13.8

21.0

7.9

50.4

33.3

17 33 53.6

17 42 16.0

18 19 5.1

17 27 53.74

17 32 48.30

17 41 48.94

18 18 37.16

17 27 35.16

17 41 30.90

Station:

Chronometer No.

Object

6 Draconis 1 Aquilae

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 42.6 W 43.2 E 41.0 W 44.7
E 44.1 W 41.3 E 43.1 W 42.5

E.

W.

"

Sums

Threads

"

"

36.8 13.6
0.0 25.7
23.4 38.0
47.0 50.3
18 23 9.8 17 29 1.8

~~27.3~~
~~42.5~~
~~58.1~~

Means

18 22 23.40 17 28 37.88

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

18 28 19.82

Error of Chron.

Observed A. R.

Signal from the Salt Lake
 Aug 26th 1873.

Observer.

Received.

Sent.

$$\begin{array}{r} 38.4^{(3)} \\ 49.4^{(2)} \\ 58.5 \\ 8.4 \\ 18.4 \\ 28.6 \\ \hline 1840 \quad 38.8 \\ \hline \text{Mean} = 1840 \quad 8.50 \end{array}$$

$$\begin{array}{r} 29.8 \\ 39.9 \\ 50.0 \\ 0.0 \\ 10.2 \\ 20.0 \\ 1848 \quad 30.0 \\ \hline 1847 \quad 59.99 \end{array}$$

$$\begin{array}{r} 39.1 \\ 49.0 \\ 59.0 \\ 9.9 \\ 18.9 \\ 29.2 \end{array}$$

$$\begin{array}{r} 29.9 \\ 39.8 \\ 49.9 \\ 0.0 \\ 9.9 \\ 20.0 \\ 1850 \quad 30.0 \\ \hline 1849 \quad 59.93 \end{array}$$

$$\begin{array}{r} 39.6 \\ 49.9 \\ 59.6 \\ \hline 1842 \quad 39.1 \\ \hline \text{Mean} 1842 \quad 9.01 \end{array}$$

$$\begin{array}{r} 30.0 \\ 39.8 \\ 50.0 \\ 0.0 \end{array}$$

$$\begin{array}{r} 39.2 \\ 40.3 \\ 59.5 \\ 9.2 \\ 19.3 \\ 29.4 \end{array}$$

$$\begin{array}{r} 10.0 \\ 20.0 \\ 1852 \quad 30.0 \end{array}$$

$$\begin{array}{r} 39.6 \\ \hline 1844 \quad 39.5 \\ \hline \text{Mean} 44 \quad 9.34 \end{array}$$

$$1851 \quad 59.97$$

4th

$$\begin{array}{r} 39.6 \\ \hline 1846 \quad 9.62 \end{array}$$

Chronometer foots 18.3

Station:

Chronometer No.			
Object	2 Seyrae	δ Draconis	τ Draconis
Illum and Description			
Factor	A. (Azimuth)		
"	B. (Level)		
"	C. (Collimation)		
"	F. (For broken transits)		
Levels	E 428 W 428		451 E 441
"	E 41.2 W 44.6		42.2 44.0
Sums			
Threads			
"			
"	36.5	48.9	56.4
	51.2	20.0	37.8
	6.3	52.0	20.0
	21.4	23.8	2.0
	9 3 35.8	9 13 53.9	19 42.1
Means	19 3 1.24	19 12 51.72	19 18 19.16
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.		19 12 33.24	19 18 01.29
Error of Chron.			
Observed A. R.			

, Observer.

B Cigni

k Aquilae

A Cigni
C. East

Y Aquilae
C. West

E 131 430
E 42.2 W 440

45.0 W 41.2 E 44.9 42.0
E 43.2 W 431 42.3 41.3

21 28.9
42.1
56.2
10.0

59.8
11.7
24.1
36.2

45.0
3.7
22.8
41.3

9.4
21.3
33.5
46.0

19 26 23.2 19 30 48.3 19 33 59.6

40 58.1

19 25 56.08

19 30 24.02

19 33 22.48

19 40 33.66

19 20 58.83

19 40 15.50

Station:

Chronometer No.			
Object	α Aquilae ε Draconis φ Cygni		
Illum and Description			
Factor	A.	(Azimuth)	
"	B.	(Level)	
"	C.	(Collimation)	
"	F.	(For broken transits)	
Levels			44.9 42.1
"			41.8 45.8
Sums			
Threads			
"			
"			
	31.4	47.0	1.8
	43.3	20.9	21.4
	55.5	56.3	41.0
	8.1	32.1	1.1
	19 45 20.1	19 50 2.0	19 52 20.6
Means	19 45 55.68	19 48 56.66	19 52 41.19
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.	19 44 37.43	19 48.37.93	
Error of Chron.			
Observed A. R.			

, Observer.

Taquiles + Aquiles

E449 N42.2 E42.1 N44.5
E43.0 N44.0 E449 N42.3

52.4	41.8
4.3	53.6
16.5	5.7
29.1	17.8
58 400 (S) 20 5	29.7

19 58 16.68 20 5 5.72

19 57 58.42

Station: Virginia City Nevada Aug.

Chronometer No.

Object

η Herculis
C. West

ν Herculis

π Herculis

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 43.0 W 41.0

E 41.1 W 43.8

42.9 42.8

"

E 41.7 W 42.8

E 43.8 W 41.1

40.2 45.3

Sums

Threads

"

"

21.0

46.6

27.1

36.2

59.7

41.9

52.0

11.3

57.0

7.9

23.9

12.0

1/2 29 23.2

36.2

1 27.0

Means

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

26th 1973

Maryatt, Observer.

2 Draco	f Draco	w Draco	μ Hercules
	c. West	c. East	

E444 W44.7
E440 W45.5

E440 44.2 E40.2 W45.0
E435 41.7 E430 W42.1

(8)			
193	44.5	54.3	21.8
33.2	15.2	27.6	35.1
53.2	48.1	1.4	49.0
13.4	20.9	34.9	2.7
28 33.0	33 53.0	7.5	42 W40.0

Station:

Chronometer No.

Object

0 Hercules Jr. 2533 22 Sept 1857

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E401 11.44.9 43.3 11.43.5 43.3 43.6
E431 11.41.9 41.4 11.45.7

Sums

Threads

probably not good

"

"

27.6	29.4	40.1
41.2	45.0	52.0
55.1	1.7 (3)	4.1
9.0	19.0	7.1
3 22.3	12 33.4	26.4
		28.1

light out

Means

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

Station: *Virginia City Nev*

Chronometer No.			
Object	<i>α Lacertis</i>	<i>α Herculis</i>	<i>η Herculis</i>
Illum and Description	<i>C. West</i>		
Factor	A. (Azimuth)		
"	B. (Level)		
"	C. (Collimation)		
"	F. (For broken transits)		
Levels	<i>E 36.3 W. 38.8</i>	<i>E 41.0 W. 36.0</i>	<i>41.0 E. 37.0</i>
"	<i>E 39.4 W. 36.1</i>	<i>E 38.9 W. 38.2</i>	<i>E 38.9 W. 39.9</i>
Sums			
Threads			
"			
"	<i>44.9</i>	<i>47.8</i>	<i>21.3</i>
	<i>9.7</i>	<i>3.4</i>	<i>36.4</i>
	<i>35.6</i>	<i>20.0</i>	<i>52.1</i>
	<i>1.6</i>	<i>36.9</i>	<i>8.0</i>
	<i>1/2 23 27.0</i>	<i>1/2 30 53.2</i>	<i>39 23.5</i>
Means	<i>16 22 35.76</i>	<i>16 30 20.26</i>	<i>16 38 52.26</i>
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.	<i>16 32 17.37</i>		<i>16 38 33.73</i>
Error of Chron.			
Observed A. R.			

Aug 27th 1973 Mangatt, Observer.

R Ophiuchi α Herculis π Herculis 44 Ophiuchi
 C. West C. East

E 40.1 W 40.0 E 42.4 W 39.0 E 42.0 W 40.0 E 42.7 W 40.1
 E 42.0 W 38.3 E 41.9 W 39.8 E 42.6 W 39.8 E 42.0 W 40.8

35.0	46.7	27.3	30.8
46.9	58.9	42.1	43.9
59.1	10.9(5)	57.4	57.0
11.4	23.9	12.6	10.3
52 23.8	36.4	17 11 27.6	17 19 23.2

Doubtful.

16 51 59.24

17 10 57.40

17 18 59.04

16 51 40.84 17 8 52.92

17 18 38.93

Station:

Chronometer No.			
Object	β Draconis w Draconis μ Herculis		
Illum and Description			
Factor	A.	(Azimuth)	
"	B.	(Level)	
"	C.	(Collimation)	
"	F.	(For broken transits)	
Levels	E 410 W. 39.0	E 430 W. 40.2	E 42.4 W. 41.1
"	E 429 W. 40.1	E 438 W. 39.4	E 42.8 W. 41.0
Sums			
Threads			
"			
"	14.1	55.0	22.0
	34.0	28.0	35.7
	53.8	2.0	49.4
	13.9	35.3	3.1
	17 28 33.1	39 8.1	42 16.3
Means	17 27 53.78	17 38 1.68	17 41 49.36
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.	17 27 35.10	17 37 43.09	17 41 20.87
Error of Chron.			
Observed A. R.			

, Observer.

Draconis 12 Sagittarii 0 Hirculis u' legit. 4 anis

43.3	W 401	E 431	W 409	E 420	W 42.0
424	W 411	E 427	W 413	E 432	W 409

20.8		31.2		28.0	4.5
39.9		45.1		41.7	17.3
59.8		59.4		55.7	30.4
19.3		13.7		9.3	43.8
54 38.1	58	28.0	18 3	22.6	6 56.2
		27.9			

17 53 59.56	17 57 59.28	18 2 55.46	18 6 30.44
-------------	-------------	------------	------------

17 53 41.06	17 57 41.30	18 6 12.26
-------------	-------------	------------

Station:

Chronometer No.

Object

Gr. 2533

209 Hercules

1 Equinox
C. East

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 43.0 W 41.0 E 42.2 W 41.8 W 40.0 W 40.0

"

E 44.3 W 39.9 E 45.1 W 39.9 W 38 W 42.2

Sums

Threads

"

"

29.3	11.5	139
45.2	24.3	26.0
2.0	37.6	38.2
18.5	50.7	50.5
12 34.2	19 3.0	18 29 2.3

Means

19 12 1.84 18 18 37.42 18 28 39.18

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

18 28 19.80

Error of Chron.

Observed A. R.

Signals from + to Salt Lake Bay,
 Aug. 27th 1873, Observer.

Received

Sent

1st series
 11.8
 21.6
 31.8
 41.6
 51.7
 1.6
 19 9 11.8

 mean 19 8 41.69

1st series
 0.0
 10.4
 19.9
 30.0
 40.0
 49.9
 19 15 0.0
 mean 19 14 30.03

2nd series
 12.0
 22.0
 32.2
 41.8
 52.1
 2.0
 19 11 12.3

 mean 19 10 42.06

2nd series
 59.9
 10.0
 20.1
 29.9
 39.9
 50.0
 0.0
 19 17
 mean 19 16 29.97

3rd series
 12.4
 22.3
 32.5
 42.3
 52.2
 2.0
 19 13 12.4

 mean 19 12 42.30

3rd series
 59.9
 9.9
 20.0
 30.0
 39.8
 49.6
 0.0
 19 19
 mean 19 18 29.89

Chronometer fast about 18.54

Station:

Chronometer No.			
Object	β Argui	δ Argui	γ Aquila
Illum and Description	C West		
Factor	A. (Azimuth)		
"	B. (Level)		
"	C. (Collimation)		
"	F. (For broken transits)		
Levels	E 44.8 W 41.0	E 45.3 W 40.1	E. W.
"	E 46.8 W 39.0	E 47.1 W 38.3	
Sums			
Threads			
"			
"	29.8	45.9	9.8
	42.8	4.0	21.7
	56.8	23.0	34.0
	10.5	42.0	46.3
	19 26 24.0	34 0.5	40 58.8
Means	19 25 56.78	33 23.08	40 34.14
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.			19 40 15.48
Error of Chron.			
Observed A. R.			

, Observer.

*Aquilus edwardsii

45.0 41.0 E 45.5 W 40.5 E 45.0 W 40.0
47.5 38.5 E 48.0 W 38.0 E

31.9	47.9
43.6	21.5
56.0	57.2
8.2	380 ^(s)
45 20.2	50 7.4

11 44 55.98 19 48 57.40

19 44 37.42 19 48 37.85

Station: Virginia City Nev. Aug

Chronometer No.

Object

T Herculis Hydraconis η Herculis

Illum and Description

C. West

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

E 33.9	W 32.0	E 33.7	W 34.1	34.0	35.7
E 31.9	W 34.0	E 24.9	W 33.2	35.6	34.1

"

Sums

Threads

"

"

40.4	45.2	21.6
57.2	10.1	36.8
15.1	35.9	52.5
33.0	1.8	8.2
16 1/2 50.5	16 2/3 27.3	16 3/4 23.7

Means

16	16	15.24	16	22	36.06	16	38	52.56
----	----	-------	----	----	-------	----	----	-------

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

16	15	56.28	16	22	17.32	16	38	33.71
----	----	-------	----	----	-------	----	----	-------

Error of Chron.

Observed A. R.

28th 1873

Maryatt, Observer.

KO Phinchi v' Herculio

π Herculio
C. West

44 Phinchi
C. East

E 35.9 W 36.0
E 34.6 W 37.3

E 35.1 W 37.9
E 37.0 W 36.2

E 36.2 W 37.2
E 36.0 W 37.7

E 35.1 W 38.4
E 37.0 W 37.1

~~35.4 29.7~~
~~47.4 20.8~~
~~59.7 12.0~~
12.0

47.0
59.0
11.7
24.8

27.6
42.1
57.4
12.9

30.8
43.9
57.4
10.8

Wp 5^{min} 24.1

17 9 36.5

17 11 27.8

19 23.6

16 51 59.72

17 9 11.70

17 10 57.56

17 18 57.30

16 51 48.82 17 8 52.90

17 18 38.81

Station:

Chronometer No.

Object

Illum and Description

Factor

A. (Azimuth)

"

B. (Level)

"

C. (Collimation)

"

F. (For broken transits)

Levels

"

Sums

Threads

"

"

Means

Transit mean Thread

Cor. for Rate

" " Level

" " Coll

" " Azim

Reduced Transit

Tabular A. R.

Error of Chron.

Observed A. R.

Braconis v Ophiuchi μ Herculis

*370 W 37.2
371 W 37.3*

*36 E. 38.9
37 W 37.9*

*14.1
33.8
53.7
13.8
33.1*

*58.0
10.0
22.7
34.6
29 47.0*

*22.1
35.3
49.6
3.2
42 46.3*

17 27 53.70 17 29 22.54 17 41 49.30

17 27 35.07 17 29 3.95 17 41 30.85

, Observer.

Arucous *Herculis* *M. Sagittarii* Jr. 2553

E 36.1 W 39.0 E 36.0 W 39.2 E 36.9 W 38.7
E 37.0 W 38.2 E 37.1 W 38.1 E 36.0 W 39.4

20.8	27.8	27.8	4.9	29.7
40.0	41.7	41.7	17.9	45.6
59.8	55.6	55.6	30.8	2.0
19.3	9.4(?)	9.6(?)	44.0	17.9
54 38.1	23.0 3	23.0	6 56.4	12 34.5

17 53 59.60 18 2 55.52 18 6 30.80 18 12 01.94

17 53 41.03

18 6 12.25

Station:

Chronometer No.			
Object	η Serpentis	ν Herculis	δ Draconis
Illum and Description			
Factor	A. (Azimuth)		
"	B. (Level)		
"	C. (Collimation)		
"	F. (For broken transits)		
Levels	6 36.5 W 40.0		37 E. 1 39 W. 0
"	6 37.2 W 38.3		37.3 38.7
Sums			
Threads			
"			
"	40.5	11.2	37.0
	52.7	24.3	59.9
	4.9	37.8	23.8
	17.0	50.9	47.1
	13 28.9	19 3.4	23 9.7
Means	15 48.0	18 37.53	22 23.50
Transit mean Thread			
Cor. for Rate			
" " Level			
" " Coll			
" " Azim			
Reduced Transit			
Tabular A. R.	18 14 46.18		
Error of Chron.			
Observed A. R.			

, Observer.

1 Aquilae

↳ Seynae

+ E Seynae (hr.)
C Coast

E 36.0 N 40.0
E 37.0 N 39.0

E 36.5 N 40.0
E 38.0 N 37.9

14.0
26.1
38.7
50.9
29 28

27.5
43.1
59.6
14.2
33 29.2

57.0
12.3
28.3
44.2
40 59.5

28 38.50

18 32 58.52

40 28.26

18 28 19.79

18 32 40.04

Signals from de Sultanka
 Aug 28th 1973, Observer.

Received

Sent

5.7 ~~8~~ (?)

39.6

7.2

49.9

17.1

59.9

27.2

10.0

37.3

20.0

47.2

30.0

19 8

57.0

19 14

40.0

57.4

39.9

7.5

50.0

18.0

59.9

27.6

9.9

37.5

19.9

47.7

30.0

19 10

57.6

19 16

40.0

57.3

40.0

7.6

50.0

17.7

59.9

27.8

10.0

37.8

20.0

47.6

30.0

19 12

58.0

19 18

40.0

Chronometer fast 18.3

M. 19 8 27.17

M. 19 14 49.91

M. 19 10 27.61

M. 19 16 9.94

M. 19 12 27.69

M. 19 18 9.99

Station:

Chronometer No.	Aragua, 499							
Object	K. Cepheus + Cygni + Aquilae							
Illum. and Description	C. West							
Factor	A.	(Azimuth)						
"	B.	(Level)						
"	C.	(Collimation)						
"	F.	(For broken transits)						
Levels		E 37.9	W 41.0	E 38.0	W 40.5		E.	W.
"		40.3	W, 39.3	E 39.3	W 39.6			
Sums								
Threads								
"								
"		0.3		45.8				9.9
		12.2		41				21.8
		24.6		28.0				34.1
		36.9		41.9				46.7
		30 49.1		34 0.6				40 59.8
Means		19	30 24.62	19	33 23.08		19	40 34.26
Transit mean Thread								
Cor. for Rate								
" " Level								
" " Coll								
" " Azim								
Reduced Transit								
Tabular A. R.		19	30 581				19	40 15.47
Error of Chron.								
Observed A. R.								

Observer.

Alpinus & Dracoms

E 40.0 W 39.4 E 39.9 W 39.5
E 38.4 W 40.6 E 38.6 W 40.8

321	471
438	21.3
56.2	57.0
8.6	32.6
45 205	50 7.4

19 44 56.24 19 48 57.08

19 44 37.41 19 48 37.79