

APPENDIX No. 5—Continued.

August 20, 1846.—Santa Fé.

DETERMINATION OF TIME.

Time, p. m.	Double altitudes of Coronæ Borealis.	Chronometer fast.
<i>h. m. s.</i>	<i>Deg. min. sec.</i>	
3 40 19.0	93 25 45	
3 41 49.5	92 47 10	
3 43 04.7	92 17 50	

Time, p. m.	Double altitudes of Arcturus in the west.	Chronometer fast.
<i>h. m. s.</i>	<i>Deg. min. sec.</i>	
3 44 54.5	72 01 20	
3 45 46.2	71 40 30	
3 46 46.2	71 17 00	
3 47 36.2	70 56 10	
3 48 28.0	70 35 40	
3 49 26.9	70 11 00	
3 50 18.0	69 50 25	
3 51 09.8	69 29 50	
3 52 01.0	69 08 50	

Thermometer 62°.

APPENDIX No. 5—Continued.

August 20, 1846.—Santa Fé.

DETERMINATION OF LATITUDE.

Time, p. m.	Double altitudes of Polaris.	Latitude.
<i>h. m. s.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>
3 57 08.4	70 46 30	35 41 17
3 58 20.2	70 47 20	35 41 14
3 59 14.0	70 47 50	35 41 11
3 59 50.0	70 48 30	35 41 14
4 50 47.8	70 49 30	35 41 21
4 01 18.5	70 49 50	35 41 19
4 01 57.5	70 50 10	35 41 15
4 02 56.0	70 51 05	35 41 27
4 03 12.0	70 51 10	35 41 25

Thermometer 62°.

Mean of 9 observations, 35° 41' 13".

APPENDIX No. 5—Continued.

August 21, 1846.—*Santa Fe.*

Time, a. m.			Double altitudes of the sun's upper limb.	
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg.</i>	<i>min.</i>
5	09	35.5	98	50
5	10	04.0	99	00
5	10	58.0	99	20
5	11	25.5	99	30
5	11	53.8	99	40
5	12	21.5	99	50
5	12	47.8	100	00
5	13	44.0	100	20
5	14	12.5	100	30
5	14	39.2	100	40

Thermometer 68°.

APPENDIX No. 5—Continued.

August 22, 1846.—*Santa Fe.*

DETERMINATION OF TIME.

Time, a. m.—August 23.			Double altitudes of sun's upper limb.	Time, p. m.—Aug. 22.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>
4	57	26.0	93 40	10	18	08.2	7	34	46.44
4	56	58.0	93 30	10	18	36.8	7	34	46.82
4	56	31.3	93 20	10	19	02.8	7	34	46.55
4	56	05.0	93 10	10	19	28.7	7	34	46.42
4	55	38.5	93 00	10	19	55.6	7	34	46.70
4	55	11.2	92 50	10	20	22.5	7	34	46.50
4	54	44.5	92 40	10	20	50.0	7	34	47.03
4	54	17.5	92 30	10	21	15.0	7	34	46.10

Thermometer 64°.

Mean of 8 observations, 7h. 34m. 46.58s.

APPENDIX No. 5—Continued.

August 22, 1846.—*Santa Fé.*

DETERMINATION OF TIME.

Time, a. m.			Double altitudes of sun's upper limb.	
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg.</i>	<i>min.</i>
5	19	22.8	102	00
5	19	51.0	102	10
5	20	19.8	102	20
5	20	43.8	102	30
5	21	10.0	102	40
5	21	43.5	102	50
5	22	13.0	103	00
5	22	40.5	103	10
5	23	08.5	103	20
5	23	36.0	103	30
5	24	05.4	103	40
5	24	34.0	103	50
5	25	03.0	104	00

Thermometer 60°.

APPENDIX No. 5—Continued.

August 22, 1846.—*Santa Fé.*

Time, p. m.			Double altitude of Coronæ Borealis.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg.</i>	<i>min.</i>	<i>sec.</i>
4	29	08.0	89	46	50
4	30	17.0	89	19	20
4	31	14.0	88	55	10
4	31	55.3	88	59	00
4	32	48.1	88	18	20
4	33	56.7	87	50	00
4	34	58.1	87	25	00
4	35	43.2	87	06	50
4	36	32.8	86	46	20

Thermometer 64°.

Time, p. m.			Double altitudes of α Pegasi.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg.</i>	<i>min.</i>	<i>sec.</i>
5	43	19.5	95	12	35
5	44	20.5	95	35	40
5	45	24.9	96	01	05
5	46	02.0	96	14	15
5	46	48.0	96	32	30
5	47	30.0	96	48	50
5	48	18.0	97	07	00
5	49	06.8	97	26	00
5	49	57.5	97	45	25

Thermometer 64°.

APPENDIX No. 5—Continued.

August 22, 1846.—*Santa Fé.*

Time, p. m.			Double altitudes of <i>a</i> Aquilæ near the meridian.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	Deg.	min.	sec.
5	00	33.0	125	16	05
5	01	29.5	125	18	05
5	02	32.0	125	21	00
5	03	39.3	125	23	55
5	04	54.0	125	27	20
5	06	20.8	125	30	15
5	07	18.0	125	31	30
5	08	21.5	125	33	10
5	09	17.5	125	33	50
5	10	04.8	125	34	20
5	11	10.6	125	35	40
5	14	10.0	125	38	40
5	16	12.0	125	37	40
5	17	28.4	125	36	55
5	18	15.5	125	35	00
5	21	14.2	125	32	20
5	22	39.5	125	29	00
5	23	50.0	125	23	40
5	25	16.5	125	21	05
5	26	37.0	125	17	00

Thermometer 64°.

APPENDIX No. 5—Continued.

August 23, 1846.—*Santa Fé.*

DETERMINATION OF TIME.

Time, a. m.			Double altitudes of sun's upper limb.		Time, p. m.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	Deg.	min.	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>
4	54	17.5	92	30	10	19	46.5	7	34	44.54
4	54	44.5	92	40	10	19	19.8	7	34	44.69
4	55	11.2	92	50	10	18	54.0	7	34	45.13
4	55	38.5	93	00	10	18	26.6	7	34	45.07
4	56	05.0	93	10	10	17	50.5	7	34	45.26
4	56	31.3	93	20	10	17	34.0	7	34	45.15
4	56	58.0	93	30	10	17	05.8	7	34	44.39
4	57	26.0	93	40	10	16	39.4	7	34	45.10
4	57	52.0	93	50	10	16	13.5	7	34	45.22
4	58	20.1	94	00	10	15	47.1	7	34	46.02
4	58	45.8	94	10	10	15	19.7	7	34	45.21
4	59	15.5	94	20	10	14	52.5	7	34	45.45
4	59	39.8	94	30	10	14	24.0	7	34	44.35

Thermometer 69°.

Mean of 13 observations, 7h. 34m. 45.05s.

APPENDIX No. 5—Continued.

August 23, 1846.—*Santa Fe.*

DETERMINATION OF LATITUDE.

Time, p. m.			Double altitudes of <i>a</i> Aquilæ, near the meridian.			Latitude.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg.</i>	<i>min.</i>	<i>sec.</i>	<i>Deg.</i>	<i>min.</i>	<i>sec.</i>
4	59	37.0	125	24	40	35	40	22
5	00	47.0	125	26	00	35	41	00 rej.
5	01	38.8	125	28	55	35	40	23
5	02	57.8	125	30	40	35	40	39
5	03	50.7	125	32	00	35	40	38
5	04	51.5	125	33	20	35	40	37
5	06	17.0	125	34	30	35	40	44
5	07	22.5	125	35	25	35	40	39
5	09	24.5	125	36	00	35	40	41
5	10	42.0	125	36	10	35	40	34
5	11	41.0	125	36	10	35	40	25
5	12	31.5	125	36	00	35	40	17
5	13	47.5	125	34	50	35	40	22
5	15	35.6	125	33	00	35	40	17
5	16	42.3	125	30	10	35	40	54 rej.
5	17	58.5	125	27	50	35	40	58 rej.
5	19	12.5	125	26	05	35	40	36
5	20	10.0	125	23	40	35	40	43

Thermometer 69°.

Mean of 15 observations, 35° 40' 32".

APPENDIX No. 5—Continued.

August 24, 1846 —*Santa Fe.*

Time, a. m.			Double altitudes of sun's upper limb.	
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg.</i>	<i>min.</i>
4	55	39.0	92	40
4	56	04.0	92	50
4	56	32.2	93	00
4	56	59.0	93	10
4	57	25.8	93	20
4	57	53.8	93	30
4	58	19.7	93	40
4	58	47.0	93	50
4	59	14.5	94	00
4	59	42.1	94	10
5	00	08.5	94	20

Thermometer 68°.

APPENDIX No. 5—Continued.

August 28, 1846—Santa Fe.

Time, p. m.			Double altitudes of sun's upper limb.		Time, a. m.—August 29.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg.</i>	<i>min.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>
10	45	22.0	80	00	4	26	24.5
10	45	48.1	79	50	4	25	58.5
10	46	14.5	79	40	4	25	32.5
10	46	40.0	79	30	4	25	05.5
10	47	07.5	79	20	4	24	39.2
10	47	32.0	79	10	4	24	14.5
10	47	58.2	79	00	4	23	47.5
10	48	21.8	78	50	4	23	21.2
10	48	51.8	78	40	4	22	55.5
10	49	16.4	78	30	4	22	29.0
10	49	42.7	78	20	4	22	03.4
10	50	08.6	78	10	4	21	35.3
10	50	34.6	78	00	4	21	12.2
10	51	00.0	77	50	4	20	44.5
10	51	26.2	77	40	4	20	18.8
10	51	52.5	77	30	4	19	53.0

Thermometer 70°.

Thermometer 66°.

APPENDIX No. 5—Continued.

August 29, 1846.—Santa Fe.

DETERMINATION OF LONGITUDE.

Time, p. m.			Distance of α Aquilæ from moon's western limb.	Double altitudes of moon's lower limb.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>
3	05	55.0	55 49 50	60	38	10
3	07	05.0	55 49 00	60	25	10
3	09	59.0	55 48 00	59	53	50
3	12	03.8	55 46 55	59	33	30
3	15	12.0	55 45 45	58	55	30
3	17	00.0	55 45 20	58	35	30
3	19	05.6	55 44 20	58	11	20
3	21	19.0	55 43 40	57	45	40

Thermometer 69°.

Thermometer 72°.

Thermometer 66°.

Mean of 16 observations, 76.54m. 33.12s.

APPENDIX No. 5—Continued.

August 29, 1846.—*Santa Fé.*

DETERMINATION OF TIME.

Time, a. m.			Double altitudes of sun's upper limb.	Time, p. m.			Chronometer fast.
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min.</i>	<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>h. m. s.</i>
4	26	24.5	80 00	10	43	51.5	7 34 31.65
4	25	58.5	79 50	10	44	18.8	7 34 32.31
4	25	32.5	79 40	10	44	44.6	7 34 32.22
4	25	05.5	79 30	10	45	10.6	7 34 31.73
4	24	39.2	79 20	10	45	38.0	7 34 32.29
4	24	14.5	79 10	10	46	03.8	7 34 32.84
4	23	47.5	79 00	10	46	30.0	7 34 32.45
4	23	21.2	78 50	10	46	55.8	7 34 32.21
4	22	55.5	78 40	10	47	21.5	7 34 32.22
4	22	29.0	78 30	10	47	47.0	7 34 31.73
4	22	03.4	78 20	10	48	13.5	7 34 32.18
4	21	35.3	78 10	10	48	40.0	7 34 31.39
4	21	12.2	78 00	10	49	05.8	7 34 32.75
4	20	44.5	77 50	10	49	31.8	7 34 31.91
4	20	18.8	77 40	10	49	57.8	7 34 31.67
4	19	53.0	77 30	10	50	24.2	7 34 32.38
Thermom. 66°.				Thermom. 72°.			

Mean of 16 observations, 7*h.* 54*m.* 32.12*s.*

APPENDIX No. 5—Continued.

August 29, 1846.—*Santa Fé.*

DETERMINATION OF LATITUDE.

Time, p. m.			Double altitudes of Polaris.	Latitude.
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>
5	22	59.8	72 22 05	35 41 35
5	23	50.5	72 22 20	35 41 20
5	24	54.0	72 23 10	35 41 23
5	25	30.0	72 24 00	35 41 34
5	26	21.5	72 24 30	35 41 30
5	27	04.8	72 25 30	35 41 44
5	27	58.5	72 26 00	35 41 39
5	28	57.0	72 26 40	35 41 37
5	29	42.5	72 27 05	35 41 33

Thermometer 68°.

Mean of 9 observations, 35° 41' 33".

Thermometer 66°.

Mean of 14 observations, 35° 40' 57".

APPENDIX No. 5—Continued.

August 29, 1846.—Santa Fe.

DETERMINATION OF LATITUDE.

Time, p. m.			Double altitudes of <i>b</i> Aquarii, near the meridian.	Latitude.
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>
6	23	30.0	96 10 15	35 40 56
6	24	16.8	96 10 25	35 41 09
6	25	13.8	96 10 30	35 41 11
6	26	46.8	96 10 30	35 41 11
6	27	32.0	96 11 15	35 40 44
6	28	22.8	96 11 00	35 40 43
6	29	04.7	96 10 20	35 40 54
6	29	34.2	96 09 55	35 40 58
6	30	15.5	96 09 25	35 41 01
6	30	59.0	96 58 30	35 41 12
6	31	33.5	96 08 00	35 41 12

Thermometer 66°

Mean of 11 observations, 35° 41' 01".

Mean of 15 observations, 7h. 51m. 32.12s.

APPENDIX No. 5—Continued.

August 29, 1846.—Santa Fe.

DETERMINATION OF LATITUDE.

Time, p. m.			Double altitudes of <i>a</i> Aquarii, near the meridian.	Latitude.
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>
6	51	57.5	106 26 30	35 40 49
6	53	23.0	106 28 10	35 40 56
6	54	36.8	106 29 40	35 40 52
6	55	44.0	106 30 55	35 40 45
6	57	42.0	106 32 30	35 40 35
6	58	56.1	106 32 10	35 40 57
7	01	45.8	106 32 00	35 41 01
7	03	19.2	106 31 30	35 40 57
7	04	11.0	106 30 50	35 41 01
7	05	00.0	106 29 55	35 41 09
7	06	10.8	106 28 30	35 41 18
7	07	20.0	106 27 30	35 41 08
7	08	38.4	106 26 30	35 40 45
7	09	22.8	106 24 45	35 41 05

Thermometer 66°.

Mean of 14 observations, 35° 40' 57".

Thermometer 70°.

Mean of 15 observations of *a* Aquarii by 7 observations of *b* Aquarii
 7 04 22.10
 7 04 18.50
 Mean 7 04 18.50