

APPENDIX No. 5—Continued.

July 11, 1846.—Camp 14, Bend of Arkansas.

DETERMINATION OF LATITUDE.

Time, p. m.			Double altitudes of α Ophiuchi, near the meridian.	Latitude.
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>
4	44	10.7	126 45 25	38 20 48
4	46	13.1	126 58 40	38 20 27
4	48	04.5	127 11 00	39 20 32
4	50	14.7	127 23 20	38 21 02
4	51	54.8	127 33 00	38 21 01
4	53	50.8	127 43 10	38 21 06
4	56	01.0	127 53 40	38 21 08
5	00	44.0	128 12 30	38 21 21
5	02	12.8	128 17 25	38 21 34
5	03	58.2	128 23 15	38 21 16
5	05	13.0	128 26 50	38 20 58
5	06	41.5	128 30 00	38 21 06
5	08	21.7	128 33 25	38 21 03
5	09	29.5	128 35 40	38 20 51
5	10	39.6	128 37 10	38 20 54
5	12	17.0	128 38 10	38 21 12
5	13	17.5	128 38 55	38 21 16
5	14	45.0	128 39 45	38 21 15
5	16	07.0	128 39 20	38 21 21
5	18	10.2	128 38 55	38 21 27
5	19	15.7	128 37 40	38 21 46
5	20	21.0	128 36 30	38 20 52
5	21	17.0	128 35 50	38 20 42
5	22	40.2	128 33 10	38 21 05
5	24	12.1	128 31 45	38 21 29
5	25	24.5	128 28 50	38 21 44
5	26	29.7	128 27 00	38 21 24
5	27	34.6	128 24 40	38 21 12

Thermometer 71°.

	Latitude of camp.
	<i>Deg. min. sec.</i>
Latitude by 28 observations of α Ophiuchi.....	38 21 18
“ 20 “ “ Polaris	16
Mean	38 21 17

APPENDIX No. 5—Continued.

July 13, 1846.—Camp 16, Pawnee Fork.

DETERMINATION OF TIME.

Time, p. m.			Double altitudes of α Lyrae, in the east.	Chronometer fast.
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>	<i>h. m. s.</i>
3	26	32.1	114 44 50	7 09 12.9
3	27	51.3	115 15 40	7 09 11.5
3	28	56.2	115 40 15	7 09 11.9
3	29	54.0	116 02 05	7 09 12.7
3	31	22.0	116 36 15	7 09 10.3
3	32	41.7	117 05 50	7 09 13.8
3	33	54.9	117 34 20	7 09 12.6
3	34	55.6	117 57 30	7 09 12.7
3	36	00.0	118 22 45	7 09 11.2

Thermometer 72°.

Time, p. m.			Double altitudes of Arcturus in the west.	Chronometer fast.
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>	<i>h. m. s.</i>
3	44	26.2	119 06 55	7 09 12.1
3	45	39.5	118 41 15	7 09 11.5
3	46	44.0	118 19 20	7 09 12.9
3	47	55.7	117 54 15	7 09 12.8
3	49	09.0	117 28 10	7 09 11.5
3	50	19.7	117 14 00	7 09 13.4
3	52	44.9	116 12 50	7 09 13.4
3	54	24.0	115 37 45	7 09 13.5
3	55	40.9	115 10 20	7 09 13.4

Thermometer 71°.

	<i>h.</i>	<i>m.</i>	<i>s.</i>
Chronometer fast by 9 observations of east star	7	09	12.18
“ “ “ “ west star			12.74
Mean	7	09	12.46

APPENDIX No. 5—Continued.

July 13, 1846.—Camp 16, Pawnee Fork.

Time.			Double altitudes of Polaris.			Latitude.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>Deg. min. sec.</i>		
4	24	21.0	74	35	30	38	10	10
4	25	35.9	74	36	10	38	10	06
4	26	38.4	74	36	50	38	10	06
4	27	25.8	74	37	20	38	10	04
4	28	35.2	74	38	5	38	10	06
4	29	20.8	74	38	40	38	10	09
4	30	14.6	74	39	15	38	10	09
4	31	16.0	74	39	50	38	10	08
4	32	06.0	74	40	30	38	10	13
4	32	43.0	74	41	00	38	10	13
4	34	06.8	74	41	55	38	10	17
4	34	54.2	74	42	40	38	10	20
4	35	35.0	74	43	15	38	10	24

Thermometer 70°.

July 14, 1846.—Camp 16, Pawnee Fork.

Time.			Double altitudes of Polaris.			Latitude.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>Deg. min. sec.</i>		
4	39	43.5	74	47	55	38	10	05
4	41	00.0	74	48	55	38	10	07
4	42	05.8	74	49	50	38	10	11
4	43	12.2	74	50	30	38	10	08
4	43	56.5	74	51	30	38	10	23

Latitude of camp.

	<i>Deg. min. sec.</i>		
Latitude, by 5 observations, July 14.....	38	10	10
“ 13 “ July 13.....			16
Mean	38	10	11

APPENDIX No. 5—Continued.

July 14, 1846.—Camp 16, Pawnee Fork.

DETERMINATION OF TIME.

Time, p. m.			Double altitudes of a Lyrae in the east.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>h.</i>	<i>m.</i>	<i>s.</i>
3	32	15.8	118	28	15	7	09	08.5
3	33	39.4	119	00	25	7	09	08.5
3	34	34.0	119	21	50	7	09	07.0
3	35	33.0	119	44	25	7	09	07.1
3	36	28.8	120	04	20	7	09	11.0 rej.
3	37	37.0	120	32	40	7	09	05.4 rej.
3	38	49.3	120	59	28	7	09	08.0
3	39	47.0	121	21	20	7	09	08.6
3	41	07.2	121	52	05	7	09	08.8

Time, p. m.			Double altitudes of Arcturus in the west.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>h.</i>	<i>m.</i>	<i>s.</i>
4	20	02.3	104	47	45	7	09	11.8
4	21	03.8	104	23	55	7	09	09.8
4	21	50.8	104	06	20	7	09	09.9
4	22	31.6	103	50	55	7	09	09.7
4	23	41.0	103	25	30	7	09	11.5
4	24	55.0	102	57	15	7	09	07.6 rej.
4	25	58.7	102	33	30	7	09	11.2
4	26	57.5	102	11	50	7	09	11.1
4	28	05.0	101	45	20	7	09	10.1

Thermometer 71°.

	<i>h. m. s.</i>		
Chronometer fast by 7 obs. of east star.....	7	09	08.04
Chronometer fast by 8 obs. of west star.....			10.84
Mean	7	09	09.44

APPENDIX No. 5—Continued.

July 19, 1846.—Camp 20, Jackson Grove.

DETERMINATION OF TIME.

Time, p. m.			Double altitudes of Arcturus in the west.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>h.</i>	<i>m.</i>	<i>s.</i>
3	26	44.5	118	20	50	7	11	38.9
3	28	02.5	117	52	50	7	11	36.1
3	29	15.2	117	27	35	7	11	38.8
3	30	13.8	117	06	15	7	11	38.0
3	31	24.0	116	41	15	7	11	38.7
3	32	16.5	116	23	30	7	11	41.7
3	33	11.0	116	03	30	7	11	40.5
3	34	05.0	115	43	35	7	11	33.6 rej.
3	35	05.7	115	22	10	7	11	40.5
3	35	55.5	115	03	45	7	11	39.2
3	36	43.0	114	46	25	7	11	38.8
3	37	41.0	114	25	50	7	11	40.2

Thermometer 72°.

Time, p. m.			Double altitudes of α Lyrae in the east.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>h.</i>	<i>m.</i>	<i>s.</i>
3	13	28.8	117	37	30	7	11	38.2
3	14	37.0	118	13	10	7	11	39.6
3	15	26.0	118	22	10	7	11	36.3
3	16	30.8	118	37	40	7	11	37.5
3	17	45.0	119	15	40	7	11	39.0
3	18	44.9	119	38	55	7	11	38.4
3	19	54.5	120	06	00	7	11	37.7
3	21	00.0	120	30	20	7	11	38.1

Thermometer 72°.

Chronometer fast by 11 obs. of west star	7	11	39.22
Chronometer fast by 8 obs. of east star			38.35
Mean	7	11	38.78

APPENDIX No. 5—Continued.

July 19, 1846.—Camp 20, Jackson Grove.

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>		
3	43	52.0	73	26	30	37	41	53
3	45	01.3	73	27	10	37	41	52
3	46	12.5	73	27	55	37	41	35
3	47	05.5	73	29	00	37	41	51
3	48	06.3	73	29	40	37	41	56
3	49	00.0	73	30	00	37	41	46
3	50	04.0	73	30	30	37	41	41
3	50	43.8	73	31	00	37	41	45
3	52	01.0	73	31	35	37	41	39
3	53	05.0	73	32	00	37	41	33
3	54	00.0	73	32	40	37	41	33
3	56	12.8	73	33	40	37	41	23
3	56	52.5	73	34	20	37	41	30
3	57	31.7	73	35	00	37	41	38
3	58	16.8	73	35	40	37	41	44

Thermometer 72°.

Mean of 15 observations, 57° 41' 41".

DETERMINATION OF INDEX ERROR.

On the arc	31	20
Off the arc	31	40
Index error = + 10".		

APPENDIX No. 5—Continued.

July 19, 1846.—Camp 20, Jackson Grove.

DETERMINATION OF LATITUDE.

Time, p. m.			Double altitudes of <i>a</i> Herculis, near the meridian.	Latitude.
<i>h.</i>	<i>m.</i>	<i>s.</i>	Deg. min. sec.	Deg. min. sec.
4	18	25.5	133 31 35	37 41 41
4	20	04.8	133 35 50	37 41 56
4	22	52.5	133 41 40	37 41 26
4	24	15.8	133 44 00	37 41 15
4	25	46.6	133 45 45	37 41 10
4	27	38.5	133 46 30	37 41 21
4	28	59.7	133 46 30	37 41 29
4	30	10.0	133 46 20	37 41 29
4	31	23.9	133 45 40	37 41 33
4	32	12.2	133 45 00	37 41 36
4	33	19.7	133 43 40	37 41 45
4	35	13.0	133 41 15	37 41 46
4	36	10.5	133 39 20	37 41 51
4	37	06.0	133 38 20	37 41 28
4	38	18.4	133 34 40	37 41 58

Latitude by 15 obs. of Polaris..... 37 41 41
 Latitude by 15 obs. of *a* Herculis..... 35
 Mean 37 41 38 lat. of camp.

APPENDIX No. 5—Continued.

July 19, 1846.—Camp 20, Jackson Grove, Arkansas.

DETERMINATION OF TIME.

Time.			Double altitude of the sun's upper limb.	Chronometer fast.
<i>h.</i>	<i>m.</i>	<i>s.</i>	Deg. min.	<i>h.</i> <i>m.</i> <i>s.</i>
10	34	23.6	89 30	7 11 38.2
10	34	50.2	89 20	7 11 39.3
10	35	15.8	89 10	7 11 39.4
10	35	42.0	89 00	7 11 40.1
10	36	07.0	88 50	7 11 39.7
10	36	32.3	88 40	7 11 39.5
10	36	57.0	88 30	7 11 39.7
10	37	23.8	88 20	7 11 40.1
10	37	48.0	88 10	7 11 38.7
10	38	14.2	88 00	7 11 39.4
10	38	39.7	87 50	7 11 39.5
10	39	04.8	87 40	7 11 39.2
10	39	30.3	87 30	7 11 39.3
10	39	54.7	87 20	7 11 38.3
10	40	21.8	87 10	7 11 39.8
10	40	47.8	87 00	7 11 40.5

Thermometer 88°.

Mean of 16 observations, 7h. 11m. 39.36s.

DETERMINATION OF INDEX ERROR.

On the arc..... Min. sec. 31 20
 Off the arc..... 31 40

Index error = + 10"

APPENDIX No. 5—Continued.

July 22, 1846.—Camp 23, Arkansas river.

DETERMINATION OF TIME.

Time, p. m.	Double altitudes of a Aquilæ.	Chronometer fast.
<i>h. m. s.</i>	<i>Deg. min. sec.</i>	<i>h. m. s.</i>
4 27 17.2	90 30 10	7 15 38.9
4 28 39.6	90 57 40	7 15 39.1
4 29 36.5	91 17 30	7 15 37.2
4 30 35.3	91 37 10	7 15 37.3
4 31 32.2	91 54 15	7 15 43.0 rej.
4 32 34.8	92 15 55	7 15 40.3
4 33 46.7	92 40 20	7 15 38.7

Thermometer 68°.

Time, p. m.	Double altitudes of Arcturus, in the west.	Chronometer fast.
<i>h. m. s.</i>	<i>Deg. min. sec.</i>	<i>h. m. s.</i>
4 37 33.7	88 34 30	7 15 39.3
4 38 20.0	88 16 20	7 15 39.1
4 39 17.5	87 54 20	7 15 40.3
4 40 43.8	87 20 40	7 15 40.5
4 41 30.7	87 01 50	7 15 39.1
4 42 19.1	86 43 10	7 15 39.8
4 43 30.8	86 15 50	7 15 41.7

Thermometer 68°.

Chronometer fast by 6 observations east star....	<i>h. m. s.</i>	7 15 38.58
Chronometer fast by 7 observations west star ...		39.97
Mean.....	7 15	39.28

APPENDIX No. 5—Continued.

July 22, 1846.—Camp 23.

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>
4 49 32.5	74 47 10	37 57 20
4 50 37.0	74 48 10	37 57 33
4 51 26.8	74 48 50	37 57 34
4 52 01.8	74 49 20	37 57 37
4 52 46.0	74 49 55	37 57 40
4 53 37.3	74 50 44	37 57 42
4 54 34.9	74 51 20	37 57 41
4 55 16.8	74 52 00	37 57 45
4 56 34.0	74 52 45	37 57 39
4 57 16.0	74 53 15	37 57 40
4 57 57.5	74 54 00	37 57 47

Thermometer 68°.

Mean of 11 observations, 37° 57' 39".

Time, p. m.	Double altitudes of Arcturus, in the west.	Chronometer fast.
<i>h. m. s.</i>	<i>Deg. min. sec.</i>	<i>h. m. s.</i>
4 41 08.8	88 33 30	7 15 38.9
4 42 26.7	88 16 20	7 15 39.1
4 43 14.5	88 16 20	7 15 39.1
4 44 46.7	88 47 55	7 15 37.8
4 45 43.8	89 06 20	7 15 39.0
4 46 21.6	89 24 40	7 15 40.7
4 47 32.5	89 44 50	7 15 38.2
4 48 34.0	90 04 50	7 15 40.4
4 49 47.8	90 25 10	7 15 47.0
4 50 32.2	90 53 15	7 15 42.5 rej.

Thermometer 77°.

Chronometer fast by 8 obs. of west star.....	<i>h. min. sec.</i>	7 15 47.01
Chronometer fast by 9 obs. of west star.....		47.78
Mean.....	7 15	47.40

APPENDIX No. 5—Continued.

July 25, 1846.—Camp 26, Arkansas river.

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 37	02.7	74 10 30	38 01 01
3 38	16.5	74 11 10	38 00 58
3 39	16.5	74 11 50	38 00 56
3 39	51.5	74 12 30	38 01 07
3 40	35.0	74 13 10	38 01 14
3 42	17.2	74 13 50	38 01 04
3 43	08.2	74 14 50	38 01 18
3 44	20.8	74 15 15	38 01 07
3 45	08.5	74 15 40	38 01 05
3 45	52.0	74 16 20	38 01 11
3 46	27.5	74 16 55	38 01 17
3 47	14.8	74 17 10	38 01 10
3 47	55.2	74 17 30	38 01 07
3 48	06.1	74 17 55	38 01 08
3 50	27.8	74 19 30	38 01 18

Thermometer 78°.

Mean of 15 observations, 38° 01' 08".

4 11	05.8	87 32 30	7 19 46.9
4 12	20.7	87 58 20	7 19 46.7
4 13	14.5	88 16 20	7 19 48.0
4 14	46.7	88 47 55	7 19 47.8
4 15	43.0	89 06 20	7 19 50.0
4 16	34.6	89 24 40	7 19 48.7
4 17	32.5	89 44 50	7 19 46.2
4 18	34.0	90 04 50	7 19 48.4
4 19	47.8	90 30 10	7 19 47.0
4 20	32.2	90 53 15	7 19 52.5 rej.

Thermometer 68°.

Chromometer fast by 6 observations east star	7 15	38.58
Chromometer fast by 7 observations west star	7 15	39.97
Mean	7 15	39.28

APPENDIX No. 5—Continued.

July 25, 1846.—Camp 26, on the Arkansas.

DETERMINATION OF TIME.

Time, p. m.		Double altitudes of Arcturus in the west.	Chronometer fast.
<i>h. m. s.</i>		<i>Deg. min. sec.</i>	<i>h. m. s.</i>
3 54	48.2	102 04 05	7 19 46.2
3 56	33.8	101 24 50	7 19 48.5
3 58	09.7	100 47 50	7 19 47.0
3 59	13.7	100 23 25	7 19 46.9
4 00	17.8	99 59 20	7 19 47.9
4 01	28.6	99 31 40	7 19 46.4
4 02	27.7	99 08 55	7 19 45.8
4 03	30.0	98 45 40	7 19 47.4
4 04	33.5	98 20 20	7 19 44.8 rej.

Thermometer 77°.

Time, p. m.		Double altitudes of <i>a</i> Aquilæ in the east.	Chronometer fast.
<i>h. m. s.</i>		<i>Deg. min. sec.</i>	<i>h. m. s.</i>
4 11	05.8	87 32 30	7 19 46.9
4 12	20.7	87 58 20	7 19 46.7
4 13	14.5	88 16 20	7 19 48.0
4 14	46.7	88 47 55	7 19 47.8
4 15	43.0	89 06 20	7 19 50.0
4 16	34.6	89 24 40	7 19 48.7
4 17	32.5	89 44 50	7 19 46.2
4 18	34.0	90 04 50	7 19 48.4
4 19	47.8	90 30 10	7 19 47.0
4 20	32.2	90 53 15	7 19 52.5 rej.

Thermometer 77°.

Chromometer fast by 8 obs. of west star	7 19	47.01
Chromometer fast by 9 obs. of west star	7 19	47.78
Mean	7 19	47.40

APPENDIX No. 5—Continued.

July 29, 1846—Camp 30, near Bent's Fort.

DETERMINATION OF TIME.

Time, p. m.			Double altitudes of Arcturus in the west.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>h.</i>	<i>m.</i>	<i>s.</i>
4	20	28.0	83	19	10	7	25	31.6
4	21	57.7	87	44	30	7	25	32.4
4	22	59.0	87	20	25	7	25	31.9
4	24	62.0	86	56	00	7	25	32.4
4	25	09.8	86	29	30	7	25	32.4
4	25	57.5	86	10	50	7	25	32.3
4	26	59.2	85	46	43	7	25	32.3
4	28	04.7	85	20	05	7	25	29.7
4	28	56.5	84	59	40	7	25	29.4
4	30	01.0	84	35	10	7	25	31.2
4	31	01.5	84	11	50	7	25	32.2

Time, p. m.			Double altitudes of <i>a</i> Aquilæ in the east.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>h.</i>	<i>m.</i>	<i>s.</i>
4	34	06.8	98	20	30	7	25	32.3
4	35	39.8	98	48	50	7	25	33.6
4	36	50.1	99	10	20	7	25	33.8
4	37	48.6	99	28	30	7	25	33.9
4	39	17.0	99	55	30	7	25	33.2
4	40	44.0	100	21	20	7	25	35.0
4	41	58.0	100	44	20	7	25	32.6
4	43	28.8	101	12	10	7	25	30.0
4	44	24.5	101	26	55	7	25	35.9
4	45	35.0	101	48	40	7	25	32.6
4	46	57.7	102	13	20	7	25	31.4

Thermometer 66°

Chronometer fast by 11 observations of west star..	<i>h.</i>	<i>m.</i>	<i>s.</i>
" " " " " " " " " " " "	7	25	31.62
" " " " " " " " " " " "	12	"	32.12
Mean	7	25	32.37

APPENDIX No. 5—Continued.

July 30, 1846.—Camp 30, near Bent's Fort.

DETERMINATION OF TIME.

Time, p. m.			Double altitudes of Arcturus in the west.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>h.</i>	<i>m.</i>	<i>s.</i>
3	33	05.8	104	59	30	7	25	32.1
3	34	37.0	104	24	50	7	25	30.1
3	35	32.5	104	04	05	7	25	31.6
3	37	00.8	103	30	55	7	25	31.9
3	38	00.0	103	08	30	7	25	31.8
3	39	08.5	102	42	30	7	25	31.4
3	40	06.2	102	20	50	7	25	31.9
3	41	00.0	102	00	20	7	25	31.6
3	42	12.5	101	32	30	7	25	29.7

Thermometer 74°.

Time, p. m.			Double altitudes of <i>a</i> Aquilæ in the east.			Chronometer fast.		
<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>			<i>h.</i>	<i>m.</i>	<i>s.</i>
3	46	06.8	83	40	25	7	25	29.4
3	47	23.0	84	07	00	7	25	30.1
3	49	03.5	84	41	50	7	25	31.3
3	50	02.5	85	03	20	7	25	29.0
3	50	56.0	85	21	10	7	25	31.3
3	51	48.1	85	40	00	7	25	29.2
3	52	46.5	86	00	10	7	25	33.5
3	53	35.7	86	16	30	7	25	32.1
3	54	46.0	86	42	10	7	25	28.2

Thermometer 74°.

Chronometer fast by 9 obs. of west star	<i>h.</i>	<i>m.</i>	<i>s.</i>
Chronometer fast by 9 obs. of east star	7	25	31.46
Mean	7	25	30.44
Mean	7	25	30.95

APPENDIX No. 5—Continued.

July 30, 1846.—Camp 30, near Bent's Fort.

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>		
4	01	31.0	74	38	55	38	02	47
4	03	07.8	74	39	55	38	03	03
4	04	23.0	74	41	15	38	03	06
4	05	17.1	74	41	50	38	02	54
4	06	17.0	74	42	30	38	02	52
4	07	15.2	74	43	00	38	02	46
4	08	08.0	74	43	50	38	02	52
4	09	04.5	74	44	20	38	02	50
4	10	12.2	74	45	20	38	02	55
4	11	18.5	74	45	50	38	02	45
4	12	20.0	74	46	55	38	03	06
4	13	26.0	74	47	40	38	02	54
4	14	11.2	74	48	30	38	03	04

Thermometer 74°.

Mean of 16 observations, 38° 02' 55".

<i>h.</i>	<i>m.</i>	<i>s.</i>	<i>Deg. min. sec.</i>	<i>Deg. min. sec.</i>	
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55
1.02	39	47	38	02	55

Thermometer 74°.

Chronometer fast by 11 ops. of west star. 31.33
 Chronometer fast by 9 ops. of west star. 31.12
 Chronometer fast by 9 ops. of east star. 31.12
 Mean 31.19

APPENDIX No. 5—Continued.

July 30, 1846.—Camp 30, near Bent's Fort.

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.</i>	<i>m.</i>	<i>s.</i>
4	23	02.3	90	00		10	40	02.5	7	25	30.06
4	23	29.7	90	10		10	39	36.0	7	25	30.52
4	23	55.0	90	20		10	39	10.0	7	25	30.18
4	24	20.2	90	30		10	38	44.2	7	25	29.80
4	24	47.3	90	40		10	38	17.5	7	25	30.10
4	25	38.8	91	00		10	37	26.0	7	25	30.11
4	26	03.2	91	10		10	37	00.0	7	25	29.42
4	26	56.5	91	30		10	36	08.0	7	25	29.98
4	30	02.0	92	40		10	33	06.0	7	25	31.76
4	30	51.8	93	00		10	32	14.0	7	25	30.67
4	31	18.8	93	10		10	31	47.7	7	25	31.03
4	31	44.0	93	20		10	31	22.3	7	25	30.94
4	32	10.0	93	30		10	30	57.4	7	25	31.50
4	32	37.0	93	40		10	30	29.5	7	25	31.06
4	33	02.8	93	50		10	30	04.2	7	25	31.32
4	33	28.8	94	00		10	29	37.5	7	25	30.99

Thermometer 78°.

Mean of 16 observations, 7h. 25m. 30.59s.

DETERMINATION OF INDEX ERROR.

	<i>Min. sec.</i>
On the arc.....	31 30
Off the arc.....	31 30

Index error = 00".

Mean..... 5 51 46.79