

IV. *Observations made of the Latitude, Variation of the Magnetic Needle, and Weather, by Capt. Christopher Middleton, in a Voyage from London to Hudson's-Bay, Anno 1735.*

Month.	Day.	Hour.	Altitude of the Thermometer.	Altitude of the Barometer.	Latitude by Account	Longitude from London by Account	Variation of the Compass.	Latitude observ'd by Smith's Quadrant.	Latitude observ'd by Hadley's Quadrant.	Latitude observ'd by Elton's Quadrant.	Latitude observ'd by Wax-tant of Ward & Smith.	Winds.	Remarks.									
May	31	1	0	0	0	0		0														
		6	27	29.9	0	0	0	W.					SW to SE	Variable, with some Rain.								
		12	24	29.6	60.0	19.11	23															
June	1	6	29.7	29.7																		
		12	25	29.5	59.50	23.33	24							SE to SW	Variable the first two Parts, moderate the latter, fresh Gales and a great Sea.							
		9	25	29.5																		
	2	6	26	29.4																		
		12	26	29.5	59.55	25.53	25		59.54	59.59					SW to S by E	Cloudy, and squally with Rain.						
		9	27	29.8																		
	3	6	28	29.9																		
		12	26	28.8	60	28.3	26		59.57	60						SW	Frequent Showers of Rain, with Squalls.					
		9	27.9	30.1																		
	4	6	29	30.5																		
		12	26	29.8	60.40	29.25	26		60.39	60.41							SW	Uncertain squally Weather, with a Western Swell.				
		9	27.9	30.1																		
	5	6	28	30																		
		12	26	29.8	60.31	32.12	27											SW	Squally, with some Rain.			
		9	25	29.7																		
	6	6	28	29.7																		
		12	25	29.5	58.44	35.46	27		58.47	58.50									SW to NNW	Variable, with Squalls of Rain.		
		9	24	29.5																		
	7	6	28	29.5																		
		12	28	29.9	58.11	36.58	28		58.8	58.11										NNW to WNW	Variable fresh Gales, with Rain and Squalls.	
		9	30	29.8																		
	8	6	30	29.9																		
		12	28	29.8	57.50	38.33	28		57.53	57.57											NNW to W by S	Moderate and fair Weather, with Clouds.
		9	26	29.6																		

June



June 9	6 126	29. 9	58.28	42.16	28	58.28	58.38	W b S to S b E	Rain and fresh Gales.
	12 25	28. 9							
	9 26	29. 6							
	6 31	29. 8							
10	12 28	30	58.25	43.11	29	58.16	58.22	N W	Hard Gales, with a great Sea.
	9 26	30. 4							
	6 30	29. 8							
11	12 27	29. 8	58.48	44.16	29	58.40	58.45	N W to N E	Moderate, with some Rain.
	9 28	29. 9							
	6 30	30							
12	12 28	29. 6	58.22	45.46	29			N N E to W b S	At 6 made Cape <i>Forewell</i> , from NbW to NbE 14 or 15 Leagues dist. Moderate with some Rain.
	9 28	29. 8							Much Ice in Sight. An hard Gale, with a great Sea.
	6 27	29							
13	12 27	29. 7	58.12	45.37	29	58.10	58.13	N W	
	9 32	29. 9							
	6 31	30. 1							
14	12 26	29. 9	58.12	46.11	30	58.10	58.11	N N W to E S E	Most part hard Gales. Under Main Sail and Mizzen.
	9 29	30.23							
	6 29	30. 5							
15	12 29	30. 1	59. 7	49.49	31			E S E to S E	Saw a large Isle of Ice. Pleasant Weather.
	9 27	30							
	6 26	30. 1							
16	12 27	30. 1	60.14	55. 3	33			S E b S	Fresh Gales and cloudy, with some Rain.
	9 27	29. 9							
	6 30	31							
17	12 26	29. 9	61. 7	59.43	36			S b E to S E b S	Moderate, but hazy, with Rain.
	9 26	29. 9							
	6 31	29. 9							
18	12 28	29. 5	61.23	63. 7	39			S E	Hazy, with Rain and Fogs. Several Pieces of Ice.
	9 27	29. 7							
	6 27	29.85							
19	12 31	30	61.47	63.16	39	61.44	61.49	S E S S W S b E	Foggy, with Calms. Much Ice all round <i>Refolution</i> .
	9 30	29. 9							

Month.	Day.	Hour.	Altitude of the Thermometer.	Altitude of the Barometer.	Latitude by Account	Longitude from London by Account	Variation of the Compass.	Latitude observed by Smith's Quadrant.	Latitude observed by Elton's Quadrant.	Latitude by Sextant of Ward & Smith.	Winds.	Remarks.	
June	20	1	0	0	0	0		0	0	0	W N W	Moderate Weather, most part Foggy.	
		6	28	30.1	61.40	64.8	39		61.46	Wt	W N W		
		12	29	30	61	64.34	39	61.4	61.12	SW b S	Wt	Much Ice all round; fore Part Foggy, latter clear.	
	21	6	29	29.8	61						W N W	The most part foggy and hazy Weather.	
		12	29	30.6	61	64.34	39	61.4	61.12	N b W	Wt		
		9	29	30.8								Wt	
	22	6	32	29	61.11	65.40	40	61	61.12	61.12	N b W		
		12	27	29.4								S <sup>o</sup>	Fair, with much shatter'd Ice, and large Isles.
		9	28	29.9								SW	
	23	6	30	29.9	61.30	66.50	40		61.30	61.30	SW		
		12	27	29.8									
		9											
	24	6	24	29.8	61.37	67.19	41	61.36	61.38	61.38	W N W	Easy Breezes, fair and clear, heavy Ice all round.	
		12	26	29.6									
		9	28	29.9									
	25	6	28.5	29.9	61.53	68.12	42				Ditto		
		12	27	29.6									
		9	28	29.8									
	26	6	28	29.7	61.41	68.42	41				SW b W	Fair pleafant Weather; much Ice.	
		12	27	29.8									
		9	30	29.9									
	27	6	29	29.7	61.30	68.42	41				N N E	Little Winds, and fair pleafant Weather.	
		12	29	29.6									
		9	31	29.8									
	28	6	29	29.6	61.33	69.2	40				W S W	Most Part foggy, with Calms.	
		12	29	29.75									
		9	29	29.75									
	29	6	28	29.5	61.30	69.13	40	61.30	61.30	61.30	E S E	Several large Isles of Ice; foggy.	
		12	27	29.6									
		9	25	29.75									

June 30	6 12 9	26 26.5 27	29.9 29.5 19.9	61.33	69.26 40	ESE to WSW	Little Winds and calm; heavy Ice all round.
July 1	6 12 9	29 27.5 27.5	29.9 29.7 29.6	61.28	70.10 41	ESE	Faft in thick Ice, with Fogs and Rain.
2	6 12 9	32 31 26.5	29.1 29 29.3	61.28	70.37 41	SE to NE	These 24 Hours the first and latter Parts fresh Gales, middle a Storm of Wind and Rain.
3	6 12 9	29.5 28 27.5	29.5 29.8 29.9	61.28	70.22 41	NW	Hard Gales, with much Snow.
4	6 12 9	32 29.5 25.5	29.9 29.6 29.3	61.28	70.26 40	NW N b W	Moderate and fair Weather, with much Ice.
5	6 12 9	29 27 29	29.8 29.9 29.7	61.39	70.36 40	W b S	Working to Windward in Ice, sometimes in a Clear.
6	6 12 9	31 27.5 26	29.9 29.7 29.7	61.46	70.54 40	WSW to NE b N	Most Part fair and pleafant Weather, with much Ice.
7	6 12 9	27 27 27	29.4 29.6 29.9	61.55	71.13 40	NE to NW b N	Foggy Weather, clofe Ice all round.
8	6 12 9	29 26 25.5	29.7 29.75 29.9	61.46	70.21 40	Ditto.	Moderate, with Fogs.
9	6 12 9	29 27 27	29.9 30 30	61.42	71.40 41	Ditto.	The first Part hazy, the latter clear.
10	6 12 9	32.5 29.5 26	29.7 29.6 29.75	62.18	75.13 41	NW to SE	Clear Sea, fresh Gales and hazy.

Month.	Day.	Hour.	Altitude of the Ther- mome- ter.	Altitude of the Baro- meter.	Latitude by Account	Longitude from London Account	Va- riat. of the Com- pass.	Latitude observ'd by Smith's Quadr.	Latitude observ'd by Had- ley's Quadr.	Latitude observ'd by El- ton's Quadr.	Latitude by a Sex- tant of Mead & Smith.	Winds.	Remarks.
July	11	6 31 12 27 9 28	29.7 29.9 29.75	29.7 29.9 29.75	62.31	76	42					S b W	Foggy Weather.
	12	6 31.5 12 31.5 9 28	29.9 29.9 30	29.9 29.9 30	63.5	75.28						Ditto.	Ditto.
	13	6 30 12 29 9 27.5	30.2 30.3 29.9	30.2 30.3 29.9	63.15	75		63.20				S to N W	Working in loofe Ice; hazy, sometimes clear.
	14	6 31 12 27 9 25	30 30 30	30 30 30	63.25	74.38						N W to West	Much Ice, fair and clear, with Calms.
	15	6 30 12 27 9 27	29.9 29.8 29.8	29.9 29.8 29.8	63.20	76						SSE to ESE	Much Ice, fresh Gales and hazy.
	16	6 27 12 26 9 26.5	29.8 29.7 29.7	29.8 29.7 29.7	63.10	77.20						SE	Much Ice, large Clears in Sight of <i>Saisbury</i> .
	17	6 27.5 12 27.5 9 26	29.7 29.6 29.7	29.7 29.6 29.7	63.10	78.20	44					ESE	Foggy, much Ice and fresh Gales.
	18	6 29 12 26 9 26	29.6 29.8 29.8	29.6 29.8 29.8	63	78	43					Calm.	Loofe Ice East End of <i>Notting- ham</i> , N b E seven Leagues.
	19	6 25 12 24 9 27	29.9 29.85 29.80	29.9 29.85 29.80	63.10	78.20	43					ESE	Much Ice, clear Weather. Cape <i>Waltingham</i> S W b W five or six Leagues.
	20	6 28 12 27.5 9 27	29.85 29.84 29.9	29.85 29.84 29.9	63.20	78.30	41					SW	Shatter'd Ice, foggy West; I- sland <i>Diggs</i> , W S W five Leagues.

July 21	6 27.5 12 25.5 9 24	29.98 29.9 29.8	63.10	79.50	42	S S E S b W SW bW to South.	Cape Diggs S E b S 6 Leagues. Fresh Gales, and Ice.
22	6 27 12 25 9 23	29.9 29.9 30.1	63	80.13	42	S W E b S to S S E S S W	Much large Ice; the North End of Mansfield S W b W four Miles. North End of Mansfield S W fourteen Miles.
23	6 26.5 12 26 9 25	30.1 30. 30	63.4	81.10	44	S b E S b E to W b N	Hazy; some Pieces of Ice. Much Ice, and Rain.
24	6 29.5 12 29.5 9 26	29.9 29.9 29.85	61.34	82.52	40	N W to West.	Thick foggy Weather, with Showers of Rain.
25	6 31 12 28 9 26	29.82 29.82 29.83	61.15	83.56	38	N b W	Steering Ice, with wet Fog.
26	6 32 12 29 9 29.5	29.7 29.7 29.9	60.45	84.23		N b W W b S	Baker's Dozens S b W four Leagues. Fair Weather.
27	6 30.5 12 26 9 26	29.9 29.9 30.1	59.39	84.11	30	N W b S	Moderate, with Fogs, Rain and Ice.
28	6 28 12 26 9 26	30.1 30.1 30.1	58.9	82.44	28	N W b W	Fresh Gales. A great Sea from the Southward.
29	6 28 12 26 9 25	30 30 29.95	56.46	82.45	26	N E	Thunder and Rain. North- Bear S W by W five Miles.
30	6 27.5 12 25.5 9 23	29.85 29.9 30	55.51	82.39	25		
31	6 26 12 25.5 9 24	29.9 29.5 30	54.44	82.47	24		

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August

Month.	Day.	Hour.	Altitude of the Thermometer.	Altitude of the Barometer.	Latitude by Account	Longitude from London by Account	Variation of the Compass.	Latitude observ'd by Smith's Quadrant.	Latitude observ'd by Hadley's Quadrant.	Latitude by Sextant of Wood & Smith.	Winds.	Remarks.
August	1	6	26	30	0	0	22	0	0	0	N E	Moderate and fair Weather.
		12	25.5	29.98	53.3	81.20		0	0	0	South to North.	The first Part moderate, the latter hard Gales, with Thunder and Lightning in with the W. Main.
	2	6	24	29.8		82						
		12	23.5	29.9	52.20							
		9	24	29.9								
		6										Arrived in <i>Moose-River</i> Road.
	3	12	26	30	51.40	83						
		9										
	4	12										
		9										
Sept.	1	12	27	29.85	55.36	West.	22				West and W b N	Moderate and fair.
		9	29	29.85		from					N W to North.	Moderate Gales and Hazy, with small Rain.
	2	12	27	30.5	53.50	<i>Bear.</i>	26				N b W to N b E	
		9	26	30.8	1.16	1.16					South to East.	Ditto.
		9	30	29.8	56.6	1.16	26					The first Part moderate, middle and latter very hard Gales, with Squalls of Rain.
	3	12	26	30.4	58.6	2.58	30				N E b E	Ditto, hard Gales and Squalls.
		9	30	29.8								
	4	12	26	30.6	58.6	4.26	30					Fresh Gales and Squally, with a Head-Sea.
		9	34	30	58.28		30					
	5	12	33	29.85	58.28	3.23	31	58.42	58.49			
		9	34	30								
	6	12	32.5	30.2	58.40		31					
		9	32	30.2								

Sept. 7	9 12 27	29. 9	60.45	1.15	31					N W	Ditto, Gales and Snow.
	9 26	29. 8								S W to N W	Strong Gales and squally; great Sea from the North-West.
8	9 37. 5	30. 3	61.37	East.	0. 4	32				N W to N N E	Moderate and fair; four Leagues from the South End of <i>Mansfields</i> 76 Fathom, Mud.
	9 32	30. 1								N b E	Little Winds and fair Weather. In Sight of <i>Mansfields</i> .
	9 34	30. 3	61.55	East.	0. 4	33				S W	Fair and pleasant Weather. In Sight of <i>Mansfields</i> , 4 Miles.
	9 32. 5	30. 3								S W	At Noon <i>Mansfields</i> NWbW 5 Leagues; Sleet and foggy. Cape <i>Waltingham</i> SW 6 Leagues.
	9 32	30. 5	61.58	West.	1. 0	34		61.43	61.45	N N E	Frequent Showers of Hail and Snow.
10	9 32	30. 5								N N E	Moderate and fair Weather.
	9 30	30. 5								Calm.	Much Snow, with thick Weather.
	9 36	30.25								S W to WNW	Pais'd several large Isles of Ice; fresh Gales and Sleet; thick Weather with Snow.
	9 30	30. 1	62.30	East.	2.21	43		62.21		N W to N b E	First 2 Parts hard Gales and Snow, latter moderate. At Noon Cape <i>Resolut.</i> NEGL.S.Pt.NWbN 4 L.
11	9 28	30								N N E	
	9 30	30. 1	62.52	East.	2.28	42				N N E	
	9 30	30. 1								N N E	
12	9 30	30. 1								N N E	
	9 32	30. 3		fro. Dige						N N E	
	9 33	30.25	63. 9	East.	3.40	43				N N E	
13	9 32	30. 2								N N E	
	9 31. 5	30. 1	62.50	East.	6.44	42				N N E	
14	9 29	30. 5								N N E	
	9 31	30								N N E	
	9 30. 5	29. 5	62.22	East.	7.55	42		62.23		N N E	
15	9 29	29.46								N N E	
	9 29	29. 5								N N E	
16	9 29	29. 8	61.43	East.	12	42				N N E	
	9 30	30								N N E	
	9 28	30. 3								N N E	
17	9 32. 5	30. 4								N N E	
	9 33	30. 5	61.43	East.	15.10	40				N N E	
	9 31	30.55								N N E	

N n 2

Sept.



Month.	Day.	Hour.	Altitude of the Thermometer.	Altitude of the Barometer.	Latitude by Account	Longitude from London by Account	Variation of the Compass.	Latitude observed by Smith's Quadrant.	Latitude observed by Hadley's Quadrant.	Latitude observed by Elton's Quadrant.	Latitude by Sextant of Ward & Smith.	Winds.	Remarks.	
Sept.	18	1	0	0	0	W 0		0	0	0	0	NEbN	Many large Isles of Ice; hard Gales; great Sea from the North-East.	
		9	31	30.4	60.40	58.40	40							Moderate, but dark and cloudy, with Sleet and Rain.
		12	34	30.3	30.4	59.49	53.45	38					North to SW	Fresh Gales, with Rain and Snow.
	19	9	33	29.9								NW	Variable, with fresh Gales and Rain.	
		12	26	29.5	58.42	48.52	32	58.37	58.38			NNW to North.	Fresh Gales and Squalls; variable Winds and cloudy.	
		9	29	29.6	57.28	44.31	29					North to ESE	Hard Gales, with Rain and Fogs.	
	20	9	31	29.5								NEbE to NW	Fresh Gales, and Rain.	
		12	30	29.6	55.52	36.50	25	55.44	55.47			NNW	Hard Gales, with Squalls and small Rain.	
		9	27	29.6	55.3	31.21	24	55.1	55.4			NWbN to SWbW	First Part hard Gales, middle and latter moderate and hazy.	
	21	9	27	29.5								SWbW	Fresh Gales, and much Rain; hazy Weather.	
		12	26	29.5	52.38	22.23	22					SW to SWbS		
		9	29	29.6	52.27	20.15	21					South to NNE		
	22	9	27	29.5										
		12	27	29.5										
		9	27	29.6										
	23	9	29	29.65										
		12	26	29.5										
		9	26	29.7										
	24	9	31	29.8										
		12	27	29.9										
		9	26	29.8										
	25	9	27	30										
		12	26	30										
		9	26	30.2										
	26	9	21	30.2										
		12	19	30.2										
		9	20	30.1										
	27	9	21	30										
		12	20	31										
		9	24	30.1										

Fresh Gales, and much Rain;  
hazy Weather.

Fresh Gales and hazy, with  
some Rain the first two Parts,  
the latter moderate.

Moderate and fair; Winds va-  
riable.

Moderate, with a great Head-  
Sea from the Eastward.

Cloudy, with a great Sea from  
the Eastward.

Hard Storm of Wind, with a  
great Sea.

Moderate Gales, with small  
Rain.

Ditto, fair and moderate.

Saw several Ships, founded 100  
Fathom. Moderate.

Two first Parts hard Gales and  
heavy Squalls, the latter mo-  
derate.

Sept. 28	9	25	30.2	50.30	16.33	20	51	51	NE	Fresh Gales, and much Rain; hazy Weather.
	12	25	30.25	50.30					NE	Fresh Gales and hazy, with some Rain the first two Parts, the latter moderate.
	9	24	30.2						NbW	Moderate and fair; Winds va- riable.
	9	23	30.3						NW	Moderate, with a great Head- Sea from the Eastward.
29	12	23	30.2	50.20	13.7	19	50.24	50.25	to	Cloudy, with a great Sea from the Eastward.
	9	24	30.2						S by E	Hard Storm of Wind, with a great Sea.
	9	23	30.2						SSE	Moderate Gales, with small Rain.
30	12	21.5	30.3	50.37	11.41	18	50.30	50.35	SSW	Ditto, fair and moderate.
	9	20	30.2						to	Saw several Ships, founded 100 Fathom. Moderate.
	9	22.5	30.3						South	Two first Parts hard Gales and heavy Squalls, the latter mo- derate.
Octob. 1	12	22	30.2	50.35	11.22	18			Calm	
	9	22	30.3						SSE	
	9	22	30.3						WNW	
	9	22	30.3							
2	12	23	30.2	49.40	12.32	18				
	9	22	30							
	9	22	29							
3	12	22.5	29	50.7	11.39	18				
	9	22.5	30.1							
	9	20	29.9							
4	12	20	30.1	50.3	10.36	17	50.4			
	9	20	30.25							
	9	20.5	30.35							
5	12	20.5	30.3	49.38	8.52	16	49.42			
	9	20.5	30.4							
	9	22	30.2							
6	12	22	30.1	50	7.20	15	50.5			
	9	22	29.9							
	9	22	29.9							
7	12	21	30	49.39	6.58	15	49.38			
	9	21	29.9							

*An Explanation of the TABLES.*

The first Column contains the Month ; the second Column is the Day of the Month ; the third the Hour of the Day, beginning at Six in the Morning, to Twelve at Noon, and Nine at Night ; the fourth Column is that of the Thermoscope ; the fifth Column is the Height of the Mercury in the Baroscope, the first Number is the Inches of its Height, the second and third Number marks the tenths and hundredth Parts of an Inch ; the sixth Column is the Latitude the Ship is in, by Account, every Day at Noon ; the seventh Column is the Longitude the Ship is in every Day at Noon, by Account, from the Meridian of *London* (except where otherwise express'd). The Column Variation, is the Variation of the Needle ; and the next four Columns are the Latitudes observ'd at Noon by four several new Instruments ; the first is Mr. *Smith's* Prismatic Quadrant, the second is Mr. *Hadley's*, the third by Mr. *John Elton*, and the fourth by Mr. *Caleb Smith* and Mr. *William Ward* ; the next Column is the Wind for the most Part of the Twenty-four Hours.

The Thermoscope which I made use of in the Voyage, was made by Mr. *John Patrick*, together with the Baroscope ; in his Thermoscope he places [°] at the Top, supposing it to be the Heat under the Line, and so the Figures increase downwards, with the Increase of Cold. Temperate is placed at 25.

This Prismatic Quadrant of Mr. *Caleb Smith* I find to be of very great Use at Sea, in particular for the Stars, as I have experienced several times in my Voyage to *Hudson's Bay*, in the worst of Weather, when you can but see the Horizon ; and his other is of great Use, in tolerable smooth Water, in foggy and hazy Weather, when there is no Horizon to be seen, yet have the Benefit of the Sun.