Received January 11, 1768.

VI. *Obſervations made on the Iſlands of* Saint John *and* Cape Briton, *to aſcertain the Longitude and Latitude of thoſe Places, agreeable to the Orders and Inſtructions of the Right Honourable the Lords Commiſſioners for Trade and Plantations: By Captain* Holland, *Surveyor General in* Canada, *and his Aſſiſtants. Communicated by* R. Brockleſby, *F. R. S.*

Read March 3, 1768.

THE inſtruments made uſe of, in theſe obſervations, were;

I. A monthly aſtronomical clock, or time-piece (with a compounded pendulum, and a ſpring to keep it going when the clock is wound up), made by the late Mr. George Graham.

II. An aſtronomical quadrant, or equal altitude inſtrument of two feet radius, divided by Mr. Siſſon, and improved, with an horizontal circle and ſtand, by Meſſ. Heath and Wing.

III. A two feet Gregorian reflecting teleſcope, made by Mr. Short.

IV. A ten feet refracting teleſcope, reverſing the objects, made by Mr. Dollond.

In

In building my winter habitation on Saint John's Iſland, I conſtructed a ſtrong ſtone chimney; to the back of which I ſecured the clock with the greateſt precaution; and the room was kept temperate by an iron ſtove. In a few days, the clock was regulated to mean or equal time; and always examined and compared by equal altitudes of the ſun and ſtars, at or near the time when any immerſions or emerſions were to be obſerved. As the going of this clock is not inferior to any made by that renowned artiſt Mr. Graham; it will not be neceſſary to inſert here a multitude of equal altitudes of the ſun, and other obſervations, to prove the exactneſs of this clock; but only mention, that I have made uſe of Monſieur De la Lande's Tables * to rectify the equal altitudes of the ſun, for the alteration of the ſun's declination during the time of obſervations.

1765.

1 Obſer. January 20. Obſerved an emerſion of the firſt ſatellite of Jupiter, at 7 hours, 42 minutes, 3 ſeconds, equal or mean time. Mr. Haldimand, who obſerved with Mr. Dollond's teleſcope, perceived the ſatellite two ſeconds later than I did with Mr. Short's; the latter having the ſecond power magnifying 150 times. As this was the firſt obſervation, we began too ſoon to obſerve, and fatigued our eyes ſo much, that we were not ſure to a few ſeconds.

* See Monſieur De la Lande's *Aſtronomie*, Article 637, page 279.

2 Obſer.

2 Obſer. January 27. The firſt ſatellite of Jupiter emerged at 9 hours, 36 minutes, 31 ſeconds, mean or equal time. By bringing Mr. Short's teleſcope out of a warm room, into the exceſſive cold air, the mirror became very dull, by which I loſt my obſervation; but Mr. Haldimand was ſure of his being good.

3 and 4 Obſer. March 23. The third ſatellite of Jupiter in immerging began to appear faint at 9 hours, 4 minutes, 48 ſeconds, and intirely immerged at 9 hours, 5 minutes, 47 ſeconds; and in emerging began to appear faintly at 12 hours, 27 minutes, 52 ſeconds, and fully recovered its luſtre at 12 hours, 27 minutes, 58 ſeconds, equal or mean time. Obſerved by us both.

5 Obſer. April 6. The firſt ſatellite of Jupiter in immerging appeared faintly at 10 hours, 15 minutes, 54 ſeconds, equal time, and recovered its full luſtre in 4 ſeconds afterwards. Obſerved by us both.

6 Obſer. April 21. The firſt ſatellite of Jupiter emerged at 8 hours, 34 minutes, 51 ſeconds, and recovered its full luſtre in 3 ſeconds afterwards. Obſerved by us both.

7 Obſer. April 29. The firſt ſatellite of Jupiter emerged at 10 hours, 29 minutes, 30 ſeconds, equal time. Obſerved with Dollond's teleſcope only.

By the mean of all the meridian altitudes of the ſun and ſtars; the latitude of this place is 46° 2′ 30″ north.

In the beginning of May, I went on the ſurvey of Saint John's Iſland; and lieutenant Haldimand

to

to ſurvey and ſettle the latitude and longitude of the Magdalen Iſlands.

The longitude, lieutenant Haldimand determined by the mean reſult of ſeveral obſervations of the diſtance of the Moon, from the Sun and fixed ſtars.

This gentleman would have given a full account of his obſervations, with ſome natural remarks on the Sea Cows, which in prodigious numbers reſort to that Iſland, had he not unfortunately loſt his life, being drowned preſently after his return to Louiſburg.

The reſult of his obſervations is;

The Magdalen Iſlands are ſituated in the Gulph of St. Lawrence, in the latitude of 47° 41′ North, and between 61° and 61° 38′ Weſt longitude from London. The variation of the Compaſs is 17° 30′ Weſt.

The Iſland of Entry, lies in 47° 17′ North latitude, and 61° 20′ Weſt longitude from London.

The Bird Iſlands are in 47° 55′ North latitude, and bear from the Eaſt point of Magdalen North 35° Eaſt, diſtant 18 Miles.

Bryon Iſland is in 47° 52′ North latitude, and the Eaſt point bears North 13° Weſt of the Eaſt point of Magdalen; diſtant 12 miles.

At my arrival at Louiſburg, the 26th October 1765, I brought the inſtruments in order; fixed the clock to a brick wall, in a room kept warm by a ſtove, and regulated it to equal or mean time.

I alſo put up in a different room, near the fire place, another monthly clock, ſent me from London, made by Meſſ. Mudge and Dutton, with a ſimple or common pendulum; this clock, with little trouble, was ſoon brought to keep time with the other clock, though,

when the fire was neglected, it was ſoon perceived in its motion.

The weather here proved very diſadvantageous for aſtronomical obſervations, as well by the continual fogs, as ſevere froſt.

1766.

1 Obſer. March 10. Obſerved by Mr. Thomas Wright and me; the firſt ſatellite of Jupiter emerged at 11 hours, 21 minutes, 27 ſeconds, equal or mean time. This obſervation was made with the aforementioned inſtruments, and in the ſame manner. This day I had taken ſeveral equal altitudes to examine the clock, and found it 4 ſeconds too ſlow of equal time.

April 7. We diſcovered a Comet at 8 hours, 52 minutes; the tail of which was perpendicular to the horizon, with its head towards the Sun: the light of it was very pale, and it ſet behind the hills at 9 hours, 30 minutes. As near as I could remember, its poſition, when I came to look on the globe, was between the tail of Aries and Muſca; we made preparations to make proper obſervations on the night enſuing; but a fog, which continued for ſeveral days, prevented us; and when it cleared up, the comet had ſo much approached the Sun, that we never after could ſee it.

2 Obſer. April 14. The third ſatellite of Jupiter emerged at 11 hours, 51 minutes, 47 ſeconds; but ſome flying clouds made this obſervation a little dubious, which alſo occaſioned loſing the immerſion of the ſame ſatellite. Obſerved by us both.

3 Obſer.

3 Obſer. April 25. The firſt ſatellite of Jupiter emerged at 11 hours, 46 minutes, 50 ſeconds. Obſerved by us both.

May 1. The ſeveral ſurveying parties diſperſed round this Iſland, to finiſh the ſurvey, and take the latitudes of all the moſt remarkable places; of which the reſult is;

At Louiſburg and Iſland Battery, the latitude is 45° 54′ North.

Cape North, latitude 47° 2′ North.

St. Paul's Iſland, North cove, latitude 47° 11′ North.

The entrance of Dartmouth Harbor or *Baye des Eſpagnols*, latitude 46° 13′ North.

——Conway or St. Anne's Harbor, latitude 46° 20′ North.

The North head of Colviles Bay, or Niganiche, latitude 46° 44′ North.

Auguſt 4. I returned to Louiſburg, to obſerve the eclipſe of the Sun on the day following. This eclipſe appeared here perfectly annular; but I could only obſerve the undermentioned circumſtances, as my large teleſcope and micrometer were out of order.

I obſerved with the teleſcope fixed to my quadrant or equal altitude inſtrument of two feet long reverſing the objects; and Mr. Thomas Watts obſerved with one of Dollond's, four feet long.

During the time of obſervation, the ſky was very clear, and I took ſix equal altitudes, to examine the clock.

	h	′	″	
The beginning of the eclipſe	12	38	40	Equal, or Mean Time.
The ring formed	2	8	48	
The ring opened	2	12	6	
End of the eclipſe	3	33	50	

1767.

From this time I was prevented, either by the buſineſs of the ſurvey, or by the inconveniency of the weather, to make any further obſervations, until February 18.

1 Obſer. The firſt ſatellite of Jupiter immerged at 11 hours, 47 minutes, 10 ſeconds, mean time.

2 Obſer. February 25. The ſame ſatellite of Jupiter immerged at 13 hours, 41 minutes, 14 ſeconds, mean time.

3 Obſer. February 27. The ſame ſatellite of Jupiter immerged at 8 hours, 10 minutes, 17 ſeconds, mean time.

4 Obſer. March 6. The ſame ſatellite of Jupiter immerged at 10 hours, 4 minutes, 29 ſeconds, mean time.

5 Obſer. March 15. The ſame ſatellite of Jupiter immerged at 8 hours, 41 minutes, 19 ſeconds, mean time.

6 Obſer. April 7. The ſame ſatellite of Jupiter emerged at 8 hours, 53 minutes, 11 ſeconds, mean time.

7 Obſer. April 14. The ſame ſatellite of Jupiter emerged at 10 hours, 47 minutes 44 ſeconds, mean time.

The obſervations of the immerſions and emerſions were this year made with Dollond's refracting teleſcope; the reflecting teleſcope of Mr. Short being ſent with Mr. Wright (one of my deputy ſurveyors), who went laſt Auguſt to the Iſland of Anticoſti, to ſurvey, make obſervations for the aſcertaining the longitude and latitude, and keep a meteorological journal.

 I hope

I hope ſome of Mr. Wright's obſervations will be made on the ſame time with mine, that I may be able to ſettle immediately the longitude of the Iſland of Anticoſti, and the entrance of the river of St. Lawrence. But to determine with exactneſs the longitudes hitherto taken, it will be neceſſary to deliver a copy of this paper to ſome members of the Royal Society, that they may be compared with correſponding obſervations, made in England.

By order of the Surveyor General.

George Derbage, Sec.