

1828.	1. Wire.	2. Wire.	Meridian or Center Wire.	4. Wire.	5. Wire.	Error of Clock.	Time of Transit corrected for Error of Clock.	Names of stars.
	^h ^m ^s		^h ^m ^s			^h ^m ^s	^h ^m ^s	
April 6	37	4	19 10 31	57,2	24,8	+ 0 6,20	19 10 37,20	Moon 2 Limb
	—	—	19 42 18,3	—	9	+ 0 6,36	19 42 24,66	α Aquilae
— 7	31,5	57	19 42 22,4	—	—	+ 0 2,30	19 42 24,70	α Aquilae
	—	32,4	20 10 59	25	52	+ 0 2,10	20 11 1,10	Moon 2 Limb
July 20	18	Broken	14 13 9,5	34,5	0,95	— 0 31	14 12 38,50	Jupiters Center
	34	do.	14 21 27	52,8	19,80	— 0 31,24	14 20 55,76	Moon 1 Limb
	5,5	do.	14 41 57,5	23	49,50	— 0 31,87	14 41 25,63	2 α Librae
Aug. 4	47,2	do.	4 9 41	7,6	34,8	— 0 33,60	4 9 7,40	Moon 2 Limb
	47	do.	4 26 39,3	5	31,5	— 0 33,56	4 26 5,74	α Tauri
Aug. 19	10	do.	16 6 0,3	24,9	50,6	— 0 37,20	16 5 23,10	δ Ophiuchi
	37	do.	16 19 33	0,3	29	— 0 37,12	16 18 55,88	Antares
	31	do.	16 28 22	47	13	— 0 37,07	16 27 44,93	ζ Ophiuchi
	9	do.	16 52 3	29,6	57	— 0 36,94	16 51 25,06	Moon 1 Limb
	19,4	do.	17 1 11,4	37	3,6	— 0 36,89	17 0 34,51	η Ophiuchi
	36,2	do.	17 7 28,1	53,4	20	— 0 36,85	17 6 51,25	α Herculis

* A very satisfactory observation I think the best I have made.

A few Occultations of Stars by the Moon observed also at St. Croix by *A. Lang* viz.

A small Star a little to the West of β Capr.	Immersion.	1827 Septbr. 29	9 ^h 50 ^m 34 ^s	Mean time at St. Croix.
β Capricorni	Immersion.	Septbr. 29	10 9 0,5	
	Emersion.		10 20 41,5	
ε Tauri	Immersion.	Octbr. 8	19 39 40,3	
ε Piscium	Emersion.	1828 Febr. 18	6 52 52	
a small Star	Immersion	Febr. 18	7 59 18,5	

Emersion of 1st Satellite of Jupiter. August 15. 7^h 21^m 36^s
Mean Time at St. Croix.

The Satellite on first observing it, was an extremely minute point, rather dim, and it did not attain its brilliancy until

eighteen Seconds had elapsed from the time of my first perceiving it.

Andr. Lang.

In the Astr. Nachr. Nr. 126 some Meridian Transits of the Moon and some Stars observed by me here from November 1826 to May 1827 are published. Among these I observe an Error or an Omission which I now further correct from an attentive Examination of my Original Journal. It is the observation of 1826 Dec. 22. which in reference to the Meridian or Center wire and the Correction for clock, stands thus in the Nachrichten, viz:

	Mittelfaden.	δ U.	
	^h ^m ^s	^h ^m ^s	
1826 Dec. 22.	18 27 —	+ 2,6	γ Virginis
	18 50 28,8	+ 2,7	Mond Rd. 2
	19 10 10,2	+ 2,7	α Virginis.

The above should be corrected as follows viz:

	^h ^m ^s		
1826 Dec. 22.	18 27 6,3	+ 2,6	γ Virginis
	18 50 28,8	+ 2,7	Mond Rd. 2
	19 10 10,2	+ 2,8	α Virginis

I would not have troubled you with the preceding remark, but on referring to my Journal it appears I considered this observation as tolerably good, and besides in the Astr. Nachr. Nr. 124. I find a corresponding observation on the same day, of the Moon and these Stars made at Åbo by Prof. *Argelander*. This I have calculated, and my Calculation of this single observation gives for the difference of Longitude between Åbo and my position 5^h 47^m 58^s.2

Now Åbo in Nr. 124 is considered 1^h 19^m 49^s.2 East of Paris, and Paris is East of Greenwich 9 21,6

therefore Åbo is East of Greenwich 1 29 10,8

which deducted from 5^h 47^m 58^s.2 gives 4^h 18^m 47^s.4. My observation cannot presume to the nice accuracy of Prof. *Argelander*, the clock I then used giving me constant trouble in detecting its irregularities by comparison with another in a different Room which I could depend on, neither have I appeared to notice the distinction of the two Stars which form γ Virginis.

Dear Sir

The correct determination of the Longitude of my position here has long been an object of interest to me, considering it a benefit to the interests of navigation, to have it determined with as much accuracy as possible in a manner to be relied on, by which not only the geographical positions of the neighbouring Islands could be rectified, but the same rectification could be extended, with chronometrical certainty, to many other Islands in the West Indies and other stations on the Spanish Main, which are frequently visited by the Danish Vessels of War on this station, the scientific talents and acquirements of whose Officers, and the good chronometers, so liberally furnished by the Government, are too well known by you to need any further Remarks from me thereon.

In the „Astronomische Nachrichten“, of which in last month I got from Captain *Thomsen* as far as Nr. 130. I am much gratified to observe, the assistance rendered towards the determination I so much desire. And as I believe I am improving, in the accuracy of observation, I think a very correct conclusion will soon be deduced. I beg leave to forward the following observation, viz.

On Monday Morning Aug. 4. 1828 civil reckoning, at my position in St. Croix in Lat. $17^{\circ} 44' 32''$ N. and Longitude assumed $4^h 18^m 48^s$ in Time or $64^{\circ} 42'$ West from Greenwich, I observed with an altitude and transit circle correctly adjusted and fixed in the meridian, the following transits over the meridian, viz.

		1828.	Sider. Time of Clock.			Corr. Sider. Time of Transit of Moon
						2. Limb.
			h m s			h m s
Moons 2 or Eastern Limb	1 ^w	Aug. 4	4 8 47,2			
	2		Broken.			
Meridian or Center Wire	3		4 9 41 —	Clock fast 33,79 =	Aug. 4.	4 9 7,21
	4		4 10 7,6			
	5		4 10 34,8			
Zenith distance of Moons Center at time of transit, only Moons transit, observed the transit also over the meridian						
about 0° 20'. South of Zenith. A few minutes after the with same clock etc.						
			h m s			Corr. Sider. Time of Transit of Alde- baran.
of α Tauri (Aldebaran)	1 ^w	Aug. 4	4 25 47			
	2		Broken.			
Meridian or Center Wire	3		4 26 39,3	clock fast 33,75 =	Aug. 4.	4 26 5,55
	4		4 27 5			
	5		4 27 31,5			
as taken from Prof. Schumachers Hülfsstaf. for 1828. page 40.						

and as regards the Moon is consequently the time from which the Longitude of this station is to be deduced.

The Computation by the Hülftst. gives RA. α Tauri $4^h 26^m 5,55^s$
Longitude deduced thereby = $4^h 18^m 46,1^s$

For upwards of twelve months past I have been assuming the Longitude of this station, at $4^h 18^m 40^s$ being led to that conclusion through comparative observations recorded in your „Astronomische Nachrichten.“

Monday Morning. Sept. 1. 1828. I have this morning had, what I also consider another very good observation, of the transit over the meridian of α Tauri, and the Moons 2. Limb viz.

	w	Sider. time of Clock.				Correct. sider. time of Transit from Hülftstafeln.
		h	m	s		
α Tauri 1	1	4	25	13,6		
2				Broken.		
3	4	26	6		clock slow 0,38	Sept. 1. $4^h 26^m 6,38^s$
4				31,5		
5				58,2		
Moon 2L. 1	4	42	54			Corr. sider. time of transit as deduced from transit of α Tauri.
2				Broken.		
3	4	43	48		clock slow 0,38	Sept. 1. $4^h 43^m 48,38^s$
4				44 14,5		
5				42		

I have carefully computed the above observation in the manner of the former of 4th ultimo, and the Longitude from Greenwich deduced therefrom, is $4^h 18^m 53'' 1$.

In this last observation, the transit of the Moons center, was but 18' from the zenith. The sidereal clock had not deviated 1" in the last 24 hours. The morning was extremely favourable for the observation.

St. Croix 2 Sept. 1828. In continuation of observations to determine the longitude of my position from the meridian transit of the Moon, I forward one made this morning

under very favourable circumstances. The following transits of Stars, observed to determine the error of Sidereal Clock viz.

	w	Sider. time of Clock.				Sid. time of transit from Hülftstafeln.
		h	m	s		
β Orionis 1	5	5	27,8			
2				Broken.		
3	5	6	18,4		5 6 18,59	clock slow by this observ. + 0'',19
4				43,2		
5				7 9		
γ Orionis 1	5	15	6			
2				Broken.		
3	5	15	56,8			
4				16 21,3		
5				47		
Moon 2L. 1	5	36	18		very good	
2						
3	5	37	12		do.	
4				38,4	do.	
5				38 6	do.	
α Orionis 1	5	45	3			
2						
3	5	45	54		very good.	5 45 53,93 fast — 0,07
4				46 18,6		
5				44,6		M. + 0'',06

It is proper to remark, that my Sidereal Clock, from having built a solid walled platform, where but a few days ago it has been placed now goes with great precision, having in the last 24 hours not deviated above one third of a second from sidereal time, and during the above observations of transits I am satisfied, its error has been imperceptible. I therefore consider the comparative difference of the transits of the stars as indicated by the clock, to be errors in my own observation and deduce there from that at the meridian transit of the Moons 2 Limb, given by clock Sept. 2 $5^h 37^m 12^s$ that the clock is then slow for correct sider. time + 0,06 which accord. to deduct. from Hülftstaf. would be $5^h 37^m 12,06^s$ From which I deduce the longitude of my position from Greenwich $4^h 18^m 47'' 3$.

General conclusion from the preceding observations. Longitude of my position in St. Croix from Greenwich.

	from the Hülftstafeln.
	h m s
By observation of August 4. 1828	$4^h 18^m 46,1^s$
By observation of Sept. 1.	$4^h 18^m 53,1^s$
By observation of Sept. 2.	$4^h 18^m 47,3^s$
Mean of the 3 observations	$4^h 18^m 48,8^s$

The deduction therefore for the present from the mean of these three days observations, observations which I have strong reasons, to believe, are not only good of their kind, but also,

that it may be long before a combination of such beautiful weather and other favourable circumstances, may again occur to give me the same advantages, is that the longitude of my position is $4^h 18^m 48,8^s$ in time West from Greenwich or in arc $64^\circ 42' 12''$ an approximation to the correct determination of this particular position, approaching, as I flatter myself, nearer to certain accuracy, than has yet been attained with so little probable error of any other place among the Islands of the West Indies.

St. Croix 3 Sept. 1828.

Andr. Lang.