

XLI. *An Account of the Observations on the same Transit made in and near Paris: In a Letter from Mr. Benedict Ferner, Professor of Astronomy at Upsal, and F. R. S. to the Rev. Thomas Birch, D. D. Secretary to the Royal Society. Translated from the French.*

Reverend Sir,

Read Nov. 19, 1761. **T**WO reasons engage me to pay you my respects, on occasion of the passage of Venus over the sun's disk, on the 6th past: the first is my duty to give you some account of what was done here upon this article; and the other is founded upon the interest I have, in being informed how Venus was observed with you.

Messieurs Maraldi, De la Lande, and De Lisle, with Mr. Messier, remained in town, at the Royal Observatory, in the palace of Luxembourg, and at the Hotel de Clugny: Messieurs De la Caille, Le Monnier, De Fouchy, and myself, went out to Conflans, St. Hubert, and to the Chateau de la Muette, where the King's philosophical and optical chamber is. It was in this last place, which is situated $14\frac{1}{2}''$ of time to the west of the Royal Observatory, that I made my observations, in company with Mons. De Fouchy.

In order to take the distances of Venus from the limbs of the sun, for want of a good micrometer, I made use of a quadrant of $2\frac{1}{2}$ feet, made by Langlois; and for observing the egress, I had a good reflecting

flecting telescope of 28 inches focus and 5 inches aperture, which magnified about 80 times: the telescope was made by Pere Noel. I will not enlarge upon the precautions I took for the benefit of my observations, in order to assume a vain pretension of having attained to the last precision; it is sufficient to assure you, I made them in the best manner, that the circumstances would admit of. Having calculated and reduced my observations to the Royal Observatory at Paris, I found, that the western limb of Venus touched the western limb of the sun, or, that the luminous thread of the sun was broke by her,

	h	'	''	
At - - - - -	8	28	29	True time, morn.
Last contact, at - -	8	46	43	
Conjunction of ☉ with ♀	5	52	20	
Southern latitude of -	0	9	32	
Longitude of ♃ being 2°				
	14	32	23	

I sometimes measured the diameter of Venus with a bad micrometer; but finding there was but little account to be made of it, I discontinued the use of it.

During the observation, I had recourse to different coloured glasses; to wit, a black glass, such as is made at glass-houses; a common smoked glass, and a glass of a blue and green mixed, half of which was slightly smoked. In using the black glass, the disk of the sun, and that of Venus, were badly defined, and the spots of the sun appeared but faintly. I saw a little better with the common smoked glass, and with the half-smoked green and blue glass: but when
I viewed

I viewed the sun with that part of these glasses, which was not smoked, I found the sun white, and a little bluish, the smallest spots very distinct, and the disks of the sun and Venus much better defined, than I could with the other glasses; but the edges of both limbs undulating, particularly those of Venus.

During the whole time of my observing with the telescope, and the blue and green glasses, I perceived a light round about Venus, which followed her like a luminous atmosphere, more or less lively, according as the air was more or less clear; its extent altered in the same manner; nor was it well terminated, throwing out, as it were, some feeble rays on all sides. When I looked through the smoked part, I saw but badly; by the common smoked glass, yet worse; and by the black glass, not at all.

The interior contact of Venus with the sun's limb happened sooner than I expected, by judging of the distances of Venus from the limb of the sun at different times. As for the last contact, I should not be surprized, if there was a difference of 10'' or 12' between two observers, who had instruments and eyes of equal goodness, and made their observations by the same clock; so difficult a matter do I think it to determine the exact moment. But for the first, I certainly believe, that the difference could scarce amount to more than 2'' under the same circumstances.

However, the following are greater differences for the first contact, than were expected:

	h	/	''
Mr. Maraldi observed	{	1 st contact at	8 28 42
		2 ^d contact at	8 46 54

L'Abbe

L'Abbé de la Caille	{	1 st contact at	8	28	37	
		2 ^d contact at	8	46	49 ¹	
Mr. Meffier observed	{	1 st contact at	8	28	27	
		2 ^d contact at	8	46	37	
Pere Noel - - -	{	1 st contact at	8	28	27	
Mr. Fouchy - - -		2 ^d contact at	8	46	42	
Mr. Ferner - - -	{	1 st contact at	8	28	29	
		2 ^d contact at	8	46	43	
Mr. de la Lande -	{	1 st contact at	8	28	25	to 26
		2 ^d contact at	8	46	54	

Considering the quickness, with which the luminous thread of the sun's limb was broken, by the approach of Venus's limb, I have sufficient foundation for supposing, that almost all the difference between these observations, for the first contact, depends solely upon the different goodnes of the instruments, and particularly the measuring the time. It seems to me, that the observations of the last contact agree, for the same reasons that the others differ from one another.

Being in company last night at supper with Mr. de la Lande *, I had the pleasure of hearing him do the English nation justice, with regard to what the learned world owe it; expressing, at the same time, a very great desire of seeing England, as soon as peace is established between it and his own country. In the mean time, he presents his observations upon the passage of Venus to the Royal Society, as a testimony

* Of the Royal Academy of Sciences.

of his respect for that illustrious mother of the sciences.

I beg, Sir, you will be so obliging as to send me whatever observations are made in England upon this passage, under a cover, directed to Monf. De la Lande, who, after copying them, will send them to me, where I shall direct him.

I am just upon quitting Paris, to go into Italy, after visiting the provinces of France. You will oblige me very much, Sir, if you will present my most humble respects to all the Gentlemen of the Royal Society, to whom I have the honour of being known; and am,

With the most perfect consideration,

S I R,

Your most humble

and obedient servant,

Paris,
June 20, 1761.

B. Ferner.

P. S. I hope Monf. Baudouin's pieces upon the satellite of Venus is come to your hands. Notwithstanding all the care taken here, to discover this satellite upon the disk of the sun, on the 6th past, we could see nothing of it.