XXVI. *A Letter to the Astronomer Royal, from* John Canton, *M.A. F.R.S. containing his Observations of the Transit of* Venus, June 3, 1769, *and of the Eclipse of the* Sun *the next Morning.*

London, June 9, 1769.

SIR,

Read June 15, 1769.

I TAKE the liberty of sending you, inclosed, my observations of the transit of Venus, and of the Sun's eclipse; which, if you think proper, you may lay before the Royal Society. Those of Venus were made under the disadvantageous circumstances of being at the top of a house, and seeing through smoke; however, I hope they will not differ very widely from yours. I was just prepared to find the difference of declination between the Sun and Venus by your method, which appears to me to be a very good one, when the Sun was covered by a cloud, and I saw it no more. The magnifying power of the telescope I made use of was 95.

About half a minute before the total ingress, when the bright cusps of the Sun were at some distance from each other, there appeared a faint light between them, a little lower than the cusps, or nearer

to

to the center of the Planet: this I obferved to increafe till the time of the internal contact; which fully convinced me that there is an atmofphere about Venus.

I had the good fortune to take feveral correfpondent altitudes of the Sun on the day of the tranfit, and alfo on the day before.

The longitude of Spital Square, weft of the Royal obfervatory, I formerly found by Rocque's furvey, to be $16''\frac{3}{4}$ of time; and lately, by obferving with you the explofions of rockets, it was found to be $17''\frac{1}{10}$. I therefore add $17''$ to my time, to bring it to yours.

<div align="center">

I am, Sir,

Your humble fervant,

John Canton.
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<div align="center">Spital Square, June 3, 1769.</div>

OBSERVATIONS of the TRANSIT of VENUS.

	h	′	″	
1ft external contact at	7	8	28½	} mean time.
1ft internal contact at	7	26	59½	
Duration of the ingrefs		18	31	

	′	″	
Equation of time	2	15¾	add

	h	′	″	
1ft external contact at	7	10	44¼	} apparent time.
1ft internal contact at	7	29	15¼	

	′	″
The diameter of the Sun, from 3 obfervations, was	31	35½
of Venus, from 4 obfervations,		59

At 7^h 38′ 31″, apparent time, the right afcenfion of ♀ was greater than that of the ☉ by 8′ 7″.

Of the SUN's ECLIPSE.

	h	′	″	
The beginning at	18	36	40	} mean time.
End at	20	21	7	

Duration   1   44   27

	′	″
Equation of time	2	$10\frac{3}{4}$

	h	′	″	
Beginning at	18	38	$50\frac{3}{4}$	} apparent time.
End at	20	23	$17\frac{3}{4}$	

	°	′
Digits eclipsed	6	$14\frac{1}{2}$

h	′	″		dig.	′	
At 19	20	$45\frac{3}{4}$	apparent time.	6	$1\frac{1}{2}$	eclipsed.
19	52	$45\frac{3}{4}$		4	$37\frac{1}{4}$	
20	—	$44\frac{3}{4}$		3	$33\frac{1}{2}$	