LXIII. On the solar eclipse of the 7th September 1820; being a comparison of calculations with some of the observations made in Great Britain and on the continent

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To cite this article: Mr. George Innes (1821) LXIII. On the solar eclipse of the 7th September 1820; being a comparison of calculations with some of the observations made in Great Britain and on the continent, Philosophical Magazine Series 1, 58:282, 274-276, DOI: [10.1080/14786442108652625](https://doi.org/10.1080/14786442108652625)

To link to this article: <http://dx.doi.org/10.1080/14786442108652625>

Published online: 27 Jul 2009.

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In a series of experiments lately made on vegetable colours, I discovered the remarkable fact, that subacetate of lead, nitrate and sulphate of copper, nitromuriate of platinum, nitromuriate of gold, &c. turned syrup of violets, tincture of cabbage, columbine, blue hyacinth, &c. *green*; and that when these colours are even reddened by acetic or citric or carbonic acid, &c. the metallic solutions *restore the original blue* colour. Boracic acid reddens the yellow colour obtained from *Reseda lutea*, and so do the metallic solutions.

It seems evident, therefore, that we have yet to learn the invariable characteristics of alkalis and acids. We may attempt to cover our ignorance by a free use of the term *anomaly*, but I do hold that in the universe of God there is no such thing as *anomaly*.

LXIII. *On the Solar Eclipse of the 7th September 1820; being a Comparison of Calculations with some of the Observations made in Great Britain and on the Continent.* By Mr. GEORGE INNES.

To Dr. Tilloch.

SIR, — **I**N order to compare the observed with the computed times of the phenomena of the late solar eclipse, I have selected several of the observations which have appeared in your Magazine, and in the Edinburgh Philosophical Journal, and made the necessary calculations for the several places by the Tables of Delambre and Burckhardt. From these calculations it appears that the tables give the time of conjunction too early, and the moon's apparent semidiameter too great; as a less semidiameter would have made the errors of the tables, as deduced from the several observations, more uniform for the beginning and end.

The results obtained from the observations of the beginning and end at Gosport, and of the end at Padua, differ much from the rest. Perhaps some error has been committed in allowing for the errors of the clocks, or in transcribing. In calculating the time of the end for Plymouth, I have used the longitude given with the observation; but I observe that it is greater than any of those given in the Requisite Tables, as the result of accurate observations, for eight places in Plymouth.

It is not stated whether the instants of the last five observations are given in mean or apparent time, but from the calculations it would appear that they are given in mean time.

In making the calculations it will be found, that an error of 1" in the moon's semidiameter gives an error of about 2",98, and
2",64

2",64 in the times of beginning and end respectively for England, and a little more for the other places, owing to their being in lower latitudes. I would beg leave to request that some of the observers, who, I doubt not, have paid attention to so important a point, would communicate the diameter of the moon, as measured on the sun's disc. The mean of the moon's apparent semi-diameters by the calculations made for England is 14' 50",73 at the beginning of the eclipse, and 14' 47",42 at the end. By the calculations for the other places, it comes out about 1" greater in both cases. I am, sir, yours respectfully,

GEO. INNES.

In the comparison of the following results of the calculations with the observations, the sign — shows the calculated time to be too early, and + too late.

1. LEIGHTON.

Observed by Mr. Bevan; *mean time.*

	Beginning.	End.
By observation	0 ^h 18' 46"	3 ^h 10' 28"
By calculation	0 18 1,6	3 10 13,76
	<hr/> —44,4	<hr/> —14,24

2. WOOLWICH.

Observed by Mr. Evans; *mean time.*

By obs.	0 ^h 23' 2",85	3 ^h 14' 54",56
By calc.	0 22 29,49	3 14 39,34
	<hr/> —33,36	<hr/> —15,22

3. BUSHY HEATH.

Observed by Colonel Beaufoy; *apparent time.*

By obs.	0 ^h 22' 57"	3 ^h 14' 47"
By calc.	0 22 13,55	3 14 35,72
	<hr/> —38,45	<hr/> —11,28

4. PLYMOUTH.

Observed by Mr. Fox; *apparent time.*

By obs.	2 ^h 58' 56"
By calc.	2 58 19,03
	<hr/> —36,97

5. GOSPORT OBSERVATORY; *mean time.*

By obs.	0 ^h 16' 37"	3 ^h 10' 6"
By calc.	0 17 27,71	3 10 26,06
	<hr/> +50,71	<hr/> +20,06

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6. St.

Account of a portable Apparatus

6. ST. GALL.

Observed by Colonel Scherer.

	Beginning.			End.
By obs.	1 ^h	19'	8",05	
By calc.	1	18	31,19	
	<hr/>			
	-36,86			

7. ZURICH.

Observed by MM. Horner and Feer.

By obs.	{ 1 ^h 14' 56",6			4 ^h 3' 41",97 }
and	{ 1 15 0,39			4 3 42,67 }
By calc.	{ 1 14 16,45			4 3 22,22 }
	<hr/>			<hr/>
	-39,15			-19,75
	-43,94			-20,45

8. MILAN.

Observed by M. Oriani.

By obs.	1 ^h	22'	7",5	4 ^h	10'	48",7'
By calc.	1	21	29,59	4	10	33,03
	<hr/>			<hr/>		
	-37,91			-15,67		

9. PADUA.

Observed by Santini.

By obs.	1 ^h	36'	20",6	4 ^h	24'	53",3
By calc.	1	35	49,3	4	22	47,88
	<hr/>			<hr/>		
	-31,3			-2 5,42		

10. FIUME.

Observed by M. Bouvard.

By obs.	4 ^h 34' 8",6		
By calc.	4 34 17,22		
	<hr/>		
	+8,62		

LXIV. *Account of a portable Apparatus for restoring the Action of the Lungs.* By Mr. JOHN MURRAY.

"To call the answering spirits back from death."

BYRON.

"Forsan scintilla latet."

I FEAR the *bellows* recommended by the Royal Humane Society for the restoration of the action of the lungs in apparent death,
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