

IV. *A Collection of the Observations of the Lunar Eclipse, Sept. 8, 1736. which were sent to the Royal Society.*

1. *An Observation of an Eclipse of the Moon, made in Fleetstreet, London, by Mr. Geo. Graham, F. R. S. and by Mr. James Short of Edinburgh, F. R. S. on Sept. 8, 1736.*

Sept. 8, 1736. Apparent Time.

| | H. | M. | S. |
|---------------------------------------------------------|----|----|----|
| Beginning of the Eclipse . . . | 12 | 58 | 0 |
| The Shadow touched <i>Grimaldi</i> . . . | 13 | 0 | 0 |
| touched <i>Kepler</i> . . . | | 9 | 30 |
| touched <i>Copernicus</i> . . . | | 17 | 10 |
| touched the East Side } of <i>Tycho</i> . . . } | | 25 | 5 |
| touched the East Side } Side of <i>Plato</i> . . . } | | 34 | 30 |
| touched the East Side } of <i>Manilius</i> . . . } | | 36 | 40 |
| touched the East Side } of <i>Mare Crisium</i> } | | 56 | 20 |
| Beginning of total Darkness . . . | 14 | 3 | 45 |

The Observation made with a $5\frac{1}{2}$ Inches reflecting Telescope, magnifying about 38 times.

2. *Eclipses*

2. Eclipsis Lunæ *totalis observata* Londini in Covent-Garden, Sept. 8, 1736. *S. V. Telescopio 5 Ped. à J. Bevis, M. D.*

Temp. Appar.

| | | | |
|----|----|----|--------------------------------------------------------------------------------------------------|
| 12 | 53 | 25 | Penumbra inficit Limbum Euro-boreum. Aëre Sereno. |
| | 54 | 25 | Quæ nunc fatis conspicua. Seren. |
| | 56 | 50 | Umbra vera, quantum judico, Limbum attingit. Seren. |
| | 57 | 30 | Umbra Grimaldum tangit. Seren. |
| 13 | 00 | 25 | Tegit Grimaldum. Satis Seren. |
| | 07 | 23 | Intrat Mare Humororum, per tenues Nubes. Densissimæ deinde Nubes. |
| | 28 | 39 | Mare Vaporum tangit umbra. Seren. |
| | 31 | 19 | Lunæ pars obscurata subrutili quasi coloris cernitur. Valde Seren. |
| | 36 | 53 | Limes Umbræ Manilium bissecat, & mare Serenitatis contingit. Valde Seren. |
| | 38 | 48 | Mare Tranquillitatis tangit. Seren. |
| | 47 | 21 | Tegitur Serenitatis Mare. Seren. |
| | 55 | 26 | Tangit Mare Crisium. Seren. |
| | 58 | 05 | Mare fœcunditatis obtegitur. Seren. |
| 14 | 02 | 25 | Immersio Lunæ totalis. Densissimæ Nubes superveniunt, nec Luna amplius conspicitur, priusquam |
| 16 | 43 | 00 | Mare Tranquillitatis, uti videtur, penitus resectum---per hiatus Nubium. |
| | 43 | 30 | Iterum Nubes. |
| 17 | 03 | 22 | Discedente nube, Luna ab omni fuligine libera videtur. |

Horæ

Horologium per Altitudines Solis æquales Tempori vero aptabatur, ejusque Consensus cum Chronometro Dni. G. Graham, mediante optimo Horologio portatili notabatur.

3. *Momenta* Eclipsos Lunæ totalis, *A. MDCCXXXVI. die IX St. V. xx St. N. Septembris, mane Vitembergæ Saxonum observata, à J. F. Weidlero, R. S. S. &c.*

| Hor. | Min. | Sec. | |
|------|------|------|-----------------------------------------------------------------------------------------------------|
| 1 | 36 | 0 | Penumbra instar fumi vel nebulae partem Lunæ orientalem subit. |
| 1 | 50 | 0 | Initium. |
| 1 | 50 | 30 | Umbra appellit ad Grimaldum. |
| 1 | 52 | 0 | —— attingit Galileum. |
| 2 | 0 | 0 | —— attingit Keplerum. |
| 2 | 1 | 30 | —— totum tegit Keplerum. |
| 2 | 7 | 0 | Lunaris disci portio altius in umbram immerfa clarior apparet illa, quæ propior erat margini umbræ. |
| 2 | 8 | 0 | Umbra appellit ad Copernicum. |
| 10 | 50 | | —— tegit totum Copernicum. |
| 16 | 10 | | —— ad Tychonem. |
| 20 | 0 | | Lunæ pars dimidia obscurata. |
| 25 | 0 | | Umbra ad mare serenitatis pertingit. |
| 29 | 10 | | —— ad Menelaum. |
| 36 | 00 | | Tegitur totum mare serenitatis. Luna hoc tempore per umbram rubet instar prunæ. |
| 45 | 30 | | Umbra ad mare Crisium appellit. |

Hoc

Hor. Min. Sec.

Hoc tempore circa mare Crisum umbræ margo introrsum curvatur. Et in tota Eclipsi umbræ periphæria aspera, variisque prominentiis distincta, & in extrema regione veluti tenui fumo circumdata cernitur.

2 50 00 Totum mare Crisum obumbratum.
53 00 Obscuratio totalis.

Jam circiter tertia lunaris disci pars versus orientem obscurior apparet parte occidentali.

3 43 00 Umbra in medio obscurior, circa extrema dilutior videtur.

4 8 00 Luna nubibus involvitur.

4 44 00 Emerfitio Lunæ ex umbra.

45 00 Umbra relinquit Grimaldum.

Postea Lunam nubes absconderunt, ex quibus licet subinde iterum emergeret, nebula tamen vel nubes rarior ita eam obumbrat, ut maculæ distingui non possint. Tandem nubibus densioribus tota Luna occultatur.

Observatio Telescopio octo pedes Parisinos longo facta fuit.

4. *An Observation of the Eclipse of the Moon, Sept. 8, 1736. made in Hudson's-Bay, by Capt. Christopher Middleton, F. R. S.*

Being in *Hudson's-Bay*, in the Latitude 55 Degrees 34 Minutes, North, and on the Meridian of the *North-Bear-Island*, which lies 30 Miles to the Westward of *Charlton*, I observ'd a total Eclipse of the *Moon* on *Sept. 8, 1736*. The Weather was very clear, but the Motion of the Sea render'd my Telescope usefess, and I miss'd the Beginning.

| | H. | M. | |
|-------------------------------------------------------------------------|----|----|------------------------------------------|
| The total Immersion of the <i>Moon's</i> Body into the Shadow | 8 | 22 | } by my Watch. by ditto. by ditto. |
| The Emerfion | 10 | 8 | |
| The End | 11 | 16 | |

In order to rectify my Watch, and be certain of the true Time, I took three several Altitudes next Morning, and one in the Afternoon, by Mr. *Hadley's* and Mr. *Smith's* Quadrants; which (having made proper Allowances for the Refraction of the Atmosphere and the Height that I stood above the Surface of the Sea) were as follows :

| | Deg. | Min. | |
|----------------|------|------|----------------------------|
| First Altitude | 23 | 00 | } Hence the true Time is |
| Latitude | 55 | 45 | |
| | | | } The Time by my Watch |
| | | | Watch too flow 0 21 — |

Second

| | Deg. | Min. | | Deg. | Min. |
|----------------------------------------|------|-------|---|-------------------------------|----------|
| Second Altitude | 25 | 48 | } | The true Time therefore is | } 9 15 — |
| Latitude | 55 | 45 | | | |
| | | | | Watch too slow | 0 21 — |
| <hr style="border: 1px solid black;"/> | | | | | |
| Third Altitude | 26 | 44 | } | The true Time therefore is | } 9 24 — |
| Latitude | 55 | 45 | | | |
| | | | | Watch too slow | 0 21 — |
| <hr style="border: 1px solid black;"/> | | | | | |
| The Fourth Altitude taken in the | | | | | |
| Afternoon the | } | 21 29 | } | Hence the true Time is | } 3 25 + |
| fame Day | | | | | |
| | | | | | |
| | | | | Watch too slow | 0 21 + |
| <hr style="border: 1px solid black;"/> | | | | | |

If 21 Minutes therefore be added to the times above-mention'd, for the Error of the Watch, we shall have the true times of the several Observations on the Meridian of the *North-Bear-Island*, as follows, *viz.*

| | H. | M. |
|----------------------------------------------------------------------------|-----|----|
| The total Immerfion of the <i>Moon's</i> Body into the Shadow | } 8 | 43 |
| The Emerfion | 10 | 29 |
| The End | 11 | 37 |

This fame Eclipse was obferved *Sept.* 8, 1736. by Dr. *Bevis* at *London*, and he made the true Time of the total Immerfion of the *Moon's* Body into the Shadow, 14 Hours, 2 Minutes, 25 Seconds; confequently the Difference of Longitude between *London* and *North-Bear-Ifland* in *Hudfon's-Bay*, is 5 Hours, 19 Minutes, 25 Seconds, or 79 Degrees, 51 Minutes.

IV. *Eclipsis Solaris obfervata Londini, Sept.*
23. 1736. à J. Bevis, M. D.

Temp. App. P. M.

| | | | | |
|---|----|----|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| 4 | 12 | 35 | Limbo Solis boreo filum parallelum PP decurrentè, Limbus occidentalis attingit filum horarium HH. | |
| | | 12 | 42 | Macular parvula prope Limbum boreum ad filum obliquum primum 1. pervenit. |
| | | 13 | 01 | Macula ad filum horarium HH. |
| | | 13 | 20 | Macula ad secundum filum obliquum 2. |