

- VI. *The way of proceeding in the Small Pox Inoculated in New England. Communicated by Henry Newman, Esq; of the Middle Temple.*
- VII. *A Letter from Dr. Nettleton, Physician at Halifax in Yorkshire, to Dr. Whitaker, concerning the Inoculation of the Small Pox.*
- VIII. *A Letter from the same Learned and Ingenious Gentleman, giving an Account of his farther Progress in Inoculating the Small Pox: To Dr. Jurin, R. S. Secr.*
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- I. *The Longitude of Buenos Aires, determin'd from an Observation made there by Pere Feuillée. By Edm. Halley LL. D. Astronomer Royal, and F.R. S.*

I HAVE as Occasion offered, made it my Business to collect such Celestial Observations as might be of Use to determine the Longitudes of Places on the Sea coast of the World; in order to get as near as possible the Out-line, or true Figure of the Earth, without which our Geography of the Inlands must necessarily be very insufficient. The Memoirs of the Royal Academy of *Paris*, afford a good Number of Observations of this Kind, and among the rest, there is one made at *Buenos Aires* on the River of *Plate*, in the South America, by *Pere Feuillée* in his Voyage to *Peru*: who, in the Memoirs for the Year 1711. is said to have observed at that Place on the 19th of August, 1708. the Immersion of the Star in the Southern Foot of *Virgo* (marked by *Bayer* with λ) behind the obscure Limb of the Moon. Being desirous to see what Longitude might be deduced from this

this Observation, I soon found that there was a Fault in the Day, and likewise in the Star; for that λ of *Virgo* was then nearly in 3 Degrees of *Scorpio*, and the Moon would not be there till the next Day, *Monday* the 20th of *August*; and the Latitude of λ being about half a Degree North, the Moon at that Longitude would be about 3 Degrees more Southerly than the Star, and consequently far from Eclipsing it; for that at that time the descending Node was in the very Beginning of *Libra*. Hence I concluded it must be some other Star, that *Pere Feuillée* observed Eclipsed by the Moon: The Day was certainly the 20th and not the 19th of *August*, as was evident by the Place of the Moon; but as to the Star, it was neither in the *Tychonick* Catalogue, nor yet in that more copious *British* Catalogue of Mr. *Flamsteed*; but turning over that of *Hevelius*, I found a Star whose Situation agreed well with the Observation, and was undoubtedly the Star that was seen to immerge behind the Moon: The Place Mr. *Hevelius* gives it, allowing the Precession of the Equinox, was then $m\ 1^{\circ}\ 56'\frac{1}{4}$ with South Latitude $2^{\circ}\ 51'\frac{1}{2}$. It remained then for me to be assured of the Place of this Star, and accordingly on the 21st and 24th of *December* last, I got such Observations by help of the circumjacent Stars, that I was assured the Place of the Star, (which is a fair Star, of the 5th Magnitude) was at that time, $m\ 1^{\circ}\ 58'\ 40''$ with South Latitude $2^{\circ}\ 54'\frac{1}{4}$, being above 2' in Longitude, and 3' in Latitude, more than *Hevelius* gives it. The Hour of this Occultation is set down precisely $7^h\ 5'\ 38''$ at *Buenos Aires*, the Latitude of the Place being $34^{\circ}\ 35'$ South. Whence the Altitude of the Moon there was then $42^{\circ}\ 48'$, and the Parallax Angle $76^{\circ}\ 38'$, and the Parallax in Longitude $40'\ 11''$ to the *West* and in

Latitude $9^{\circ} 33''$ to the *North*. So the Moon's observed Place corrected by Parallax was $m 2^{\circ} 28' 4''$ with South Latitude $2^{\circ} 52' \frac{1}{2}$. To this Place, by the *Calculus* of those Numbers I have fitted to our President's Theory of the Moon (but which would be improper and too long to be here recited) the Moon will be found to have arrived *August* the 2° at $10^h 57' 36''$ apparent Time at *London*. But at *Buenos Aires* it was then computed but $7^h 5' 38''$, whence the difference of Longitude resulting from this Observation is $3^h 52'$ or 58 Degrees, by how much *Buenos Aires* is more Westerly than *London*. I have twice repeated the Calculation to be sure to avoid error, and by comparing my Chart of the Variation with the Longitude thus found, it appears that in this Case a Ship at Sea using those Tables and that Chart, would by an Observation of this Occultation have fallen with greater exactness on the Coast of *America*, than by any Reckoning can be pretended to be done.
