

XXVIII. *A second Letter from Mr. Barker to the President, on the same Subject; together with the Determination of the Latitude of Stamford, in Lincolnshire.*

S I R,

Lyndon, June 4, 1771.

Read June 13, 1771. I AM glad the letter I sent to you for the Royal Society, was thought worth their acceptance. I have, on the other side, sent, as you desired, the height my rain measurer stands above the ground, which, if you think proper, may be added to my former letter. Mr. Edward Lawrence, who observed the rain at Stamford part of the time which I have done here, generally found more water in his measurer which stood on the ground, than I did in mine; but I cannot depend on his observations, because I have been told the servants at the house used to play him tricks, and pour into his cistern more water than fell in, to which a thing on the ground is very liable.

Mr. Lawrence also observed the latitude of Stamford with a quadrant of Mr. Siffon's making; and as it is useful to preserve such things, I have extracted the observations from his book, and shewn the latitude deduced from them.

My rain cistern has all along stood on the top of a wall, where another meets it at right angles. The top of the cistern on the North side, is 7 feet 3 inches;

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on the Southwest side, 8 feet 6 inches ; and on the Southeast side, 10 feet above the ground ; it is all open Southward for 25 yards ; the North side is an orchard, but no tree hangs over it.

The latitude of Mr. Neal's house, at the South end of St. Martin's, adjoining to Stamford in Lincolnshire, as taken by Mr. Edward Lawrence, in 1736.

1st, By the Sun's meridian Altitude Incl. of Eclipt.  $23^{\circ} 28' 20''$ .

|                    | °  | '  | '' |              | °  | '  | '' |             | °  | '  | '' |
|--------------------|----|----|----|--------------|----|----|----|-------------|----|----|----|
| May 1. Alt.        | 55 | 37 | 0  | June 18 Alt. | 60 | 35 | 0  | Aug. 7 Alt. | 50 | 19 | 50 |
| ☉'s Decl. N.       | 18 | 16 | 15 | Decl. N.     | 23 | 14 | 28 | Decl. N.    | 12 | 59 | 16 |
| Alt. of the Equat. | 37 | 20 | 45 | Equator      | 37 | 20 | 32 | Equator     | 37 | 20 | 34 |
| 6                  | 56 | 47 | 26 | July 7       | 58 | 20 | 30 | 11          | 49 | 0  | 18 |
|                    | 19 | 27 | 11 |              | 20 | 59 | 16 |             | 11 | 39 | 25 |
|                    | 37 | 20 | 15 |              | 37 | 21 | 14 |             | 37 | 20 | 53 |
| 13                 | 58 | 24 | 30 | 10           | 57 | 46 | 53 | 18          | 46 | 34 | 0  |
|                    | 21 | 3  | 10 |              | 20 | 25 | 36 |             | 9  | 13 | 7  |
|                    | 37 | 21 | 20 |              | 37 | 21 | 17 |             | 37 | 20 | 53 |
| 31                 | 60 | 28 | 31 | 15           | 56 | 44 | 0  | Sept. 8     | 38 | 38 | 30 |
|                    | 23 | 8  | 36 |              | 19 | 22 | 45 |             | 1  | 18 | 1  |
|                    | 37 | 19 | 55 |              | 37 | 21 | 15 |             | 37 | 20 | 29 |
| June 1             | 60 | 33 | 32 | 17           | 56 | 16 | 26 | 9           | 38 | 16 | 0  |
|                    | 23 | 12 | 24 |              | 18 | 55 | 16 |             | 0  | 54 | 34 |
|                    | 37 | 21 | 8  |              | 37 | 21 | 10 |             | 37 | 21 | 26 |
| 2                  | 60 | 37 | 2  | 20           | 55 | 33 | 0  |             |    |    |    |
|                    | 23 | 15 | 49 |              | 18 | 11 | 50 |             |    |    |    |
|                    | 37 | 21 | 13 |              | 37 | 21 | 10 | greatest    | 37 | 21 | 26 |
| 9                  | 60 | 49 | 0  | 26           | 53 | 58 | 0  | mean        | 37 | 20 | 55 |
|                    | 23 | 28 | 12 |              | 16 | 36 | 56 | least       | 37 | 19 | 55 |
|                    | 37 | 20 | 48 |              | 37 | 21 | 4  |             |    |    |    |

2d, By the Meridian Altitude of the Pole star.

|  | °     | '  | "  |                | °     | '  | "  |
|--|-------|----|----|----------------|-------|----|----|
| May 14, Alt.   | 50    | 33 | 0  | Oct. 29, below | 50    | 33 | 30 |
| below the Pole   | 2     | 5  | 45 | above          | 54    | 44 | 30 |
|  | <hr/> |    |    |                | <hr/> |    |    |
| Latitude   | 52    | 38 | 45 | Latitude       | 52    | 39 | 0  |
| <hr/>  |       |    |    |                |       |    |    |
| Mean Latitude by the Sun   |       |    |    |                | 52    | 39 | 5  |
| by three observations of the Pole star   |       |    |    |                | 52    | 38 | 55 |
|  | <hr/> |    |    |                | <hr/> |    |    |
| Mean Latitude of the S. of St. Martin's  |       |    |    |                | 52    | 39 | 0  |
| St. Mary's, the middle of Stamford, is half a }<br>mile further North, therefore its Latitude is } |       |    |    |                | 52    | 39 | 30 |

I remain, Sir,

With all proper respect,

Your humble servant,

Tho. Barker.