

V. *A Letter from the Rev. Henry Miles, D. D. and F. R. S. to Mr. Henry Baker, F. R. S. concerning a very cold Day, and another a very hot Day, in June and July 1749 and of the near Agreement of Thermometers in London and at Tooting.*

Read Nov. 16. ^{1749.} **I** Now fulfil my Promise made to you some time ago, in sending you an Account of the two Days which were so remarkable, the one for Cold, the other for Heat, this last Summer.

On the 10th of *June*, suspecting a Frost that Night, I sat a *China* Saucer full of Water upon the Grats-plot, in the Garden; and the next Morning, a little before Sun-rising, I found the Water frozen over, of such a Consistence, as that I forced a Hole thro' the Centre of it with my Finger, without breaking it elsewhere, and carried the Cake of Ice into the House, where it remained a good While not dissolved. Wind was N. W. On some following Days there were several considerable Frosts, the Wind continuing the same way; the fatal Effects of which are sufficiently known throughout the Kingdom.

July 2d, at 12^h 20' my Thermometer of *Fahrenheit's* Scale, in the shaded Air, stood at 88—, and at 2^h *p. m.* at 87. At which last Number two others of the same sort stood exactly, at that Hour, in *London*.

Having agreed with my ingenious Friend Mr. *John Canton* of *Spital-Square*, to make Observations of the

the Temperature of the Air here, and in *London*, at a stated Hour : We procured Thermometers, made exactly alike, by that accurate Workman Mr. *Bird* ; and having found, by hanging them first together a sufficient Time, that they perfectly agreed, we began our Observations in *April*, and have continued them ever since.

The Thermometers are of the smaller Size, the Bulbs being but about $\frac{47}{100}$ of an Inch Diameter, and are immediately affected with any Mutations of the Air ; so that I have frequently been entertained with observing, in some Circumstances of the Weather, that the Mercury has not been stationary, but has successively risen and fallen for a good While ; and Mr. *Canton* has informed me, that he has several times observ'd the same.

I have annexed a Paper, containing an Extract from my Journal of the Weather, in which I have set down the Extremes of the Barometer and Thermometer, observed at 2^{*h*} *p. m.* for Six Months ; and Mr. *Canton* has been so kind as to communicate a like Extract from his Journal ; which is likewise put into your Hands.

It appears by a more general Comparison which we have made, as well as by this particular one, that the Difference in the Temperature of the Air, as to Heat and Cold, is very little between this Place and *Spital-Square*. Sometimes my Thermometer has been higher than his ; more times upon an Equality, but most times lower—And I have Reason to think the Difference, many times, may have been owing to accidental Causes : For Mr. *Canton* has informed me, that he has found two Thermometers,

when removed but a few Yards from each other, have differed 2 or 3 Deg. for which no apparent Cause could be assigned. So that upon the whole, it may reasonably enough be concluded, that the Difference between the Temperature of the Air in the two Places, is imperceptible to Sense. I am,

Dear Sir,

Tooting, Nov. 13.
1749.

*Your, and the Royal Society's
Most obedient humble Servant
H. Miles.*

P. S.

Upon my having observed that the Days, in which my Thermometer and Mr. *Canton's* stood at the Extremes, in some Months did not coincide, I was desirous of knowing, how much the Thermometers differed, when the Extremes did not happen on the same Day: But, upon a Comparison, the Difference was never considerable, except on the 4th *Aug.* at 2. *p. m.* when my Thermometer was about 6 Degrees higher than Mr. *Canton's*. This being somewhat remarkable, he, upon hearing it, had Recourse to his Register, and found, that at the Time of Observation a heavy Shower of Rain fell; whereas we had none here: But about Six in the Evening came on a Thunder Shower attended with Rain; so that it should seem the falling Rain had so great an Effect upon the Air as to render it cooler, by the Degrees mentioned: And perhaps the Difference between the two Instruments, at other Times, may have been owing to the same, or a similar Cause, rather than to a *stated* different Temperature of the Air, in the two Places.

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EXTRACT from a Journal of the Weather, kept at Tooting, in Surry, in which the Extremities of the Barometer and Thermometer are noted at 2^h p. m. equal Time, for the Months of May, June, July, August, September, and October, this present Year 1749.

MAY. 1749.			
DAY.	BAR.	DAY	THER.
14	highest 30, 04	17	highest 76
DAY.	BAR.	DAY	THER.
24	lowest 29, 15	3	lowest 50

JUNE. 1749.			
DAY.	BAR.	DAY	THER.
8	highest 30, 10	28	highest 79
DAY.	BAR.	DAY	THER.
17	lowest 29, 25	3	lowest 46

JULY. 1749.			
DAY.	BAR.	DAY	THER.
8	highest 29, 95	2	highest 87 *
DAY.	BAR.	DAY	THER.
20 22	lowest 29, 44	30	lowest 62½

AUGUST. 1749.			
DAY.	BAR.	DAY	THER.
15	highest 30, 02	22	highest †
DAY.	BAR.	DAY	THER.
2	lowest 29, 20	31	lowest 62½

SEPTEMB. 1749.			
DAY.	BAR.	DAY	THER.
26	highest 30, 37	5	highest 71
DAY.	BAR.	DAY	THER.
17	lowest 29, 3	12	lowest 53

OCTOB. 1749.			
DAY.	BAR.	DAY	THER.
10	highest 30, 44	4 7	highest 61½
DAY.	BAR.	DAY	THER.
28	lowest 29, 51	27	lowest 43

† Being absent Aug. 22d, at 2 p. m. I could not observe

observe the State of the Thermometer; but am well satisfied that Day was the hottest in the Month, from the Observation I made at other Times of the Day, and particularly from the Account I had from my Friend Mr. *Canton*, of the State of his, which stood at $80\frac{1}{2}$ at 2. *p. m.*

It may be proper to observe, that the Barometer made use of stands $\frac{2}{10}$, or more, lower than others of the same Construction (which is the common upright Make) during the warmer Season of the Year, and usually as much higher than they do in the colder; but is made use of (as it has been for more than 10 Years) because I have always found it to rise and fall sooner than any other I have compared it with; and in particular than a very good one, made by the late Mr. *Siffon*, which has always hung by it, and is constantly compared therewith.

EXTRACT from a Journal of Observations on the Barometer and Thermometer, made in Spital Square, London, in which the Extremes of each are noted, at 2^a p. m. equal Time, for the Months of May, June, July, August, September, and October, this present Year 1749.

MAY.		1749.	
DAY	BAR.	DAY	THER.
13	highest 33, 23	13	highest 76½
DAY	BAR.	DAY	THER.
25	lowest 29, 33	4	lowest 59

JUNE.		1749.	
DAY	BAR.	DAY	THER.
27	highest 30, 32	28	highest 80
DAY	BAR.	DAY	THER.
17	lowest 29, 30	3	lowest 48¾

JULY.		1749.	
DAY	BAR.	DAY	THER.
8	highest 30, 35	2	highest 87
DAY	BAR.	DAY	THER.
24	lowest 22, 66	18.30 31	lowest 64½

AUGUST		1749.	
DAY	BAR.	DAY	THER.
15	highest 30, 25	22	highest 80½
DAY	BAR.	DAY	THER.
2	lowest 29, 41	4	lowest 59½

SEPT.		1749.	
DAY	BAR.	DAY	THER.
26	highest 30, 44	5	highest 70½
DAY	BAR.	DAY	THER.
17	lowest 29, 37	2	lowest 54½

OCTOB.		1749.	
DAY	BAR.	DAY	THER.
10	highest 30, 49	7	highest 61
DAY	BAR.	DAY	THER.
28	lowest 29, 43	27	lowest 43