XLIV. *A Compariſon of the Heat of* London *and* Edinburgh. *By* John Roebuck, *M. D. F. R. S. in a Letter to* William Heberden, *M. D. F. R. S.*

SIR,

Redde, June 29, 1775.

I DELIVERED to you ſome time ago, a regiſter of the thermometer at Hawkhill for ten years; but as theſe obſervations were made at eight o'clock in the morning and four in the afternoon, and yours at eight o'clock in the morning and two in the afternoon, the correſponding years of the morning's obſervations only admit of a compariſon. It appears by your regiſter, that the mean heat at London for nine years, from the end of 1763 to the end of 1772, at eight o'clock in the morning, was 47.4°; and the mean heat at Hawkhill, during the ſame period of time, was 46°. The difference of which is only 1.4°. A difference much leſs than might be expected from the difference of latitude, and not ſufficient to account why nonpareils, golden rennets, peaches, nectarines, and many kinds of grapes, generally come to maturity near London, and ſcarce ever near Edinburgh, without the aid of artificial heat. Before I proceeded further to perplex myſelf with this difficulty,

ficulty, I procured from Hawkhill and from yourſelf the regiſter of the thermometer for three years, at the ſame periods of time; copies of which I here incloſe you. And by theſe it appears, that the mean heat of London of theſe three years exceeded that of Edinburgh by 4.5°. And the mean heat of the three hotteſt months in London exceeded the mean of the ſame three at Edinburgh by 5.8°. And the mean heat of theſe three ſummer months, at two o'clock in the afternoon, in London exceeded the mean heat of the ſame months, at the ſame hour, in Edinburgh by 7.3°; which ſufficiently accounts why ſome fruit may come to maturity in one country and not in the other: and alſo why corn and graſs, which vegetate with a more temperate heat, but require a longer continuance of it, may arrive at maturity in both countries. The reaſon why the mean heat of London exceeds that of Edinburgh may ariſe principally from the difference of latitude. But the reaſon why the exceſs is greater in proportion in the three hotteſt months of the year, at the hotteſt time of the day, than in the winter months, ariſes from Edinburgh's being ſituated nearer to the ſea than London. We might ſpeak with more preciſion on this ſubject, if we had a regiſter of the thermometer at Moſcow, which is nearly of the ſame latitude as Edinburgh; though it is well known, that the heat of ſummer is much more intenſe, and the cold of winter much more ſevere, at Moſcow than at Edinburgh. The mean heat of ſprings near Edinburgh ſeems to be 47°; and at London

don 51°. It is probable, that the mean heat of good ſprings in any country is very nearly the mean heat of the country (a). A faithful account of the heat of ſprings in different latitudes, and of water taken from the ſame depth of the ſea in different latitudes is yet wanted.

I am, &c.

(a) We ſhall have an eaſy method of finding the mean heat of any place, if it be always nearly equal to that of its ſprings. This matter might be aſcertained by a proper number of obſervations; and it is therefore very deſireable, to have an account taken of the heat of the ſprings, wherever a regiſter is kept of the heat of the air. W. HEBERDEN.

Mean Heat in PALL MALL, LONDON.

	1772.		1773.		1774.		Mean heat of Three Years.	
	8 A.M.	2 P.M.	8 A.M.	2 P.M.	8 A.M.	2 P.M.	8 A.M.	2 P.M.
January	36	38	42	44	34	39	37·3	40.3
February	38	42	36	41	38	44	37·3	42.3
March	41	47	40	51	41	52	40.7	50
April	44	51	45	55	47	55	45·3	53·7
May	49	60	50	60	51	60	50	60
June	64	73	58	67	59	67	60.3	69
July	61	72	60	68	61	69	60 7	69.7
Auguſt	60	70	62	72	62	70	61.3	70.7
September	56	65	56	63	55	63	55.7	63.7
October	56	61	51	59	48	58	51.7	59.3
November	45	55	40	47	40	44	41.7	48.7
December	41	44	41	45	39	43	40.3	44
Mean	49.2	56.5	48.4	56	47·9	55·3	48.5	56

Mean heat of three years morning and afternoon was 52.2.

Mean

Mean heat at HAWKHILL, ſituated about one mile North of Edinburgh, and 103 feet above the level of the ſea.

	1772.		1773.		1774.		Mean Heat of Three Years.	
	8 A. M.	2 P. M.	8 A.M.	2 P. M.	8 A.M.	2 P. M.	8 A.M.	2 P. M.
January	31.5	34.3	38.5	40.3	29.1	33	33.3	35.8
February	30.9	36.5	35 1	40.7	36.2	40.4	34	39 2
March	37	42.8	42.1	48.4	37.1	43.2	38.7	44.8
April	42.9	48.5	45.6	51.1	44 1	48.9	44.2	49.5
May	49.1	54.5	48 6	53.1	46.6	50.8	48.1	52.8
June	57.2	62.1	55.2	60.1	51.1	59.7	54.5	60 6
July	58.7	64.6	57.7	61.9	57.4	63.3	57.9	63.3
Auguſt	57.4	63.9	58.3	64.8	57.2	62.5	57.6	63.7
September	51.5	58.1	51 3	55.8	51.7	57.8	51.5	57.2
October	48.8	51.6	46	50.7	48.3	52.8	47.7	51.7
November	41.7	44.6	38.2	42.3	38	42	39.3	42.9
December	39 7	41.6	36 4	38.5	37.3	40	37.8	40
Mean heat,	45.5	50.3	46.1	50.6	44.5	49.5	45.4	50.1

Mean heat of three years morning and afternoon was 47.7.

XLV. *Ex-*