



Meteorological table

William Burney

To cite this article: William Burney (1825) Meteorological table, Philosophical Magazine Series 1, 65:322, 153-159, DOI: [10.1080/14786442508628409](https://doi.org/10.1080/14786442508628409)

To link to this article: <http://dx.doi.org/10.1080/14786442508628409>



Published online: 27 Jul 2009.



Submit your article to this journal [↗](#)



Article views: 2



View related articles [↗](#)

Results of a Meteorological Journal for the Year 1824, kept at the Observatory of the Royal Academy, Gosport, Han'ts.

By WILLIAM BURNES, LL.D.

Latitude 50° 47' 20" North—Longitude 1° 7' West of Greenwich. In time 4' 28".

Months.	Barometer.										Self-registering Thermometer.							De Luc's Hygrometer.										
	Max.	Min.	Media.	Range.	No. of Changes.	Spaces described.	Greatest Variation in 24 hours.	Media at 8 A.M.	Media at 2 P.M.	Media at 8 P.M.	Max.	Min.	Media.	Mean Range.	Gt. Var.	In 24 hours.	Media at 2 P.M.	Media at 8 A.M.	Media at 8 P.M.	Mean Temp. of Spring Water.	Max.	Min.	Mean Range of the Index.	Media at 2 P.M.	Media at 8 A.M.	Media at 8 P.M.	Media at 8, 2 & 8 o'cl.	
								In.	In.	In.							In.	In.	In.					In.	In.	In.	In.	In.
January	30.54	28.84	30.055	1.70	18	7.22	0.98	30.056	30.043	30.058	32.25	29.39	27	16	43.77	37.87	39.81	49.65	93.56	37	70.7	76.2	74.4	73.8	79.0	76.2	74.4	73.8
February	30.47	28.77	29.786	1.70	18	5.70	0.83	29.787	29.785	29.786	32.31	42.39	21	14	45.79	40.62	42.38	49.04	86.54	32	67.9	75.0	74.6	62.5	67.9	75.0	74.6	62.5
March...	30.32	29.02	29.810	1.30	31	8.85	0.88	29.798	29.801	29.828	32.57	43.53	28	20	47.81	41.42	41.81	48.62	81.39	42	59.7	69.4	67.7	65.6	59.7	69.4	67.7	65.6
April	30.44	29.19	29.876	1.25	20	9.98	0.93	29.869	29.861	29.893	33.31	47.53	32	18	51.93	46.23	46.67	48.06	83.40	43	54.4	63.7	62.7	57.5	54.4	63.7	62.7	57.5
May ...	30.64	29.46	29.959	1.18	20	5.28	0.45	29.959	29.962	29.957	33.35	54.21	35	22	60.13	53.65	52.48	48.43	90.33	57	50.4	59.2	63.0	56.4	50.4	59.2	63.0	56.4
June ...	30.36	29.20	29.897	1.16	21	5.82	0.59	29.896	29.897	29.901	32.47	59.60	29	24	66.16	59.37	57.27	49.47	82.38	44	51.0	55.7	62.4	54.0	51.0	55.7	62.4	54.0
July ...	30.50	29.62	30.038	0.88	30	4.94	0.42	30.042	30.047	30.029	32.78	63.98	28	23	70.74	64.77	62.45	50.82	88.38	50	48.6	54.2	59.3	44.0	48.6	54.2	59.3	44.0
August	30.37	29.60	29.961	0.77	23	4.86	0.45	29.957	29.964	29.961	32.77	46.62	31	24	68.84	62.87	61.19	52.00	92.47	45	55.3	64.2	66.1	61.2	55.3	64.2	66.1	61.2
September.	30.27	29.40	29.899	0.87	21	4.82	0.54	29.897	29.904	29.900	32.77	46.62	41	22	66.03	60.03	59.03	53.09	84.50	34	57.3	66.4	69.6	64.4	57.3	66.4	69.6	64.4
October	30.18	28.78	29.644	1.40	18	6.87	0.69	29.629	29.634	29.638	32.53	53.35	36	23	57.51	52.68	52.42	53.42	88.48	40	64.3	70.7	71.5	68.8	64.3	70.7	71.5	68.8
November.	30.19	28.47	29.663	1.72	28	8.67	0.93	29.665	29.663	29.663	30.34	50.22	26	20	53.17	49.03	50.33	52.91	81.52	29	66.3	71.4	70.3	69.3	66.3	71.4	70.3	69.3
Decemb.	30.44	28.95	29.842	1.49	27	10.11	0.95	29.819	29.837	29.869	35.30	45.82	25	20	48.90	44.77	45.52	52.04	90.58	32	70.3	75.8	76.1	74.1	70.3	75.8	76.1	74.1
Averages for 1824.	30.64	28.47	29.869	15.42	275	83.12	0.98	29.864	29.866	29.875	79.25	52.01	29.9	24	56.73	51.11	50.94	50.63	93.33	40.4	59.7	66.6	68.1	64.8	59.7	66.6	68.1	64.8

[illegible]

ANNUAL RESULTS FOR 1824.

<i>Barometer.</i>	<i>Inches.</i>
Greatest pressure of atmosphere, May 27, Wind N.W.	30·640
Least ditto ditto Nov. 23d, Wind S.S.W.	28·470
Range of the mercury	2·170
Annual mean pressure of the atmosphere	29·869
Mean pressure for 173 days, with the moon in North declination	29·855
Mean pressure for 183 days, with the moon in South declination	29·837
Annual mean pressure at 8 o'clock A.M.	29·864
_____ at 2 o'clock P.M.	29·866
_____ at 8 o'clock P.M.	29·875
Greatest range of the mercury in November	1·720
Least range of ditto in August	0·770
Greatest annual variation in 24 hours in January .	0·980
Least of the greatest variations in 24 hours in July .	0·420
Aggregate of the spaces described by the rising and falling of the mercury	83·120
Number of changes	275·

Self-registering Day and Night Thermometer.

Greatest thermometrical heat, Sept. 3d, Wind W. .	79°
_____ cold, Jan. on 3 different nights	25
Range of the thermometer between the extremes .	54
Annual mean temperature of the external air . .	52·01
_____ of do. at 8 A.M.	51·11
_____ of do. at 8 P.M.	50·94
_____ of do. at 2 P.M.	56·73
Greatest range in September	41·00
Least of the monthly ranges in February	21·00
Annual mean range	29·90
Greatest monthly variation in 24 hours in June and August	24·00
Least of the greatest variations in 24 hours in Feb.	14·00
Annual mean temperature of spring water at 8 A.M.	50·63

DE LUC'S *Whalebone Hygrometer.* Degrees.

Greatest humidity of the atmosphere on the 22d Jan.	93
Greatest dryness of ditto on the 23d May	33
Range of the index between the extremes	60
Annual mean of the hygrometer at 8 o'clock A.M.	66·6
_____ at 8 o'clock P.M.	68·1
_____ at 2 o'clock P.M.	59·7
_____ at 8, 2, & 8 o'clock	64·8

156 *Meteorological Summary for 1824.*—Hampshire.

Greatest mean monthly humidity of the atmosphere Deg.
in December 74.1

Greatest mean monthly dryness of the atmosphere in
July 54.0

Position of the Winds.

	Days.
From North to North-east	41
— North-east to East	41 $\frac{1}{2}$
— East to South-east	25 $\frac{1}{2}$
— South-east to South	37 $\frac{3}{4}$
— South to South-west	23 $\frac{1}{4}$
— South-west to West	81
— West to North-west	50 $\frac{1}{2}$
— North-west to North	65
—	366

*Clouds, agreeably to the Nomenclature ; or the number of days
on which each modification has appeared.*

	Days.
Cirrus	225
Cirrocumulus	133
Cirrostratus	324
Stratus	26
Cumulus	202
Cumulostratus	194
Nimbus	232

General State of the Weather.

	Days.
A transparent atmosphere without clouds	31
Fair, with various modifications of clouds	147
An overcast sky, without rain	102
Foggy	5 $\frac{1}{2}$
Rain, hail, snow, and sleet	80 $\frac{1}{2}$
—	366

Atmospheric Phænomena.

	No.
Anthelion, or mock-sun diametrically opposite to the true sun	1
Parhelia, or mock-suns on the sides of the true sun	20
Paraselenæ, or mock-moons	7
Solar halos	23
Lunar halos	16
Rainbows, solar and lunar	20
Meteors of various sizes	100
Lightning, days on which it happened	8
Thunder, ditto	4

Evaporation.

	Inches.
Greatest monthly quantity in July	5.58
	Least

Least monthly quantity in January 0·77 In.
Total amount for the year 32·75

Rain.

Greatest monthly depth in November . . . 5·305
Least monthly depth in January 0·990
Total depth for the year near the ground . . 40·057
Total depth for the year 23 feet high . . . 35·549

N. B. The barometer is hung up in the observatory 50 feet above the low-water mark of Portsmouth Harbour; and the self-registering horizontal day and night thermometer, and De Luc's whalebone hygrometer, are placed in open-worked cases, in a northern aspect, out of the rays of the sun, 10 feet above the garden ground. The pluviometer and evaporator have respectively the same square area: the former is emptied every morning at 8 o'clock after rain, into a cylindrical glass gauge accurately graduated to $\frac{1}{100}$ th of an inch; and the quantity lost by evaporation from the latter is ascertained at least every third day, and sometimes oftener, when great evaporations happen by means of a high temperature and dry northerly or easterly winds.

BAROMETRICAL PRESSURE.—The *maximum* pressure was higher this year by $\frac{1}{22}$ th of an inch than it was in 1823, and the *minimum* pressure was less by $\frac{1}{20}$ th of an inch. The mean pressure this year is $\frac{19}{300}$ ths of an inch less than that of last year, but it agrees with the mean pressure for the last 10 years within $\frac{5}{1000}$ ths of an inch. The aggregate of the spaces described by the alternate rising and falling of the mercury is $3\frac{1}{4}$ inches greater than that of last year; and the number of changes is 21 more.—For 173 days in which the moon ranged in North declination, the mean pressure was $\frac{9}{300}$ ths of an inch greater than that in the 183 days in which she ranged in South declination.

The mean barometrical pressures for the last *six years*, while the moon was in North and South declination, are as follow:

With the moon in North declination . . . 29·885 inches.
With the moon in South declination . . . 29·845 inches.

Increased pressure for her position North } ·04
of the Equinoctial }

Here I must observe that this difference of $\frac{1}{23}$ th of an inch in the elevation of the barometer, by the superior weight of the atmosphere while the moon was in *north declination*, is not sufficient, in a local point of view, to produce any sensible effects over the atmosphere in respect to the weather in this latitude; and that the difference in the course of a longer series of years might, perhaps, become inconsiderable, and thus

thus annul the idea of the existence of a superior pressure by the Moon's influence in either hemisphere. I am supported in this opinion from similar observations having been made by Luke Howard, Esq. F.R.S., in the years 1807 and 1816; as in both these years the mercury in his barometer is said to have been nearly as high again as the above resulting difference, while the moon was in *south declination*.—At some future time more may be said on this subject.

TEMPERATURE.—The mean temperature of the external air a few feet from the ground this year is $1\frac{47}{100}$ of a degree more than that of 1823, and is $\frac{4}{25}$ ths of a degree higher than the mean temperature for the last eight years.—Although July was the hottest month, yet the *maximum* temperature did not take place till the 3rd of September: it has not occurred so late in the summer as this since the year 1815, and very generally takes place in June, when the sun is nearly at his greatest north declination, before or after entering the sign Cancer.

From the great quantity of rain that has fallen this year, and the abundant floating vapours, the strength of the sun's rays on the surface of the earth seems to have been diminished; for the mean temperature of spring water has fallen short of its yearly average, and for the last four years at 8 A.M. is $\frac{17}{25}$ ths of a degree less than the mean temperature of the air for the same period.

The mean state of the hygrometer this and the preceding year coincides within three-tenths of a degree; and the means of the observations thereon at 8 o'clock A.M., in both years, exactly agree.

WIND.—In comparing the scales of the prevailing winds in 1823 and 1824, there appears to be a near accordance, except in the North and North-east winds, which have blown comparatively longer from these points of the compass.

The following is the number of strong gales of wind, or days on which they have prevailed this year:

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Days.
7	14	4	5	9	45	6	10	100

The gales from the south-west point, as usual, are nearly half the number in the scale.

CLOUDS.—The following is a correct scale of the clouds agreeably to the nomenclature, being the number of days on which each modification has appeared during the last *eight* years, ending with 1824.

Cirrus.

Cirrus.	Cirro-cumulus.	Cirro-stratus.	Stratus.	Cumulus.	Cumulo-stratus.	Nimbus.
1622	1334	2260	276	1498	1461	1681

By these curious results, we find that the *cumulus* and *cumulostratus* approximate nearest in number: the former is a fair-weather cloud, and evaporates at or soon after sunset when the atmosphere is not in a humid state; the latter is generally a prognostic of an approaching change in the state of the atmosphere. Next to these, the *cirrus* and *nimbus* approximate nearest in number: the *cirri* are precursors of, and very generally become the crowns of, the passing *nimbi*. The respective electricities they at all times possess, are *positive* and *negative*, and the rain is induced by their inosculation, gravity, and electric *effluvia*. Of all the modifications of clouds, the *cirrostratus*, it will be perceived, prevails most, being frequently formed from the descending *cirrus*, and sometimes from the *cumulus*, when changes are about to take place in the direction of the winds, and in the temperature of the atmosphere. The proportional appearance of the *cirrostratus* to the *cirrus* is as 113 to 81. The *cirrocumulus* and *stratus* are also fair-weather clouds; the former is an indication of increasing heat, and is generally transformed into *cirrostratus* with a moist wind; and the latter into nascent *cumulus*, after sunrise.

WEATHER.—The year, although not cold, was generally wet and windy, particularly the last four months, during which time many of the vales and low parts of England were often under water, which occasioned the loss of both lives and property to a considerable amount. There has been rain, more or less, on 232 days; but 80 days and nights is the time it has rained.

The hurricane that blew across this country on the 22d and 23d of November last will be long remembered, from the great loss in wrecks along the southern shores. It was felt powerfully in the Western Ocean at the same time.

Nothing peculiar has occurred this year in the appearance of atmospheric and meteoric phænomena.

About six minutes before 2 o'clock in the afternoon of the 6th of December, a shock of an earthquake was very generally felt in these towns and neighbourhood; also at Havant, Emsworth, Chichester, Bognor, and Arundel, that is, in the direction of from S.W. to N.E. It was accompanied with a rumbling noise, and put both light and heavy furniture in a tremour about five or six seconds of time. It is now about twelve years since the last shock was felt here, which occurred in the night, and was more violent than this one.

METEORO-