

## METEOROLOGY FOR APRIL, 1864.

PRIVATE OBSERVATORY, HOBART TOWN.

Years.	Barometer reduced to standard temperature, 32 degrees.	Mean Temperature of the Air.	Maxima Thermometer Readings.	Minima Thermometer Readings.	Mean daily range of temperature.	Degree of humidity, 100 complete saturation.	Extent of cloudy sky 10 for sky covered.	Mean amount of ozone 10 for maxima.	Total amount of Rain.
	In.	°	°	°	°				In.
1841	29.738	52.84	78.5	37.0	18.2	.76	6	—	1.11
1842	29.762	52.62	77.2	39.6	15.1	.73	5	—	0.89
1843	29.919	52.59	79.2	37.3	16.4	.78	5½	—	1.96
1844	29.764	50.00	68.0	39.6	15.1	.79	4½	—	0.92
1845	29.980	54.22	78.5	37.0	16.4	.76	4	—	0.24
1846	29.741	53.32	72.2	41.5	14.2	.80	7½	—	2.68
1847	29.818	53.23	73.4	38.0	14.4	.82	7½	—	1.74
1848	29.790	56.86	77.2	39.6	18.9	.72	3	—	0.51
1849	29.771	49.36	70.7	37.0	15.1	.79	6½	—	1.46
1850	29.862	54.83	79.3	36.0	17.3	.73	5	—	2.19
1851	29.999	53.79	78.8	37.5	16.4	.75	5½	—	0.18
1852	29.926	53.68	76.0	40.0	12.6	.69	6¼	—	4.99
1853	29.738	56.06	75.3	42.3	14.4	.80	6½	—	1.18
1854	29.921	62.00	82.0	41.4	11.0	.81	7½	—	2.72
1855	29.898	58.38	89.0	36.0	15.90	.78	6.50	—	1.17
1856	29.719	50.00	90.0	30.0	21.80	.74	6.33	—	5.01
1857	30.050	54.00	85.0	35.0	23.80	.70	5.21	6.07	0.79
1858	30.022	56.37	78.0	32.0	22.20	.73	4.00	7.24	0.44
1859	29.873	57.42	80.0	35.0	20.10	.70	6.17	6.45	1.43
1860	30.036	57.42	89.0	42.0	18.83	.77	5.90	6.88	2.86
1861	29.993	57.62	80.0	39.0	18.40	.76	7.00	6.80	2.51
1862	29.936	55.51	73.0	38.0	18.90	.74	5.10	6.96	1.88
1863	30.078	54.77	76.0	40.0	18.20	.79	5.13	7.41	2.24
1864	30.000	56.15	77.0	37.0	15.86	.82	6.54	6.93	2.18

The means in all cases are taken from the sums of each column, and not from the maximum and minimum.

*Time of leafing, flowering, and fruiting, of a few standard plants, in the Royal Society's Gardens, during the month:—*

- 1st. Chrysanthemums commencing to flower.
- 5th. Elm leaves commencing to fall.
- 15th. Coe's, fine late red plum, commencing to ripen.
- 20th. Mountain ash leaves commencing to fall.
- 25th. Black mulberry leaves commencing to fall.
- 30th. Hornbeam seeds ripe.

**ANALYSIS OF THE OBSERVATORY RECORDS FOR APRIL, 1864;  
IN CONJUNCTION WITH THOSE OF BIRTHS, DEATHS, &c. By  
E. SWARBRECK HALL.**

The present month has been more fatal to life than any April of the previous seven years. The meteorological phenomena generally, both in daily phases, and the means of the month, depart considerably from the usual character of the month.

*Atmospheric pressure* had the mean of 30.000 inches, which is + .115 above the 20 years' standard mean, but + .163 higher than the mean of the first sixteen years of the series. 1857, 1858, 1860, 1863, alone, out of 23 years, had slightly higher means, the last named being 30.078 inches, and the maximum. The maximum pressure of the month, 30.402, occurred on the 30th, and the minimum, 29.380, on the 24th, the extreme range of the month 1.022 inches therefore, happened in the last week of the month. The daily perturbations,

moreover, were frequent and extensive. The greatest on any one day, was a fall of — '517 of an inch, on the 13th, followed by a rise of + '429 on the 14th a fall again next day of — '317; and another rise on the 16th of + '360. On the 25th there was a sudden rise of + '515 of an inch. Altogether there were fourteen days out of the thirty, on which the movements of the barometer, from noon to noon, exceeded one-fifth of an inch. Atmospheric pressure, therefore, this month, differed widely in its details, from that of March, and the death records of both months show, that the latter was more injurious than the former, in the proportion of 12 to 4, in diseases of the "brain and nervous system," and the "organs of circulation."

*Wind-force* had only an aggregate of 21'84 lbs., which is —26'33lbs. less than the mean of the previous seven years' Aprils, and nearly 20 per cent. less than that of the previous minimum April, 1861. Only south-east winds exceeded the average, both in frequency and force. East, south-west, west, and north-west, were all numerically above the usual prevalence, but of so gentle a character that the force of each was much below the mean. North, north-east, and south were all below the average both in frequency and force. The calms were 41, being + 15 more than the average—1861, however, had 44 calms—out of the 30 records at 7 a.m., calms were registered 21 times; at 1 p.m., 6 times; at sunset, 14 times. April last year had nearly double the wind force of the present month. A stagnant condition of the air we breathe, is peculiarly inimical to health, but it is a rare event in the breezy climate of Tasmania. The strongest wind recorded during the month, had only 2'60lbs. pressure to the square foot: and was only noted five times.

*Temperature* mean was, 56'15 degrees, being + '51 more than the 20 years' average, and + 1'38 degrees warmer than April, 1863 was. In the previous 23 years there were only six Aprils with a warmer mean. The maxima and minima self-registering thermometers give a mean very little higher, being 56'56 degrees. The maximum, 77 degrees, was noted on the 1st; the minimum, 57, on the 30th.

*The daily range of temperature* had a mean of only 15'81 degrees, which is — 2'06 less than the 20 years' mean, and — 2'34 below that of 1863. The greatest range on any day, was 22 degrees, on the 1st, 12th, and 14th. The minimum range was 8 degrees on the 9th and 10th.

*The solar-thermometer* mean was 95'00 degrees, which is + 3'54 degrees above the average of the previous 8 years, but + 5'89 degrees above April, 1863. The maximum occurred on the 1st, and was 120 degrees, and was higher than any of the previous 8 years had. Ten other days had a temperature above 160 degrees. The minimum was 64 degrees on the 9th.

*Terrestrial Radiation* mean was 45'51 degrees, being + 2'89 degrees above the average, and almost the same above 1863. The maximum was 56 on the 4th, the minimum 32 on the 30th.

*Rain* fell on 16 days of the month, being more numerous than in any April of the previous 9 years, and exceeding the average of the whole, by + 4'4. It also exceeded April last year by five days. The total of rain gauged was 2'18 inches, which is + '40 above the 20 years' average, but—'06 less than April, 1863 had—on only two of the 16 wet days was the rain precipitated vigorously enough, to scour the street gutters, and conduce to health; on the other 14 the effect of the deposit was thereby to moisten the surface, and with the other concurrent meteorological phenomena, to promote decomposition and consequently pollution of the atmospheric air. The first shower in the month (3rd) was preceded by 17 days of continuous dry weather. This well exemplifies, how much totals, and means, may mislead, in judging of the hygienic effects of meteorological phenomena; and how necessary it is to scrutinize the daily details, to be enabled to form satisfactory conclusions. *Snow* was seen abundantly on Mount Wellington on the morning of the 25th, but no trace of it could be seen on the following day.

*Spontaneous evaporation* was only 1'49 inches being less than that of any April in the previous seven years.

The mean *Elastic force of Vapor* was 376, being + 52 above the mean of the 20 years. It is also the maximum of the 23 years, though the sickly April of 1854 was nearly as high.

*Humidity* mean, 82, was + 6½ above the 20 years' standard. April 1847, alone, out of the previous 23 years, was as high. For humidity and elastic force of vapor to be both at the same time, above the average, is a most unusual occurrence. The rule being, when humidity is high, for elastic-force to be low, and the reverse when humidity is low.

*Cloud* mean was 6'54, which is + '84 above the 20 years' average. There have only been four Aprils more cloudy in the past 23 years. This is an unusual

event with so much solar heat as is recorded for this month, and shows how intense must have been the sun's rays in the shortened time of their operation.

*Ozone* mean, 6·93 is actually +·10 above the average of the previous 7 years, though—·48 less than 1863 had. The maximum was 10, being the point of saturation, and the minimum ·5. The predominance of sea-breezes, with the washing the air so frequently underwent from the numerous light showers, offers a feasible explanation of this unexpected result, under so many other conditions calculated to minimize it.

*Electricity* was no exception to the abnormal character of so many other of the meteorological phenomena of the month. There were only 5 positive records, with the low-tension of 4. April, 1863, had 16 with tension of 4·5. The negative indications were so numerous as 42, but with only a tension of 4·5. In 1863 negatives were only 33, but with half a degree higher tension. The predominant belief that much negative electricity is usually associated with the asthenic types of disease, is corroborated by the great excess of zymotic diseases this month, over all the other classes, as will be seen hereafter.

The *deaths* this month were 54, which is higher than that of any April of the previous seven years, and + 9 one-seventh above the average of the whole. On children up to nine years of age, has the greatest share of the mortality fallen; while old people above 60 have not died at a rate remarkable either for excess or otherwise; but adults, from 20 to 60, never before added so few to the mortuary record. The following table will give the clearest exemplification of my statements:—

April, 1864.	Ages.	Maximum.	Aprils 1863, 1861.	Minimum, April, 1862.	March 1864.
15	Under 1	5	10	7	25
18	1 to 5	8	13	3	13
4	5 to 20	3	1	1	2
5	20 to 45	10	6	10	11
5	45 to 60	11	10	10	13
7	60 and above	11	8	6	9
54		48	48	37	73

33 deaths under 5 years of age out of a total of 54, is not much short of two-thirds of the whole, which I think is almost without parallel in this city. Large as the general mortality was in the previous month, the proportion under 5 years of age was little more than half; but when I add that in the present month, the 4 deaths 5 to 20, were two each, of children aged respectively 6 and 9 years, and that the two deaths in this group in March were aged 11 and 16, the contrast becomes still more striking. The proportion of deaths, too, tabulated for the five classes of disease into which all modern statisticians nosologically group their mortuary records, is quite as much at variance with the normal numbers, as that of the ages is:—

April 1864.	Classes of Diseases.	April 1863	April 1861	April 1862.	March 1864	Average of Aprils of 7 years 1857-1863
32	1. Zymotic	7	17	9	35	9 6-7ths
4	2. Constitutional	9	4	5	8	7 2-7ths
13	3. Local	24	21	16	19	20 1-7th
5	4. Developmental	6	6	4	8	5 1-7th
0	5. Violent	2	0	3	3	2 2-7ths
54		48	48	37	73	44 6-7ths

In no one April, of the previous seven years, were Zymotic diseases so numerous as in the present. The previous maximum, 1861, had, as the table shows, but little more than half the number. The deaths in this class were scarlatina 5, diphtheria 2, croup 1, fever 2, dysentery and diarrhoea 22. No previous month, since the present epidemic of scarlatina commenced, had so many deaths registered from this cause. Still, as one at least of the deaths did not take place until after three weeks, I should suppose the cause of

death was some sequela of scarlatina, rather than scarlatina directly. The boy who died of it at 9 years old, I was called in to see a few hours before his demise, and it would be more correct to ascribe the cause of death to "foul air" than the disease itself. For reasons personal to myself, I will not at present enter into the details of this case, though I hope it will afford me at some future time a good subject for enforcing the necessity of ample cubic space, and efficient ventilation in this disease, as well as all others. In one of the diphtheria deaths, the attack supervened after scarlatina, which seems to have been of rather frequent occurrence during the present epidemic. So many deaths from bowel complaints never before occurred at this season of the year, though the hot, stagnant, and moist condition of the weather, sufficiently indicate the predisposing cause. All the other classes, the table shows, to have had less than the average of deaths. There was only one death from consumption, but he was Hobartian by birth. There were no inquests, an event of rare occurrence.

In the first seven days of the month the deaths were 15; in the second, 16; in the third, 12; in the fourth, only 7; in the last two day, 4. On the 2nd, 19th, 26th, 27th, and 28th, no deaths occurred. The greatest number of deaths on any day was 5 on the 10th; and the most fatal period of the month was the four days 10th to 13th inclusive, during which 13 deaths took place. Of the total 54 deaths, 6 occurred in the rural district of Glenorchy, 3 in that of Queenborough, the rest in the city. The Hospital had only 9, which it is patent arose from the small proportion adult deaths bear to the total mortality.

The registered *births* were 62, which is precisely the same that April 1863 had.

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