

## METEOROLOGY FOR SEPTEMBER, 1864.

PRIVATE OBSERVATORY, HOBART TOWN.

Year.	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.	°	°	°					
1841	29.795	49.32	76.0	30.0	19.9	.71	6	—	0.82
1842	29.615	52.14	67.0	36.2	15.4	.80	5	—	1.08
1843	29.501	49.19	69.5	36.0	17.1	.75	5 $\frac{1}{2}$	—	0.99
1844	29.749	48.11	67.2	35.2	15.5	.83	5 $\frac{1}{2}$	—	7.14
1845	29.907	51.92	73.6	38.8	17.6	.73	4 $\frac{1}{2}$	—	0.73
1846	29.974	49.52	69.5	35.2	17.9	.77	6	—	0.82
1847	29.897	51.38	71.6	35.4	18.4	.73	6	—	0.39
1848	29.627	48.63	67.0	36.2	14.8	.83	7	—	1.84
1849	29.631	45.96	63.6	34.2	14.5	.82	5	—	1.91
1850	29.843	49.84	—	—	—	.81	6 $\frac{1}{2}$	—	1.67
1851	29.425	49.08	69.3	39.0	14.4	.79	6 $\frac{1}{2}$	—	2.16
1852	29.790	49.10	69.2	36.0	15.7	.79	5 $\frac{1}{2}$	—	3.19
1853	29.555	47.19	61.0	34.0	15.0	.84	6 $\frac{1}{2}$	—	2.91
1854	29.754	48.26	66.0	35.9	14.1	.82	7 $\frac{1}{2}$	—	1.91
1855	29.888	55.00	77.0	33.0	15.13	.85	6.12	—	2.60
1856	29.583	53.37	80.0	33.0	23.90	.70	5.56	—	1.79
1857	30.040	50.28	76.0	34.0	20.60	.71	6.63	8.85	2.15
1858	29.638	52.26	69.0	34.0	19.43	.71	5.10	8.01	1.47
1859	29.968	57.23	70.0	32.0	19.26	.76	5.26	7.50	1.39
1860	29.915	53.34	73.0	33.0	20.80	.72	5.76	6.97	1.25
1861	29.929	54.15	72.0	36.0	21.00	.69	5.14	7.29	2.02
1862	29.675	52.88	71.0	36.0	17.96	.76	6.16	8.10	6.26
1863	29.778	51.30	72.0	35.0	17.53	.72	5.66	8.45	1.63
1864	29.859	53.34	73.0	38.0	17.83	.74	5.86	8.74	1.25

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

The twenty years' standard tables are used for obtaining the difference from the average.

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

- 10th Common Ash commencing to flower.
- 15th Grape Vines commencing to leaf.
- 18th Common Oak commencing to leaf.
- 20th First flower of the Moutan Peony expanded.
- 26th Horse Chesnut commencing to flower.
- 29th Robinia Pseudo Acacia commencing to leaf.

Barometer, highest, 1st, 7 a.m.....	In.	30.373
„ lowest, 15th, 1 p.m.....		29.172
„ mean for the month.....		29.859
Being 0.081 in. above the average.		
Temperature, highest on the 21st.....	°	73.00
„ lowest on the 12th and 30th.....		38.00
„ mean for the month.....		53.34
Being 2.42° above the average.		

Rain fell on the 1st, 10th, 11th, 14th, 15th, 22nd, 23rd, 24th, 26th, 27th, and 29th, to the amount of 1.25in., being 0.62 below the average.

Electricity active on the 1st, 5th, 8th, 19th, 20th, 28th, 29th, and 30th.

Prevailing currents of wind N.W., S.E., and S.W, Greatest force from N.W., S.W., and S.E.

Snow never absent from Mount Wellington.

FRANCIS ABBOTT.

ANALYSIS OF THE OBSERVATORY RECORDS FOR SEPTEMBER,  
1864, IN CONJUNCTION WITH THOSE OF BIRTHS, DEATHS,  
&c. BY E. SWARBRECK HALL.

So mild and equable a month for the vernal equinox, as the present September has proved, is of rare occurrence. It has been so propitious to health and life, that the mortuary records are very considerably below the average number of the previous seven years' Septembers.

*Atmospheric pressure* mean, 29·859, is +·081 above the twenty years standard average, but much higher than either September 1863 or 1862 had. The maximum, 30·373, was noted on the first day of the month; the minimum, 29·172, was recorded on the 15th. The extreme range of the month, therefore, was 1·201 inches. September 1863 had a higher maximum and minimum, and a slightly more extensive range. The greatest movement of the barometer from 1 p.m. to 1 p.m., of any twenty-four hours in the month, was a rise of +·484 on the 30th, but one of +·483 occurred on the 16th. A fall of —·488 was noted on the 10th, and one of +·407 on the 26th. Perturbations of one-fifth of an inch to ·400, were recorded seven times.

The total force of all the *winds* of the month was 43·16 lbs., which is only slightly more than one-third of that of last years' September. It is — 36·98 lbs. below the average of the previous seven years. East winds alone, were above the average both in frequency and force; south-east, south-west, and north-west, prevailed more frequently than usual, but all were below the average force. North, north-east, and south, were below the average both in frequency and force. *Calms* were noted 36 times out of the 90 observations, and this is no less than +·16 above the average. No September, of the previous seven years, had so many calms, though 1859 had a much smaller wind-force, and 1860 also a little less. No wind during the month attained a pressure to the square foot exceeding 2·60 lbs.

*Temperature* mean was 53·34 degrees, being + 2·42 above the 20 years mean, and a little more than two degrees warmer than September 1863. The mean by the self-registering maxima and minima thermometers, was nearly the same as the foregoing, only exceeding it by ·21 of a degree; while the usual variation is from one to two degrees. The maximum was 73 degrees, and occurred on the 21st, with a light wind at 1 p.m. recorded south-east, though the morning was noted north-west, and the evening north-east, but calm at both observations. In no September since 1857 has so high a maximum been registered. The minimum record was 38 degrees, which is higher than that of any September of the previous 23 years, except 1845, which had 38·8; and 1851, which had 39 degrees. The extreme range of 35 degrees in this month, is less than that of any September of the previous nine years, except 1862, which had the same, though with both maximum and minimum each two degrees less than the present month. The mean of all the maxima for this month was the genial temperature of 62·46 degrees, while that of all the minima was as high as 44·63 degrees. Modern research proves that too near a correspondence between day and night temperature, is not the most propitious to health. Such a variation as that recorded for the present month, seems, as far as our Hobartton records can establish the fact, the most favorable to health and life. The months of November and May are those in which this conformity most usually occurs.

The mean *daily range of temperature* was, 17·83 degrees, which is only — 19 less than the 20 years average. The extreme range for any day occurred on the 21st, and was 29 degrees; the smallest was 8 degrees on the 14th.

*Solar-intensity* had the high mean of 90·70 degrees, being +2·75 degrees above the average of the previous eight years. The maximum was 105 degrees, and recorded both on the 6th and 21st. Out of the previous eight years, only 1860 had so high a maximum.

*Terrestrial-radiation* mean was, 40·73 degrees, which is +2·83 degrees higher than the mean of the previous eight years, and warmer than any one of them. The extremes were, maximum 49 on the 26th; minimum 31·5, on the 12th.

The *total rain-fall* of the month was only 1·25 inches being—·62 below the September average; but then the soil was so well saturated by the excessive deposits in the three previous months, that this quantity, under the influence of such hot sunshine, warm temperature of the soil, and genial air-temperature, promoted vegetation in so great a degree, that never did our gardens and fields exhibit a more luxuriant and brilliant vegetation, in the month of September. At the same time the vernal influences on health were equally as remarkably favorable; a concurrence by no means usual. The number of days on which rain is registered, were 11; which is—4·55 below the September average. On the 14th and 24th, the rain fell smartly enough to cleanse the gutters and drains. *Snow* was never absent from Mount Wellington during

the month, and received an addition on the 14th, but none fell in the city or low hills around it.

*Humidity* mean, 74, was — 2½ below the 20 years' average.

*Elastic force of Vapor*, had a mean of, + 21 above the 20 years' standard, being 301.

*Cloud* mean 5·86 is + '11 above the 20 years' average.

*Ozone* never had so high a mean, 8·74, for any month since records have been kept in this city. The previous maximum was 8·62 in August, 1863. The present month's mean, is + '90 above the September average of the previous seven years. Saturation (10) was recorded nine times. The minimum 5 was only registered once—on the day of maximum temperature, 21st. With so small an amount of aerial movement, and few rainy days, it is surprising that ozone should be so unusually abundant, but probably the electrical condition of the air generated it in great quantities.

*Electricity* had the unusually high number of 23 positive records, with the high maximum tension of 6—negative had 35 indications, with maximum tension of 6·5. "Nil" was only registered at the two observations on the 14th, when calms were recorded at all the three wind observations of the day, with mizzling rain in the morning and smart showers in the afternoon; barometer very low and falling; and the lowest maximum temperature (55) of the month. *Lightning* was observed on the evening of the 21st, and, accompanied with *thunder*, on the 23rd.

The *deaths* were 37, being — 10 5-7ths below the average of the previous seven years. 1861, however, had two less than this, but the next in number, 1863 and 1858, had five more, and all the others considerably more, as will be seen in the following table:—

Sept., 1864.	Ages.	Septembers.							Avg. 7 yrs. Sept. 1857-1863.		
		Aug., 1864.	1863	1862	Min. 1861	Max. 1860	1859	1858		1857	
6	Under 1	4	5	12	5	8	15	8	7	8	4-7
1	1 to 5	3	4	5	2	12	4	4	4	5	
4	5 to 20	4	4	3	2	8	4	0	1	3	1-7
14	20 to 45	9	8	17	7	12	8	12	10	10	4-7
6	45 to 60	11	13	10	8	10	8	10	13	10	2-7
6	60 and above	10	8	9	11	15	11	8	9	10	1-7
37		41	42	56	35	65	50	42	44	47	5-7

Under one year of age, the deaths were — 2 4-7ths below the seven years' average; though one more than last year's September, and that of 1861 had. At "1 to 5" years old, the deaths were less than any year of the seven, and only one-fifth of the seven years' average. Altogether, the mortality under five years old, was less than one-fifth of the whole. From "5 to 20" the deaths were + 0·6-7ths above the average. Between "20 and 45" the deaths were considerably (+ 3 3-7ths) above the seven years' mean; six out of the seven having less, and only 1862 more. At "45 to 60" the deaths were much below the average, *i.e.*, — 4 2-7ths, and less than any one year of the seven. At all ages "above 60", the deaths were — 4 1-7ths below the seven years' mean, and less than any one of them. The deaths above 60, constituting exactly the same proportion of those at all ages, as those below 5 years of age.

The "classes of disease" into which the mortality of the month was distributed, and the relative proportion they bore to those in the previous month, and the seven years' Septembers preceding the present one, is shown in the following table.

Sept., 1864.	Classes of Disease.	Septembers.							Avg. 7 yrs. Sept. 1857-1863.		
		Aug., 1864.	1863	1862	Min. 1861	Max. 1860	1859	1858		1857	
5	1 Zymotic	9	4	4	5	11	12	3	3	6	
9	2 Constitutional	4	9	15	3	18	12	10	5	10	2-7
29	3 Local	21	23	26	17	32	16	25	25	23	3-7
3	4 Developmental	6	2	2	9	2	7	1	8	4	3-7
0	5 Violent, &c.	1	4	9	1	2	3	3	3	3	4-7
37		41	42	56	35	65	50	42	44	47	5-7

*Zymotic diseases* were below the average, there only being 5 deaths instead of 6. Three were from *dysentery*; one from *diarrhæa*; and one from *pyæmia*, the result of disease of the hip-joint of evident long standing, but which did not incapacitate the boy from ordinary avocations, until about ten days before his death. After death it was found that extensive ulceration of the cartilage around the neck of the thigh bone existed, but did not extend to its summit. This is a fact of great medical interest, and explains how locomotion was possible so shortly before death. The subject was aged 12 years, and an inmate of the Queen's Asylum. This is the only death which has occurred in that institution this year, or, in fact, since June, 1863; a wonderfully small mortality, out of a daily strength of upwards of 500 children, from three to fourteen years of age. The rate is now much below that out of an equal number of children of corresponding ages, even in the healthiest rural districts of the island.

The class of *constitutional diseases* was—1 2-7ths less than the seven years' average. Two were from *cancer*, and seven from *consumption*. Of the latter, two females 20 and 25 years of age respectively, were born Tasmanians. In one of the families the disease is strongly hereditary, three others of the family having within a few years died from the same disease.

The *local class of diseases* had—3 3-7ths less than the seven years' average. Six, out of the 20 deaths, were from diseases of the *brain and nervous system*; five from *diseases of the heart*; eight from affections of the *organs of respiration*, mostly acute inflammations. In a former report I alluded to the prevalence of this type of disease when ozone was in great abundance. Though September 1863, had altogether three more deaths in this class, only two out of the 23 were from inflammatory diseases of the organs of respiration. The remaining death in this class, for the present month, was from *liver disease*. In September, 1863, the order, of which this is one of the sub-divisions, had eight deaths,—and the next order three, in which no deaths are tabled for this month.

The *developmental class* had—1 3-7ths less than the seven years' mean. Two of the three deaths were from old age, respectively 77 and 87 years of age. The third was a child only one month and three days old, which died from wasting and debility in the female prison.

In the class of *violent and accidental deaths* there was not a single death, which had not before occurred in the month of September of the previous seven years, the average for the seven being—3 4-7ths. September, 1863, had four deaths in this class.

Two *inquests* were held during the month, being only half the number of September last year. The deaths in the *General Hospital* were 9; September, 1863, had double the number. One death only, a man aged 84, occurred at the *Male Invalid Asylum* at the Brickfields. Of the 37 total deaths for this month, 2 occurred in the Glenorchy, and 1 in the Queenborough, suburban districts, the rest in the city. 19 were males, 18 females, being a remarkable equality of the sexes. On nine days of the month not a single death took place. The greatest number on any day was four, on the 15th and 30th. The greatest number on any two consecutive days was 6, on the 15th and 16th. The first four days of the month had the largest number of deaths, 9, and the first week was the highest, having 11. This week had the highest atmospheric pressure and the least rain. In the second week there were only 4 deaths; in the third, 10; in the fourth, 7; in the last two days, 5.

The registered *births* were 77, being + 5 more than September, 1863, had.

