

METEOROLOGY FOR APRIL, 1866.

PRIVATE OBSERVATORY, HOBART TOWN.

Day of month.	Bar. 37 feet abv. sea level, cor. & reduced		Self - register- ing Thermo- meters.				Wind.		Rain in inches.
	Highest.	Lowest.	Highest in shade.		Lowest on grass.		Direction from three daily registers.	Force in lbs. per square foot.	
			°	°	°	°			
1	30·106	29·815	76	56	115·0	46·5	NWNESW	·78	
2	29·944	29·829	71	53	102·0	49·5	SW S SW	1·30	
3	29·900	29·826	69	50	95·0	42·0	NW N	3·38	
4	29·782	29·609	67	53	72·5	51·5	NW W	8·33	
5	29·984	29·840	64	49	96·0	46·5	NW W SW	13·02	
6	30·193	30·156	61	42	90·0	40·5	NW SW	·78	
7	30·227	30·104	70	38	105·0	36·5	NW NE SE	1·04	
8	30·249	30·145	70	47	102·0	43·5	SW N S	·78	
9	30·336	30·263	74	51	105·5	51·0	NW SE	·78	
10	30·037	29·949	79	50	110·0	48·0	NW E	·52	
11	29·929	29·802	71	52	91·0	50·5	W NW N	·26	
12	29·753	29·682	70	55	79·5	52·5	NW	3·12	
13	30·077	30·037	76	47	108·0	46·0	W NW SE	·52	
14	30·155	30·132	70	43	60·0	46·0	NW NE E	0·	
15	30·180	30·024	78	55	80·5	53·0	W NW W	0·	0·31
16	30·369	30·191	73	41	109·0	40·5	NE E	0·	
17	30·452	30·364	73	40	105·0	42·0	NWNESW	·26	
18	30·406	30·329	61	45	66·5	45·5	NW SE NE	·26	
19	30·146	30·010	65	54	69·0	54·0	SE N SE	·26	0·25
20	30·054	29·888	62	49	80·0	49·5	NW N SE	0·	0·02
21	29·734	29·768	65	50	99·0	50·0	NW SE	·26	0·14
22	30·019	29·984	74	50	101·5	50·0	NW SE	·52	
23	30·090	29·989	75	47	110·0	47·5	NW NE	·52	
24	29·974	29·767	69	55	96·0	54·0	NE E SW	·52	0·22
25	29·978	29·932	59	49	88·0	45·0	NW	2·36	0·03
26	29·965	29·865	63	50	88·0	49·5	NW W N	3·64	
27	29·925	29·875	61	45	97·0	45·5	SE W NW	8·33	0·05
28	29·915	29·884	66	54	102·5	49·0	SW SE W	·78	
29	29·959	29·818	68	51	85·0	43·5	NW N W	2·86	
30	30·283	30·079	66	51	68·0	48·5	SW SE SW	·78	
Total force 56·46									1·02

The mean in all cases is taken from the sums of the three daily registers, and not from the maximum and minimum.

The direction of the wind is registered from currents moving at a height of 192 feet, and the force according to Lind's Wind Gauge. The supposition, however, of an uniform velocity during the month is a very arbitrary one, and the results can be considered only approximately correct.

The relations of the quantities of rain which fell under the different winds are registered each evening at sundown.

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 during the Month :—*

- 3rd. Elm leaves commencing to fall.
 8th. Chrysanthemums commencing to flower.
 12th. Coe's late red plum commencing to ripen.
 18th. Mountain ash leaves commencing to fall.
 20th. Black mulberry leaves commencing to fall.
 25th. Seeds of hornbeam ripe.

Barometer mean, 30·017in., being 0·132in., above the average.
 Temperature mean, 57·33°, being 1·69° above ditto.
 Solar intensity mean, 92·55°, being 0·55° ditto.
 Dew point mean, 47·4°, being 0·08° ditto.
 Humidity of air mean, 74, being 1·5per cent. below ditto.
 Elastic force of vapor mean, 347, being 0·23 per cent. above ditto.
 Total amount of rain, 1·02in., being 0·76in. below ditto.
 Increase of spontaneous evaporation on rainfall 1·12 inches.
 Mean amount of ozone, 6·98, being 0·32 of chromatic scale above ditto.
 Electricity active on the 6th, 7th, and 28th, and nil on the 15th, 18th,
 19th, 20th, 21st, 22nd, and 23rd.
 Thunder, lightning, and rain on the 24th, without intermission.
 A complete corona round the moon on the eve of the 25th, with several
 series of concentric-colored circles in a diameter of only a few degrees.

FRANCIS ABBOTT.

ANALYSIS OF THE OBSERVATORY RECORDS FOR APRIL, 1866, IN CONJUNCTION WITH THOSE OF BIRTHS, DEATHS, &c. BY E. SWARBRECK HALL.

The meteorological phenomena this month have been so nicely balanced in their influence upon health, that the death list is within a fraction of the average of the previous nine years, though considerably higher, numerically, than April 1865 was.

Atmospheric pressure underwent no extensive perturbations, the greatest movement of the barometer on any day did not exceed + '392 of an inch, and the whole range of the month was only '843 of an inch, between the 4th, when the minimum, 29'609, occurred; and the 17th, when the maximum, 30'452, was registered. So high a minimum for this month was never before noted in the 25 years' records. The mean pressure of the month was 30'017, which is + '132 above the 20 years' mean for April of the adopted standard-tables, and + '066 more than 1865 had. Continuously high atmospheric pressure is inimical to health, as well as sudden and wide fluctuations.

Wind-force total, 56'46 lbs., is + 1'58 above the 4 years' average in the standard-tables, but + 7'78 more than the mean of the last nine years. It was, however, very unequally distributed in the month. In the first and last five days of the month no calms were recorded, and the winds were strong and from favorable points of the compass. In these two periods the smallest number of deaths occurred, the first five days having only five deaths, and the last five not a single one. So many days together without a death, is without parallel hitherto in any month of any year recorded. On the other hand, between the 6th and the 25th, there were no less than 35 calms noted out of the 60 observations. The 14th, 15th, 16th, and 20th, had not an appreciable amount of arial movement at any one of the three daily observations. North-east, south-east, south-west, west, and north-west winds were all above the average in number, but only south-east and north-west had more than the average force. The strongest winds recorded had a pressure of 5'21 lbs. to the square foot, and were registered thrice in the first five days, and once in the last five days of the month. There is no doubt that in the night of the 5th inst. the strength of the wind must have attained 10'42 lbs. to the square foot. The calms in the month, 35, exceeded the 4 years' table by '875, and the average of the last eight years by + 4'50.

Temperature mean, 57'33 degrees, is + 1'69 above the 20 years' mean, and nearly a degree warmer than April 1865 was. The mean by the self-registering maxima and minima thermometers was 58'97 degrees, being about the usual rate of difference with the observed thermometers. The mean of all the maxima or high day temperatures was 68'87 degrees, being nearly one degree less than 1865 had; on the other hand the mean of all the minima or low night temperatures was 49'07 degrees, which is rather more than half a degree higher than April 1865 had. The highest day temperature was 97 degrees on the 10th, being 8 degrees less than the maximum last year. The lowest night temperature, 38 degrees, on the 7th. Last year's was exactly the same.

Daily range of temperature had the mean of 19'80 degrees, which is + 88 degrees above the 20 years' mean for April, but - '130 less than 1865 had. The greatest range on any was 33 degrees on the 17th, and the lowest was 10 on the 25th. Last year the extremes were 38 and 4.

The *Solar-thermometer* had a mean of 92'55 degrees, which is + 2'37 degrees higher than the mean of the previous 10 years, and + 1'23 more than 1865 had. The maximum was 115 degrees on the 1st, the minimum 60 on the 14th. Last year the extremes were respectively 120'5 and 64.

Terrestrial-radiation mean was 47'25 degrees, being + 4'19 degrees above the mean of the previous 10 years, and + 3'07 more than April 1865 had. The maximum was 54 degrees in the nights of the 19th and 24th; the minimum was 36'5 in the night of the 7th. The extremes were much wider in 1865, being 60'5 and 35.

Rain fell in appreciable quantities only on 7 days of the month, being - 4'82 days less than April average of the previous eleven years, and two less

than last year had. For the 'first fourteen days of the month no rain was registered. On the 15th there was the largest quantity precipitated for any day, *i.e.*, '31 of an inch; on the 19th there fell '25 of an inch; and on the 24th nearly as much. Altogether the total rain-fall of the month was 1'02 inches, being — '76 of an inch below the 20 years' average, and even — '21 of an inch less than 1865 had. *Snow* never appeared on Mount Wellington during the month.

Spontaneous-evaporation amounted to 2'16 inches, being — '44 less than 1865 had.

Elastic force of vapour had the mean of 347, which is + 23 higher than the mean of the 20 years' standard, and + 6 more than last year's. The range was from 218 minimum on the 7th to 549 maximum on the 23rd.

Humidity mean was 74, being—1½ less than the 20 years' average, but identical with that of 1865.

Cloud mean, 6'27, was + '56 above the 20 years' average and — '55 more than April last year had.

Ozone mean, 6'98, was — '01 less than the April average of the previous 9 years, and — 1'18 less than last year had. Indeed with the warm calm dry character of the month, and the many consecutive days on which electrical indications were absent, it is surprising that the mean did not fall much lower. The extremes were minimum 5, maximum 8'5.

Electricity had 17 positive indications, with maximum tension of 6, and minimum of 2'5. April 1865 had two more in number, with less divergent maxima and minima. Negative indications were registered 30 times with extremes of tension, respectively, of 5'0 and 1'0. In 1865 there were 6 more negatives, but with one less in maximum tension and the same minimum. "Nil" was registered 13 times, whilst April last year had only 5. From the 18th to the 23rd inclusive, the record at every observation but one was "nil." In this period the heaviest mortality for any similar number of days in the month took place, being 14, or very nearly one-third of the total deaths of the month, in six days. There was much *lightning*, with *thunder* and rain, on the night of the 24th. There was on the evening of the 25th a complete *Corona* round the moon, with several series of consecutive coloured circles, in a diameter of only a few degrees.

The 45 deaths in the present month, is within a small fraction (1·9) of the average of the previous 9 years, but 7 more than April 1865 had, four, however, of the seven, being the excess of "violent" deaths this year over last; only three can be attributed to atmospheric influences.

April, 1866.	Ages.	Aprils.									Avg. 9 yrs. Aprils 1857-1865.		
		Mar., 1866.	1865	Max. 1864	1863	Min'62	1861	1860	1859	1858		1857	
8	Under 1	15	5	15	5	7	10	8	11	11	12	9	3·9
7	1 to 5	11	2	18	8	3	13	9	8	11	4	8	4·9
2	5 to 20	3	4	4	3	1	1	4	1	1	7	2	8·9
8	20 to 45	7	7	5	10	10	6	6	11	9	8	8	
6	45 to 60	8	7	5	11	10	10	9	9	4	8	8	1·9
14	60 and above	13	13	7	11	6	8	9	7	11	3	8	3·9
45		57	38	54	48	37	48	45	47	47	42	45	1·9

"Under 1 year of age," the deaths were below the nine years' average, though more than April 1865 had. At "1 to 5 years of age," the mortality was also less than the average, though much greater than last year had. At "5 to 20," the deaths were less than the average, and only half the number that occurred in April 1865. At "20 to 45," the nine years' average was exactly attained, though 1865 had one less. At "45 to 60," the deaths were considerably below the average, as well as one less than in 1865. At "60 and all ages above," the mortality was greatly in excess of the nine years' average, and one more than 1865 had. In England, where the relative numbers living at the differ-

ent ages may be considered normally proportioned, somewhat more than half of the whole deaths are at and above 60 years of age, by the ten years' average, 1851-60. In no other of the Australasian colonies do the deaths in this group of ages form so large a proportion of the total deaths as they do in Tasmania. No comparison can be exact or fair that does not compare the number of deaths to the number of living in each group of ages, and when this is done the mortality rate of Tasmania is found to be very much less than that of any of the neighbouring colonies.

April, 1866.	Classes of Disease	1866.										Avg. of 9 yrs. 1857-1865.
		Aprils.										
		March, 1866.										
		1865	Max. '64	1863	Min. '62	1861	1860	1859	1858	1857		
8	1. Zymotic	18	5	32	7	9	17	8	8	12	8	11 7-9
6	2. Constitutional	7	7	4	9	5	4	6	7	10	7	6 5-9
23	3. Local	18	20	13	24	16	21	25	24	16	20	19 8-9
3	4. Developmental	10	5	5	6	4	6	3	5	7	1	4 6-9
5	5. Violent &c.	4	1	0	2	3	0	3	3	2	6	2 2-9
45		57	38	54	48	37	48	45	47	47	42	45 1-9

In the 1st, or *Zymotic class of diseases*, the deaths were considerably below the nine years' average, but nearly as much more above what last year had. *Bowel complaints* alone caused the whole of the 8 deaths, and all but one of them was under 20 months old.

The 2nd, or *constitutional class of diseases*, caused 6 deaths, being one less than in 1865. Two were cases of *cancer*, in very old people, one case of *hydrocephalus* (water in the head), and three were from *consumption*, two of whom were born in Tasmania.

The 3rd, or *local class of diseases*, had considerably more than the average rate of deaths. The 1st order of this class, *Diseases of the Brain and Nervous System*, had 6 deaths, being one less than in April 1865. The 2nd order, *Diseases of the Heart and Organs of Circulation*, had 6 deaths, being 5 more than 1865 had. The 3rd order, *Diseases of the Lungs and Organs of Respiration*, had 7 deaths, being one less than in 1865. Only two of the number were children, and most of the others were chronic diseases in old people. The 4th order, *the Stomach and Organs of Digestion*, had 3 deaths, all from long standing disease. Last year had the same in number. The 5th order, *Diseases of the Urinary Organs*, had one death this year, none last, but another order had one in which there was no deaths this month.

The 4th, or *developmental class of diseases*, had 3 deaths, two children and one old man of 72. This class had two more in number in 1865.

The 5th, class of *violent and accidental deaths*, had a mortality of 5; last year had only one, and the nine years' average is less than half of the present month's deaths. One was *fracture of the skull*, how inflicted unknown. A boy of 7 years old was *drowned*, and an old man of 80, though taken out of the water still living, died from the *shock of the immersion*. A man of 70 died from *burns*, and a man of 39 from taking a *poisonous dose of laudanum* when intoxicated. In only the first year of the series of nine, were the violent and accidental deaths nearly so numerous as the present.

The *Inquests* held on deaths occurring within the month were 7, while last year had only 2. In the *Hospital* there were 10 deaths, including two of the inquest cases. Three of them were of cases sent from country districts. The *Hospital* deaths in April 1865 were nine. At the *Male Invalid Asylum* 4 deaths took place, aged respectively 74, 75, 76, 77. There was one more in number there last year.

Of the 45 deaths, 32 were males, 13 females, the latter being an abnormally small proportion. All the deaths but one occurred in the city. The exception was the death from falling into the water at the ferry over to Risdon.

On eight days of the month, of which five were consecutively the last days

of the month, no deaths occurred. In the first week of the month there died 7; in the second, 14; in the third, 14; in the fourth, 10; in the last two days, none. The least fatal period of the month was the last five days, during which there was not a single death. For so many days consecutively, I have never hitherto noted such an instance. The most fatal five days were from the 19th to the 23rd inclusive, when 14 deaths took place. The greatest number on any single day was 5 on the 23rd.

The *births* registered were 55, being 6 less than last year.

The *births* and *deaths* returns for the whole of Tasmania in the first quarter of 1866 are less favorable than they were for the corresponding quarter of 1865. The births registered were 685, which is 67 less than 1865 had. Of this falling off the rural districts had the largest share, 45; Launceston had only 3; Hobarton, 19. The deaths for the whole island were 346, being 20 more than in the first quarter of 1865. Of these the rural-districts had 11; Launceston, 5; Hobarton, 4.

Before the new water works in Launceston and Hobarton furnished a more copious and purer supply of water to their inhabitants, the death-increase of such dry seasons as the present one, would have been relatively much greater for the urban than the rural districts. It is quite possible by sanitary improvements to reduce the death-rate of a town to less than that of the adjoining country, as witness the success achieved at Ely. While the sewerage, however, of Hobarton remains in its present neglected state, incessantly distilling the most noxious of gases in almost every quarter of the city, as well as in the vicinity of the city rivulet, to the waste of public health, and in opposition to the soundest principles of political economy, no such triumph as engineering skill and a moderate outlay of public money has won for Ely, can be obtained for Hobarton. No better initiatory move could have been made than that recently unanimously adopted by the Municipal Council of the city, "to forthwith employ a competent sanitary engineer to devise a plan for a perfect and comprehensive sewerage of Hobarton." It must be satisfactory to the Fellows of the Royal Society to know that the Alderman (Lewis) who moved this most important resolution is one of their body.