

METEOROLOGY FOR JUNE, 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 in shade.	Highest in sun.	Lowest on grass.	Direction from three daily registers.	Force in lbs. per square foot.	
	In.	In.	°	°	°	°			
1	30·166	30·037	60	36	90·5	32·0	W NW	1·04	
2	30·015	29·966	67	46	91·0	41·0	NW	·52	
3	29·825	29·690	58	43	60·5	42·5	NW SW S	5·73	0·22
4	29·993	29·493	56	40	60·0	33·0	N NW W	5·47	0·03
5	29·709	29·545	63	53	77·0	51·5	NW W	3·64	
6	29·690	29·643	61	48	72·0	44·0	NW	·52	0·10
7	29·606	29·275	60	42	93·0	38·5	W NW	5·20	
8	29·359	29·209	60	41	68·5	40·0	NW W SW	10·94	0·75
9	30·385	30·244	49	38	76·0	32·0	SW W	·52	0·13
10	30·541	30·519	59	34	84·5	32·5	NW	0·	
11	30·665	30·610	53	29	64·0	29·5	W NW	·52	
12	30·689	30·562	54	33	68·5	30·5	W NW	·52	
13	30·549	30·452	51	30	77·0	28·5	NW W	1·30	
14	30·424	30·368	61	31	85·0	30·0	NW N E	·26	
15	30·290	29·934	55	45	57·5	39·0	NE NW	0·	0·05
16	29·668	29·523	56	46	56·0	44·0	NW W	·26	
17	29·800	29·448	54	43	76·5	41·0	W NW W	10·41	0·24
18	30·187	30·042	64	47	77·0	38·5	NW N	·78	0·01
19	30·355	30·267	66	41	89·0	36·0	W N NE	·26	
20	30·214	30·090	59	38	79·0	36·0	NW	·52	
21	30·391	30·263	55	39	81·0	34·0	NW SW	·52	
22	30·452	30·354	57	32	82·5	28·5	W NW	·52	
23	30·170	29·934	52	34	70·5	32·0	NW	1·04	
24	29·916	29·850	58	36	85·0	32·0	N NW W	2·86	
25	29·672	29·534	56	36	81·5	33·5	NW	·78	0·07
26	30·267	29·296	51	39	76·5	36·0	W SE	5·20	0·13
27	29·454	29·435	50	34	64·0	33·5	NW W SW	10·41	0·06
28	29·682	29·598	63	43	88·0	43·0	NW SW	2·86	0·07
29	29·974	29·950	53	41	70·0	37·0	N NW	5·72	
30	29·984	29·969	57	49	75·0	46·0	NW N NW	·52	
Monthly									
mean	29·977		48·83	75·87	36·52		Total force	78·84	1·86

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 :—*

- 7th. *Maclaura aurantiaca* leaves commencing to fall, First early *Narcissus* open.
 10th. Privet leaves shedding.
 26th. Snowflake commencing to open.
 28th. *Pyrus Japonica* commencing to flower.
 30th. Leaves of black mulberry shed.

Barometer mean, 29·977in., being 0·11lin. above the average.
 Temperature mean, 48·83°, being 1·70° above the ditto.
 Solar intensity mean, 75·87°, being 1·13° below the ditto.
 Dew point mean, 41·7°, being 0·51° below the ditto.
 Humidity of air mean, 77·0, being 6½ per cent. below the ditto.
 Elastic force of vapor mean, ·266, being 008 per cent. below ditto.
 Total amount of rain, 1·86in., being 0·03 below the ditto.
 Increase of spontaneous evaporation on rainfall 0·36in.
 Mean amount of ozone, 7·05, being 1·14 of chromatic scale above ditto.
 A great paucity of electricity all through the month.
 Snow on Mount Wellington through the month, with frequent fresh deposits on the mountain and low hills.

FRANCIS ABBOTT.

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

The very abnormal meteorological phenomena of the present June were attended with a very great mortality of aged people, one half of the total number of deaths being at ages ranging from 60 to 89 years. No year's June on record had anything near so large a proportion of senile deaths. On the other hand, 24 deaths at all ages below 60, is 13.5-9 less than the nine years' average for the same groups. Only 1865 had a smaller number than the present month, *i.e.* 20.

Atmospheric pressure, maximum, 30.689, occurred on the 12th, and is the highest ever recorded in the month of June for the last 26 years. The minimum, 29.208, was registered on the 8th. Many Junes have had a lower minimum. The month's range, 1.480 inches, occurring within four days, was only exceeded in June, 1851, when it amounted to 1.639 inches. The daily fluctuations were very great. The maximum rise of the barometer happened on the 9th, + 1.136 inches, being the greatest on record in the month of June. The largest fall was almost half an inch, —.496, and noted on the 16th. Besides these, there were eleven other days on which the perturbations of the mercurial column exceeded one-fifth of an inch. The mean pressure for the month was 29.977, which is + .110 above the 20 years' mean of the adopted standard. Nevertheless, the three previous years' Junes had all higher means, as also had 1859, 1858, 1852. Such a condition of atmospheric pressure, as above depicted, is always extensively fatal to old and debilitated persons, while the young and healthy endure it with impunity.

Wind-force greatly exceeded anything ever before recorded for this usually calm month, 78.84 lbs. which is + 54.34 lbs. above the average of the previous nine years, and more than twice the amount of the highest of them, 1857, which had a total of only 37.28 lbs. *Calms* were noted at 31 of the 90 observations, but the nine years' average for June is somewhat above 46. The strongest winds had a pressure of 5.21 lbs. to the square foot, and were registered 6 times. *South-west, west, and north-west*, were all greatly above the average both in frequency and force; while all the other five points of the compass were below in both respects, excepting a trifling excess in frequency only with *north-east* winds. So much aerial movement, mostly well charged with ozone, was highly conducive to atmospheric purity, and utterly banished zymotic or fermenting diseases, but proved injurious from its stimulating effects on the organs of respiration, and thereby creating catarrhal affections from which few persons escaped. Similar attacks were prevalent, from the same cause, in June 1864 and 1863. With the influenza, however, which was so destructive to old and weakly persons in July 1860, causing the enormous number of 114 total deaths in that month, 49 being above 60 years old, the meteorological phenomena were very different;—steady high atmospheric pressure, 57 calms out of 93 observations, total wind-force of no more than 10.14 lbs., of which, 7.28 lbs. was from north-west winds; temperature much more above the mean, a much smaller rain-fall, and ozone much below the average. The influenza is a disease of the asthenic type, while the catarrh of the present and other months was sthenic.

Temperature mean was 48.83 degrees, being + 1.70 above the 20 years' average. The mean of all the maxima and minima of the self-registering thermometers was actually less than the former, being only 48.55 degrees. This is an unprecedented occurrence. The mean of all the maxima, or high-day temperatures, was only 57.53 degrees, while in June, 1865, it was 61.60, though its month's mean was —.39 of a degree below the present month. The minima, or low-night mean, was 39.57 degrees, 1865 being 39.33 degrees. Yet in the present month there was so low a minimum as 29 degrees on the 11th, while 1865 had only the minimum of 32. The maximum temperature was recorded for the 7th, being 68 degrees, while in 1865 it was 72.

Daily range of temperature mean, was 17.10 degrees, being + 1.80 more than the 20 years' average, though—5.17 degrees less than June 1865 had. This gives pretty strong proof that mere variations of temperature did not cause the

prevailing catarrh, notwithstanding the popular idea of taking cold from such a cause, for this disease did not exist last year, and the deaths from diseases of the respiratory organs were less than usual. The greatest range on any day of the present month was 30 degrees on the 14th, and the smallest range was 8 on the 30th; last year the extremes were only 28 and 15.

The *Solar-thermometer* had a mean of 75·87 degrees, which is + 3·9 above the average of the previous ten years, but - 3·11 degrees less than June 1865 had. The maximum was 93 on the 7th, the minimum 56 on the 16th. In 1865 the extremes were 94 and 59.

Terrestrial-Radiation mean, was 36·52 degrees being—·11 of a degree less than the average of the previous ten years, but + ·87 of a degree more than 1865 had. The extremes were 51·5 on the 5th and 28·5 on the 13th and 22nd. The maximum being 4 degrees more than in 1865, but the minimum the same.

Rain-fall, in the aggregate, amounted to 1·86 inches, being - ·03 only below the 20 years' mean, and just the same more than the mean of the last 25 years. 1865 had not so much by ·66 of an inch. It fell on 12 days, being + ·36 above the average of the previous 11 years. It was pretty equally distributed through the month. The largest deposit ·75 of an inch, took place on the 8th, and thoroughly scoured the drainage channels; ·24 of an inch fell on the 17th, and made the channels run briskly; on the 3rd there was gauged ·22 of an inch which cleansed the surface drains. *Snow* appeared on Mount Wellington every day during the month except the 7th. On the 9th all the low hills about the city were mantled with snow, and again on the 27th.

Spontaneous evaporation was considerably more than rainfall as might be expected from the unusually windy character of the month. The amount was 2·22 inches, being nearly an inch more than in 1865.

Elastic-force of vapor had a mean of 266, which is - 8 less than the 20 years' average; the range was from 160 minimum on the 22nd, to 403 maximum on the 15th and 18th.

Humidity mean 77, was the same as in 1865, but - 6½ less than the 20 years' average.

Cloud mean was 5·52, or almost identical with the 20 years' average, differing only by an excess above it of + ·03.

Ozone mean 7·05 was + ·51 above the average of the previous nine years, though—1·18 less than 1865 had. The maximum was 10 (saturation) on the 9th. The minimum was 5 several times between the 12th and 19th, which had altogether an average of one degree less than that of the whole month. This was the least fatal period of the month.

Electricity, positive had not a single record, which I think is without parallel. June, 1865, had 1 8. There were 53 negatives, with maximum tension of 4·5, and minimum of -·05. "Nil" was registered 7 times, 5 of them recorded on the 15th, 16th, and 17th. On the first day calm was registered at every observation, on the second, twice out of the three, but the last day had strong winds.

48 deaths for the present month is + 2 5·9 above the June average of the previous nine years. Three of the nine had a greater number, two exactly the same, and four less.

June, 1866	Ages.	May, 1866	Junes.									Avg. 9 yrs. Junes. 1857-1865.
			1865	1864	1863	1862	1861	1860	1859	1858	1857	
5	Under 1	5	7	14	6	10	9	12	11	7	9	9 4·9
1	1 to 5	5	2	10	6	3	20	5	5	8	8	7 4·9
1	5 to 20	3	4	4	3	5	4	0	4	3	2	3 2·9
10	20 to 45	7	4	7	9	14	14	11	14	15	8	10 6·9
7	45 to 60	11	3	9	10	11	5	3	9	9	2	6 7·9
24	60 and above	12	12	10	14	10	7	5	5	5	3	7 8·9
48		43	32	54	48	53	59	36	48	47	32	45 4·9

"Under 1 year old" the deaths were little more than half of the June

average of the previous nine years. They were also less than any year of the nine. At "1 to 5 years of age," never were the deaths so few, the average being nearly eight times as many. At "5 to 20" the mortality was less than one-third of the average, June 1865 had four times as many as the present month, and only June 1860 had less. Of the 7 deaths at all ages under 20 years old, 3 were under 5 weeks old, no year of the previous nine had so few, the average being above 20 deaths, the range being from 13 in June 1865, to 33 in 1861. Therefore, notwithstanding the abnormal character of the weather in the present month, it was by far the most favorable to life, for young persons, of any previous June. "At 20 to 45" the deaths were slightly below the average, though many more than the Junes of 1865 and 1864 had. However, the present month had at all ages below 45, less considerably of deaths than any of the previous nine years, except the last when it was numerically the same. At "45 to 60" the deaths were a trifle above the average, but more than twice as numerous as in 1865. At "ages above 60" the deaths were more than three times as many as the nine years' average, exactly twice as many as in 1865, and largely above any year of the nine. Of the 24 deaths in this group 5 were between 60 and 70; 5 in the next decade; 7 in the next; one each in the following two; and 5 between 80 and 90; the oldest being a man aged 89 years, who died at the Invalid Asylum at the Brickfields.

June, 1866.	Classes of Disease	May, 1866.	Junes.								Avg. of 9 yrs. Junes '57-'65.	
			1865	1864	1863	1862	1861	1860	1859	1858		1857
1	1. Zymotic	7	2	5	4	9	23	2	11	8	9	8 1-9
7	2. Constitutional	11	3	6	5	8	7	9	10	10	3	6 7-9
33	3. Local	16	19	33	29	26	25	20	21	17	14	22 6-9
6	4. Developmental	6	6	6	8	4	3	4	6	7	4	5 3-9
1	5. Violent &c.	3	2	4	2	6	1	1	0	5	2	2 5-9
48		43	32	54	48	53	59	36	48	47	32	45 4-9

In the first, or "*Zymotic Class of Diseases*," there was only one death. 1865 had 2, and the nine years' average is more than eight times as many. It is certain, therefore, that the atmosphere this month contained no poisonous elements, but as the meteorological analysis states was excessively pure.

The second, *Constitutional Class of Diseases*, had a trifle more than the average death rate, and more than twice the number that 1865 had. Three of the 7 were *cancerous affections*, and the three others *consumption*, two of them born in Tasmania—one of them, however, did not belong to the Hobartton registration district, but was brought to hospital from a country district on the other side of the Derwent.

The third, or *Local Class of Diseases*, greatly exceeded the average in its number of deaths. 1865 had little more than half the number, though 1864 had exactly the same. The 1st order of this class, *Diseases of the Brain and Nervous System*, had nine deaths, being three more than in June last year. The second order, *Diseases of the Heart and Organs of Circulation*, had three deaths, being one less than in 1865. The third order, *Diseases of the Lungs and Organs of Respiration*, had 15 deaths. 1865 had only 4. In 1864 and 1863, however, when catarrh prevailed so much, the deaths were respectively 14 and 16. On the other hand when influenza prevailed in July, 1860, there were 51 deaths. A reference to my remarks on those occasions, will show the difference between these two affections, in each of which the air passages seem to be so similarly deranged. In the fourth order, *Diseases of the Stomach and Organs of Digestion*, there were 3 deaths, 1865 having only had one. The 5th order, *Diseases of the Urinary Organs* had one death, while 1865 had 4. The sixth order, *Diseases of the Bones, Joints, &c.*, had 2 deaths, while 1865 had not any

all from old age, respectively 66, 70, 86, 87, 87, 89 years old. 1865 had only 4 from old age, though 6 altogether in this class.

The 4th or *Developmental class of Diseases*, had 6 deaths.

The 5th, or *Violent and Accidental class of Diseases*, had 1 death, in a child 13 days after birth, from *umbilical hæmorrhage*. Why an inquest was held I do not know. There were 2 deaths in this class in 1865.

The *Inquests* were three. The first on a man of 72, whose death arose from *acute inflammation of the lungs*; the second on a man aged only 25, from *apoplexy*; the third on a man aged 69, from *apoplexy*, caused by excessive drinking. There were only 2 inquests in June, 1865. The deaths in *Hospital* were 14, of whom 5 were admitted from rural districts. 1865 had only 8 deaths. At the *Male Asylum for Invalids*, there were the unusually large number of 10 deaths, aged respectively 40, 61, 66, 70, 71, 72, 75, 85, 87, 89. Only two, however, were from diseases of the organs of respiration, and said to have had no connection with the prevailing catarrh, *i.e.*, one from *consumption*, the other from *chronic-bronchitis*. June, 1865 had only half the number of deaths in this institution. The movement in London for the improvement of the treatment of the sick poor in the workhouses, is worthy of the special attention of the Board of Management of this Pauper Establishment. Of the 48 deaths, 3 died in the Glenorchy division of the district, the rest in the city. 30 were males, 18 females.

In the first week of the month there died 14; in the second, 6; in the third, 8; in the fourth, 17; in the last two days, 3. On eight days of the month there was not a single death. Four of these days were consecutive, *i.e.*, the 12th, 13th, 14th, 15th. From the 12th to the 19th was the least fatal period of the month, only four deaths having occurred in the eight days. The barometer fluctuated very much both in rises and falls, and so also did temperature, elastic-force of vapor was at its maximum, Ozone *below* the month's average, and a greater absence of electricity than during any other similar period in the month. The most fatal period in the month was in the four days, 22nd to 25th, inclusive, when the deaths were 14; no other four days had more than 9, *i.e.*,—1st to 4th. From the 7 a.m. observation on the 22nd to the sunset observation of the 25th, atmospheric pressure fell .918 of an inch that is from the very high pressure of 30.452 to 29.534.

The *births* registered in the month were 73, being 5 less than in 1865.