

## METEOROLOGY FOR DECEMBER, 1870.

PRIVATE OBSERVATORY, HOBART TOWN.

Day of Month.	Bar. 37 feet abv. sea level corrected & reduced.		Self-Registering Thermometers.				Wind.		Rain in Inches.
	Highest.	Lowest.	Highest in shade.	Lowest in shade.	Highest in sun.	Lowest on grass.	Direction from three daily re- gisters.	Force in lbs. per square foot.	
	In.	In.	°	°	°	°			
1	29.750	29.692	65.45	107.0	43.5		NW W	3.38	0.2
2	29.885	29.788	66.51	107.0	50.0		NW SE SW	3.38	
3	30.068	30.04	65.46	110.0	42.0		N SW	1.04	0.03
4	29.867	29.665	64.48	69.0	46.0		NW	3.72	
5	29.606	29.567	68.45	109.0	41.0		NW SE E	.78	0.12
6	29.400	29.195	86.50	125.0	50.5		N NW	18.23	
7	29.612	29.372	77.52	111.0	50.0		NW SW	3.64	0.07
8	29.742	29.647	66.46	103.0	43.0		NW W	6.23	
9	29.985	29.929	67.46	98.0	42.0		NW	1.56	0.20
10	30.063	30.019	69.46	101.0	43.5		NW NE SE	.26	
11	29.879	29.722	86.55	125.0	44.0		E SE	.26	0.01
12	30.013	29.927	68.50	110.0	47.0		E SE	1.04	
13	29.826	29.775	72.48	111.5	45.5		E SE	1.04	0.01
14	29.676	29.563	71.50	109.0	46.0		NW	.78	
15	29.963	29.924	71.52	103.0	46.5		SW SE	1.56	0.01
16	29.932	29.823	78.52	110.0	47.0		NW SE	.78	
17	29.675	29.625	82.57	112.0	51.5		NW	10.94	0.01
18	30.017	29.955	74.49	112.0	46.0		SE NE	3.64	
19	29.810	29.676	67.52	103.0	45.5		W SW	5.72	0.01
20	29.910	29.767	66.44	103.0	43.0		NW	1.30	
21	29.843	29.737	66.48	112.0	43.5		W SE SW	1.30	0.01
22	30.025	30.015	65.45	109.0	41.0		NW SE	1.30	
23	30.084	30.063	70.45	113.0	41.0		NE SE	1.04	0.01
24	30.230	30.186	64.49	103.5	43.5		SE	1.30	
25	30.319	30.311	68.50	111.0	43.0		SW SE SW	1.30	0.01
26	30.330	30.300	68.49	95.0	47.5		NW SE	.78	
27	30.263	30.117	75.46	115.5	43.5		NW SE	1.04	0.01
28	30.124	29.939	75.49	115.0	47.0		NW NE	1.04	
29	29.918	29.783	81.53	121.0	49.0		NW SE NE	1.04	0.01
30	29.763	29.558	71.58	76.0	57.0		NE	.26	
31	29.774	29.567	68.52	69.0	50.0		SE	3.64	0.01
Monthly mean 29.863			61.51	106.30	45.95		Total force	85.34	0.55

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 a 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 25 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.*

- 12th.—Red currants commencing to ripen.  
14th.—Common privet commencing to flower.  
17th.—Black currants commencing to ripen.  
24th.—Melia azederach commencing to flower.  
25th.—Doyenne d'Ete pear commencing to ripen.  
31st.—Juneating apple ditto ditto.

Barometer mean, 29.813 in., being 0.068 in., above the average.

Temperature mean, 61.51°, being 0.39° above the ditto.

Solar intensity mean, 106.30°, being 2.33° above the ditto.

Dew point mean, 47.9°, being 1.12° below the ditto.

Humidity of air mean, .63, being .05 per cent. above the ditto.

Elastic force of vapour mean, .341, being .011 per cent. above the ditto.

Total amount of rain, 0.55 in., being 1.18 in. below the ditto.

Increase of rain fall on spontaneous evaporation, 3.88 in.

Mean amount of ozone, 5.45, being 1.74 of chromatic scale below ditto.

Electricity active on the 1st, 3rd, 4th, 7th, 8th, 9th, 10th, 15th, 18th, 19th, 20th, 21st, 22nd, 23rd, 25th, 28th, and 29th.

Aurora Australis on the 10th, 16th, and 29th.

Much wind from S.E. and N.W.

FRANCIS ABBOTT.

# NOTES ON THE METEOROLOGY AND MORTALITY OF THE MONTH OF DECEMBER, 1870.

By DR. E. SWARBRECK HALL.

Many of the meteorological phenomena of this month approximated very closely to the standard normal mean ; others, however, differed widely from the average, but the general result was favourable to health and life.

*Atmospheric pressure* mean, 29·863, was +·118 above the 25 years' adopted standard mean for December. Only twice before in the previous 30 years, had December a higher atmospheric pressure mean. The maximum, 30·330, occurred on the 26th, and the minimum, 29·195, on the 6th the extreme range of the month, therefore, being 1·135 inches. In December, 1855, the range was 1·518 inches, being the only year which exceeded the present one. The greatest range of the barometer in any twenty-four hours was a fall of —·395 of an inch on the 6th. Only twice before in the previous 15 years was there a lower range in a similar period of time in the month of December. On 14 other days, however, there were variations of the barometer exceeding one-fifth of an inch.

*Wind-force* amounted to 85·34 lbs, being—2·08 below the average. Light sea breezes predominated in number, but north-west in aggregate force. On the 6th and 17th there were north-west *hot winds*, with a force of 10·42 lbs each. *Calms* were 15 being + 2·11 above the average.

*Temperature* mean, 61·51 degrees, was only + 00·39 above the mean, and the self-registering thermometers gave a much lower mean, than the observed ones. The *wet-bulb thermometer* mean, 54·26, was —·72 below the mean. The extremes of temperature were, 86 with a hot wind on the 6th, and minimum of 44 in the night of the 20th.

*Daily-range of temperature* had a mean of 21·65 degrees, which is + 1·74 above the average greatest range was 36 degrees on the 6th.

*Solar-intensity* mean, 106·30 degrees, was + 2·33 above the average. The hottest record was 125 degrees on the 6th.

*Terrestrial-radiation* mean, 45·95 degrees, was — 2·29 below the average, the coldest record being 41 degrees on the nights of the 5th, 22nd, and 23rd.

*Elastic-force of vapour* mean, 341 was 11 degrees below the average. The range was from 235 to 492.

*Humidity* mean, 63, was — 5 below the average.

*Rain-fall* amounted to only ·55 of an inch, being —1·18 inches less than the average. On only one occasion, in the night of the 30th, did sufficient fall to flush the water courses and sewers. *Snow* was never visible from the city on Mount Wellington during the month.

*Spontaneous-evaporation* amounted to 4·43 inches.

*Cloud* mean, 6·14, was + ·53 above the average.

*Ozone* mean, 5·45, was 1·74 below the average, and the smallest ever recorded for the month of December.

*Electricity* records were 30 positive, with tension from 3 to 7·5 ; negative 32, with tension from 2 to 6·5. No *thunder* or *lightning* during the month. The *Aurora Australis* seen four times.

The *deaths* this month were 36, being — 8·9·13 below the average of the previous 13 years. Out of the thirteen only 1865 had fewer (30) ; 1864 had the same in number as the present month ; all the rest had more. Under one year old there were 7 deaths ; from 1 to 5 the deaths were 4 ; from 5 to 10 no deaths ; from 10 to 15 there were 2 deaths ; and 2 also from 15 to 20. Altogether the deaths under twenty years old form an unusually large proportion of the total deaths. From 20 to 60 there were 12 deaths ; and at 60, and all ages above, 9, the oldest being 79 years old. The deaths in Hospital were 7, four of which were from other districts, and another was a sailor. The *Brickfields* and *Cascades* establishments had each 3 deaths. There were 3 *Inquests*. In the *Zymotic* class of diseases there were 5 deaths : — Four children from *Diarrhea*, and one young woman from "*low fever*." One of the Hospital deaths was from *Tetanus* (lock-jaw), whether traumatic or idiopathic is uncertain. It is remarkable that the boy's father died from the same disease some years ago. The boy's sufferings were greatly miti-

gated by the Hydrate of Chloral, a medicine lately introduced as a powerful hypnotic. *Consumption* caused 2 deaths, one Tasmanian born.

The total deaths in the registration district of Hobarton, during 1870, were 500. The population at the census on the 7th February, 1870, was 25,004, the death-rate therefore was 20 per 1,000. Nearly 6,000, however, of the population is extra-urban and purely rural. On the other hand 45 of the deaths are known to have been of persons not belonging to the district, and 70 others were invalids collected from all parts of the island, and concentrated within two establishments in the district. It may therefore be fairly calculated that about 400 was the actual number of deaths of persons belonging to the district, being at the rate of 16 per 1,000 per annum. The Registrar-General of England assumes 17 per 1,000 to be the normal death-rate, being that of the 65 healthiest districts of England and Wales. The average of the total deaths in the Hobarton Registration District for the 13 years, 1857, 1869, was 564 8-13, the year 1858 having the largest number, 644; and 1869 having the smallest, 462. Of the 500 deaths in 1870, January had the greatest number, 64, November the smallest, 25. No disease prevailed epidemically, and the deaths in the Zymotic class of diseases were only about one-tenth of the whole. From the records of the 13 years ending 1869, the mean mortality of each month is as follows:—January, 49 1-13; February, 54 6-13, which considering the small number of days in that month, is the most fatal month in the year; March, 54 11-13; April, 41 1-13; May, 40 7-13; June, 45 9-13; July, 56, this is numerically the most fatal month, but not so if the number of days is calculated. Moreover, an epidemic of influenza in July, 1860, when 114 deaths were recorded, principally of old people, swells the average of this month differently to any other of the months. Excluding this very fatal month, the average of the other 12 years is only 50 4-12 August, 45 10-13; September, 42; October, 43 6-13; November, 39 12-13, being the least fatal month to life; December, 44 9-13. In the year 1870 the deaths in each month under 5 years old, were:—January, 23; February, 18; March, 12; April, 9; May, 10; June, 6; July, 1; August, 12; September, 6; October, 9; November, 6; December 11; total 123. This is a very small proportion of the total deaths at all ages, according to the laws of mortality in England and Europe generally. At 60 and all ages above, the oldest being 93 years old, the deaths were:—In January, 16; February, 13; March, 16; April, 9; May, 17; June, 18; July, 18; August, 15; September, 16; October, 16; November, 11; December, 9; total, 174. The hot months are most fatal to children, the cold months to old people. By the census in February, 1870, there were 3,402 children under five years old enumerated in the Hobarton Registration District, and at 60 and all ages above, 1825. It is very remarkable that while the constituent elements of the population as to age, have year after year, been increasing in the proportionate numbers of the very young, and the very old, the total death-rate has been decreasing. By the ordinary laws of mortality it should be otherwise. This proves that our climatic advantages have heretofore been under-estimated, not exaggerated, and that the native-born have a much less death-rate than the imported inhabitants.