

# ROYAL SOCIETY.

## METEOROLOGY FOR JANUARY, 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	29.745	29.641	87	55	125.0	53.5	NW SE	1.30	
2	29.776	29.772	82	54	109.0	52.5	W NW W	3.64	
3	29.942	29.832	75	50	105.0	49.5	NW SE	3.38	0.02
4	29.072	29.915	70	42	93.0	40.5	NW W SE	1.04	
5	29.776	29.705	73	53	89.0	50.5	NW SE	.26	
6	29.617	29.398	74	59	112.0	56.5	S SE	.78	
7	29.373	29.297	75	56	114.0	55.0	NW W	8.33	
8	29.496	29.412	74	56	108.0	56.0	NW W	10.41	
9	29.865	29.714	69	50	89.0	48.5	NW SW	.78	
10	30.034	29.920	73	50	110.0	49.0	NW W SE	1.04	
11	29.922	29.817	76	50	116.0	51.0	N NW S	.78	
12	29.972	29.613	78	50	114.0	50.0	NW SE S	1.30	
13	29.448	29.370	75	57	110.0	56.5	NW W	5.46	
14	29.894	29.726	74	54	113.5	53.5	NW	5.46	
15	29.959	29.905	73	50	109.0	52.5	S SE	.78	
16	29.824	29.778	87	55	120.0	55.5	E NE SE	1.04	
17	29.921	29.910	80	54	81.5	55.0	NE SE S	.52	
18	29.872	29.801	74	50	104.0	49.0	NW SE	2.86	0.01
19	30.049	30.024	60	42	103.0	40.5	SW W	5.72	
20	30.155	30.099	69	53	97.5	52.5	E SE	.78	
21	30.222	30.187	70	58	108.0	54.0	SE	1.30	0.03
22	30.209	30.151	64	54	69.0	55.5	SE E	.26	0.06
23	30.109	30.009	74	54	112.0	53.5	NE SE	.52	
24	29.953	29.631	83	55	123.0	49.5	NW SE	1.04	
25	29.824	29.691	77	53	111.5	56.0	NW SW	5.72	
26	29.957	29.915	70	49	107.0	46.0	SW SE S	.52	
27	29.882	29.863	68	52	106.0	32.0	NE SE E	.52	
28	30.080	29.996	67	55	79.0	54.0	NW SE SW	2.86	
29	30.136	30.087	72	55	107.0	55.0	NW SE	2.86	
30	30.126	29.963	77	53	113.0	50.5	NW SE	.78	
31	29.994	29.852	78	50	115.0	50.5	NW SE S	3.38	
Mean 29.856, 63.47 105.6 51.74. Total force 75.42 0.12									

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 :—*

- 8th. *Veronica augustifolia* in full flower.  
 10th. First ripe Turkey apricot gathered.  
 20th. *Grevillea robusta* in full flower.  
 24th. First ripe Jargonelle pear gathered.  
 26th. *Catalpa syringefolia* in flower.  
 28th. Black mulberries commencing to ripen.
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Barometer mean, 29·856in., being 0·141in. above the average.  
 Temperature mean, 62·13°, being 1·44° below the ditto.  
 Solar intensity mean, 105·6°, being 5·6° ditto.  
 Dew point mean position, 49·0°, being 1·69° ditto.  
 Humidity of air mean, ·66, being ·2 per cent. ditto.  
 Elastic force of vapor mean, ·372, being ·003 per cent. below the average.  
 Total amount of rain, 0·12in., being 1·38in. ditto.  
 Increase of spontaneous evaporation on rainfall 6·27 inches.  
 Mean amount of ozone, 6·84, being 0·29 of chromatic scale above the average.  
 Electricity active on the 2nd, 4th, 8th, 9th, 10th, 11th, 13th, 14th, 19th, 25th, 26th, and 27th.  
 Sea breezes most days, p.m. Lightning on the 6th. Great evaporation all through the month.

FRANCIS ABBOTT.

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

Notwithstanding the very dry character of this month,—only January 1841 having a smaller rain-fall of any January in the last twenty-five years—this phenomenon usually so adverse to health at this season of the year was more than compensated by other peculiarly favorable meteorological circumstances, so that the mortuary tables record an amount of deaths very much below the January average of the previous nine years.

*Atmospheric pressure* mean 29.856, was + 1.141 above the 20 years' adopted standard mean, and almost identical with that for January 1865. The extremes were, 29.297 minimum, on the 7th; 30.222, maximum on the 21st; consequently in fourteen days the barometer varied .925, or nearly one inch. The range was not so great in 1865 by—.214. The greatest movement in any twenty-four hours, from noon to noon, was only a fall of—.396 of an inch on the 24th. On eight other days the fluctuations exceeded one-fifth of an inch. In January 1865 the extreme daily range, and the number of movements exceeding .200, were both greater. Atmospheric pressure, therefore, was somewhat more favorable to life this month than last year was.

*Wind-force* total was, 75.42lbs. being + 3.67 more than the 4 years' average, and nearly the same above last year's. In other respects, however, they differed materially, and greatly to the benefit of the present year. The pure ozone-bearing ocean winds, from the *South-east*, *South*, *South-west*, and *West* greatly predominated both in frequency and force;—the first being the most numerous, and the last strongest in total force. *North-west*, *North*, *North-east* and *East*, were all far below the average both in frequency and force. No *hot winds* occurred. The strongest winds had a pressure of only 5.21lbs., to the square foot, and were only noted twice, both being west winds. *Calms* were registered 15 times, being  $2\frac{1}{4}$  less than the four years' average of the standard tables. Never before in the month of January was wind movement so propitious to health, and so pleasant in every respect.

*Temperature* mean of the dry-bulb thermometers, 62.13 degrees, was—1.44 below the 20 years' average, but above January, 1865, by + 2.60 degrees. The wet-bulb thermometer mean was, 55.71 degrees, being only—.61 of a degree below the average. The self-registering dry maxima and minima thermometers gave a mean of 63.47 degrees, being about the usual difference higher of the latter. The self-registering wet-bulbs had a mean of 57.25 degrees. The extremes of the dry-bulbs were, 87 degrees, noted on the 1st and 16th; and 42 on the 4th and 19th. The former being  $\times 9$  degrees higher, and the latter one degree lower than in January 1865. The mean of all the high day maxima was, 74.42 degrees, being + 4.94 degrees higher than last year's January had. The mean of all the low-night minima was 52.53 degrees, only three nights out of the 31 having fallen below 50. In 1865 the minima mean was only 50.74 degrees,—eleven nights having a temperature below 50 degrees.

*Daily range of temperature* mean was 21.90 degrees, being  $\times 1.15$  above the 20 years' average, and + 3.16 more than last year had. The greatest range on any day was 32 degrees, registered on the 1st and 16th. The lowest was 10 degrees on the 22nd. As often before remarked, wide daily ranges of temperature do not appear to have the same pernicious influence in Tasmania as that usually ascribed to them in England.

*Solar intensity* mean, 105.60, is—4.05 degrees less than the average of the previous 10 years, though + 1.15 more than January 1865 had. The greatest heat was attained on the 21th, when the solar thermometer rose to 123 degrees, being one degree higher than the maximum last year, though precisely the same as that of 1864. The minimum solar intensity was 69 degrees registered on the 22nd.

*Terrestrial radiation* mean was, 51.74 degrees, being only half a degree

higher than the average of the previous 10 years. The coldest records were 40·5 degrees in the nights of the 4th and 19th. The maximum was, 56·5 degrees, on the 6th and 13th. This thermometer, in January, 1865, gave a mean —4·23 degrees less than the present month, though its minimum was exactly the same.

*Rain* fell on four days in the month, but in such small quantities that the aggregate amount was only ·12 of an inch, being —1·38 inches below the 20 years' average for January. In the previous 25 years, only the first of the series—1841—had less, *i.e.*, ·03 of an inch. The next smallest was 1858, which had ·43 of an inch, or nearly four times as much as the present month. Last year had more than five times as much. Fortunately the heavy rain-fall in December had thoroughly cleansed our sewers, and replenished the sources of water supply, or there is little doubt the health-return for January would not have been so satisfactory. No *snow* fell on Mount Wellington during the month, but on the first day there remained faint traces of the December deposit.

*Humidity* mean was, 66, being —2 less than the 20 years' average.

*Elastic force of vapor*, had the mean of ·372, ranging from the minimum. 255 at 7 a.m. on the 19th, to the maximum ·625 at the evening record of the 24th. Notwithstanding the aridity of the month, elastic force of vapor mean was actually —8 less than the 20 years' average. This result no doubt tended in a high degree to preserve health.

*Spontaneous evaporation* amounted to 6·39 inches, exceeding any January since 1857, except 1864. It was nearly twice as much as last year's.

*Cloud* mean, 5·40 ·34 though slightly above the average for January of the previous 8 years, is below the 20 years' average. *Ozone* mean, 6·84 though slightly above the average for January of the previous 8 years, is more than a degree of the chromatic scale below what January, 1865, had.

*Electricity* gave 25 positive indications with the very high maximum tension of 8. Last year had only 16 and 6 respectively. The negative indications were 37, with maximum tension of 6. In 1865 the corresponding results were 45 and 9. Many sanitary philosophers associate a predominance of strong positive electricity with atmospheric conditions conducive to a high state of health, and so far my Tasmanian observations accord with that view. *Lightning* was observed on the evening of the 6th.

31 deaths for January, 1866, is — 21 4·9 less than the average for the first month of the year of the previous 9 years; it is also 10 less than 1865 had, though 7 more than for 1864, which had the smallest mortality on record, not merely for the month of January, but for any other month in the last nine years.

Jan., 1866.	Ages.	Dec., 1865.	Januaries. Max.										Avg. 9 yrs. 1857-1865
			1865	Min. 1864	1863	1862	1861	1860	1859	1858	1857		
9	Under 1	8	10	2	9	19	12	28	17	32	27	17	3·9
1	1 to 5	1	1	2	11	13	3	7	9	10	5	6	5·9
0	5 to 20	5	2	2	4	0	2	7	3	3	1	2	6·9
5	20 to 45	7	7	5	6	8	12	16	16	14	12	10	6·9
5	45 to 60	2	11	6	6	8	8	5	8	7	10	7	6·9
11	60 and above	7	10	7	9	7	8	9	3	8	5	7	3·9
31		30	41	24	45	55	45	72	56	74	60	52	4·9

In every group of ages, except "60 and above," the mortality was largely below the average of the previous nine years. In the exceptional group, no other January of the previous nine had so many deaths, though 1865 had only



one less. Seven out of the eleven had passed beyond their 65th year, the oldest being a woman of 86.

Jan., 1866	Classes of Disease	Januaries.										Avg. of 9 yrs. 1857-1865.
		Dec., 1865									1857	
			1865	Min. '64	1863	1862	1861	1860	1859	Max. '58		
6	1. Zymotic	7	10	3	15	24	11	24	13	17	11	14 2-9
4	2. Constitutional	7	3	7	9	4	1	7	7	8	7	5 8-9
14	3. Local	11	24	10	15	22	27	26	30	32	32	24 2-9
7	4. Developmental	3	4	3	2	3	2	12	5	14	7	5 7-9
0	5. Violent &c.	2	0	1	4	2	4	3	1	3	3	2 3-9
31		30	41	24	45	55	45	72	56	74	60	52 4-9

*Zymotic Diseases* caused considerably less deaths than one-half the nine years' average. A girl, two years old, died of a low type of fever. Four children under 11 months old died of bowel complaints, and a man aged 42 of *Chronic dysentery*. 1864 is the only year that can show a more favorable report than this, and its meteorological character was in some respects more favorable to health than that of January 1866, generally auspicious, nevertheless, as the latter has been.

In the *Constitutional* class of diseases, the deaths were considerably below the 9 years' average. This class, however, has never varied so widely in its numbers as the other four classes have. Three of the 4 deaths were from *Consumption*, and one of the number, aged 33, was born in Tasmania. The fourth death was from *water in the head*, a child only six months' old.

The *Local* class of diseases, gave 10 fewer deaths, than the average, though 1864 had 14 less. Last year, however, had 10 more than the present. In the 1st order of this class, *diseases of the brain and nervous system*, the deaths were only 4, last year had 7. In the 2nd order, *Diseases of the heart and organs of circulation*, 2 deaths took place, 1865 had twice as many. In the 3rd order, *Diseases of the lungs and organs of respiration*, but one death—a man aged 60—was recorded, 1865 had 5, but 1864 had not even one. Nevertheless, so very small a return for this order is very unusual, the more particularly, because the average daily-range of temperature not only greatly exceeded that of the years 1865 and 1864, but the mean of the 20 years' standard also. In the 4th order *diseases of the stomach and organs of digestion*, there were 4 deaths—1865 had one more. In the 5th order, *Diseases of the urinary organs*, there was only one death, last year had 2. In the next order, this month had no deaths, last year had one. In the 7th order, *Diseases of the locomotive organs*, 2 deaths were recorded from long standing affections of bones and joints—1865 had no deaths in this order.

The 4th, or *Developmental* class of diseases, had seven deaths, one an infant only two weeks old and prematurely born, the other 6, all from old age. No deaths from old age were registered in January, 1865, yet the actual deaths above 60 years of age in that year's January and the present, only differ by one numerically.

In the 5th class, *Violent deaths, &c.*, no deaths were recorded, as was also the case in 1865, though all the preceding eight years had from 1 to 4 each. One *Inquest* only took place on a death in the present month; *Apoplexy from Intemperance* being the cause of death. Last year had also one. In the *Hospital* there were 8 deaths, 1865 had 10. At the *Male Invalid Asylum* there were no deaths, in 1865 there were 2. At the *Cascades Factory* a female invalid died.

Of the 31 deaths this month, 17 were males, 14 females. In the Glenorchy division of the registration district five deaths took place, all the rest in the city. In the first week of the month there died only 3; in the second, 5; in the third, 9; in the fourth, 9; in the last three days, 5. The last five days of the month was the most fatal period of any five consecutive days, 9 having died. This might be expected from the continued extension of the drought, no rain of much sanitary efficacy having fallen since the 22nd of December foregoing.

The *births* registered were 84, being + 16 more than in January, 1865. Should births and deaths bear the same proportion to each other for the remaining months of 1866, the rate of population increase, by excess of births over deaths, will be enormous.