

METEOROLOGY FOR SEPTEMBER, 1865.

PRIVATE OBSERVATORY, HOBART TOWN.

Day of month.	Bar. 37 feet abv. sea level, cor. & reduced		Self-registering Thermometers.				Wind.		Rain in inches.
	Highest.	Lowest.	Highest in shade.		Highest in sun.	Lowest on grass.	Direction from three daily registers.	Force in lbs. per square foot.	
			°	'					
1	29·622	29·435	63	37	90·0	35·5	NW N	5·46	0·08
2	29·617	29·486	62	46	93·0	43·0	NW W N	3·38	0·26
3	29·776	29·752	66	48	97·0	43·5	NW	1·04	0·02
4	29·800	29·782	64	46	98·0	44·5	SW SE	·52	0·04
5	29·972	29·929	60	36	80·0	34·5	NW NENW	·78	
6	29·714	29·575	60	39	75·0	38·5	N NW	·78	
7	29·708	29·522	58	40	58·0	39·5	S	3·38	0·80
8	30·124	30·022	56	39	84·5	38·0	SW S SE	3·64	0·15
9	30·149	29·957	54	38	86·0	34·5	NW NE N	1·04	0·03
10	29·922	29·746	60	36	82·0	31·5	NW N S	·26	0·08
11	29·647	29·275	63	38	94·0	35·5	NW	·26	0·01
12	29·513	29·282	59	39	82·0	36·5	N SW	1·28	0·07
13	29·687	29·670	62	39	92·0	33·5	NW	·26	
14	29·865	29·826	66	47	101·0	41·5	NW W	·52	
15	29·900	29·843	64	46	98·0	42·0	W NW W	·78	0·02
16	30·037	29·895	61	47	88·0	40·0	SW S	·78	0·06
17	30·124	30·087	63	35	95·5	30·5	NW	·26	
18	30·050	29·877	65	47	98·0	42·5	NW	1·04	
19	30·098	29·879	67	44	99·0	35·5	NW SW	·52	
20	29·765	29·620	74	45	102·0	43·5	NW E	5·20	
21	29·807	29·771	70	50	79·5	48·0	SE	·26	0·15
22	29·626	29·439	70	49	102·0	45·5	NW SW	·52	
23	29·588	29·448	67	50	99·5	45·0	NW SW	·52	
24	29·500	29·326	63	46	99·5	40·5	NW	3·12	0·04
25	29·656	29·551	67	45	102·0	42·5	NW W NE	5·99	
26	29·784	29·747	67	53	111·0	49·5	NENW	1·04	
27	29·380	29·317	66	54	88·5	48·0	NW	1·30	0·06
28	29·643	29·571	63	44	78·0	43·5	S W S	3·38	0·63
29	29·662	29·423	61	39	97·0	35·5	NW N NW	·52	
30	29·357	29·316	57	47	83·0	43·0	NW N NW	·78	0·05
Total force 48·63lbs								2·55	

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 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 Ash commencing to flower.
 10th Vines commencing to break leaf.
 14th Oak commencing to break.
 16th First Montan Peony flower open:
 20th Horse Chestnut commencing to flower.
 25th Robina Pseudo-Acacia commencing to break.

Barometer mean, 29·705in., being 0·073 in. below the average.
 Temperature mean, 52·32°, being 1·40° above the average.
 Solar intensity mean, 91·10°, being 4·10° ditto.
 Dew point mean, 48·63°, being 3·58° ditto.
 Humidity of air mean, ·71, being 5·5 per cent. below the average.
 Elastic force of vapor mean, ·277, being .003 per cent. ditto.
 Total amount of rain, 2·55in. being 0·68in. above the average.
 Increase of spontaneous evaporation, on rainfall 0·52in.
 Mean amount of ozone, 7·99 being 0·23 of chromatic scale above the average.
 Electricity active on the 5th, 13th, 14th, 15th, 17th, 19th, 20th, 22nd, 23rd, 24th, 26th, 28th, 29th, and 30th.
 Mount Wellington copiously mantled with snow throughout the month, with frequent additions.

FRANCIS ABBOTT.

ANALYSIS OF THE OBSERVATORY RECORDS FOR
SEPTEMBER, 1865, IN CONJUNCTION WITH THOSE
OF BIRTHS, DEATHS, &c. BY E. SWARBRECK HALL.

The weather generally this month was favorable to health and life, beneficial to agriculture and horticulture, and agreeable to the feelings; being warmer and less boisterous than usually characterises this vernal month of the southern hemisphere. Nevertheless in some of the atmospheric phenomena, conditions existed for brief periods, which had a lethal effect on individuals enfeebled by sickness or old age. On the average of eight years, September is sixth on the list of the twelve months, in its rate of mortality. Many persons erroneously imagine that it is one of the most fatal to life. The present month's deaths were below the September average numerically.

Atmospheric pressure mean, 29·705, is—·073 below the September average of the twenty years' standard tables. Last year's September was about the same in excess above the mean. The extreme range was, however, much less in this month, than in that; being only ·874 of an inch, though it occurred within two days, the maximum, 30·149 being registered at 7 a.m. on the 9th, and the minimum, 29·275, at the evening observation of the 11th. No September in the previous five years had so small a range. On the other hand the daily perturbations were both extensive and frequent. The greatest variation in any twenty-four hours, was a rise of +·494 of an inch on the 8th, and a fall of nearly as much, —·478, was recorded on the 20th. On thirteen days of the month, movements exceeding one-fifth of an inch were noted. These changes have always a marked effect on chronic diseases particularly of the circulatory, respiratory, and nervous systems.

Wind force total was, 48·63 lbs., which is —·26·79 lbs. less than the September average of the previous eight years, at the same time, September last year had a few pounds less than the present month. The strongest wind had a pressure of 5·21 lbs to the square foot, but was only registered once, *i.e.*, at noon of the 25th, being a west gale. This month had somewhat of the character which the English March bears, in "coming in like a lion, and departing like a lamb." South-west and north-west winds had more than the average in frequency, while all but the *South* were below the average in force. *Calms* were recorded 21 times, which is —3·57 less than the mean of the previous seven years.

Temperature mean was, 52·32 degrees, being +1·40 above the 20 years' average, though more than a degree below that of last year. The self-registering thermometers gave a mean of 53·45 degrees, the variation being about what is usual between these distinct modes of observation. The maximum was 74 degrees on the 20th, being from one to five degrees higher than in any September since 1857. The minimum was 35 degrees, registered on the night of the 17th. Last year's minimum was higher by three degrees, though its maximum was one less. The extreme range, 39 degrees, exceeded any of the previous four years by two to four degrees. The mean of all the maxima or high-day temperatures was, 63·27 degrees, curiously enough showing warmer days than September 1864 had; while the mean of all the minima or low-night temperatures was 43·63 degrees, and exactly one degree less than was noted last year. The analysis of the daily observations and still more of the hourly,—as recorded for eight years night and day at the Ross Bank observatory—give abundant proof of the little reliance that can be placed upon general means, in deducing effects on health and life.

The *daily-range of temperature* had the very high mean of 19·63 degrees, being +1·61 above the 20 years' average, and above any of the three previous Septembers, exceeding that of last year, by nearly two degrees. From the remarks in the previous paragraph on day and night temperatures, this result of course was obvious. Nevertheless, it is remarkable, that the extreme range of the present month, 29 degrees on the 20th, was the same as for last year's September. On the other hand the minimum range in the present month is two degrees less (8) than last year. It used to be the prevailing belief in England, that rapid transitions of temperature were the principal cause of diseases and death,—and "took cold" became the ready explication of every death

not accidental, Tasmanian experience by no means confirms the English aphorism.

Solar-Intensity mean was, 91.10 degrees, being + 2.84 more than the average of the previous nine years, and even + .40 more than September 1864. The maximum temperature happened on the 26th and was 111 degrees, which is higher than any ever before recorded in September. The maximum of 1864 was 60 degrees less.

Terrestrial-radiation had a mean of 40.17 degrees, which is +1.98 degrees above the average of the previous nine years, but —.56 of a degree less than the mean of September last year. The extremes were 30.5 degrees on the 17th, 49.5 on the 26th.

Rain fell to the aggregate amount of 2.55 inches, which is +.68 of an inch more than the 20 years' mean for September. It also exceeded September 1864 by more than one-half. At the same time it must be remembered that August, July, and June were all below their respective averages. 17 days were recorded on which more or less rain fell, being +1.90 above the average of the previous ten years. The greatest quantity was precipitated on the 7th, —80 of an inch; but on four other days, equally distributed as to intervals, enough fell to scavenge the city streets, and drainage-channels. On the 7th snow and hail were mixed with the rain as it fell in the city. *Snow* was abundant on Mount Wellington during the whole month.

Humidity mean, 71, notwithstanding the large rain-fall was —.5½ below the 20 years' average.

Elastic-force of vapour had a mean of 277, which is—3 less than the 20 years' standard. It ranged from minimum 182 on the morning of the 5th to maximum 369 on the evening of the 22nd. It was continuously high from the 20th to 27th and on 14th and 15th. Both were periods of excessive mortality.

Cloud mean 6.76 was +1.01 higher than the September average of the 20 years' standard. With so high a mean of sunshine this is remarkable, and indicates an unusual warmth of the solar rays.

Ozone had a mean of 7.99 which though +.04 above the mean of the previous eight years, is considerably less than any of the three preceding Septembers. The maximum 10 (saturation) was recorded four times. The minimum was 6, registered on the 20th and 22nd.

Electricity was very abundant, "Nil" was not noted at any one of the 60 observations. Positive was registered 33 times, with a maximum tension of 7.5; and Negative 27 times, with maximum tension of 8.5. September 1864 had not nearly so large an amount. No lightning or thunder was observed in Hobarton.

43 deaths occurred this month, being 3½ less than the average for September of the previous eight years. One half of the eight had considerably more, and the other half somewhat less. Last year had six less, but a minute examination of the details shows that the present month was not less healthy to the population at large, but that the excess arose from the greater number of accidental and violent deaths, and the greater number received into and dying in the Hospital from the other districts.

Sept., 1865	Ages.	Septembers.								Avg. 8 yrs. Sept., 1857-1864			
		Aug. 1865	1864	1863	1862	Min. 1861	Max 1860	1859	1858		1857		
9	Under 1	5	6	5	12	5	8	15	8	7	8	2.8	
2	1 to 5	4	1	4	5	2	12	4	4	4	4	4.8	
6	5 to 20	1	4	4	3	2	8	4	0	1	3	2.8	
3	20 to 45	7	14	8	17	7	12	8	12	10	11		
9	45 to 60	7	6	13	10	8	10	8	10	13	9	6.8	
14	60 and above	18	6	8	9	11	15	11	8	9	9	5.8	
43		42	37	42	56	35	65	50	42	44	4	6	3.8

"Under one year old" the number of deaths was slightly above the eight years'

average, and one third more than in September, 1864. But 7 out of the 9 deaths were under two months old, and four of these did not survive birth more than five days. At "1 to 5" the mortality was less than half the eight years' mean, six of the eight having twice, or more, as many. 1861 had the same in number, and last year had only one. At "5 to 20" the deaths were nearly twice the average, and one third more than last year; but three of these were violent deaths, on which inquests were held. At "20 to 45" the deaths were but little above one fourth of the average, and only a trifle more than one fifth of the mortality at the corresponding period in 1864. At "45 to 60", also, the deaths were considerably less than the average, though one third more than in 1864. At "all ages above 60" the mortality was very much above the average, and more than twice as many as in September last year. August also had a more than usual mortality in this group. The analysis of the meteorological phenomena has given a cause for this. Very young children and very old debilitated persons, therefore, have been the principal sufferers this month while weaned children and adults in general have escaped with much smaller losses than usual.

Sept, 1865	Classes of Disease	August, 1865								Avg. of 8 yrs. Septembers, 1857-1864.	
		Septembers.									
		1864	1863	1862	Min. '61	Max 60.	1859	1858	1857		
6	1. Zymotic	1	5	4	4	5	11	12	3	3	5 7.3
5	2. Constitutional	3	9	9	15	3	18	12	10	5	10 1.8
22	3. Local	20	20	23	26	17	32	16	25	25	23
6	4. Developmental	12	3	2	2	9	2	7	1	3	4 2.8
4	5. Violent &c.	6	0	4	9	1	2	3	3	3	3 1.8
43		42	37	42	56	35	65	50	42	44	46 3.8

Zymotic diseases had a fraction more than the average mortality; *Croup* caused the death of a girl aged 3 years; *Diphtheria*, a boy 6 weeks old; *Erysipelas*, a girl only a month old; *Diarrhoea*, one at 4 months, and another nearly 3 years old; a man aged 58 died from *Delirium Tremens* in the Hospital. In the opinion of many nosologists, this cause of death, ought not to be included in the *Zymotic class*.

The *Constitutional class* of diseases had less than half the eight years' average, and but little more than half of what September 1864 had. Two were from *Cancer* and three from *Consumption*, two of the latter females, aged respectively 14 and 25, were born in the island. Last year had seven from *consumption*, two of them also females, and Tasmanians by birth.

The *Local class* had one less than the eight years' average, but two more than last September had. In the 1st order diseases of the *brain and nervous system* the deaths were 11, *i.e.*;—1 from inflammation of the membranes of the brain; 3 from apoplexy; 1 from paralysis; 4 from convulsions—all under two months old; and 2 from disease of the brain. In 1864 the total in this order was only 6. The atmospheric causes influencing the deaths in this group have been previously alluded to.

The 2nd order, *Diseases of the Heart and Circulatory System*, had three deaths 1864 had two more. The 3rd order *Diseases of the Respiratory system*, had but one death, and that from long standing disease, while 1864 had eight deaths, and most of them of an acute character in adults in the prime of life. Nevertheless, as I have before observed, the daily ranges of temperature were much greater this September than last. The present month, however, had fewer winds from the ocean quarters, and also less ozone. The records in Hobarton show that while a great abundance of ozone is a most potent purifier of the air we breathe; and consequently adverse to the generation of the miasmatic division of the *Zymotic class* of diseases, and therefore preservative of the general health of a community; yet, that its very stimulating effects is apt to cause inflammatory affections of the respiratory organs:—Catarrh and its

sequences. Popularly this is most erroneously confounded with influenza, which in all the epidemics of it we have had here, has been always heralded with, and accompanied by a deficiency of ozone.

In the 4th order, *Diseases of the Stomach and Organs of Digestion*, the deaths were 2. September 1864 had the same number.

The 5th order *Diseases of the Urinary Organs*, the deaths were 4, all chronic, and above 47 years old. Last year had not any.

In the 7th order, *Diseases of the Bones, &c.* this month had a death in a boy, of 14, who died in Hospital some time after an operation by which it was necessary to remove the upper jaw and adjoining bones of the right side, owing to a formidable tumor in the antrum. It is believed that this—one of the most triumphant and important operations of modern surgery,—was never before performed in Australasia. Dr. Bright was the operator, and most of the medical practitioners in Hobarton were present. We were all sanguine of the result. The patient had however, been reduced to a very low state by previous suffering and hemorrhage, and unfortunately the weather subsequent to the operation was inauspicious. On the day of his death the barometer fell suddenly nearly half an inch, [while on the two previous days it had risen nearly as much. All that surgical skill and medical science could do, had been done, but the elements they cannot control at pleasure.

The *Developmental class*, had considerably more than the average of deaths, one of the number died five days after birth, the other 5 were all from old age, being 60, 71, 76, 78 and 90 years old, respectively. September last year had only half the number.

In the class of *Violent and Accidental Deaths*, the number was slightly above the average. Two were children ruthlessly murdered; one a boy of 10 died from a fracture of the skull some days after receiving a kick from a horse; the fourth was a case of accidental gun shot wound in the thigh, brought to Hospital from a country district. It was followed by tetanus. Some of the atmospheric phenomena were unfavorable at the time. The day before his death the elastic force of vapour, was at its maximum 369, and that and the two preceding days were the hottest in the month. Another case of accidental injury in which amputation of the thigh was performed has also suffered in a lesser degree from lock-jaw, but was still surviving on the last day of the month (since dead.) This frightful affection, though common enough elsewhere, is of rare occurrence in Tasmania.

Four *inquests* were held on persons dying in September, the causes of which have already been commented upon. Last year there were only two.

The deaths in *Hospital* were 13, inclusive of one of the inquest cases. Of these five were received from other registration districts. Last year the total was only nine.

At the *Male Invalid Asylum*, men aged respectively 50, 72, 78, died. There was only one last year.

Of the 43 deaths, 27 were males, 16 females, one died in the Glenorchy, 3 in the Queenborough electoral divisions of the district, the rest in the city.

On six days of the month there was not a single death. In the first week 10 died; in the second, 12; in the third, 10; in the fourth, 9; on the last two days, two. The greatest number of deaths on any two consecutive days, was six, on the 14th and 15th. The most fatal period was the four days, 12th to 15th, when 11 deaths occurred, but these include the two murdered children. The next in number were the five days, 19th to 23rd, when ten deaths were recorded.

The *births* registered were 76, being one less than in September, 1864.