

70. That to determine the difference of humidity as obtained from maximum and minimum thermometers, and from the three daily observations of wet- and dry-bulb thermometers, he had made the following comparisons of observations taken in July, 1880, and January, 1881, the result showing a difference of 4.1° in July and 2.6° in January between the two methods:—

July, 1880.	Max. (1).	Max. Wet.	HUMIDITY.	Min. (1).	Min. Wet.	HUMIDITY.	Jan. 1881.	Max. (1).	Max. Wet.	HUMIDITY.	Min. (1).	Min. Wet.	HUMIDITY.				
1	55.6	47.4	55	41.3	38.1	75	1	76.7	69.0	63	62.7	59.1	79				
2	53.4	...	...	39.7	37.2	79	2	77.1	68.1	59	67.5	62.5	73				
3	55.4	52.2	79	41.0	...	...	3	71.7	62.0	55	63.7	57.9	68				
4	54.7	47.9	60	42.8	39.4	74	4	71.1	62.4	58	59.7	54.3	69				
5	54.6	48.8	65	40.7	38.2	79	5	71.4	65.6	70	59.2	56.9	85				
6	55.0	48.3	61	42.5	39.7	78	6	77.6	67.7	56	59.8	57.8	87				
7	58.7	50.7	57	8.8	47.8	92	7	72.1	65.5	67	65.0	62.1	83				
8	59.4	52.0	60	41.4	39.7	86	8	76.2	64.0	48	64.6	57.6	64				
9	57.6	50.4	60	40.7	39.1	87	9	73.7	64.1	56	63.5	60.2	80				
10	59.5	52.2	60	42.4	39.1	75	10	75.2	66.1	58	61.7	dry	...				
11	55.6	50.0	67	43.9	41.1	79	11	72.4	67.0	72	63.4	61.2	86				
12	59.0	52.7	64	45.3	42.3	78	12	72.0	66.9	74	64.7	63.3	91				
13	56.4	51.7	71	42.8	41.3	88	13	73.8	66.9	66	62.7	dry	...				
14	60.0	57.6	77	45.3	43.0	82	14	69.9	64.2	70	56.7	dry	...				
15	59.3	57.6	89	49.2	48.2	92	15	72.9	67.6	73	60.7	57.1	78				
16	57.8	51.7	65	46.4	45.9	92	16	78.1	71.1	67	64.1	62.1	87				
17	57.0	50.8	64	42.6	41.3	89	17	75.9	67.8	62	66.5	61.7	73				
18	55.2	52.4	81	43.4	42.1	89	18	73.7	67.2	68	64.1	61.0	82				
19	55.3	48.9	62	41.0	39.7	88	19	78.3	74.4	80	66.5	61.1	71				
20	58.1	48.9	51	45.1	42.0	77	20	89.7	79.7	58	69.1	66.1	83				
21	58.3	49.3	52	46.5	41.8	68	21	68.8	65.9	89	63.6	59.1	74				
22	57.4	49.0	54	43.7	40.0	73	22	79.0	72.0	67	63.2	59.6	79				
23	60.2	50.8	52	44.1	41.0	77	23	69.8	68.6	92	67.3	61.2	68				
24	56.6	46.2	45	47.6	43.0	69	24	78.1	65.7	48	73.0	62.1	51				
25	61.2	50.4	50	43.6	39.5	70	25	74.1	67.2	66	67.6	64.6	82				
26	61.0	51.3	51	43.7	41.2	80	26	77.4	69.9	65	64.7	63.1	90				
27	67.1	52.6	38	44.9	42.1	79	27	78.7	...	...	65.4	64.9	97				
28	62.3	52.4	51	50.8	45.0	64	28	86.3	74.3	51	70.4	68.1	87				
29	61.4	50.3	46	43.2	40.9	82	29	74.4	69.7	75	64.7	62.8	88				
30	62.8	51.0	45	41.9	40.3	87	30	83.5	74.9	62	64.8	63.8	93				
31	66.7	55.3	47	40.6	39.0	87	31	74.4	68.8	72	66.8	61.2	70				
			30) 1,779				30) 2,415				30) 1,967				28) 2,218		
Means			...	59.3	...	...	80.5	Means			...	65.6	...	...	79.2		
			Mean ... 69.7										Mean ... 72.4				
			Mean 9 a.m., 3 p.m., 9 p.m. 73.8										Mean 9 a.m., 3 p.m., 9 p.m. 75.0				
			4.1										2.6				

Evaporation.

71. Having for the past ten years carried on observations with three forms of evaporators, he thought the condensed results might be of interest to the members of the Conference. He mentioned that observations with the glass evaporator were begun at Sydney Observatory in 1860, but it was not until 1871 that the other two forms were placed beside it for the purpose of comparison. It was simply because the glass instrument was the one in use that it was assumed to be the standard for comparison, and not for any advantage in form or substance which it might be supposed to possess. The tin one had been adopted for use in the country, because its cost was little, and the large one was started because it seemed to put the water into the condition which obtains in an ordinary open reservoir. The following details will form a sufficient description of these instruments:—

No. 1.—A glass vessel standing on the ground 8 inches high and 8 inches in diameter, in which the water is usually about 6 inches deep; it is read by a vernier scale attached to a point which is every morning made to touch the water by screw motion.

No. 2.—A tin vessel, painted white, standing on the ground, 12 inches high and 8 inches in diameter, in which the water is usually about 8 inches deep; the amount of evaporation is ascertained by weighing it every morning.

No. 3.—Is a galvanized iron vessel, sunk into the ground 2 feet 4 inches; it is 2 feet 6 inches deep, and 4 feet in diameter. In it is a small float, to the top of which is attached a light vertical rod passing through two guides; this is graduated to tenths of an inch, and read to $\frac{1}{1000}$ of an inch by means of a microscope fixed on a firm support; the edge of the vessel is only 2 inches above the ground, to prevent surface-water from running into it; and the grass is allowed to grow level with the top, to prevent rain splashing in, and sun-heat on the metal outside.

72. The table herewith shows the result from each evaporator, together with temperature, humidity, wind, and rainfall, for ten years, 1871 to 1880. It will be observed that the tin one shows the greatest amount, the glass second, and the large one least, on the average for ten years; but it is worth noting that in 1876, when the velocity of wind greatly exceeded other years, the tin one gave the evaporation only 7 per cent. above the average, the large one 20, and the glass 28 per cent.

Observations on the temperature of the water in the evaporators show that the glass one is most affected by the sun, the tin next, and the large one least.

73. In the course of the experiments the question arose whether more or less evaporation took place during the day as compared with the night. The day was divided at 9 a.m. and 9 p.m., and the observations confined to the glass and large evaporators; and it was found that the glass one gave