METEOROLOGY

OF

VEVAY, SWITZERLAND CO., IND.,

BY CHARLES G. BOERNER.

A knowledge of the climate and the laws which govern it, is not only essential, but absolutely indispensable to the welfare of a nation or community. The intelligent agriculturist will not only examine into the chemical and geological components of the soil, but also study the temperature, wind and moisture, which, according to circumstances, may be either beneficial or injurious to his productions and health.

It is alone, by becoming familiar with the principles of practical agriculture, chemistry of the soil, geology and meteorology, that the material and intellectual interests of both farmer and mechanic are advanced, the resources of the soil and the mines developed, which, in connection with commerce and manufactures, lay the foundation of a nation's wealth.

The climate of this county does not differ materially from the adjoining counties, but that there are changes peculiar to each, of temperature and moisture, is evident from observations at points above and below, on the shores of the Ohio river.

It would be mere conjecture to account for these local variations, or their controlling influence; comparison, guided by established facts in meteorology can alone afford us light.

Whether the climate has undergone any striking changes since its first settlement in 1803 can not be ascertained, as there is no record of remote date in existence. During the year 1818, and later, a meteorological register was kept by Mr. John J. Dufour, one of the early settlers, which consisted of temperature, rain and wind. Unfortunately his records are lost, but I am in possession of a copy of the "Indiana Register," of January 27th, 1818, (a weekly paper then published at Vevay) which contains a summary of his observations of the previous week, viz: January 20th, to the 26th.

While no great importance can be attached to the results of a single week in our changable climate, it may be of interest to take a look back fifty-four years, and for sake of comparison I have introduced them with observations of the corresponding weeks of the years 1865 to 1872, and which form the subject of table I.

Mr. Dufour's observations were taken at 6 A. M. and 2 P. M.; those by myself at 7 A. M. and 2 P. M., with the daily means resulting from three observations (omitting the 9. P. M.)

Systematic registry of meteorological phenomena was commenced by myself in 1864, in accordance with the plan adopted by the Smithsonian Institution, at 7 A. M. 2 P. M. and 9 P. M.

The instruments are the Smithsonian standard, made by James Green, of New York, and consist of cistern barometer, psychrometer, thermometer, wind and rain guage.

The geographical position of Vevay, county seat of

Switzerland, Indiana, is latitude north 38° 46′, longitude west of Greenwich, 84° 59′ 20″.5; hight above the level of the sea 525 feet, and above low watermark, in the Ohio river, 81 feet.

The range of the thermometer, for the past eight years, is equal to one hundred and ten degrees (110°) from -10° to 100°, and from its variability throughout the year, sometimes experiences the cold of Minnesota and the heat of Florida.

Our prevailing winds are from the southwest. The most striking characteristics on the bottom lands along the river are the frequent and dense fogs with which the hill lands are rarely ever effected. The tables are arranged in the following order:

TABLE I.—Comparison of observations January 20th to 26th, 1818, with the corresponding week of the years 1865 to 1872.

TABLE II.—Maximum and minimum pressure of the barometer, reduced to temperature 32° Fahr.

TABLE III.—Monthly and annual mean hight of the barometer, corrected for temperature.

TABLE IV.—Maximum and minimum temperature of each month for a series of eight years.

TABLE V.—Monthly and annual mean of temperature.

TABLE VI.—Mean temperature of the four seasons—spring, summer, autumn, winter.

TABLE VII.—Monthly and annual quantity of rain and melted snow, in inches and hundredths.

TABLE VIII.—Monthly and annual quantity of snow in inches and hundredths.

The length of our winters becomes more apparent in the early and late flowering of plants in the open air. For instance, the "Crocus," first of all to expand with the genial rays of the sun, though snow may cover the ground; its appearance is a pretty sure indication of an early or late spring. For comparison, the time of blooming in the open

air, in the same location, is here given for a period of seven years:

1866	March 5th.
1867	February 26th.
1868	March 6th.
1869	February 20th.
1870	March 19th.
1871	February 25th.
1872	March 18th.

Thus it will be seen that the earliest blooming occurred in 1869, and the latest in 1870; and that 1870 and 1872 show a difference of only one day, the two extremes about four weeks.

TABLE I.

Comparison of Thermometer, January, 1818 *and* 1865 *to* 1872.

	1818.			1865.				1866.				1867.				1868.			
January.	6 A. M.	2 P. M.	Mean.	7 A. M.	2 P. M.	Mean.	Mean of 3 obs.	7 A. M.	2 P. M.	Mean.	Mean of 3 obs.	7 A. M.	2 P. M.	Mean.	Mean of 3 obs.	7 A. M.	2 P. M.	Mean.	Mean of 3 obs.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
20	42.	46.	44.0	20.	36.	28.0	28.3	15.	20.	17.5	15.0	22.	28.	25.0	25.3	33.	37.	35.0	34.3
21	44.	55.	49.5	36.	40.	38.0	37.3	8.	25.	14.5	17.6	22.	24.	23.0	22.6	37.	38.	37.5	35.3
22	40.	50.	45.0	36.	40.	38.0	36.6	25.	36.	30.5	30.3	21.	31.	24.0	24.0	22.	42.	32.0	34.6
23	30.	40.	35.0	28.	27.	27.5	25.0	30.	36.	33.0	32.6	22.	28.	25.0	23.0	46.	47.	43.5	41.6
24	40.	55.	47.5	16.	22.	19.0	16.0	34.	36.	35.0	34.6	24.	26.	25.0	26.0	22.	30.	27.5	23.6
25	30.	44.	37.0	5.	22.	13.5	15.0	32.	35.	33.5	33.0	30.	48.	39.0	33.3	15.	45.	30.0	32.0
26	44.	42.	43.0	10.	20.	15.0	13.3	31.	40.	35.5	34.3	22.	26.	24.0	22.6	38.	47.	42.5	41.6
Mean.	38.6	47.4	43.0	21.6	29.6	25.6	24.5	25.0	32.6	28.5	28.2	23.3	30.1	26.4	25.3	29.6	40.9	35.4	34.7

TABLE I.—Continued.

	1869.				1870.				1871.				1872.			
	7 A. M.	2 P. M.	Mean.	Mean of 3 obs.	7 A. M.	2 P. M.	Mean.	Mean of 3 obs.	7 A. M.	2 P. M.	Mean.	Mean of 3 obs.	7 A. M.	2 P. M.	Mean.	Mean of 3 obs.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
January 20.....	33.	45.	39.0	36.0	25.	46.	35.5	35.0	30.	44.	37.0	38.3	36.	35.	35.5	34.3
January 21.....	27.	45.	34.0	36.3	27.	43.	35.0	34.2	31.	49.	40.0	42.2	28.	30.	29.0	38.2
January 22.....	34.	43.	38.5	32.0	33.	56.	44.5	48.0	28.	35.	31.5	31.5	29.	43.	34.0	36.7
January 23.....	24.	45.	34.5	33.3	52.	43.	47.5	45.3	30.	46.	38.0	36.5	30.	23.	26.5	24.7
January 24.....	31.	54.	42.5	42.3	35.	33.	34.0	33.7	30.	36.	33.0	31.7	10.	19.	15.5	14.7
January 25.....	31.	31.	31.0	28.3	33.	44.	38.5	39.3	28.	30.	29.0	28.8	10.	22.	16.0	16.0
January 26.....	15.	40.	27.5	26.0	32.	58.	45.0	44.3	30.	27.	28.5	27.5	18.	29.	23.5	25.0
Mean	27.9	49.3	35.3	33.5	33.9	46.1	40.0	35.7	29.6	36.7	33.9	33.6	23.0	28.7	25.7	25.7

TABLE No. II.

Barometer Reduced to 32° Fahrenheit.

YEAR.	January.		February.		March.		April.		May.		June.		July.		August.		Septemb'r.		October.		November.		December.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
1867	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29.87	29.20	29.97	29.15	29.87	29.15
1868	30.10	29.15	30.11	29.32	29.88	28.75	29.75	28.93	29.60	29.00	29.60	29.15	29.45	29.03	29.52	29.10	29.65	29.15	29.85	29.15	29.75	29.17	29.85	29.05
1869	29.67	29.10	29.75	28.80	29.82	29.07	29.67	28.84	29.72	29.03	29.89	29.18	29.84	29.46	29.87	29.50	29.69	29.42	30.03	29.26	29.94	28.77	30.09	29.15
1870	30.05	28.92	29.88	28.73	29.96	28.51	29.76	29.14	29.68	28.90	29.74	29.13	29.66	29.21	29.74	29.31	29.74	29.28	29.90	28.95	29.95	29.16	30.08	28.86
1871	29.96	29.15	29.97	28.74	29.79	29.05	29.93	29.01	29.69	29.16	29.63	29.16	29.71	29.22	29.68	29.19	30.01	29.30	29.88	29.27	29.93	28.85	30.09	29.07
1872	29.96	29.04	30.05	29.01	30.00	28.82	29.85	28.98	29.83	28.88	29.68	29.18	29.63	29.25	29.77	29.32	29.80	29.03	29.84	29.24	.....	.....	.....	.....
Mean	29.95	29.09	29.95	28.92	29.89	28.84	29.79	28.98	29.70	28.99	29.31	29.16	29.66	29.25	29.72	29.28	29.77	29.25	29.90	29.17	29.91	29.02	29.99	29.06

TABLE No. III.

Mean Elevation of the Barometer.

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual Mean.
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
1867	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29.58	29.57	29.575
1868	29.29	29.66	29.49	29.46	29.30	29.38	29.24	29.33	29.33	29.48	29.43	29.48	29.406
1869	29.41	29.35	29.41	29.31	29.39	29.62	29 61	29.67	29.74	29.61	29.55	29.66	29.528
1870	29.54	29.43	29.46	29.47	29.43	29.45	29.47	29.48	29.54	29.55	29.55	29.56	29.494
1871	29.63	29.49	29.42	29.35	29.46	29.43	29.47	29.44	29.60	29.58	29.52	29.62	29.501
1872	29.59	29.46	29.53	29.50	29.48	29.48	29.47	29.52	29.50	29.61	.....	.....	29.514
Mean	29.49	29.48	29.46	29.42	29.41	29.47	29.45	29.49	29.54	29.57	29.55	29.58	29.493

TABLE No. IV.

Maximum and Minimum Temperature of each Month during a series of Eight Years.

YEAR.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
1865	45.0	—2.0	63.0	14.0	78.5	16.0	82.0	34.0	89.0	42.0	95.0	63.0	100.0	60.0	95.0	58.0	96.0	51.0	96.0	37.0	78.0	24.0	76.0	6.0
1866	69.0	+4.0	70.0	—7.0	76.0	18.0	97.0	33.0	98.0	46.0	99.0	50.0	100.0	67.0	96.0	50.0	90.0	50.0	82.0	32.0	64.0	27.0	60.0	5.0
1867	57.0	0.0	62.0	—10.0	61.0	11.0	83.0	31.0	95.0	35.0	99.0	60.0	100.0	68.0	98.0	52.0	97.0	42.0	90.0	28.0	77.0	10.0	72.0	11.0
1868	60.0	0.0	61.0	+5.0	82.0	10.0	85.0	23.0	95.0	50.0	95.0	60.0	99.0	73.0	90.0	58.0	86.0	44.0	80.0	30.0	68.0	28.0	57.0	—2.0
1869	61.0	15.0	70.0	13.0	71.0	6.0	76.0	30.0	84.0	43.0	90.0	51.0	93.0	60.0	95.0	57.0	88.0	42.0	77.0	21.0	61.0	21.0	51.0	18.9
1870	58.0	5.0	58.0	1.5	62.0	15.5	85.5	31.0	90.0	46.0	94.5	56.0	93.0	60.5	94.0	58.5	90.0	53.0	79.5	39.0	73.5	24.0	61.0	—4.0
1871	65.5	13.5	67.0	20.5	78.0	30.0	82.0	32.0	88.0	44.0	91.5	61.0	97.0	58.0	96.0	56.0	88.0	37.0	84.0	32.0	72.0	13.0	64.0	—7.0
1872	47.0	2.0	58.0	5.0	69.0	10.0	85.5	32.0	86.0	46.5	89.0	59.0	92.0	65.0	96.0	53.5	93.5	45.0	87.0	30.0	.....	.....	.....	.....
Mean...	60.31	4.69	63.63	5.25	72.19	14.56	84.50	30.75	90.63	44.06	94.13	57.50	96.75	63.94	95.00	55.38	91.06	45.50	84.44	31.13	70.50	18.38	55.13	3.38

From November to December, the average is for seven years

TABLE No. V.

Monthly and Annual Means of Temperature.

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual Mean.
	°	°	°	°	°	°	°	°	°	°	°	°	
1865	25.8	37.4	48.7	56.4	64.4	77.6	77.8	74.8	77.2	55.0	44.1	36.7	56.32
1866	32.3	33.6	42.1	61.8	64.4	77.8	84.7	75.9	68.9	58.9	45.3	31.9	56.46
1867	24.7	41.7	38.6	55.7	61.4	79.6	80.3	80.2	74.0	57.9	47.0	34.9	56.33
1868	29.2	33.7	50.3	53.1	67.6	76.9	84.8	76.3	65.8	54.9	44.1	30.1	55.56
1869	31.1	38.0	37.9	51.3	61.2	69.9	75.8	76.6	66.6	46.5	39.6	35.7	52.52
1870	34.7	34.4	39.1	55.4	66.8	72.8	77.9	75.4	71.4	58.1	44.9	32.1	55.25
1871	35.5	37.7	50.3	58.8	66.0	74.9	75.2	77.4	64.8	57.5	42.1	30.5	55.89
1872	28.9	33.2	37.1	57.4	66.8	72.5	77.2	76.2	68.0	54.3	.....	.....	.....
Mean	30.27	36.21	43.01	56.24	64.82	75.25	79.21	76.60	69.59	55.39	43.87	33.13	55.68

TABLE No. VI.

Mean Temperature of the Four Seasons.

YEAR.	SPRING.	SUMMER.	AUTUMN.	WINTER.
1865	66.13	76.60	45.27	37.30
1866	68.00	76.50	45.37	36.00
1867	65.57	78.17	46.60	35.00
1868	65.87	75.63	43.03	37.73
1869	60.80	73.00	40.60	35.67
1870	65.00	74.90	45.03	36.07
1871	66.57	72.47	43.37	41.17
1872	65.57	73.80	.....	33.07
Mean	65.44	75.19	44.18	36.50

TABLE No. VII.

Monthly and Annual quantity of Rain and Melted Snow in Inches and Hundredths.

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual Amount.
1865	4.70	0.62	2.70	5.73	11.80	2.45	4.70	1.98	6.51	1.55	1.25	6.70	50.69
1866	3.95	1.84	5.72	1.69	1.50	5.28	6.95	1.47	15.25	1.48	4.22	3.09	52.44
1867	6.18	7.34	5.52	1.70	4.25	3.20	3.95	4.09	0.77	1.64	3.50	6.40	48.54
1868	6.20	0.90	5.40	3.65	5.93	4.95	1.17	4.29	6.72	1.30	1.72	2.82	45.05
1869	1.87	4.05	5.40	3.94	5.95	4.54	0.90	2.10	3.05	2.97	4.74	3.47	42.98
1870	7.18	2.47	3.93	2.37	2.37	3.80	3.20	2.55	1.20	2.43	1.50	2.13	35.13
1871	2.52	4.39	4.74	2.77	3.16	2.30	3.82	4.06	0.47	1.00	3.07	3.75	36.05
1872	0.75	2.22	1.04	7.18	4.15	6.67	5.16	3.55	3.17	4.05	.....	.....	37.94
Mean	4.17	2.98	4.31	3.63	4.89	4.15	3.73	3.01	4.64	2.05	2.86	4.05	43.60

TABLE No. VIII.

Monthly and Annual Quantity of Snow in Inches and Hundredths.

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual amount.
1865	31.00	2.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33.10
1866	1.10	0.10	.....	2.00	.....	.....	.....	.....	.....	.....	.....	1.88	5.13
1867	19.20	11.75	9.00	.....	.....	.....	.....	.....	.....	.....	.....	20.25	39.95
1868	9.00	1.00	0.50	3.00	.....	.....	.....	.....	.....	.....	0.05	2.35	15.90
1869	2.00	1.30	0.90	0.10	.....	.....	.....	.....	.....	2.00	3.35	6.75	16.40
1870	5.35	7.75	1.75	.....	.....	.....	.....	.....	.....	.....	8.00	.....	22.85
1871	5.90	0.25	.....	.....	.....	.....	.....	.....	.....	.....	0.15	5.60	11.90
1872	4.95	9.00	0.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.15
Mean	9.81	4.16	1.54	0.64	.....	.....	.....	.....	.....	0.25	1 44	4.60	19.92