

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU,

CO-OPERATING WITH THE

MARYLAND STATE WEATHER SERVICE

Established by an Act of the General Assembly of the State of Maryland, 1892,
and Maintained in Connection with



The Johns Hopkins University and the Maryland Agricultural College.

CENTRAL OFFICE, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

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VOL. II, No. 12.

MONTHLY REPORT.

APRIL, 1893.

Maryland Weather in Olden Times.

The following observations of the climate of Maryland are taken from "Annals of Baltimore," by Thomas W. Griffith (Baltimore, 1831).* The first two paragraphs, descriptive of the winter seasons 1783-4 and 1827-8, are of special interest at this time, the close of a period of severe cold. The last extract shows that some people in "ye olden time" were prone to believe, as do many at present, that a perceptible change has been taking place in our climate. Perhaps the items may call to the minds of some of the readers of this Report recollection of other available matter bearing upon the climate of Maryland. Possibly the mention may occur in an old newspaper paragraph, or form a part of some ancient record, or be found in letters of long ago. Data of such a nature will gladly be received and published.

"The ensuing winter [1783-84] proved exceedingly severe; the bay was closed by ice almost to the mouth of it, and the harbor, which closed the 2d January, was not clear to admit vessels until the 25th March, nor then, but with much labor in cutting passages, which was sixteen days later than in 1780. At both periods much injury was sustained by the shipping in the bay and on the coast and considerable sums collected to relieve the poor. It was stated that the winter had been very moderate in Nova Scotia, while at New Orleans, the river Mississippi was fast closed by ice, which had not been known there before. Happily there has not occurred here such severe winters since, the navigation being generally open until the 5th of January and

seldom closed after the 10th of February, but sometimes open all the year."

"The winter of 1827-8 threatened to be severe, but although there was much frost and some snow in November, the weather proved afterwards quite mild for the season. Shipping continued to enter and depart without intermission, and there was so little ice made in the neighborhood of the City that many of the citizens who are provided with ice houses and lay in quantities of that useful article in our climate, either for their own consumption or for sale, were disappointed in getting a supply. Before the summer was half over a trade in ice from the Northern States took place for the first time, and several cargoes were brought here and sold for about a dollar per bushel."

[1829.]

"Situated in 39 degrees 17 minutes of Northern latitude, at about 200 miles by the course of the River and Bay, from the sea, somewhat greater distance from the Ohio and Lake Erie, about 800 miles from each extremity of the Coast of the United States and only 36 miles from the Capital, our position may be considered central. Though the continent is destitute of Volcanoes and we have no mountains in the immediate vicinity to affect our atmosphere, we experience as do our neighbors, the heat of a parallel Latitude on the Continent of Europe and the cold of England, twelve degrees further North from the Equator, alternately; the changes being also more rapid and violent with us. Actual meteorological observations on the Western border of the

* Attention was called to these items by Mr. Frank Frick, of Baltimore.

City, recorded by Lewis Brantz Esq., present the general phenomena of our climate in a favorable aspect; for instance, in the years 1817-1819, inclusive, the first being a year of Locusts and the last of Yellow Fevers, there were 245 fair days, 206 days of wind in the Northwest and Southeast quarters, the opposite quarters being known as the most wet or sultry winds; the greatest cold 5 degrees and greatest heat 94, the mean temperature, like the spring water, a little above 52 degrees of Fahrenheit's Thermometer; the range of the Barometer, one inch thirty nine hundredths, and the water fallen 36 and a half inches on an average, annually.

Whatever the extremes may be, the writer is not of the number of those who indulge in reports of experienced changes in the course of a moderate life; he is of the opinion that there neither has been nor will be, from cultivation or other common cause, such reduction of heat or cold as others fancy there has been, while the tropical winds are brought on our Coast with the Gulph Stream and the Northern Lakes are covered by ice near half the year. Nor does he believe that an exchange for the climate of any other habitable part of the Globe should be desired, and this for reasons like those which follow:

Comparative Meteorological Summary for three years—1817, 1818, and 1819, near Baltimore, Maryland. By Lewis Brantz, Esq.

Year	Fahrenheit's Ther.			Barometer.		Mean moisture.	Water fallen in 10ths.	State of the Weather.				Prevailing Winds.				Calm.	Remarks.
	Mean temperature.	Greatest cold.	Greatest heat.	Mean height.	Extreme range.			Fair days.	Cloudy.	Rainy.	Snow.	N. W. quar.	N. E. quar.	S. E. quar.	S. W. quar.		
1817	52 $\frac{1}{4}$ °	4°—	92+	29 in. 75	1 in. 31	31°	48 5 $\frac{1}{4}$	242	46	64	13	104	72	94	77	18	Healthy & Fruitful, Locusts.
1818	50 $\frac{1}{2}$	2°—	94+	29 " 86	1 " 59	65°	32 6	238	52	68	7	120	70	100	69	6	Healthy and fruitful.
1819	53 $\frac{7}{12}$	10°+	98+	29 " 85	1 " 28	37°	28 7 $\frac{1}{2}$	256	51	48	10	109	59	123	58	16	Yel. Fev. from July 25—Oct. 15.

Miscellaneous Notes.

Observers will confer a special favor by promptly forwarding meteorological forms. Each month, the issue of this publication is somewhat delayed by the tardy arrival of a few monthly reports.

Mr. Wm. T. Wilson, voluntary observer of the U. S. Weather Bureau and New Jersey Weather Service, has moved from Penn's Grove, N. J., to Millville, N. J. The situation of Penn's Grove, on the Delaware river immediately opposite Wilmington, made the reports of considerable value to the Maryland Service; but owing to the somewhat remote situation of Millville from the Delaware border, reports from that place will not be used in compiling the monthly meteorological summary of this service.

Forecasts have been resumed at Felton, Del. They are sent to Mr. J. H. Hubbard, who disseminates the information by means of whistle signals.

Mr. A. L. Gnagney, Grantsville, Md., has resigned as displayman, and Mr. T. H. Bittinger has been appointed in his stead.

The following lines, from Prof. G. G. Curtiss, deserve a prominent place in the book of weather proverbs:

When summer showers are scudding 'round
And farmers sighing for some rain,
They get none on the higher ground,
Where spreads the dry and dusty plain;
The clouds go 'round the sun-burned hills
And seek the damp and woody vales;
The showers follow brooks and rills,
And shady forest tracts, and swails.
If half your land in timber lies,
Expect more rain from summer skies.

Review of the Month—March.

Precipitation (in inches).—Average amount for the month, taking the whole number of re-

ports from Maryland, the District of Columbia, and Delaware, 3.32. The greatest amount, 4.14, fell at Cambridge, and the least, 1.00, at Cumberland. The map, page 99, shows that the greatest amount fell in eastern Maryland, Delaware, and portions of southern Maryland. In the remaining sections the amounts were considerably below the average. At Baltimore the total, 1.38, is smaller than in any previous year since the establishment of the station in 1871. Consulting the oldest records, only one instance can be found of a smaller precipitation total for the month at Baltimore, and that was 1.30 in 1822, as reported by Lewis Brantz. These old records extend from 1817 to 1837 and from 1836 to 1859. In a record of 50 years' observations at Ft. McHenry (from 1836), smaller amounts are found to have fallen in 1885 (1.24) and in 1858 (1.31).

The precipitation throughout the past month was well distributed, as shown by the table of daily precipitation for March, 1893, except during the last week, when none fell anywhere.

About .2 of the entire amount of precipitation was in the form of snow. 12.5 inches, the maximum amount, fell at Millsboro, Del., 12.3 at Cambridge, and 12 at Denton. At several stations in northern, central and western Maryland, none fell.

Temperature (degrees).—Mean monthly (for entire number of stations), 39.7. Highest monthly mean, 44.4, at Cambridge; lowest, 34.0, at Sunny Side. Highest temperature, 73.0, at Barron Creek Springs; lowest, 6, at Sunny Side. Mean maximum temperature, 49.4; mean minimum, 31.8. Greatest local monthly range, 64.0, at Sunny Side; least 42.0, at Great Falls. Mean monthly range, 50.4. The mean monthly temperature varied but slightly from the normal, being, probably, a little below it. The isotherms of the map, page 99, graphically show the variations in mean temperature, and the influence of the Chesapeake Bay, as well as of the topography of the region, upon the climate of Maryland. These lines of mean temperature are seen to vary from the isotherm of 36 to that of 41, the former cutting the Susquehanna River in Pennsylvania close to the Maryland border, and the latter crossing the Chesapeake Bay a short distance south of Annapolis. The lines exhibit a decided southward inclination on either side of the Bay.

Wind.—Prevailing direction, northwest. Total movement in miles, Baltimore, 6904; Norfolk, Va., 7529; Washington, D. C., 5898.

Halos.—Lunar, at Baltimore, on the 24th, 25th, 27th; at Barron Creek Springs, on the 24th, 26th, 27th; at Cumberland (H. Shriver), on the 24th, 27th; at Glyndon, on the 24th; at Mt. St. Mary's, on the 25th, 27th.

Halos.—Solar, at Barron Creek Springs, on the 18th.

Thunderstorms.—At Baltimore, on the 14th; at Barron Creek Springs, on the 14th; at Cambridge, on the 14th; at Darlington, on the 14th; at Denton, on the 14th; at Dover, Del., on the 14th; at Glyndon, on the 14th; at Jewell, on the 14th; at Leonardtown, on the 14th; at Seaford, Del., on the 14th; at Solomon's, on the 14th.

Meteors.—At Glyndon, on the 7th; at Woodstock, on the 24th.

Polar Bands.—At Cumberland (H. Shriver), on the 2nd, 13th, 24th, 25th, 26th, 27th, 31st.

Notes by Observers.

Barron Creek Springs.—4th, cold wave. 13th, snake killed. 20th, wild geese seen. 23rd, maples blossom. 28th, daffodils and jonquils putting up to bloom. Lizards seen. 30th, aspen and poplar trees blossom.

Cumberland (H. Shriver)—March went out as it came in—like a lamb. 9th, first and only dandelion of the month. These flowers may appear any month in winter. Redhead woodpecker seen. 20th, first blackbirds seen. 23rd, gloomy and dark; light mist. 25th, frogs heard.

The month was almost free from high winds and great changes. Taking it through, it was the finest March I have ever experienced, and more like April or May. The general opinion was one of commendation for this usually turbulent month. Wild flowers backward, not so much from want of heat as from lack of moisture.

Fallston.—The mean temperature during March, at this point, for the past twenty-two years, 37.6. Average precipitation for same period, 4.69 inches. Total precipitation for March, 1892, 5.86 inches.

Fenby.—4th, 5th, snow drifted so much as to block up some of the roads. 15th, snow nearly all melted, leaving the roads very muddy. Much cloudy and misty weather during the month, in proportion to the rain and snowfall. 31st, ground in good condition for plowing and gardening.

Glyndon.—12th, frogs heard. 14th, flock of wild geese passed over from S. W. to N. W.

Woodstock.—13th, first flowers in bloom. 14th, first trees budding. 18th, first spring birds seen.

Meteorological Stations reporting to the Maryland State Weather Service.

Stations of Observation.	County.	Observer.
Baltimore.....	.....	G. N. Wilson, A. T. Brewer, H. D. Stuart
Barron Creek Springs.....	Wicomico.....	Albert E. Acworth.
Boettcherville.....	Alleghany.....	F. F. Brown.
Cambridge.....	Dorchester.....	Calvert Orem.
Cumberland (a).....	Alleghany.....	Howard Shriver.
Cumberland (b).....	Alleghany.....	E. T. Shriver.
Darlington.....	Harford.....	A. F. Galbreath.
Denton.....	Caroline.....	F. C. Ramsdell.
Distributing Reservoir, D. C.....	.....	Lieut.-Col. Elliot.
Dover, Del.....	Kent.....	Jno. S. Jester.
Easton.....	Talbot.....	G. W. Minnick.
Edgemont.....	Washington.....	Chas. Feldman.
Fallston.....	Harford.....	G. G. Curtiss.
Fenby.....	Carroll.....	Wm. Fenby.
Frederick.....	Frederick.....	G. Ernest Bantz.
Glyndon.....	Baltimore.....	A. W. Nyce.
Great Falls.....	Montgomery.....	Lieut.-Col. Elliot.
Jewell.....	Anne Arundel.....	Jos. Plummer.
Kirkwood, Del.....	New Castle.....	W. C. L. Carnagy.
Leonardtown.....	St. Mary's.....	G. W. Joy.
McDonogh.....	Baltimore.....	W. W. Walker.
Millsboro, Del.....	Sussex.....	Rev. L. W. Wells.
Mt. St. Mary's (Emmitsburg).....	Frederick.....	J. A. Mitchell, A. M.
New Market.....	Frederick.....	H. H. Hopkins, M. D.
Penn's Grove, N. J.....	Salem.....	Wm. T. Wilson.
Receiving Reservoir, D. C.....	.....	Lieut.-Col. Elliot.
Salisbury.....	Wicomico.....	Col. Lemuel Malone.
Seaford, Del.....	Sussex.....	H. L. Wallace.
Solomon's.....	Calvert.....	W. H. Marsh, M. D.
Sunny Side.....	Garrett.....	Jno. G. Knauer.
Taneytown.....	Carroll.....	C. W. Weaver, M. D.
Washington, D. C.....	.....	S. W. Beall.
Woodstock College.....	Howard.....	T. J. A. Freeman, S. J.
Norfolk, Va.....	.....	A. B. Crane.

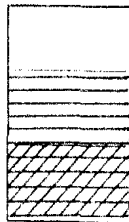
Stations Displaying Weather Signals.

Stations.	County.	Displaymen.
Annapolis.....	Anne Arundel.....	W. M. Abbott.
Appleton.....	Cecil.....	W. C. Henderson.
Barron Creek Springs.....	Wicomico.....	L. A. Wilson.
Bel Air.....	Harford.....	N. N. Nock.
Bradshaw.....	Baltimore.....	B. F. Taylor.
Bridgeville, Del.....	Sussex.....	T. J. Gray.
Buckeystown.....	Frederick.....	A. W. Nicodemus.
Cambridge.....	Dorchester.....	Calvert Orem.
Chestertown.....	Kent.....	J. S. Vandegrift.
Darlington.....	Harford.....	A. F. Galbreath.
Delaware City, Del.....	New Castle.....	W. E. Reybold.
Dickerson.....	Montgomery.....	W. H. Dickerson.
Easton.....	Talbot.....	G. W. Minnick.
Emmitsburg.....	Frederick.....	J. A. Mitchell, A. M.
Frederick.....	Frederick.....	W. T. Delaplaine.
Frostburg.....	Alleghany.....	C. J. Conner.
Grantsville.....	Garrett.....	T. H. Bittinger.
Greensboro.....	Caroline.....	Plummer & Plummer
Havre de Grace.....	Harford.....	W. S. McCombs.
Hyattsville.....	Prince George's.....	E. B. Rowell.
Lonaconing.....	Alleghany.....	J. J. Robinson.
Middletown.....	Frederick.....	G. C. Rhoderick, Jr.
Milford, Del.....	Kent.....	J. Y. Foulk.
Odenton.....	Anne Arundel.....	E. B. Watts.
Ridgely.....	Caroline.....	J. A. Sigler.
Salisbury.....	Wicomico.....	L. W. Gunby.
Seaford, Del.....	Sussex.....	Dr. Hugh Martin.
Snow Hill.....	Worcester.....	Purnell & Vincent.
* Sparrow's Point.....	Baltimore.....	Md. Steel Co.
St. Michael's.....	Talbot.....	E. M. Jefferson.
Westminster.....	Carroll.....	W. S. Myer & Bro.
Wilmington, Del.....	New Castle.....	Wm. Lawton.

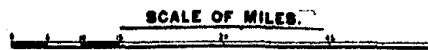
*Whistle Signals only.

MAP OF
MARYLAND AND DELAWARE
 SHOWING
 THE PRECIPITATION
 AND
 LINES OF MEAN TEMPERATURES
 FOR MARCH, 1893.

Scale of Shades:



0 TO 2 INCHES.
 2 TO 4 "
 OVER 4 "



SCALE OF MILES.

