

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.

PROF. WM. B. CLARK,  
JOHNS HOPKINS UNIVERSITY,  
Director.

PROF. MILTON WHITNEY,  
MARYLAND AGRICULTURAL COLLEGE,  
Secretary and Treasurer.

DR. C. P. CRONK,  
U. S. WEATHER BUREAU,  
Meteorologist in Charge.

VOL. IV, No. 4.

MONTHLY REPORT.

AUGUST, 1894.

## Observations taken at Frederick, Md., forty-three years ago by Dr. Louis H. Steiner.

The State Weather Service has been enriched by the addition to its records of original manuscripts of meteorological observations taken at Frederick, Maryland, by the late Dr. Louis H. Steiner, from August, 1851, to September, 1852, and from January to September, 1853. The manuscripts were delivered into the keeping of the Service by Dr. Bernard C. Steiner, who succeeded his father as librarian of the Enoch Pratt Free Library. The record during 1851 and 1852 was kept on blanks supplied by the Navy Department, and observations were taken four times daily, viz., at sunrise, 9 A. M., 3 P. M., and 9 P. M. The second series, January to September, 1853, was recorded on forms furnished by the Smithsonian Institution, the time of observation being changed to 7 A. M., 2 P. M., and 9 P. M., the same hours used at the present day at stations without self-registering instruments.

The old records are remarkable for their completeness, and show that the observer kept an unusually close watch upon the weather. The great care evidently used in the preparation of the forms is one of the best indications of accuracy, but the best is the signature of Dr. Steiner, himself. The observations were begun when, as a young practitioner, his time was ample for the diversion of meteorological research. From other summaries on file in this office it is known that he kept an unbroken record of the weather from August, 1851, to the

end of 1859, of which record the completed forms, now in the possession of this Service, are a part. Therefore, the first form prepared by Dr. Steiner is one of the collection received, this fact giving it a value peculiar to itself.

When Dr. Steiner began his observations, he had no instruments, and recorded merely the clearness of the sky, the direction and estimated force of the wind, the estimated velocity and course of clouds, the beginning and ending of precipitation, and remarks relative to temperature and weather conditions generally; but two months later he was able to add to the above observations of both barometer and thermometer.

This series of observations has already been made use of by the Service in the construction of seasonal and annual temperature and rainfall charts.

## Review of the Month—July.

WEATHER.

**Temperature** (degrees).—Monthly mean (for entire territory covered), 75.8, being the same as the normal; highest monthly mean, 82.6, at La Plata; lowest monthly mean, 66.0, at Oakland; highest temperature, 101, at Wilmington, Del.; lowest temperature, 34, at Sunnyside; mean monthly range, 43.3; greatest local monthly range, 58, at Sunnyside; least local monthly range, 32, at Princess Anne; monthly mean maximum, 86.2; monthly mean minimum, 64.3.

**Precipitation** (in inches).—Average, 2.85, being 1.40 below the normal; greatest amount,

7.19, at Mardela Springs; least amount, 0.56, at La Plata.

**Wind.**—Prevailing direction, southwest. Total movement in miles, Baltimore, 4960; Washington, D. C., 4104.

**Thunderstorms.**—At Baltimore, on the 2nd, 6th, 14th, 16th, 24th, 29th, 31st; at Benedict, on the 21st; at Cherryfields, on the 6th, 29th, 30th; at Cumberland, on the 21st, 27th; at Dover, Del., on the 21st, 29th, 31st; at Easton, on the 30th; at Fallston, on the 6th, 16th, 21st, 30th, 31st; at Frederick, on the 3rd, 5th, 6th, 17th, 21st, 28th, 29th, 31st; at Mardela Springs, on the 1st, 4th, 6th, 10th, 16th, 21st, 27th, 29th, 30th, 31st; at Millsboro, Del., on the 4th, 6th, 16th, 21st, 27th, 29th, 31st; at Oakland, on the 6th, 14th, 20th, 27th, 28th, 30th; at Pocomoke City, on the 27th; at Princess Anne, on the 14th, 30th; at Solomon's, on the 6th, 15th, 29th, 30th; at Sunnyside, on the 1st, 6th, 14th, 20th, 21st, 26th, 28th, 29th, 30th; at Taneytown, on the 3rd, 6th, 17th, 23rd, 24th, 29th, 30th; at Wilmington, Del., on the 6th, 31st.

**Hail.**—At Bachman's Valley, on the 6th; at Benedict, on the 21st; at Cherryfields, on the 6th; at Taneytown, on the 3rd, 6th.

**Auroras.**—At Charlotte Hall, on the 1st; at New Market, on the 1st; at Millsboro, Del., on the 5th, 6th, 25th, 28th.

**Halos.**—Solar, at Mardela Springs, on the 12th, 13th; Lunar, at Cumberland, on the 14th, 16th.

**Parhelion.**—At Mardela Springs, on the 26th, 27th.

**Corona.**—At Mardela Springs, on the 7th, 9th, 12th, 13th.

**Fog, light.**—At Mardela Springs, on the 10th, 17th, 18th, 19th, 27th; at Millsboro, Del., on the 17th, 18th, 19th; at Sunnyside, on the 5th, 15th, 18th, 19th, 28th.

**Frost, light.**—At Sunnyside, on the 9th.

#### CROPS.

*Week ending July 2nd, 1894.*

Grain cutting is nearly finished, except in the extreme western portions, where harvest will begin about the 10th. The heads of wheat are well filled and a good yield is expected. Corn looks exceedingly well in some localities, while elsewhere it is much in need of rain. Oats will be below the average. Haying is about over, with an average yield of timothy and a good crop of clover. Potatoes will turn out well in most sections. The setting out of tobacco plants has been delayed. A few peaches are being marketed. Grapes are promising in appearance. Large quantities of excellent blackberries are being shipped.

*Week ending July 9th, 1894.*

The wheat harvest is about over and the anticipations of an excellent yield bid fair to be fully realized. Corn is in good condition and growing rapidly, the late planted being the best, particularly on light land. Oats are nearly ready to cut; the crop is not an average one. A small acreage of tobacco has been planted in Calvert county. The hay crop is being saved in good condition. Tomatoes are growing well, as a rule. Pastures are in need of rain. There are very few apples and peaches. The raspberry season is about over.

*Week ending July 16th, 1894.*

Wheat is being hauled in and some threshing has been done, the yield being excellent. Corn is tasseling prematurely in the south of the State. Oats are ready for harvesting, but reports vary as to the yield expected. Barley is turning out satisfactorily. The hay harvest is about over and the crop secured is in good condition. Pastures are very poor. Early potatoes are fair, but those planted in May are a failure. Tomatoes look well, but the plants need rain. Garden truck has been set back by the drought. Apples, peaches, and pears are falling off. Berries are abundant.

*Week ending July 23rd, 1894.*

Threshing of wheat is still going on in western Maryland; the crop is a good one. Corn has improved, owing to recent rains. Oats are in shock and some have been threshed. Rye will turn out well. Buckwheat sowing is in progress. Hay is an average crop in some sections, but poor in others. Early potatoes are yielding well in many localities; late ones have improved. Early tomatoes will be ripe in about a week. A few peaches have been shipped. Some apples are ripe, but, like the peaches and other fruits, are very scarce. Melons are small.

*Week ending July 30th, 1894.*

Wheat threshing continues. Corn has improved. The yield of oats will be heavy. Hay is reported all in, and the crop is an average one. Plowing for wheat is in progress. From Calvert county comes the report that there will be only a half crop of tobacco. Potato beetles are troublesome. Cantaloupes, watermelons, and sweet corn are being shipped in large quantities. In northern sections there will be a small crop of apples.

#### Notes by Observers.

**Bachman's Valley.**—Severe electric storm on the night of the 5th, accompanied by hail, which did considerable damage to crops. From

the 27th of June to the 22nd of July there was but one rain, which fell on the 6th and amounted to 1.30 inches. During this dry spell corn suffered greatly. Rains on the 23rd, 28th, and 31st were beneficial to all crops.

**Dover, Del.**—21st, severe thunderstorm of short duration passed over this section at 2.30 P. M. On a farm about 1½ miles from this city the lightning struck a horse, killing it, and also injured two people. A second thunderstorm passed over at 8.30 P. M. No damage reported.

**Fallston.**—Mean temperature of July for the past twenty years, 74°; warmest was that of 1872, with an average of 78.7°; coolest was that of 1891, with an average of 69.6°.

Average rainfall of July for 23 years, 5.06 inches; wettest was that of 1889, with a total of 12.37 inches; driest was that of 1881, with a total of 1.42 inches.

**Fenby.**—The month just passed was remarkable for the number of warm and clear days. Corn and potatoes suffered much for the want of rain until the 31st, when there was a fall of 1.80 inches, accompanied by high winds which did some damage, prostrating corn and trees.

**Oakland.**—15th, water and streams very low; 19th, wells going dry, streams still low; 22nd, streams rising; 30th, thunderstorm at or near Bittinger, 15 miles northeast of here. A barn was struck by lightning and burned to the ground.

**Miscellaneous Notes.**

Meteorological reports were received from newly established stations in Maryland as follows: Annapolis, Anne Arundel county, Mr. J. E. Abbott, of the *Evening Capital*, observer; Princess Anne, Somerset county, Mr. James R. Stewart, observer; Pope's Creek, St. Mary's county, Mr. George Dent, observer; La Plata, Charles county, Mr. J. Samuel Turner, observer. A display station was also established at La Plata, with Mr. J. Samuel Turner as displayman.

By reference to the summary, page 26, it will be noticed that the mean temperature for Annapolis is too high; therefore it was omitted from the review of the month and in computing averages. This high mean temperature is due to the fact that instruments were not sent to Annapolis until the 14th of July and, consequently, the mean temperature is taken from observations of the last eighteen days, only.

Mr. Ben. F. Taylor, Bradshaw, Baltimore county, Maryland, has adopted the logotype system of distributing daily forecasts by mail, and twenty post-offices in that section are now supplied with official forecasts, which are telegraphed daily to Mr. Taylor.

Mr. Emmett Dove, displayman at Rockville, Montgomery county, Maryland, has increased the number of sub-stations receiving daily forecasts by mail from nineteen to thirty-three.

The printing of this Report has been considerably delayed, owing to the late receipt of meteorological forms from very important points, which increase its size and value.

It is earnestly requested that observers forward their reports in time for them to reach this office not later than the 5th of the succeeding month, so that there will be no occasion for subsequent delays.

**Monthly Summary of Meteorological Observations taken at Baltimore, Maryland, during the month of July, 1894.**

Mean barometer, 30.02. Highest barometer, 30.20; date, 27th. Lowest barometer, 29.72; date, 6th.

Mean temperature, 78. Highest temperature, 97; date, 14th and 29th. Lowest temperature, 56; date, 10th. Greatest daily range of temperature, 28; date, 12th. Least daily range of temperature, 6; date, 23rd.

*Mean temperature for this month in*

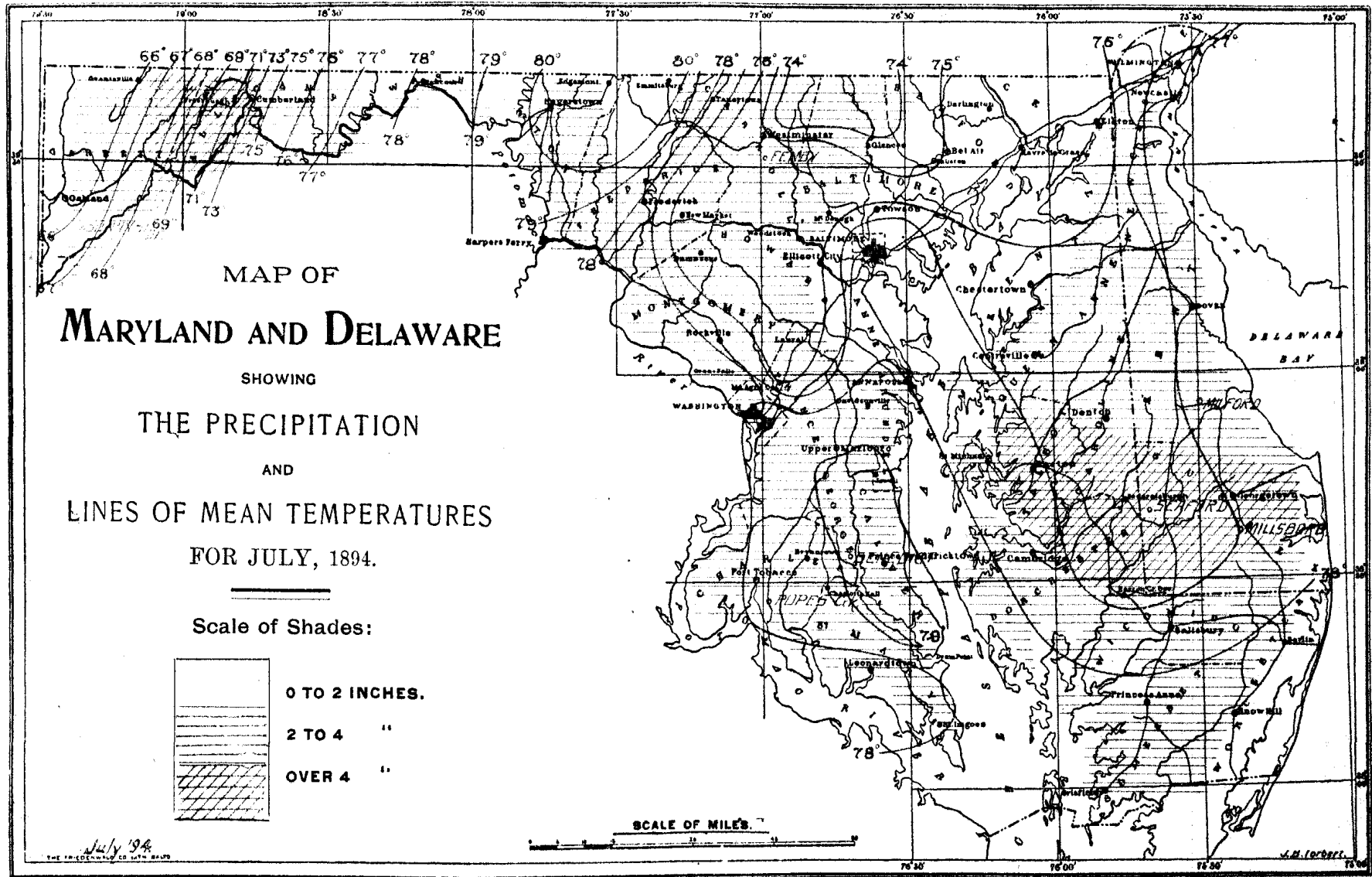
1871...76	1877...78	1883...77	1889...76
1872...82	1878...81	1884...75	1890...75
1873...79	1879...79	1885...80	1891...72
1874...79	1880...77	1886...74	1892...76
1875...78	1881...79	1887...80	1893...78
1876...81	1882...77	1888...74	1894...78

Mean temperature for this month for 24 years, 78. Total deficiency in temperature during month, 29. Total excess in temperature since January 1st, 234. Prevailing direction of wind, southwest. Total movement of wind, 4960 miles. Maximum velocity of wind, direction and date, 26th, from the west, on the 29th. Total precipitation, 1.73 inches. Number of days on which .01 inch or more of precipitation fell, 9.

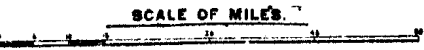
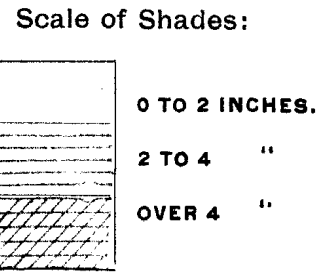
*Total precipitation (in inches) for this month in*

1871...6.15	1877...4.60	1883...3.10	1889...11.03
1872...1.58	1878...4.66	1884...9.43	1890... 3.61
1873...2.90	1879...3.16	1885...2.67	1891... 7.79
1874...4.30	1880...6.47	1886...8.08	1892... 4.07
1875...4.78	1881...1.40	1887...8.32	1893... 1.88
1876...5.64	1882...4.02	1888...2.82	1894... 1.73

Average precipitation for this month for 24 years, 4.76. Total deficiency in precipitation during month, 3.21. Total deficiency in precipitation since January 1st, 4.42. Number of clear days, 19; partly cloudy days, 9; cloudy days, 3.



MAP OF  
**MARYLAND AND DELAWARE**  
 SHOWING  
 THE PRECIPITATION  
 AND  
 LINES OF MEAN TEMPERATURES  
 FOR JULY, 1894.



July 94  
 THE FRIEDLAND CO. LITH. BALD.

J.H. Roberts

# Meteorological and Weather Signal Display Stations of the Maryland State Weather Service.

Stations.	County.	Meteorological Observer.	Displayman.
Annapolis	Anne Arundel	J. E. Abbott.	W. M. Abbott.
Appleton	Cecil		W. C. Henderson.
Bachman's Valley	Carroll	J. M. Myers.	
Baltimore		G. N. Wilson. J. H. Donaldson. A. T. Brewer. <i>Ass't Editor of Monthly Report.</i> R. C. New. <i>Ass't Editor of Weekly Bulletin.</i>	
Benedict	Charles	Thomas Berry.	
Bel Air	Harford		N. N. Nock.
Boettcherville	Alleghany	F. F. Brown.	
Bradshaw	Baltimore		B. F. Taylor.
Buckeystown	Frederick		A. W. Nicodemus.
Cambridge	Dorchester		Calvert Orem.
Charlotte Hall	St. Mary's	J. Francis Coad.	
Cherryfields	St. Mary's	J. Edwin Coad.	
Chestertown	Kent	Hon. M. deK. Smith.	
Cumberland	Alleghany	Howard Shriver. E. T. Shriver.	
Darlington	Harford	A. F. Galbreath.	
Delaware City, Del.	New Castle		W. E. Reybold.
Denton	Caroline	F. C. Ramsdell.	
Dickerson	Montgomery		W. H. Dickerson.
Distributing Reservoir, D. C.		Col. G. H. Elliot.	
Dover, Del.	Kent	Jno. S. Jester	Philip Burnet.
Easton	Talbot	Henry Shreve	Henry Shreve.
Edgemont	Washington	Chas. Feldman.	
Fallston	Harford	G. G. Curtiss, A. M.	
Fenby	Carroll	Wm. Fenby.	
Frederick	Frederick	McClintock Young	W. T. Delaplaine.
Frederica, Del.	Kent		Miss E. V. Newnom. Miss L. T. Frazier.
Garey P. O.	Howard		Walter Dorsey.
Glyndon	Baltimore		J. J. Dyer.
Grantsville	Garrett		T. H. Bittinger.
Great Falls	Montgomery	Col. G. H. Elliot.	
Hampstead	Carroll		H. H. Meals.
Hartly, Del.	Kent		Miss C. A. Forde.
Havre de Grace	Harford		W. S. McCombs.
Kenton, Del.	Kent		W. S. Arthurs.
Kirkwood, Del.	New Castle	J. S. Carnagy.	
La Plata	Charles	J. S. Turner.	J. S. Turner.
Laurel, Del.	Sussex		E. D. C. Hegeman.
Lonaconing	Alleghany		J. J. Robinson.
Mardela Springs	Wicomico	A. E. Acworth	L. A. Wilson.
McDonogh	Baltimore	H. Pender.	
Middletown	Frederick		G. C. Rhoderick, Jr.
Milford, Del.	Kent	J. Y. Foulk.	J. Y. Foulk.
Millsboro, Del.	Sussex	Rev. L. W. Wells.	
Mt. St. Mary's	Frederick	J. A. Mitchell, A. M.	Jos. H. Martin.
Newark, Del.	New Castle	Wm. H. Bishop.	
New Market	Frederick	Miss Margaret D. Hopkins.	
Oakland	Garrett	J. Lee McComas, M. D.	J. L. McComas, M. D.
Odenton	Anne Arundel		E. B. Watts.
Princess Anne	Worcester	Jas. R. Stewart.	
Pocomoke City	Worcester	R. M. Stevenson	R. M. Stevenson.
Pope's Creek	St. Mary's	George Dent.	
Receiving Reservoir, D. C.		Col. G. H. Elliot.	
Rising Sun	Cecil		E. A. Reynolds.
Rockville	Montgomery		Emmett Dove.
Salisbury	Wicomico		L. W. Gunby.
Seaford, Del.	Sussex	H. L. Wallace	H. L. Wallace.
Smyrna, Del.	Kent		A. D. Yocum.
Snow Hill	Worcester		Purnell & Vincent.
Solomon's	Calvert	W. H. Marsh, M. D.	
†Sparrow's Point	Baltimore		Md. Steel Co.
Sunnyside	Garrett	John G. Knauer.	
Sykesville	Carroll		J. S. Hyatt.
Upper Marlboro	Prince George's	J. B. Perrie.	
Washington, D. C.		S. W. Beall.	
West Friendship	Howard		Postmaster.
Westover	Somerset		E. D. Long.
Wilmington, Del.	New Castle	F. C. D. McKay	Wm. Lawton.
Woodsboro	Frederick		G. F. Smith.
Woodstock	Howard	T. J. A. Freeman, S. J.	
*Birdsnest, Va.	Northampton	C. R. Moore.	
*Cape Charles, Va.	Northampton	O. A. Browne.	
*Norfolk, Va.	Norfolk	Jas. J. Gray.	
*Warsaw, Va.	Richmond	C. H. Constable.	

\*Stations of the Virginia State Weather Service. †Whistle signals only.

