

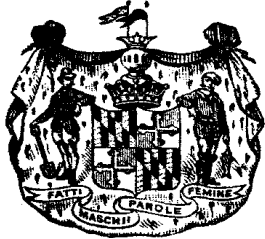
STATE WEATHER DIVISION,
WEATHER BUREAU
SEP 2 1894

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. 5.

MONTHLY REPORT.

SEPTEMBER, 1894.

American Association of State Weather Services.

The following notification has been received from the Secretary of the American Association of State Weather Services:

"At the 3rd annual meeting of the American Association of State Weather Services, held at Brooklyn, N. Y., August 17th, 1894, the following named officers were elected for the ensuing year: Major H. H. C. Dunwoody, President; Captain T. F. Townsend (Pa.), 1st Vice-President; Mr. S. W. Glenn (S. Dak.), 2nd Vice-President; Mr. James Berry, Secretary and Treasurer; Mr. J. Warren Smith (New England), Mr. E. W. McGann (N. J.), and Dr. C. P. Cronk (Md.), Executive Committee.

Although the number of state weather services represented at the meeting was somewhat smaller than on previous occasions, the Convention was well attended and in every way a success.

It is hoped that it will be possible to secure the printing of a report of the proceedings in the Monthly Weather Review for August, as was done last year."

MISCELLANEOUS NOTES.

Mr. McClintock Young, of Frederick, gives the following valuable suggestions for preparing meteorological forms:

"I think if some instructions were given in the use of the copying tablet, clean and neater copies would be made. I find, by using a 6-H. Faber pencil sharpened to a tolerably fine point, and putting a piece of hard card-board under

the last sheet to be copied, good results can be obtained. Rubber may be used to erase, if necessary, and if it is used, the black sheets should first be removed."

Mr. Ben. F. Taylor, displayman at Bradshaw, Maryland, writes as follows concerning his success with the logotype system:

"Since commencing the distribution of weather reports, I have enlisted both the telegraph operator and postmaster in the work, and find but little trouble. The cards are all printed and ready for mailing fifteen minutes after receipt of telegram, and there has not been a break in getting them promptly on their way."

Review of the Month—August.

WEATHER.

Temperature (degrees).—Monthly mean (for entire territory covered), 71.5, being 2.8 below the normal; highest monthly mean, 75.8, at Solomon's; lowest monthly mean, 63.8, at Oakland; highest temperature, 97, at Darlington, on the 3rd; lowest temperature, 39, at Sunnyside, on the 5th and 22nd; mean monthly range, 39.7; greatest local monthly range, 48, at Sunnyside; least local monthly range, 29, at Distributing Reservoir, D. C.; monthly mean maximum, 81.5; monthly mean minimum, 62.0.

It will be seen that the mean temperature of the month did not vary greatly from the normal; and that there were no periods of excessive heat is evidenced by the fact that 97° was the highest temperature recorded, and this maximum was reported from one station only.

The map, page 33, shows the variation in mean temperature produced by difference of latitude, bodies of water, mountain ranges, valleys, etc. One of the coldest sections east of the Alleghenies is on the northern border of Maryland, between the eastern slope of the Blue Ridge and the line dividing the State from Delaware. Slightly colder is a small, circular section in Howard county, midway between the Catoctin mountains and the Chesapeake bay. Of course, the lowest means of all are to be found in Garrett county, at the western extreme of Maryland, and of these, Oakland furnishes the minimum, 63.8°.

A comparatively cool area, having a mean between 71° and 72°, extends from southern Delaware southwest to the lower border of Maryland. Directly west of the southern half of this area, but on the west side of the Bay, we find the warmest section, which includes portions of Calvert and St. Mary's counties. The city of Wilmington gives almost as high a temperature, however, as can be found in this last mentioned area.

Precipitation (in inches).—Average, 2.45, being 1.42 below the normal; greatest amount, 5.78, at Wilmington, Del.; least amount, 0.93, at Annapolis.

There was not much more than half the usual rainfall. Some sections, to be sure, received the usual quota, and some localities more, but considering the entire area covered by the observations, the month must be rated as very dry. The table of daily precipitation shows that the distribution of the rainfall throughout the month was tolerably even, but the showers were usually light.

The heaviest rains occurred on the 2nd, 12th, 13th, 20th, and 26th, but even on these dates some localities received no rain. The storms to which the above rainy days belonged were, excepting the last two, of that class which comes from the Northwest and follows the trend of the Great Lakes and the St. Lawrence river to the ocean. The cause of the rain on the 20th was the secondary depression which made its appearance in the lower Lake Region on the 18th, and passing thence southeast to the coast, apparently united with the primary storm to the Northeast.

The 26th was rainy because of a shallow low area which then was spread over nearly the whole of the southeast quarter of the United States. This area, also, may be considered as a secondary to one of the first mentioned class of storms.

The map shows the precipitation to have been distributed very unevenly over the area included by the State Weather Service, as stated above.

The greater portion of Delaware received an ample supply, and more, of rainfall, and the Eastern Shore of Maryland received nearly the usual amount; but drought reigned elsewhere

except in certain favored localities. The fall was especially light in an elliptical area having for its foci, Baltimore and Annapolis. While Annapolis had the least rainfall, amounting to but 0.93 of an inch, Easton, scarcely thirty miles distant, reported 4.91 inches, the greatest amount for Maryland.

Wind.—Prevailing direction, southwest. Total movement in miles, Baltimore, 3880; Norfolk, Va., 4308; Washington, D. C., 3219.

Thunderstorms.—At Annapolis, on the 18th; at Bachman's Valley, on the 19th; at Boettcherville, on the 2nd, 9th, 13th; at Chestertown, on the 15th; at Cumberland, on the 2nd, 9th, 13th, 15th; at Dover, Del., on the 13th, 15th, 18th, 20th; at Easton, on the 26th; at Fallston, on the 15th, 26th; at Frederick, on the 3rd, 30th; at Pocomoke City, on the 10th; at Pope's Creek, on the 26th; at Princess Anne, on the 12th, 15th, 19th, 26th; at Seaford, Del., on the 15th; at Solomon's, on the 10th, 13th, 15th, 18th, 19th, 20th; at Sunnyside, on the 1st, 2nd, 9th, 13th, 15th, 19th, 27th, 30th; at Taneytown, on the 12th, 20th, 27th; at Wilmington, Del., on the 2nd, 15th, 18th, 26th; at Woodstock, on the 19th, 26th.

Hail.—At Charlotte Hall, on the 26th; at Fallston, on the 15th.

Halos, solar.—At Mardela Springs, on the 18th; at Frederick, on the 24th.

Coronæ, lunar.—At Mardela Springs, on the 7th, 11th, 16th.

Polar Bands.—At Cumberland, on the 16th.

Fogs, dense.—At Baltimore, on the 30th; at Mardela Springs, on the 1st, 2nd, 14th, 29th, 30th.

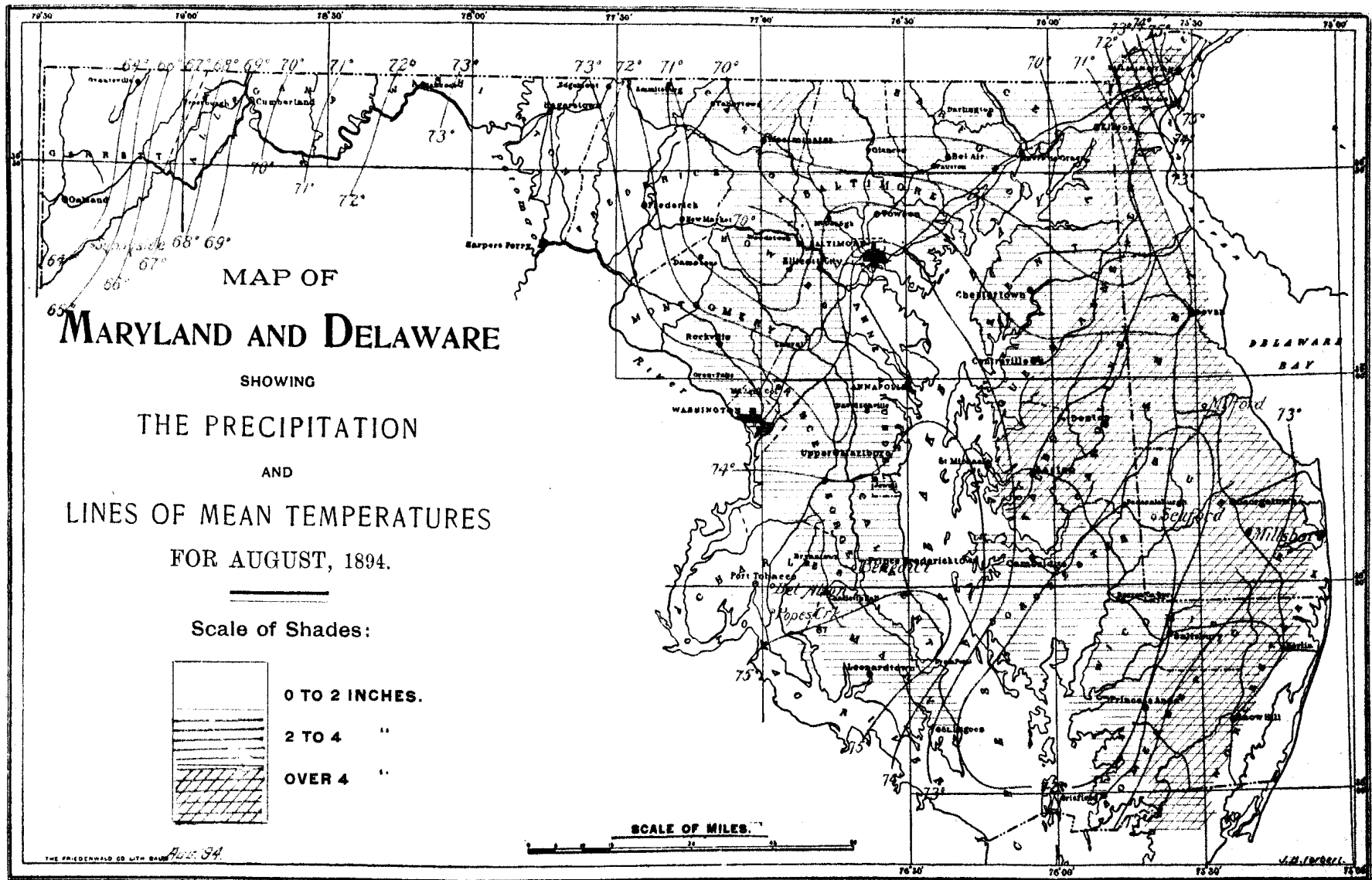
CROPS.

Week ending August 6th, 1894.

All vegetation has greatly improved since the drought was broken, and crops now look well. Wheat threshing is in progress and hay making is about completed. Corn has been much benefited by the recent showers, the early planted excelling the late. Oats are ripe in many places and appear to be in good condition. Late potatoes are a failure in some localities. Pastures are very short. The tomato crop is not very promising; some canning has been done. There are no peaches, and apples are small. Fall plowing has commenced on the Eastern Shore.

Week ending August 13th, 1894.

Wheat is yielding from 18 to 30 bushels per acre in western Maryland. Threshing is still in operation in some of the eastern counties. Reports state that the corn crop will be greatly shortened by the drought; many fields will not make more than half a crop. The late planted, however, may give a fair yield if the weather



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.
Bel Alton	Charles	Walter Cox.	
Boettcherville	Allegany	F. F. Brown.	
Bradshaw	Baltimore		B. F. Taylor.
Buckeystown	Frederick		A. W. Nicodemus.
Cambridge	Dorchester		Samuel Leman.
Charlotte Hall	St. Mary's	J. Francis Coad.	
Cherryfields	St. Mary's	J. Edwin Coad.	
Chestertown	Kent	Hon. M. deK. Smith.	
Cumberland	Allegany	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	J. S. Miller	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. Artburs.
Kirkwood, Del.	New Castle	J. S. Carnagy.	
La Plata	Charles	J. S. Turner	J. S. Turner.
Laurel, Del.	Sussex		E. D. C. Hegeman.
Lonaconing	Allegany		J. J. Robinson.
Mardela Springs	Wicomico	A. E. Acworth	L. A. Wilson.
Marshall Hall	Charles	F. H. Deal.	
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.	
*Birdanest, 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.

MONTHLY SUMMARY OF REPORTS FOR AUGUST, 1894.

STATIONS.	COUNTIES.	Altitude above sea in ft.	Latitude.	Longitude.	TEMPERATURE.								Monthly Range.	Total Precipitation.	Clear Days.	Fair Days.	Cloudy Days.	Rainy Days. (.01 in. or more)	Prevailing Wind.
					Monthly Mean.	Mean of Max.	Mean of Min.	Max.		Min.									
								Degrees	Date.	Degrees	Date.								
WESTERN MARYLAND.																			
Sunnyside.....	Garrett.....		39°20'	79°21'	64.8	77.7	52.0	87	8, 9	39	5, 22	48	1.01	14	13	4	6	S. W.	
Oakland.....	Garrett.....	2380	39 24	79 18	63.8	75.6	56.9	84	9	41	6	43	1.86	11	1	19	11	S. W.	
Grantsville.....	Garrett.....		39 41	79 12	66.4	77.3	55.6	85	9	42	5	43	1.62	11	14	6	6	S. W.	
Boettcherville ¹	Allegany.....		39 39	78 48	69.8			92	9	52	5	40	2.00						
Gumberland (a).....	Allegany.....	650	39 39	78 46	73.6	84.5	62.7	92	9	54	22	38	1.57						
Cumberland (b).....	Allegany.....	700	39 39	78 45	70.8	80.5	61.1	90	9	52	4, 5	38	1.15	19	8	4	5		
NORTHERN-CENTRAL MD.																			
†Mt. St. Mary's Col.	Frederick.....	720	39 43	77 20	74.4	82.7	66.2	94	8	52	12	42	2.50	17	2	12	3	N. W.	
Frederick.....	Frederick.....	280	39 24	77 18	72.8	83.7	62.0	94	8	52	22	42	1.54				6	S. W.	
New Market ¹	Frederick.....	500	39 23	77 18	70.7			90	1	58	17, 22	32	1.59	19	9	3	3	N. W.	
Taneytown.....	Carroll.....		39 40	77 9								1.72							
Bachman's Val ¹	Carroll.....		39 37	76 55	69.7			94	2	56	22	38	4.29	16	9	6	5	S. E.	
Fenby ¹	Carroll.....	950	39 33	76 58	71.2			90	8	59	17, 22	31	2.70	16	14	1	6	S. E.	
McDonogh.....	Baltimore.....	535	39 23	76 44	72.4	78.2	64.6	88	1, 8	57	22, 26	31							
Woodstock Col.....	Baltimore.....	400	39 19	76 51	69.4		58.8	*95	8	50	1	45	2.90	10	8	13	4	E.	
Baltimore.....		179	39 17	76 36	73.2	81.3	65.0	93	8	57	22	36	1.41	19	9	3	8	S. E.	
Fallston ¹	Harford.....	450	39 31	76 24	70.3			88	3, 8, 9	57	22	31	2.83						
Darlington.....	Harford.....	300	39 39	78 45	70.6	89.1	61.0	97	3	56	22	41	2.76	23	3	5	6	S. W.	
Great Falls ⁵	Montgomery.....		39 0	77 14	73.4			90	9	58	23	32	2.10						
SOUTHERN MARYLAND.																			
Annapolis.....	Anne Arund ¹	20	38 58	76 30	73.6	82.4	64.8	90	1, 9	56	11	34	0.93	25	1	5	4		
Dist. Res., D. C. ⁶			38 52	77 0	74.4			91		62	22	29	1.71						
Rec. Res., D. C. ⁶			38 52	77 0	73.8			86	9	58	22	30	1.58						
Washington, D. C.		112	38 52	77 0	73.6	82.6	64.7	92	9	54	22	38	2.00	11	14	6	8	S.	
†College Park.....	Pr. George's.....		38 58	76 56	72.2	83.7	60.7	96	23	50	22	46	3.56						
Upper Marlboro.....	Pr. George's.....		38 47	76 45	73.0	83.4	62.7	93	8	51	22	42	2.17	22	5	4	6		
†Marshall Hall.....	Charles.....		38 42	77 8								1.73							
Benedict.....	Charles.....		38 31	76 40	74.8	84.0	65.6	96	10	55	22	41	1.15	19	6	6	5		
La Plata.....	Charles.....		38 32	77 0	74.9	86.9	62.9	96	3, 9	55	21, 23	41	1.41						
Bel Alton.....	Charles.....		38 26	77 1	74.4	86.3	62.5	95	10	55	17, 19	40	1.30						
Charlotte Hall.....	St. Mary's.....		38 28	76 38	74.2	84.7	63.6	95	9	52	22	43	2.79	15	5	9	5	S. W.	
Pope's Creek.....	St. Mary's.....		38 22	77 1	74.5	85.2	63.8	96	7, 8	51	21	45	1.90						
Cherryfields ²	St. Mary's.....		38 11	76 24	72.0							3.20		14	6	11	11	N. E.	
Solomon's.....	Calvert.....	20	38 19	76 27	75.8	83.7	67.9	96	9	60	22	36	1.86	5	11	15	10	S. E.	
EASTERN MD. AND DELAWARE.																			
Chestertown.....	Kent.....	80	39 13	76 4	71.8	80.8	62.9	91	9	51	23	40	3.54	10	17	4	6	N. E.	
Denton.....	Caroline.....	42	38 47	75 41	73.0	83.4	62.5	90	2, 3, 8	51	21	39	2.63						
Easton.....	Talbot.....	35	38 42	76 6	72.6	81.5	63.6	89	1	51	22	38	4.91	20	8	3	6	S. W.	
Mardela Spr.....	Wicomico.....	25	38 30	75 39	71.4	79.5	62.3	89	9	50	7, 22	39	3.54	8	15	8	9	S. W.	
Princess Anne.....	Somerset.....		38 10	75 35	72.1	78.5	65.7	90	9	56	22	44	2.79	6	13	12	11	S. W.	
Pocomoke City.....	Worcester.....	37	38 5	75 38	73.2	81.8	64.6	93	9	55	22	38	4.57	12	10	9	8	S. W.	
Wilmington, Del.....	Newcastle.....	115	39 44	75 33	75.0	85.2	64.9	93	1, 2	53	22	40	5.78	11	13	7	9	N. W.	
Newark, Del.....	Newcastle.....		39 40	75 37	71.0	80.4	61.6	89	1, 8	50	22	39	4.99	7	12	12	9	S. S.	
Kirkwood, Del. ⁵	Newcastle.....		39 35	75 41	d71.0														
Dover, Del.....	Kent.....	40	39 10	75 30	71.3	78.7	63.9	87	1, 3	54	22	33	4.01	13	15	3	8	S. W.	
Milford, Del.....	Kent.....	20	38 45	75 25	72.6	81.9	63.4	90	3	54	22	36	4.21	19	9	13	6	N.	
Seaford, Del.....	Sussex.....		38 40	75 35	71.2	80.1	62.2	92	9	51	22	41	2.24						
†Millsboro, Del.....	Sussex.....		38 44	75 15	71.7	80.6	62.6	91	3	50	22	41	2.26	10	14	7	6	N. E.	
†VIRGINIA.																			
Norfolk.....					74.5	81.9	67.1	93	9	60	5	33	8.45	11	9	11	13	N. E.	
Warsaw.....					73.6	83.2	64.1	95	9	54	23	41	2.98	6	16	9	6	S.	
†PENNSYLVANIA.																			
Philadelphia.....					73.0	81.4	64.5	89	1	58	22	31	2.15	11	12	8	7	S. W.	
AVERAGES																			
Western Maryland.....					68.2	79.1	57.7					41.7	1.54	13.8	9.0	8.2	7.0	S. W.	
Northern-Cent ¹ Md.....					71.5	81.7	62.6					39.3	2.39	16.0	9.8	5.2	5.3	S. E.	
Southern Maryland.....					74.1	84.4	64.3					38.1	1.82	14.4	6.9	7.8	6.3	S. W.	
East. Md. and Del.....					72.2	80.8	63.5					39.8	4.06	11.8	12.4	7.9	8.0	S. W.	
Entire territory.....					71.5	81.5	62.0					39.7	2.45	14.0	9.5	7.3	6.6	S. W.	

* Extremes of temperature from observed readings of dry thermometer. A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:
¹ Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. + 4. ² Mean of 8 a. m. + 3 p. m. + 2. ³ Mean of 7 a. m. + 2 p. m. + 2.
The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers. Letters of the alphabet are used to denote the number of days that are missing from record; for instance, "a" denotes 1 day missing. An italic letter following the name of a station indicates that two or more observers, as the case may be, are reporting from the same station. † Omitted in computing averages.