

DEC 15 1898

U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR NOVEMBER, 1898.

MARYLAND AND DELAWARE SECTION
OF THE
CLIMATE AND CROP SERVICE
OF THE
WEATHER BUREAU.

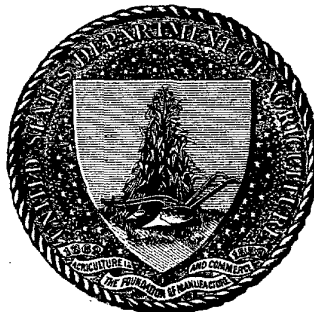
IN COOPERATION WITH THE
MARYLAND STATE WEATHER SERVICE.

(Prof. Wm. B. Clark, Director; Prof. Milton Whitney, Secretary and Treasurer.)

PREPARED UNDER DIRECTION OF
WILLIS L. MOORE,
CHIEF OF WEATHER BUREAU.

BY

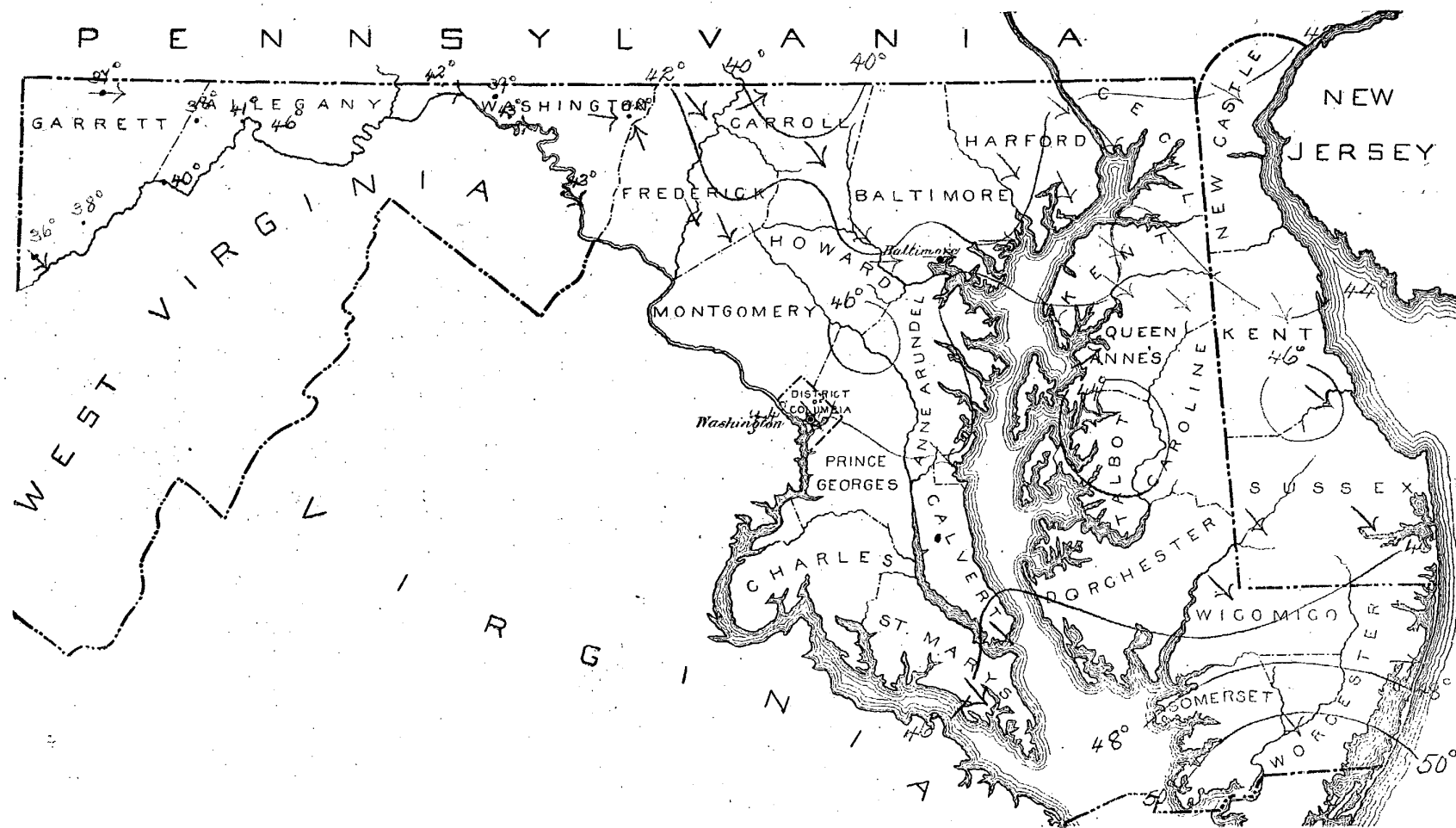
F. J. WALZ,
SECTION DIRECTOR.



BALTIMORE, MD.:
WEATHER BUREAU OFFICE.
JOHNS HOPKINS UNIVERSITY.

1898.

MONTHLY MEAN ISOTHERMS AND PREVAILING WINDS, NOVEMBER, 1898.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATE AND CROP SERVICE

OF THE

WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

BALTIMORE, MD.

VOL. III.

BALTIMORE, MD.

NO. 11.

STUDIES OF CLIMATE.

It is probable that a number of the Directors of Climate and Crop Sections and State Weather Services will shortly undertake the preparation of monographs or introductory studies of climate for their respective Sections or States. Compilations of this character have already been made for the States of New York and Oregon, while valuable, though less extended, articles of a kindred nature have been written from time to time by the Directors of the Climate and Crop Services of Texas, California, and other States. The Michigan State Board of Health has utilized meteorological reports in special studies, and other scientific organizations have conducted investigations based on Weather Bureau and State records. The general prosecution of climatic studies is only a matter of time. In many States the brief period covered by trustworthy records has delayed the work. The older Services were naturally the first to begin operations, but others, including our own, have now reached a stage where the material furnished by voluntary observers affords a sufficient basis for an investigation of the problems involved.

It was intended that the question of climatic study should be introduced for discussion at the Convention of Weather Bureau Officials recently held at Omaha, but unfortunately the entire time was taken up before this topic was reached. This was particularly regretted by the writer, partly owing to the fact that he had devoted considerable attention to the subject prior to the meeting, and also through the frustration of his hope that the opinions of other members might be of material benefit to him in a study of the climate of Maryland and Delaware, already begun. The papers prepared by those intending to participate in a discussion of the subject will, however, be included in the report of proceedings soon to be printed, and will then become available for reproduction in this publication. An outline of the plan to be followed by the Maryland and Delaware Service in the studies now in progress may be of interest. It may be, too, that the voluntary observers will offer suggestions of value, or furnish statements of local peculiarities of climate that have attracted their notice or excited their curiosity. All such suggestions or facts will be appreciated and receive careful consideration. The subject-matter of the proposed work is given in brief, and a number of minor alterations are probable. The plan of work is not given in complete detail, but will become fairly apparent from a study of the general outline:

Introduction: Historical sketch and bibliography, embracing an account of the various meteorological records that have been obtained in the Section or State, with the periods covered, and where possible the names of the observers. An account of the various stations that have been established. Also of the publications of all kinds bearing upon the meteorology or climate of the section that have been issued in or pertain to the section under discussion.

An enumeration and description of the various maps and charts that have been issued.

Establishment of and work done by organized meteorological and scientific bodies in the Section, such as the National Weather Bureau, State Weather Services, etc.

Instruments: Descriptions and illustrations of the various commoner meteorological instruments, especially those in use in the regular Weather Bureau Offices and by the voluntary observers.

Weather: General description of the storm movements over the Section; weather types and characteristics; general and local modifying influences; storm frequency and intensity.

Climate: Geography, topography, and general physical features of the Section under discussion; general geology; distribution and kinds of agricultural soils.

Climatic elements—Temperature: Mean daily (as far as possible). Mean monthly. Mean seasonal. Mean yearly. Average monthly and annual maximums. Average monthly and annual minimums. Extreme temperatures, monthly and annual. Amplitude or range, mean daily, monthly, seasonal, and extremes. Variability or average daily change: For the single months, also for the seasons and the whole year. Temperature anomaly, or the average departure from the normal for the several months (and seasons) for a number of years. Long period temperature oscillations. Permanent increase or decrease in temperature. Wet bulb or sensible temperatures. Number of days with temperatures of freezing or below. Number of days with temperature above 90°. Number of days with mean temperature above 44°. Advent of Spring. Average and extreme dates when ice forms in Spring and Fall, and the number of days free from ice. Frosts—Average and extreme dates of first and last light and killing frosts. Relative frequency of cold waves in winter and hot waves in summer. Influence of mountains, valleys, large bodies of water, etc., upon the temperature.

Precipitation: Total amounts, monthly, seasonal, and annual. Excessive amounts, and frequency of excessive rainfall. Fluctuations in rainfall, monthly, seasonal, and annual. Long period fluctuations. Variability, or departure from the normal. Permanent increase or decrease in rainfall. Average number of days with precipitation, monthly and annual. If there is a pronounced rainy season, the percentage of the annual rainfall occurring in that season. The intensity of rainfall, or the ratio between the total amount and the number of days on which it fell. Frequency or probability of rainfall, by months, seasons, and year. Greatest number of consecutive days with appreciable rainfall. Greatest number of consecutive days without appreciable rainfall. Years of drought. Destructive storms. Thunderstorms—Average number; time and region of greatest frequency. Influence of topography, bodies of water, etc., upon the rainfall. Hail. Snow. Dew.

Humidity: Relative humidity. Absolute humidity.

Cloudiness: Number of clear, partly cloudy, and cloudy days, by months and for the year. Sunshine. Fog, number of days with.

Winds: Average velocity. Prevailing direction. Resultant winds. Frequency or average number of times the wind blows from each direction. Months of maximum and minimum velocities of winds. Highest velocity of winds. Wind direction most likely to be followed by rain. Wind direction least likely to be followed by rain. Local winds, such as mountain and valley winds, land and sea breezes, etc. Hot winds. Cold winds. Föhn winds.

Conclusion: Resume of the principal features and main characteristics of the climate of the Section as a whole, and of its several climatic divisions; also a table or tables, showing a brief comparison of the climatic conditions of the Section, or its divisions, with selected places in the United States and other parts of the globe. Meteorological and climatic

problems yet obscure or undetermined, and the best means for their solution, also the adaptation of current methods of work to that end.

A word of explanation is proper with reference to the sense in which the words *Climate* and *Weather* are used in the outline. The terms are employed in their more abstract meanings. *Climate* may be considered as the summing up and averaging of the meteorological conditions of the Section for a series of years, together with a determination and study of the *average and extreme departures* from these average conditions. As a matter of course the study of climate will be productive of best results where the observational period is most prolonged, and the period must be sufficiently extended to eliminate from the averages the excessive influence that might be exerted by the persistence of very abnormal features for one or more months, seasons, or years. By *Weather* is meant the study of the transient conditions as produced or controlled by the passage of cyclonic and anticyclonic areas and the attendant secondary disturbances; an investigation of the characteristics of the more marked types; and the determination and analysis of the weather elements resulting from the successive formation and movements of these areas.

Our service has collected records for the past seven years. It cannot be claimed that a study of these records will disclose all the facts regarding the climate of Maryland and Delaware. Preliminary investigations are possible, however, and will be made somewhat on the plan given above.

* * *

CLIMATOLOGY OF THE MONTH.

ATMOSPHERIC PRESSURE—IN INCHES AND HUNDREDTHS.

Monthly mean at Washington, D. C., 30.14; at Baltimore, 30.11; average, 30.12; highest, 30.56 at Washington, D. C., on the 3d; lowest, 29.48 at Baltimore, on the 29th.

TEMPERATURE—IN DEGREES FAHRENHEIT.

The monthly mean (entire territory), 43.4, is 1.9 below the normal.

The highest monthly mean was 50.6, at Pocomoke City.

The lowest monthly mean was 35.9, at Sunnyside.

The highest temperature recorded during the month was 78, at Pocomoke City, on the 10th.

The lowest temperature recorded during the month was -6, at Deer Park, on the 28th.

The greatest local monthly range was 72, at Deer Park.

The least local monthly range was 36, at Port Deposit.

The greatest daily range was 45, at Sunnyside, on the 4th.

The least daily range was 0, at Maryland Agricultural College, on the 24th.

PRECIPITATION—IN INCHES AND HUNDREDTHS.

The monthly average (entire territory) 3.85, was 0.80 above the normal.

The greatest amount was 5.62 at Darlington.

The least amount was 1.42, at Boettcherville.

The greatest amount in twenty-four hours was 1.80, at Bachman's Valley, on the 18th.

The average number of rainy days, 11.

WIND.

The prevailing direction was from the northwest.

The total movement was 3,559 miles, at Baltimore, and 5,152 miles, at Washington, D. C.

The maximum wind velocity was 32 miles per hour from the northwest, at Washington, D. C., on the 27th.

MISCELLANEOUS.

The following are dates on which various miscellaneous phenomena occurred:

Snow.—Bachman's Valley, 24, 26, 30; Baltimore, 24, 26, 30; Chase, 24, 26; Cherryfields, 26; Cumberland, 26, 29; Darlington, 24, 26, 29; Deer Park, 26; Dover, Del., 24, 26; Easton, 25, 26, 29; Frederick, 26, 30; Frostburg, 26, 29; Grantsville, 24, 26, 27, 29; Green Spring Furnace, 26, 29; Hagerstown, 26, 28; Hancock, 26, 28; Jewell, 24, 25, 26, 27, 30; Laurel, 24, 26, 29; Mardela Springs, 26; Maryland Agricultural College, 24, 26; Milford, Del., 26, 30; Millsboro, Del., 26, 27; Mt. St. Mary's, 26, 29, 30; New Market, 24, 26, 30; Pocomoke City, 27; Port Deposit, 24, 26; Queenstown, 24, 26, 29; Rack Hall (1), 24, 26, 27; Rock Hall (2), 24, 26; Sandy Point, 26; Seaford, Del., 24, 26; Sharpsburg, 26, 30; Smithsburg (2), 26, 30; Solomons, 24, 26, 29; Spencerville, 24, 26, 30; St. Charles College, 24, 26, 30; Suddlersville, 24, 26, 29; Sunnyside, 24, 26, 29, 30; Taneytown, 24, 26, 30; Van Bibber, 23, 24, 25; Western Maryland College, 16, 24, 26, 30; Westernport, 26, 29; Washington, 24, 26, 29, 30; Woodstock, 24, 26.

Hail.—Chase, 29; Cherryfields, 24; Mardela Springs, 24; Millsboro, Del., 6, 25; New Market, 14; Queenstown, 24; Solomons, 19.

Sleet.—Chase, 24; Chewsville, 26; Coleman, 24; Jewell, 24; Millsboro, Del., 6; New Market, 28; Sharpsburg, 14, 29; Solomons, 24; Western Maryland College, 29.

Halo, lunar.—Baltimore, 21, 28, 30; Green Spring Furnace, 21, 23, 25, 29, 30; Jewell, 21, 28; Mt. St. Mary's, 21, 24; Rock Hall (2), 28; Taneytown, 21, 23, 25.

Coronæ, lunar.—Millsboro, Del., 26, 28; Smithsburg, 21, 23; Washington, 21, 25.

Halo, solar.—Jewell, 28; Mardela Springs, 30; Washington, 8, 12, 28.

Thunderstorms.—Cherryfields, 5; Mardela Springs, 5, 19; Mt. St. Mary's, 22; Solomons, 6, 19.

High winds.—Bachman's Valley, 26, 27; Chase, 27; Frostburg, 26; Green Spring Furnace, 6, 10, 24; Port Deposit, 27; Queenstown, 6, 10, 23, 26, 27, 30; Seaford, 27; Suddlersville, 26; Van Bibber, 6, 10; Woodstock, 6, 7.

Earthquake.—Slight earthquake shock on the 25th at 3 o'clock and 10 minutes and 30 seconds p. m. in Washington.

Climatological data for Maryland and Delaware, November, 1898.

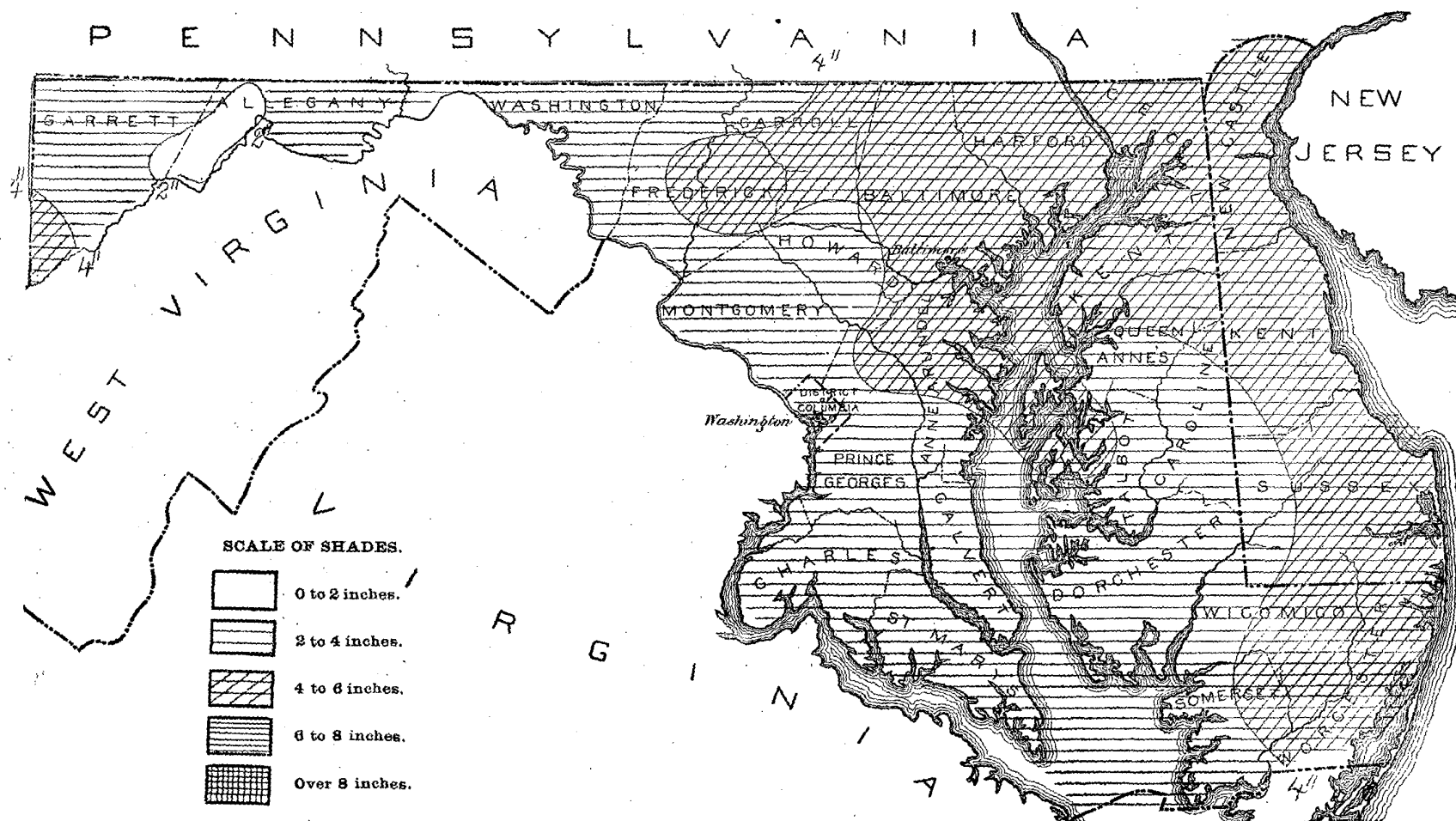
Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Prevailing direction of wind.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days.	Number clear days.	Number partly cloudy days.	Number cloudy days.		
WESTERN MARYLAND.																				
Boettcherville.....	Allegany.....	700	8	40.9	-0.1	65	11	14	28	39	1.42	-1.31	0.52	5.0	6					F. F. Brown.
Boonsboro.....	Washington.....	650																		Chas. E. Huntzberg.
Boonsboro 2.....	Washington.....	900																		Samuel L. Ford.
Chewsville.....	Washington.....	550		42.1		66	9	19	27	32	3.11		0.92	6.0	8	13	13	4	W	E. I. Oswald.
Clear Spring 1.....	Washington.....	500																		W. E. Loose, Jr.
Clear Spring 2.....	Washington.....	650		38.6		65	9	19	25	32	2.92		0.80	6.5	10	12	8	3		W. W. Frantz.
Cumberland.....	Allegany.....	722	39	46.0	-0.3	68	5	27	26	24	2.34	-0.19	0.40	8.0						Howard Shriver.
Deer Park.....	Garrett.....	2,457	7	37.5	-0.6	66	4	6	28	42	2.06	-0.75	0.70	7.0						S. P. Specht.
Frostburg.....	Allegany.....	2,400	3	37.6		61	9	11	27	31	2.62		0.62		16					G. G. Townsend.
Grantsville.....	Garrett.....	2,400	5	36.8	-1.3	68	4	9	28	38	3.24	+0.02	0.73	12.0	11	6	9	15	W	J. S. Miller.
Green Spring Furnace.....	Washington.....	500	6	41.8	+0.1	66	5	21	27	30	2.59	-0.46	0.67	5.0	13	16	7	7	W	E. G. Kinsell.
Hagerstown.....	Washington.....	550	7	42.8	-3.8	67	5	25	26	32	2.73	-0.65	0.80	6.8	6	11	8	11	W	Prof. C. E. Carl.
Hancock.....	Washington.....	455		41.9		67	4	21	26	30	2.53		0.79	9.0	7	7	13	10	E&W	J. D. Stottemeyer.
Sharpsburg.....	Washington.....	450	4	42.6	-1.6	66	10	21	27	27	3.22	+0.73	0.63	7.5	10	16	7	7	NW	R. L. Hiberger.
Smithsburg.....	Washington.....	750	1																	Joseph L. Miller.
Smithsburg 2.....	Washington.....	900		41.8		65	10	19	25	27	3.85		0.97	8.0	8	13	7	7	SE	Dr. D. W. Crowther.
Sunnyside.....	Garrett.....	2,440	6	35.9	-2.2	68	4	0	28	45	4.26	-0.02	0.93	9.0	16	7	9	14	NW	J. G. Knauer.
Westernport.....	Allegany.....	1,000	4	40.4	-1.2	65	8	18	26	30	1.93	-0.48	0.36	4.0	9					Prof. O. H. Bruce.
Average.....				40.5	-1.2						2.77	-0.35		7.2	10	11	9	9	W	
NORTHERN-CENTRAL MD.																				
Bachman's Valley.....	Carroll.....	860	5	40.4	-1.1	64	10	17	20	27	5.52	+1.38	1.80	11.0	8	19	4	7	NW	J. M. Myers.
Baltimore.....	Baltimore.....	123	64	44.3	-2.0	67	10	24	27	26	4.34	+1.20	1.00	8.0	14	12	6	12	W	U.S. Weather Bureau.
Baltimore, J. H. Hospital.....	Baltimore.....	124	4	43.2	-2.7	67	10	24	28	30	4.66		1.00		12	14	3	13	NW	W. L. Woods.
Chase.....	Baltimore.....	20		41.3		63	10	19	28	32	4.96		0.85	7.0	13	9	12	9	W	J. W. Crouch.
Darlington Academy.....	Harford.....	300	9	42.1	-1.4	63	10	23	26	24	5.62	+1.99	1.60	10.0	9	15	9	6	NW	Prof. A. F. Galbreath.
Fallston School.....	Harford.....	450	30	42.0	-0.8	61	11	20	28	23	5.44	+1.32	1.01	10.2	15	3	20	7	NW	G. G. Curtiss, A. M.
Frederick.....	Frederick.....	250	26	42.9	-0.7	66	10	23	27	29	3.99	+0.83	1.34	5.0	11	10	10	10	NW	McClintock Young.
Great Falls.....	Montgomery.....	150	10	42.8	-1.4	67	12	23	27	33	2.90	+0.02	0.92		7	16	0	14	SE	Washington Aqueduct.
Mt. St. Mary's College.....	Frederick.....	720	38	41.6	-0.7	64	10	20	27	27	3.75	+0.07	0.95	9.2	11	7	15	8	NW	J. A. Mitchell, Ph. D.
New Market.....	Frederick.....	550	15	42.5	-0.3	66	2	20	27	25	4.70	+1.09	1.02	6.2	14	11	10	9	NW	H. H. Hopkins, M. D.
St. Charles College.....	Howard.....	500	4	41.9	-4.6	66	10	19	28	30	5.00	+1.73	1.10	6.0	12	5	12	13	W	Rev. George L. Harig.
Taneytown.....	Carroll.....	495	6	40.1	-6.5	65	10	18	29	40	3.99	-0.16	1.30	7.5	15	15	7	8	SW	Prof. H. Meier.
Van Bibber.....	Harford.....	20	3	41.6	-3.6	62	10	22	27	39	5.49	+0.73	1.00	9.0	14	15	3	12	NW	H. A. Wroth.
Western Maryland Coll.....	Carroll.....	720	4	41.7	-7.2	64	10	19	27	26	4.28	+0.08	1.40	8.0	12	10	8	12	NW	Dr. Cleveland Abbe, Jr.
Woodstock College.....	Baltimore.....	392	29	42.0	+0.2	67	10	23	27	30	3.79	+0.36	1.20	2.5	9	18	1	11	NW	T. J. A. Freeman, S. J.
Average.....				42.0	-2.3						4.56	+0.82		7.7	12	12	8	10	NW	
SOUTHERN MARYLAND.																				
Annapolis.....	Anne Arundel.....	20	25	43.8	-2.5	65	10	25	28	22	4.69	+1.83	1.03	8.0	11	16	3	11	SE	J. E. Abbott.
Charlotte Hall School.....	St. Mary's.....	167	5																	J. F. Coad.
Cherryfields.....	St. Mary's.....	20	5	45.9	-1.1	63	10	24	28	32	2.29	-1.13	0.63		10	11		6	NW	Col. J. E. Coad.
Distributing Reservoir t.....	Dist. of Columbia.....	120	8	44.4	-1.0						2.48	-0.40	0.91		9		13		NW	Washington Aqueduct.
Jewell.....	Anne Arundel.....	165	11	43.7	-3.1	68	11	21	27	30	3.57	+0.52	0.76	1.5	8	15	6	9	NW	J. Plummer.
Laurel.....	Prince George's.....	150	4	45.7	-1.2	67	9	27	25	28	2.97	-0.13	0.85	7.0	8	7	14	9	NW	Dr. T. M. Baldwin.
Md. Agricultural College.....	Prince George's.....	170	7	45.0	-1.2	69	9	28	8	37	4.18	+1.67	1.05	3.0	7					Prof. J. H. Patterson.
Receiving Reservoir t.....	Dist. of Columbia.....	160	8	44.1	-1.0						2.86	-0.30	0.97		9				NW	Washington Aqueduct.
Solomon's.....	Calvert.....	20	7	47.3	-1.5	70	9	26	27	23	3.25	+0.35	0.81	1.5	12	8	4	18	NW	W. H. Marsh, M. D.
Washington.....	Dist. of Columbia.....	112	28	43.9	-1.0	69	10	22	26	28	3.12	+0.25	0.87		15	11	10	9	NW	U.S. Weather Bureau.
Average.....				45.0	-1.6						3.27	+0.30		3.3	10	11	8	10	NW	
EASTERN MARYLAND.																				
Berlin.....	Worcester.....																			Dr. E. J. Dirickson.
Chestertown.....	Kent.....	80	14	43.2	-2.8	62	5	25	25	35	5.10	+2.20	1.10	7.0	10	14	6	10	NW	Hon. M. de K. Smith.
Coleman.....	Kent.....	80		43.7		66	10	24	28	32	4.49		1.06	8.2	12	14	4	12	NW	James S. Harris.
Denton.....	Caroline.....	42	9																	F. C. Ramsdell.
Easton.....	Talbot.....	35	9	43.2	-2.6	67	10	26	26	32	4.14	+1.21	0.89	0.8	14	18	2	10	NW	Henry Shreve.
Mardela Springs.....	Wicomico.....	25	11	45.3	-2.2	70	10	24	26	32	3.87	+0.59	0.95	2.0	9	9	7	14	NW	A. E. Acworth.
Pocomoke City.....	Worcester.....	37	5	50.6	-2.9	78	10	27	27	34	4.28	+2.10	0.82		10	16	6	8	NW	R. M. Stevenson.
Port Deposit.....	Cecil.....		1	42.9		62	2	26	26	26			1.56		8	9	10	11	NW	J. I. France.
Princess Anne.....	Somerset.....	20	24																	J. R. Stewart.
Queenstown.....	Queen Anne.....	10		43.6		68	10	25	26	27	3.79		0.96	4.5	12	14	9	7	SW	Dr. W. K. Carroll.
Rock Hall 1.....	Kent.....	40		45.0		66	10	26	26	27	4.29	+1.73	0.67	3.5	12	14	6	10	NW	Chas. N. Satterfield.
Rock Hall 2.....	Kent.....	20		44.0		66	11	24	26	29	4.52		0.83	3.0	13	13	5	12	S	Isaac E. Leary.
Sandy Point.....	Worcester.....	12						20	27		4.47		1.00	3.0	9	19	1	10	W	J. B. Dirickson.
Suddlersville.....	Queen Anne.....			45.2		70	11	25	25	29					12	6	12	NW	J. S. Barwick.	
Average.....				44.7	-2.6						4.33	+1.52		4.0	11	14	6	10	NW	
DELAWARE.																				
Dover.....	Kent.....	40	22	43.4	-1.3	67	9	22	27	33	4.53	+1.34	0.92		12	2	17	11	NW	A. A. Bateman.
Milford.....	Kent.....	20	19	46.2	-1.5	72	11	23	25	31	4.22	+1.91	1.40	7.0	10	16	1	13	NW	J. Y. Fouk.
Millsboro.....	Sussex.....	23	6	44.8	-3.1	73	11	24	26	37	4.81	+1.94	1.16		12	16	5	9	NW	Rev. I. W. Bishop.
Newark (Delaware Coll.).....	Newcastle.....	136	5																	Prof. W. H. Bishop.
Seaford.....	Sussex.....	40	8	45.0	-1.6	70	10	25	27	28	3.77		1.28	4.0	12	13	2	15	NW	W. T. Wallace.
Average.....				44.9	-1.9						4.38	+1.73		5.5	12	12	6	12	NW	
General average.....				43.4	-1.9						3.85	+0.80		5.5	11	12	7	10	NW	

NOTE.—All records are used in determining State or district means, but State and district departures are determined by comparison of current data of only such stations as have normals.

* Mean of 8 a. m. + 8 p. m. + 2.

† Mean of 7 a. m. + 2 p. m. + 2.

TOTAL PRECIPITATION, NOVEMBER, 1898.



Daily precipitation for Maryland and Delaware, November, 1898.

Stations.	Day of month.																															Total.	
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.		
WESTERN MARYLAND.																																	
Boettcherville.....					.20	†				.52			†	†	.10			.30								.20			.10			1.42	
Boonsboro 1.....																																	
Boonsboro 2.....										.92			.30													.16							2.92
Chewsville.....					.16																												
Clear Spring 1.....																			.79					.35									3.11
Clear Spring 2.....										.36	.44		.10	.01	.33		.80						.23			.25		.05	.35				2.92
Cumberland.....					.20					.51		.01				.20	.34	.02				.26				.40							2.34
Deer Park.....						.38				.70						.10	.06	.30				.12				.40							2.06
Frostburg.....			.02	.01		.29	.01			.62			.06		.01	.20	.20	.13	.29	.03		.15		.01		.37			.22				2.62
Grantsville.....					.32					.73			.16			.05	.03	.70				.08		.05		.70	.30		.12				3.24
Green Spring Furnace.....						.16				.67			.12		.11			.74				.32				.11			.36				2.59
Hagerstown.....										.70			.75			.40	.80									.08		.60					2.73
Hancock.....										.73			†			.20			.70			.32				.16			.30				2.53
Sharpsburg.....										.48	.27				.20		.47	.17	.63				.28			.09				.56			3.22
Smithsburg 1.....																																	
Smithsburg 2.....						.17				.97				.17			.45		.85			†	.44			.30				.50			3.85
Sunnyside.....					.12	.46				.93	.08			.51		.22		.23	.72	.25		.12		.03		.28		.08	.24				4.26
Westernport.....					.23					.36	.20		.03			.16	.35					.20				.30			.10				1.93
NORTHERN-CENTRAL MARYLAND.																																	
Bachman's Valley.....					.28					.70			1.48			†		1.80				.16		.20		.30				.60			5.52
Baltimore.....						.10				.85	.15		.01	.16		†	.66	.45	.45			.11	.20	.20		.45	†		.22	.33			4.34
Baltimore, Johns Hopkins Hospital.....										.35	.77			.24			.80	.06	1.00	.02		.40		.20	.05	.22			.55				4.66
Chase.....				.01	.08					.47	.43			.26			.85	.30	.63				.33	.13					.70	.37			5.62
Darlington Academy.....					.26					1.60			.50				.70	1.09				.46				.45							
Fallston School.....																																	
Frederick.....						.13				1.34			.25	†		.55			1.01			.17				.15			.09	.30			3.99
Great Falls.....																																	
Kensington.....																																	
Mt. St. Mary's College.....						†				.95			.12	.06			.44	.47	.42			.23	.16			.50		.15	.28				3.75
New Market.....							.08			1.02	.48		†	.26		†	.62	.45	.72				.36	.01		.25		.05	.40				4.70
Spencerville.....																																	
St. Charles College.....										1.10	.22		†	.06		†	.64	.65	.64	†		.09	.22	.30		.45			.40	.23			5.00
Taneytown.....					.08					1.30			.18				.41		.75			.45	.04		.21				.48				3.90
Van Bibber.....					.25	.03				.33	1.00		.28			.76	.03	.93	.02			.54	.02		.17		.67			.46			5.49
Western Maryland College.....					.11					1.40	.09		.35			†	.49	.35	.59					.10		.30		†	.40				4.21
Woodstock College.....										1.20			.10			.60	1.10					.25	.05		.13				.36				3.79
SOUTHERN MARYLAND.																																	
Annapolis.....						†				†	1.03	†		.19				.81	.44	.22		.15	.27	.41		.39	†	†	.31	.47			4.69
Charlotte Hall School.....																																	
Cherryfields.....					.08	.20				†			.27			.20	.25	.45	†			.09		.10		.02			.05				2.29
Distributing Reservoir, D. C.....																																	
Jewell.....					.68					†			†	.26		†	.76	.75	†			.17		.12	†	.13	†			.70			3.57
Lake Shore.....																																	
Laurel.....					.19					.85			.15					.70				.25	.10		.13			.60					2.97
Maryland Agricultural College.....						†				.90			.20			.83		1.05					.10		.20			.90					4.18
Receiving Reservoir, D. C.....																																	
Solomon's.....						.36				.01			.18	.21		.06	.75	.13	.54			.10		.18		.18		.65					3.25
Washington, D. C.....					†	.25				.14	.06		†	.10		.03	.87	.43	.52			.01	.04	.02		.12	.02		.30	.21			3.12
EASTERN MARYLAND.																																	
Berlin.....																																	
Betterton.....																																	
Chestertown.....					.45					.60			.41		†	.96	.04	1.10	.04			.70		.10		.60			.10				5.10
Coleman.....					.10					.20	.27		.37			.92	1.06	.02				.39	.27		.25			.21	.43				4.49
Denton.....																																	
Easton.....					.39								.50			.85		.89				.46	.16	.02	.11				†	.76			4.14
Mardela Springs.....					.36					.02			.40				.82		.59			.34	.15		.24			.95					3.87
Ocean City.....																																	
Pocomoke City.....					.68								.45			.82	.10	.41				.36				.67	.09		.70				4.28
Port Deposit.....					.20					1.56			.38				1.00	1.30				.54											
Princess Anne.....																																	
Queenstown.....					.27					†	.02		.35	.01		.81	.02	.96				.24	.03	.15		.25		.68					3.79
Rock Hall 1.....						.36				†	.55		†	.34			.85	.16	.67				.30	.15		.16	.04		.17	.54			4.29
Rock Hall 2.....						.39				.04	.63		†	.33			.83	.13	.72				.23	.11		.22	.04		.15	.70			4.52
Sandy Point.....						.60							.30			.90		.45	.20			.41		.31		.30		1.00					4.47
DELAWARE.																																	
Dover.....					.34					.30			.50			.70	.92	.02				.44	†	.38		.42				.51			4.53
Milford.....					.36					.02			.62					1.40					.35		.35						1.12		4.22
Millsboro.....					.59					.54			.12	.40		.50	.19	.54				.15	.14	.58		.54			.84	.32			4.81
Newark (Delaware College).....																																	
Seaford.....					.37					†			.47					1.28				.36		.13		.33			.83				3.77