

U. S. DEPARTMENT OF AGRICULTURE.

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REPORT FOR JUNE, 1900.

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

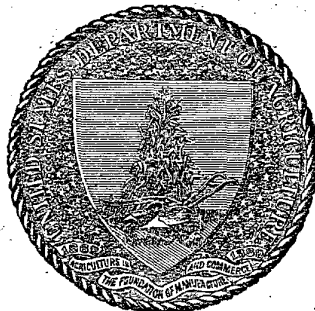
IN COOPERATION WITH THE  
MARYLAND STATE WEATHER SERVICE.

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

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

BY

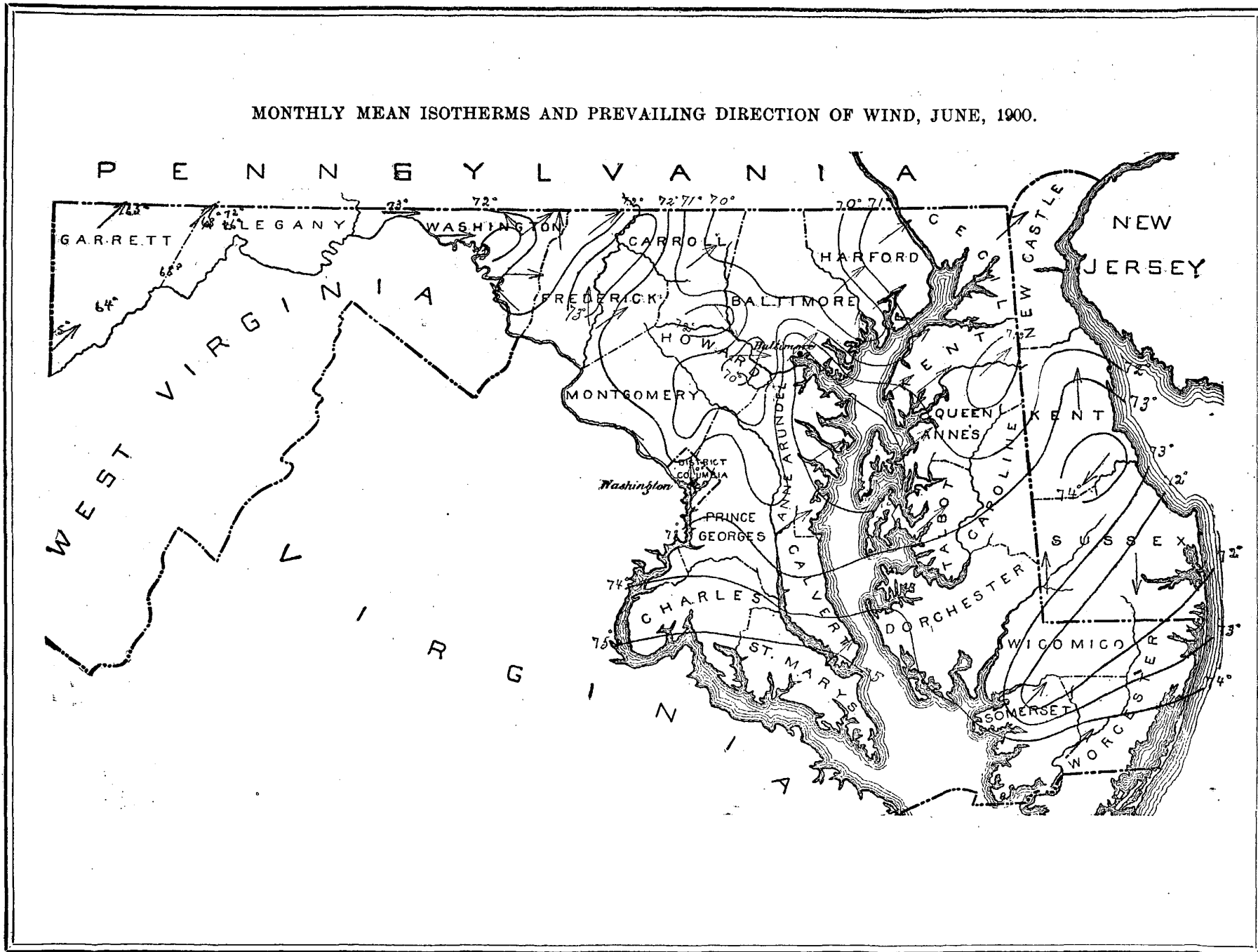
OLIVER L. FASSIG,  
SECTION DIRECTOR.



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

1900.

MONTHLY MEAN ISOTHERMS AND PREVAILING DIRECTION OF WIND, JUNE, 1900.



U. S. DEPARTMENT OF AGRICULTURE,  
**CLIMATE AND CROP SERVICE**  
 OF THE  
**WEATHER BUREAU.**

CENTRAL OFFICE: WASHINGTON, D. C.

MARYLAND AND DELAWARE SECTION,  
 OLIVER L. FASSIG, Section Director.

Vol. V. BALTIMORE, MD. No. 6.

**THE U. S. WEATHER BUREAU AT THE  
 PARIS EXPOSITION.**

On the Champ de Mars, near the north pier of Eiffel Tower, and along one of the main thoroughfares, visitors to the Paris Exposition may see the modest, though commodious, little building containing the exhibit of the U. S. Weather Bureau. It is a one-story structure, perhaps fifty by sixty feet, adjoining the German Marine building, and is composed of the stucco so universally employed in the construction of the buildings at the Chicago fair. The building is shared by the Post Office Department with an exhibit showing methods of carrying the mails, and a curious collection of articles which have found their way into the Dead Letter Office.

The Weather Bureau exhibit comprises a very complete representation of all instruments to be found at first-order observing stations of the Bureau, besides some which are in use only at the Central Office in Washington. The most striking object, upon entering the hall, is the fine specimen of Weather Bureau box kite with its marvelous little Marvin meteorograph. On the walls near by are hung many large photographs of the kite showing different methods of construction, while alongside may be seen the hand reel and large steam reel by which these kites are drawn in from their great heights of a mile or two.

The preparation and printing of the daily lithographic weather charts at the Washington office, and of the smaller chalk plate charts at all the more important stations, are well shown in their successive stages, and form a most interesting feature of the exhibit.

No other national weather service does so much to popularize the study of the weather, or so much in the way of rapidly collecting and disseminating weather reports. This is well attested by the great variety and practical character of the published reports of the U. S. Weather Bureau. Such reports as have been issued since the connection of the Bureau with the Department of Agriculture, that is, since 1891, are here brought together in handsomely bound volumes, and will show the foreign visitor, more than any other portion of the exhibit, what we have done in meteorology in this country during the past ten years.

The walls are adorned with a collection of most excellent photographs of clouds, from negatives by Professors Marvin and Henry of the Washington office, and with a fine series

of charts showing the normal climatic conditions in the United States. Storm warning flags, weather flags, and a generous display of the national colors complete the interior mural decorations.

Upon the roof of the building is placed the standard Weather Bureau instrument shelter and the ordinary and tipping-bucket rain gauges. An additional instrument shelter is placed upon the central cupola built upon the roof; above this a 40-foot iron shaft carrying the wind vane and anemometer.

Apparently there is but one other nation represented by an exhibit which can be at all compared in completeness with that of the United States. Russia has a fine display of meteorological and magnetic instruments in a building especially provided for the purpose; the location is unfortunate, however, so far as accessibility is concerned. Other nations have sent rather meagre material in the way of climatic charts, cloud photographs, weather charts and miscellaneous publications. The exhibits are also much scattered, no attempt having been made to bring them into one building or into close proximity.

\* \*

**A STUDY OF THE SOIL FORMATIONS  
 OF MARYLAND.**

Much attention has recently been given to the investigation of soils by the United States Department of Agriculture, in an endeavor to discover the influence of the texture and physical properties of soils upon crop production. Eventually maps will be prepared by the Department showing the character of the soils in all of the principal agricultural districts in the United States.

Some of the earliest investigations along these lines were carried on in Maryland. Thus we learn from the Year Book of the Department of Agriculture for 1899 that the first soil map, based upon texture and physical properties of soils, is contained in the book issued by the World's Fair Commission of Maryland and prepared at the Johns Hopkins University in 1892. Maryland is again actively engaged in work of this practical character as may be seen from the following statement furnished by Prof. W. B. Clark, the State Geologist:

The Maryland Geological Survey is at present cooperating with the United States Department of Agriculture, Division of Soils, in a study of the soil formations of the State. This work is under the direction of Prof. Milton Whitney, Chief of the Division of Soils, who has detailed Mr. C. W. Dorsey in charge of the work.

The soil investigations in Maryland were inaugurated by Professor Whitney in 1892, soon after the organization of the Maryland State Weather Service, Professor Whitney, as secretary and treasurer of that organization, interesting himself in the study of the soil types of the State. Several reports of a general character were published as the result of these investigations. Subsequently to 1893 very little work was done in Maryland until 1898 when a systematic plan of soil study was arranged in connection with the Maryland Geological Survey.

The soil work consists of detailed areal mapping of the distribution of the various types in the several sections of the State. Already Allegany, Garrett, and Cecil Counties have been thus surveyed, the basis of the work being the

one-inch topographic sheets which are being prepared by the Maryland Geological Survey in cooperation with the United States Geological Survey. It is planned in the case of most of the counties where the agricultural interests are of importance, to bring out soil maps contemporaneously with the geological maps, the various soil types being represented by different colors, and the capabilities of each explained in the accompanying reports.

The completion of the mapping of the counties above mentioned prior to 1900 will be followed, the present season, by the extension of the work through St. Mary's and Calvert Counties, and Mr. Dorsey with his assistant, Mr. J. A. Bonsteel, is already engaged in this work, which it is hoped will be completed before the close of the field season. The mapping will be continued from year to year as the topographic sheets are completed. Work is carried on in close cooperation with that of the geologists since the geological formations to a very large extent determine the character of the overlying soils. The maps when completed will give a complete representation of the extent and capabilities of the various soils of the State.

\* \*

#### CLIMATE AND CROP CONDITIONS.

The temperatures for the past June were very nearly normal. The weather was quite warm on the 11th, and from the 27th to the close of the month, and was cool on the 4th and 5th, and from the 18th to 20th. No marked temperature departures prevailed on other dates.

The precipitation was in excess of the normal at almost all stations. Over the greater part of the Section the total depths measured from four to six inches. In Prince George's County and the District of Columbia the amounts were very heavy, over eight inches being reported from Laurel and nearly eleven inches from Washington City. The amounts were fairly well distributed throughout the month. Refreshing showers fell on the 2d and 8th; a period of general and heavy rains prevailed from the 12th to 17th, lasting two days longer in the western counties; and moderately beneficial showers followed on the 25th to 28th, except that they were too light to do much good in the southern parts of the Section.

Comparative warmth and sufficient moisture prevailed during the first week, and all crops grew well. The second week was warm, as a whole, with one general thunderstorm accompanied by moderate rainfall; it was a good week for growth; tobacco transplanting made considerable progress; some fruit was lost by dropping; strawberries yielded well, but were beginning to pass their best stage; clover cutting continued, with poor yields. The third week was cool and cloudy, with general and heavy rains which were very beneficial; wheat was turning and harvest had begun in the south; rye was in good condition; oats had improved; clover hay still gave light yields, but timothy showed renewed growth after the rains; tobacco was about all transplanted; fruit dropped but very little; strawberries were failing fast, but other berries had begun to ripen. The fourth week gave continued cool weather, with thunderstorms and light showers; the harvest was interfered with slightly, but no damage of consequence ensued; some wheat was cut in all except the extreme western counties; oats continue to improve; corn is now fairly well cultivated and growing nicely; peaches

are very promising, while pears are fair, and apples light; the pea harvest is over, with poor returns; the transplanting of tobacco is practically finished; early potatoes are promising and some are being used; buckwheat seeding is in progress in the western counties.

\* \*

#### CLIMATOLOGY OF THE MONTH.

##### ATMOSPHERIC PRESSURE.

Monthly mean at Washington, D. C., 29.97 inches; at Baltimore, 29.97 inches; average, 29.97 inches; highest, 30.18 inches, at Washington, D. C., on the 5th; lowest, 29.69 inches, at Baltimore, on the 29th.

##### TEMPERATURE.

The monthly mean (entire territory), 71.4°, is 0.3° above the normal.

The highest monthly mean was 76.4°, at Cumberland.

The lowest monthly mean was 64.0°, at Deer Park.

The highest temperature recorded during the month was 100°, at Hancock, on the 11th.

The lowest temperature recorded during the month was 36°, at Sunnyside, on the 21st.

The greatest local monthly range was 53°, at Sunnyside.

The least local monthly range was 32°, at Cumberland.

The greatest daily range was 48°, at Hancock, on the 11th.

The least daily range was 1°, at Sharpsburg, on the 16th.

##### PRECIPITATION.

in inches and hundredths.

The monthly average (entire territory), 4.75, was 1.60 above the normal.

The greatest amount was 10.94, at Washington, D. C.

The least amount was 1.48, at Sudlersville.

The greatest amount in twenty-four hours was 3.69, at Bachman's Valley, on the 17th.

The average number of rainy days, 9.

##### WIND.

The prevailing direction was from the southwest.

The total movement was 3,715 miles, at Baltimore, and 4,250 miles, at Washington, D. C.

The maximum wind velocity was 32 miles per hour from the northeast, at Washington, D. C., on the 8th.

##### MISCELLANEOUS PHENOMENA.

*Thunderstorms.*—Bachman's Valley, 8, 14, 27; Baltimore, 2, 8, 12, 13, 14, 26; Boettcherville, 1, 3, 8, 12, 18, 19, 28; Charlotte Hall, 2, 13, 14; Chestertown, 2, 8; Chewsville, 8, 14, 18, 19, 26, 27; Clear Spring, 16, 18, 19, 25; Coleman, 26, 27; Darlington, 2, 8, 11, 19, 26, 27, 28, 29; Denton, 2, 8, 14; Fallston, 2, 8, 14, 19, 26, 27; Frederick, 8, 14, 18; Frostburg, 1, 8; Grantsville, 1, 6, 7, 11, 12, 13, 14, 18, 19, 23, 24, 26, 27, 28, 29; Green Spring Furnace, 15, 18, 26, 27, 28; Hagerstown, 8, 14, 26, 27; Harney, 8, 18; Jewell, 2, 8, 13, 14, 21, 26; Laurel, 2, 8, 12, 14, 26; Millsboro, 8; Mount St. Marys, 8, 27; Newark, 2, 8, 11, 12, 27, 29; Pocomoke City, 8; Princess Anne, 8; Prince Fredericktown, 2, 8, 12, 13, 14, 21, 26, 27, 28; Queenstown, 26, 27; Rock Hall, 2, 8, 14; Seaford, 8; Smithsburg, 14; Solomons, 2, 8, 14, 28; St. Charles College, 8, 27; Sunnyside, 1, 2, 6, 7, 12, 13, 16, 18, 19, 21, 24, 25, 28, 29; Sudlersville, 2, 6, 14; Taneytown, 8, 14, 26, 28; Woodstock, 9, 27, 28; Wyoming, 14; Washington, D. C., 2, 8, 12, 13, 14, 21, 26, 27, 28.

*Hail.*—Taneytown, 8; Washington, D. C., 2.

*Fog.*—Clear Spring, 18, 24, 25; Green Spring Furnace, 18, 20; Millsboro, 15; Mount St. Marys, 5; Princess Anne, 7.

*Solar Halo.*—Green Spring Furnace, 21, 22; Jewell, 21.

*Lunar Halo.*—Mount St. Marys, 6; Rock Hall, 6; Smithsburg, 6.

*Lunar Corona.*—Millsboro, 1, 11.

Climatological data for Maryland and Delaware, June, 1900.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number rainy days), Sky (Number clear days, Number partly cloudy days, Number cloudy days), Prevailing direction of wind, Observers.

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. Letters of the alphabet indicate the number of days missing. † Mean of 7 a. m. + 2 p. m. + 2. † Incomplete record. \* Not included in means. ‡ On other dates also.





Daily precipitation for Maryland and Delaware, June, 1900.

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.					
<b>WESTERN MARYLAND.</b>																																				
Boettcherville.....	.25		.03			.10	.20	.15				.15	.05	.30			1.95	.08																		3.36
Boonsboro.....												.33	.23		1.10	.70																				2.71
Chewsville.....		.26						.12				.11	.34				2.03	.85										.16	.13						4.52	
Clear Spring.....														.65	1.70	.03	.50	.83																		
Cumberland.....	.56	.07					.42					.24	.18		.98	1.50																			4.05	
Deer Park.....	.22						.70				.30	.20		.40	.80																				4.62	
Frostburg.....	.46	.12					.23	.24	.13			.14	.07	.36	.02	1.05	1.24	.01	.07																4.55	
Grantsville.....	.12						.03	.30				.10	.14	.61		1.59	.24	.29																	4.09	
Green Spring Furnace.....		.18					.03							.53		.68	1.04		.32	.11							.02								3.08	
Hagerstown.....		.05					.04						.09	.72	.04		1.82		.45	.43								.31	.37						4.32	
Hancock.....	.10	.10					.09	.30						.27			1.32		.95																4.18	
Sharpsburg.....		.31					.05							.37	.01	.67	1.32																		2.94	
Smithsburg.....		.20					.06							.53		.75	.82		.58	.22															3.46	
Smithsburg b.....		.20					.06							.14	.54		1.06	.87																	4.57	
Sunnyside.....	.18	.05	.10			.04	.13	.27				.60	.20	1.00	.90	1.20	.20		.02																6.81	
Westernport.....	.09	.23				.30	.73	.30					.08	.04	.27	.20	2.06	.03	.02	.20															4.71	
<b>NORTHERN-CENTRAL MARYLAND.</b>																																				
Bachman's Valley.....							.78																												6.29	
Baltimore.....		.26					.06					.11	.07	.68		.70	2.01		.02																4.34	
Baltimore, Johns Hopkins Hosp.	.01		.26											.21		.60	2.40	.30		.08															4.34	
Chase.....							.87							.81	.05	.36	2.03																		4.18	
Darlington Academy.....		.83					.11				.35		.16	.60		1.70			.60																4.59	
Fallston School.....		.63	.02				.07				.06			.59	.01	.25	2.00		.03	.01															4.52	
Frederick.....		.04					.71					.11	.10	.35	.03	.90	1.03		.05																3.39	
Great Falls.....	.35	.60											.45	.05	.35	.20	.02	.45																	2.79	
Harvey.....		.10					.38				.23						1.48	.10																	4.55	
McDonogh.....		.75					.05				.02			1.10		2.00	.40	.02	.10																5.04	
Mt. St. Mary's College.....							.50							.20	.40	.50	1.00	.30																	3.81	
New Market.....		.37					.07							.82	.20	.43	1.49			.04															4.10	
St. Charles College.....		.66					.37						.04	.20	1.14	.06	.60	2.09	.40	.16															4.79	
Takoma Park.....		.56					.25					.46	.11	.95	.19	2.05	.52																		7.26	
Taneytown.....		.06					.12						.18	.37			1.60																			
Van Bibber.....		.15					.19						.02	.13	.75		2.01	.35		.12															3.80	
Western Maryland College.....		.10					.37										2.67																		3.39	
Woodstock College.....		.14					.04						.04		.50		2.35	.42		.12															3.89	
<b>SOUTHERN MARYLAND.</b>																																				
Annapolis.....		.25					.60							.82		1.80	1.99																		6.41	
Charlotte Hall School.....		.25					.15						.25	1.45			.56	2.00																	5.18	
Distributing Reservoir, D. C.	.08		2.10							.94				.70	.48	.80	1.15	2.10	.35																7.91	
Jewell.....		.54												1.44			2.83																		5.47	
Laurel.....		.85					.15						.35	1.00	.05	2.92	2.30	.15																	8.28	
Maryland Agricultural College.....		2.10					.12						.48	1.00	.85	1.70	1.40			.10															7.15	
Prince Frederick.....		.23	.01				.09						.02	2.55	.07	.48	1.64																		5.12	
Receiving Reservoir, D. C.	.12		2.58				.06			.14				.95	.02	.58	1.25	.45																	8.20	
Solomon's.....		.11					.06							.25	.44		.40	2.05																	3.31	
Washington, D. C.	.08	3.48					2.84					.17	.78	.56	.03	1.00	1.68																		10.94	
<b>EASTERN MARYLAND.</b>																																				
Cambridge.....																																				
Chestertown.....		.33					.55					.02		*	*	5.00																			5.90	
Coleman.....		.85					.45							.54		2.40	.23																		4.65	
Denton.....		.23					.13							.70		1.93	.75																			
Easton.....			.20					.51						.43			2.33																			4.29
Mardela Springs.....																	2.00																			
Pocomoke City.....							.25						.11	.45			2.00																		2.81	
Port Deposit.....																																				
Princess Anne.....		.03					.73	.05					.02	.55		.12	2.38																		4.03	
Queenstown.....		.15					.04						.15	1.15	.11	2.40	.44																		4.66	
Rock Hall a.....																																				4.66
Rock Hall b.....		.22					.08								.60	.12	.64	3.00																		4.66
Sandy Point.....																																				
Sudlersville.....		.38					.05								1.00																					1.48
<b>DELAWARE.</b>																																				
Milford.....							.24							1.83	.83		2.18																		5.08	
Millsboro.....							.79							.18	.20	.05	1.65	1.13																	4.00	
Newark (Delaware College).....		.62					.26					2.02		.29			1.70																		5.20	
Seaford.....		.08					.48								.41			2.73																	3.88	
Wyoming.....		.20					.14						.47	1.66	.29	2.21																				

† Trace, when precipitation is less than 0.01 inch.

‡ Incomplete record.

\* Precipitation included in that of following day.