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U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR OCTOBER, 1897.

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

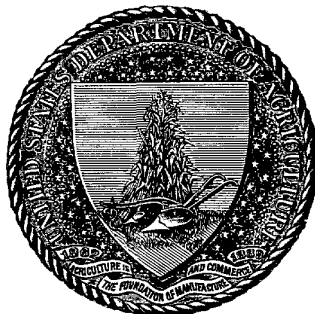
IN COOPERATION WITH THE
MARYLAND STATE WEATHER SERVICE.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.

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

BY

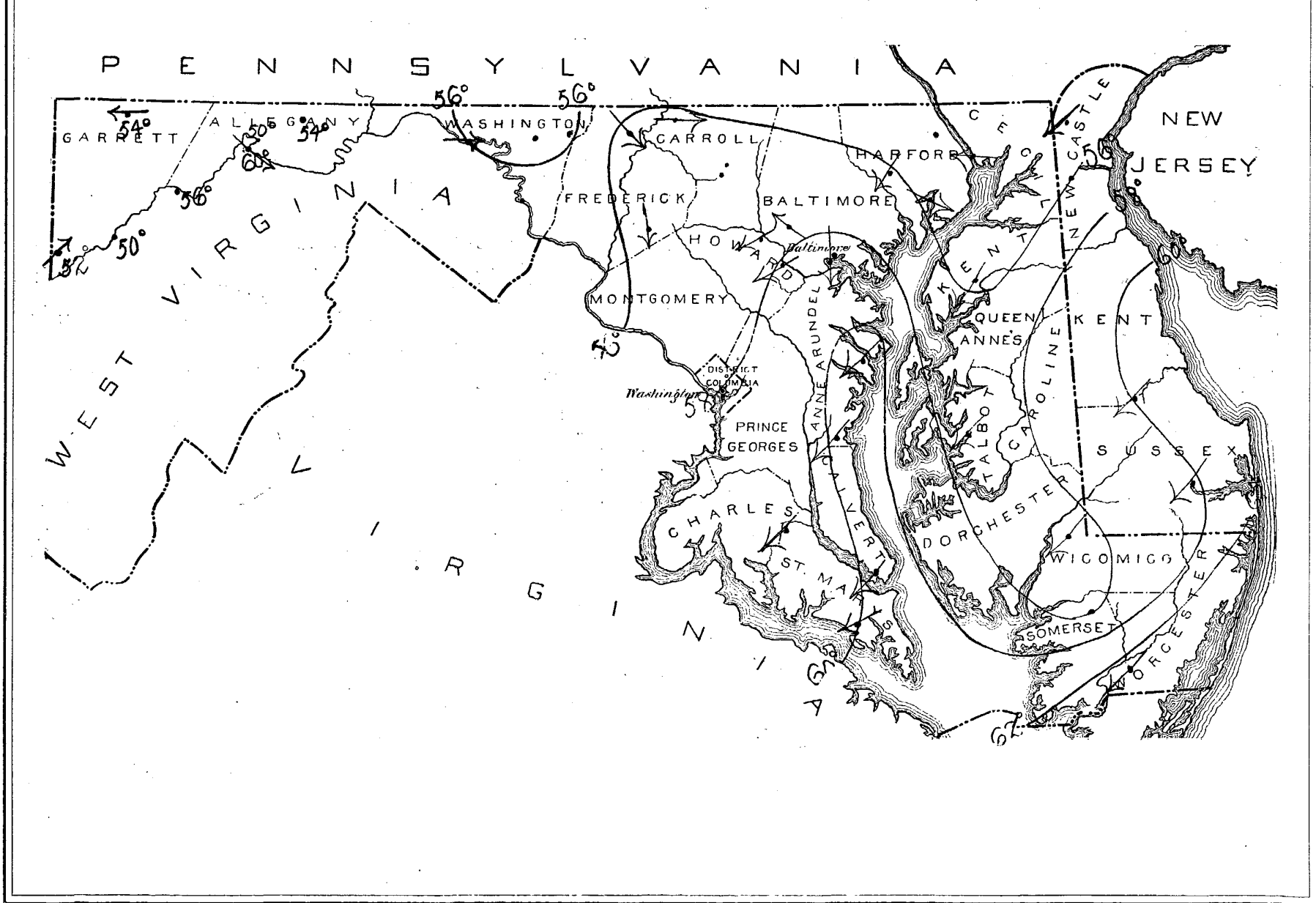
F. J. WALZ,
SECTION DIRECTOR.



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

1897.

MONTHLY MEAN ISOTHERMS AND PREVAILING WINDS, OCTOBER, 1897.



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

Central Office,
 WASHINGTON, D. C. }

WILLIS L. MOORE,
 Chief.

IN COOPERATION WITH THE
 MARYLAND STATE WEATHER SERVICE.

MARYLAND AND DELAWARE SECTION,

F. J. WALZ, Section Director,
 BALTIMORE, MD.

VOL. II.

BALTIMORE, MD.

No. 10.

**BENEFITS OBTAINED BY THE FOREWARNING OF THE
 RECENT ATLANTIC HURRICANE.**

The first indications of the recent severe Atlantic hurricane (October 23-27) were detected on the south Atlantic Coast by the Weather Bureau officials on the afternoon of the 23d, and danger signals were ordered on the Carolina Coast at that time. The next morning (Sunday) the storm had reached the North Carolina Coast, and danger signals were ordered displayed at all ports as far north as Nantucket. By Monday morning the hurricane was raging with terrific fury from Nantucket to Wilmington. The storm continued off the Carolina Coast Tuesday and Wednesday; but diminishing in force and finally disappearing Wednesday night. Danger warnings and special telegraphic bulletins were displayed at all ports 12 to 24 hours in advance of the hurricane and as a result disaster to shipping has been insignificant. Reports received from stations from Norfolk northward to New York show that over 820 vessels remained in port as a result of advanced information given them as to the coming storm.

* * *

OCTOBER WEATHER AND CROPS.

October was on the whole warmer than the average for the month. The departure from the normal temperature was greatest in the three western counties, where it amounted to nearly 6°; for the entire State the average departure was 2°.4. The highest temperatures occurred on the 1st and 16th; the lowest generally on the 31st of the month. At the close of the month all sections of the State with the exception of the extreme southern counties had been visited by heavy frosts. The rainfall was unequally distributed over the State. On the 2d a few light rains fell in the southern and eastern sections; on the 11th and 12th the rains were general, and in the southern and northern-central sections, quite heavy; from the 19th to the 29th, rain fell almost every day in all but the three western counties. In Garrett, Allegany, and Washington counties the rains during this period were light and less continuous, the close of the month showing a deficiency of nearly 1.5 inches. The northern-central section shows a deficiency of 0.42 inch, while in the southern and

eastern section and in Delaware the excess above the normal amounts were 1.48, 1.93, and 2.86 inches respectively. A marked feature of the latter half of the month was the prevalence of strong northeast winds throughout the State, causing exceptionally high tides along the coast and lower bay. The dry and hard condition of the ground in September and the early part of October delayed seeding of fall grain; however, at the close of the month most of the wheat and rye had been sown and the early sown had come up in fine condition. The acreage in wheat is in nearly all sections of the State considerably larger than that of last year. The month was favorable for the curing and housing of corn, and the crop was being gathered in as rapidly as possible at the close. The yield has been above the average both in quality and quantity. The potato and tomato crops are reported short in nearly all sections of the State. The tobacco crop is considered of unusually fine quality.

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CLIMATOLOGY OF THE MONTH.

ATMOSPHERIC PRESSURE—IN INCHES AND HUNDREDTHS.

Monthly mean at Washington, D. C., 30.15; at Baltimore, 30.14; average, 30.14; highest, 30.61 at Baltimore, on the 3d; lowest, 29.67 at Baltimore, on the 29th.

TEMPERATURE—IN DEGREES FAHRENHEIT.

The monthly mean (entire territory), 56.6, is 2.4 above the normal.

The highest monthly mean was 61.1, at Solomon's.

The lowest monthly mean was 49.6, at Deer Park.

The highest temperature recorded during the month was 91, at Taneytown, on the 16th.

The lowest temperature recorded during the month was 20, at Sunnyside, on the 31st.

The greatest local monthly range was 62, at Sunnyside.

The least local monthly range was 37, at Annapolis.

The greatest daily range was 50, at Sunnyside, on the 5th.

The least daily range was 0, at Chestertown., on the 17th and 22d, and at Frederick, on the 29th.

PRECIPITATION—IN INCHES AND HUNDREDTHS.

The monthly average (entire territory) 3.21, was 0.20 above the normal.

The greatest amount was 8.17, at Millsboro.

The least amount was 0.55, at Grantsville.

The greatest amount in twenty-four hours was 2.29, at Mardela Springs, on the 19th and 20th.

The average number of rainy days, 8.

WIND.

The prevailing direction was from the northeast.

The total movement was 4,134 miles, at Baltimore, and 4,697 miles, at Washington, D. C.

The maximum wind velocity was 30 miles per hour from the north, at Washington, D. C., on the 25th.

MISCELLANEOUS.

Thunderstorms.—Annapolis, 7; Baltimore, 7, 12; Charlotte Hall, 7, 22; Fallston, 12, 22; Jewell, 2, 7, 12, 22; Mardela Springs, 2, 7, 12, 22, 25, 29; Millsboro, Del., 7; Newark, Del., 28; Princess Anne, 7, 24; Seaford, Del., 24; Solomons, 7, 22.

Frosts, light.—Baltimore, 4, 5, 30; Boettcherville, 8, 9, 10; Charlotte Hall, 30, 31; Chestertown, 4, 5, 19, 30; Darlington, 19; Easton, 18, 30, 31; Fallston, 4, 5, 8, 31; Flintstone, 4; Grantsville, several light frosts but no damage; Green Spring Furnace, 19; Jewell, 30, 31; Mardela Springs, 4, 18; Milford, Del., 5, 19; Millsboro, Del., 18, 19, 30; Mt. St. Marys, 18, 31; Newark, Del., 4; New Market, 4; Smithsburg, 30, 31; St. Charles College, 31; Sunnyside, 4, 8, 25; Washington, 4; Woodstock, 5.

Frosts, killing.—Bachman's Valley, 4, 31; Baltimore, 31; Boettcherville, 18, 30, 31; Chestertown, 18, ice in exposed places; Darlington, 30; Fallston, 18; Flintstone, 18; Green Spring Furnace, 18, 31; Laurel, 18; Mardela Springs, 11, 30, 31, hoar frost on the 4, 11, 18; Millsboro, Del., 31; Newark, Del., 18, 31; New Market, 18, 31; Princess Anne, 18, 19, 30, 31; Seaford, Del., 18, 19, 30, 31; Sharpsburg, 5, 18; Sunnyside, 5, 30, 31; Taneytown, 4, 5, 18, 31; Van Bibber, 18, 30; Washington, 18, 30, 31; Woodstock, 18, 19, 31.

Fogs.—Bachman's Valley, 11, 28; Easton, 13, 14; Jewell, 14; Mardela Springs, 6, 13, 14, 15, 28; Millsboro, Del., 5, 6, 12, 13, 14, 15; Mt. St. Mary's College, 1, 6; Princess Anne, 4, 5, 9, 12, 14, 15.

Rainbow.—Princess Anne, 25, 7.30 a. m.

Hail.—Smithsburg, 22.

Halo, lunar.—Jewell, 9; Mardela Springs, 9; Mt. St. Mary's College, 19, 31; St. Charles College, 19, 31.

Corona, lunar.—Millsboro, Del., 5, 12.

Halo, solar.—Jewell, 10; Mardela Springs, 4.

Haze.—Mt. St. Mary's College, 7, 9.

High Northeast gales.—Annapolis, 24; Cherryfields, 2, 20; Easton, 25, 26, 27; Smithsburg, 25; Solomons, 24, 25; St. Charles College, 23, 24, 25.

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REMARKS BY OBSERVERS.

Heavy northeast winds prevailed on the 24th at Annapolis, doing much damage to shipping.—J. E. ABBOTT.

Strong northeast storms prevailed on the 2d and 20th; very high tides on the 3d, on the 11th, and from the 21st to the 28th at Valley Lee.—J. EDWIN COAD.

Ice formed in exposed places on the 18th at Chestertown. Hon. MARION DEK. SMITH.

The drought remains unbroken here on November 1st; but water in the river, creek, and springs is coming up a little from rains at the sources.—HOWARD SHRIVER.

October was remarkably warm and dry, but for all that wheat looks well. No plowing done as yet (November 1) the ground being too dry.—J. S. MILLER.

October has been remarkable for its prevailing east winds and dryness.—E. G. KINSELL.

A meteor of extraordinary brilliancy was observed passing due east at 6.50 p. m. local time. The apparent diameter was one-fourth that of the full moon. The time of passage four seconds.—Dr. J. A. MITCHELL.

A heavy northeast gale prevailed here all night of the 24th, accompanied by thunder and lightning.—W. H. WALLACE.

There was a fall of nearly 30° in temperature at Smithsburg from the afternoon of the 16th to the morning of the 17th.—Rev. L. J. BELL.

Extremely high tides prevailed at Solomons from the 22d to the 28th.—Dr. W. H. MARSH.

* * *

LATE REPORTS.

Summary of reports received too late for insertion in the current monthly report:

Bachman's Valley.—For March 1897, mean temperature 41° 4; highest temperature 73°, on the 22d; lowest 19°, on the 1st; greatest daily range 34°; total precipitation including snowfall 5.50 inches; greatest amount in twenty-four consecutive hours 2.16 inches; snowfall 0.06 inch; number of rainy days 10; clear days 15; partly cloudy 7; cloudy 9; prevailing direction of the wind NW.

Distributing Reservoir.—For June 1897, mean temperature 71° 7; highest 89°, on the 30th; total rainfall 2.09 inches; greatest amount in twenty-four hours .92 inch; number of rainy days 8.

Great Falls.—For June 1897, mean temperature 71° 0; highest 90°, on the 30th; total rainfall 2.28 inches; greatest amount in twenty-four hours .47 inch; number rainy days 7.

The October reports from the following stations were received too late for publication in the regular tables, Laurel and Pocomoke City.

* * *

REPORT OF THE CHIEF OF THE WEATHER BUREAU TO THE SECRETARY OF AGRICULTURE.

The Chief of the Weather Bureau, in his annual report to Secretary Wilson, calls for an appropriation of \$1,044,050 for the next fiscal year, and says this will admit of the establishment and equipment of new stations in important centers of population. Establishment of stations in the Southwestern part of the country, embracing Nevada, Utah, Arizona, New Mexico, and Southern California, where storms frequently originate, is urged. An investigation has been made as to the influence of climate, season, and weather on sunstroke, and the conclusion reached that sunstroke becomes imminent during the summer months, when the mean temperature of any one day, or of several successive days, equals, or nearly equals, the normal maximum temperature for the period. Twenty experimental kite-flying stations are contemplated this year, and confidence in the great value of the ultimate result is expressed.

Climatological data for Maryland and Delaware, October, 1897.

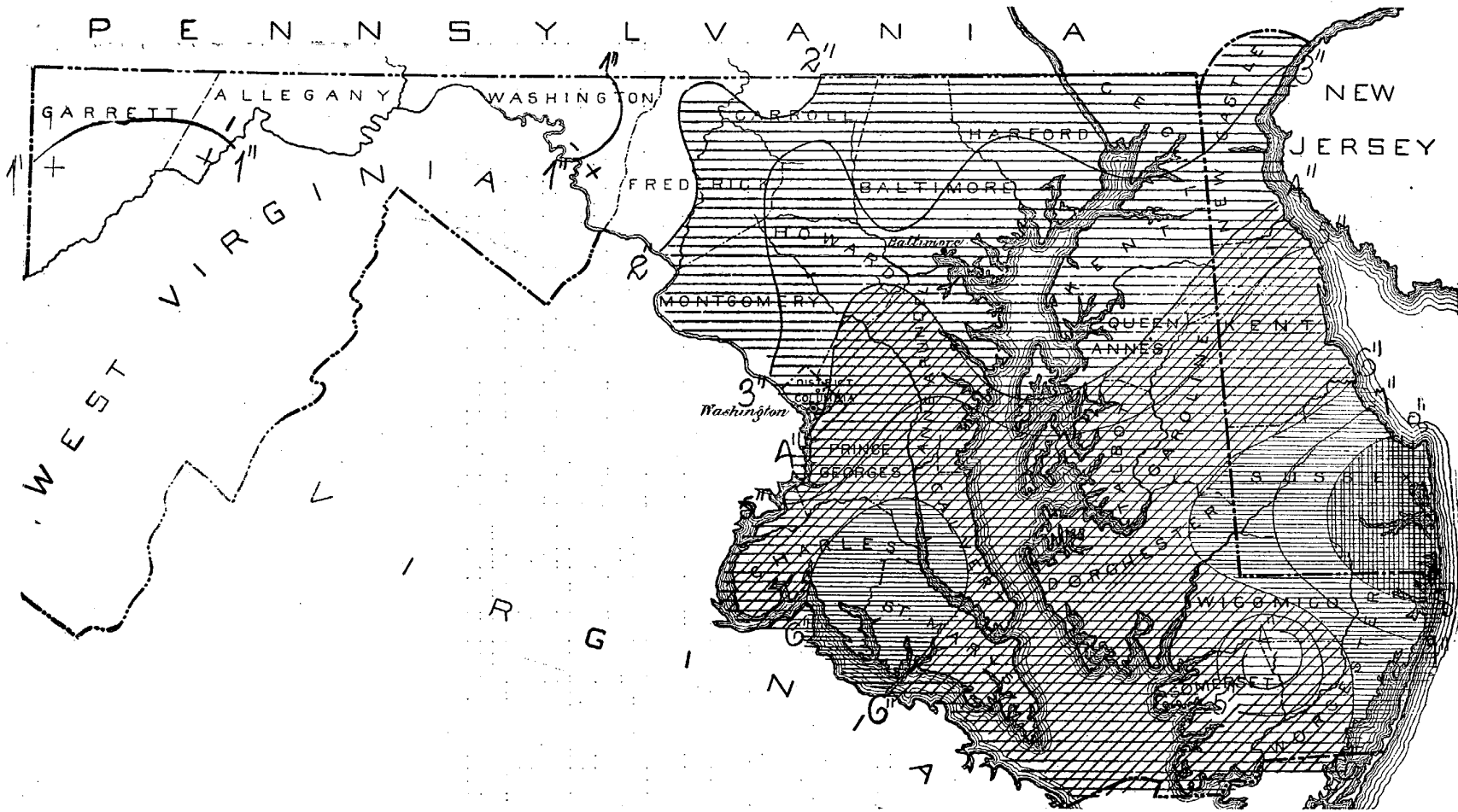
Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number rainy days), Sky (Number clear days, Number partly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

1 Mean of 7 a.m. + 2 p.m. + 9 p.m. + 9 p.m. + 4.
2 Mean of 8 a.m. + 8 p.m. + 2.
3 Mean of 7 a.m. + 2 p.m. + 2.

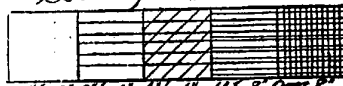
Maximum and minimum temperatures for Maryland and Delaware, October, 1897.

Table with 32 columns for stations (1-31) and a 'Monthly mean' column. Each station has two rows for 'Max.' and 'Min.' temperatures. Stations listed include Annapolis, Baltimore, Bochtcherville, Cherryfields, Denton, Flintstone, Green Sp. Furnace, Hagerstown, Maryland Ag. Coll., Mt. St. Marys Coll., Princess Anne, etc.

TOTAL PRECIPITATION, OCTOBER, 1897.



Scale of Shades.



0 to 2 2 to 4 4 to 6 6 to 8 Over 8

Daily precipitation for Maryland and Delaware, October, 1897.

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.																																			
Boethcherville											.40										.10													.70	
Cumberland											.33									.04	.26				.18									.81	
Deer Park																									.28									.60	1.37
Flintstone											.33									†	.30						.25							.88	
Grantsville											.11														.33									.55	
Green Spring Furnace											.25										.22				.44									.97	
Hagerstown											.34									.32					.32									.98	
Sharpsburg							†				.58									†	.17			†	.44			†	†	.10			1.29		
Smithsburg											.55									.15	.08				.40					.05	.04		1.27		
Sunnyside		†					†				.10										.19				.42	†				.35			1.06		
Westernport											.16										.22				.45					.07		.30	1.20		
NORTHERN-CENTRAL MARYLAND.																																			
Bachman's Valley											1.09									.18	.13	.41	†		.41								2.22		
Baltimore		†				.04				.02	1.89									.52	.02	†	.33	.17	.42	.15	.04		.04	.03				3.67	
Darlington Academy										.80										.41		.71	.05	.63	.17	.42	.15	.08						2.85	
Fallston School		†									.03	1.04								.56	.10		.22	.12	1.08	.19	†			.02			3.36		
Frederick											.67									.17	.16	.01		.03	.33								1.42		
Great Falls											.15									.65	.36			.28	.55	.13	.04							2.16	
Johns Hopkins Hospital			.02				.04				.01	1.50	.34							.56	.15	.01	.05	.30	.85	.27	.04	.05	.02				4.21		
McDonogh School																																			
Mt. St. Mary's College										.02	.92									.30	.33	.11		.42					.11	.03			2.24		
New Market											†	.92								.33	.20	.03	†	.08	.65								2.21		
St. Charles College							†				†	.38								.63	.18	.05	.20	.10	.92	.11	.02		†				2.59		
Taneytown											.67									.32		.18		.20					.29	.04				1.70	
Van Bibber							†			.02	.02	.73								.40	.28		.38	.14	1.01	.59	.02	.02	†			.24	3.85		
Western Maryland College											2.34											.24		.60										3.28	
Woodstock College							†				.40										.75		†		.20	1.00			†					2.35	
SOUTHERN MARYLAND.																																			
Annapolis		†					.03				†	1.61								.69	.07	.01	.30	.24	.39	.19	.06	.07	.03				3.69		
Charlotte Hall School		†					.07				†	.92								†	1.32		.48	.30	.64	2.20	.28							6.21	
Cherryfields		†									†	.37								.13	1.60		1.42	.27	1.16	.45	.17	.02	†	†				5.53	
Distributing Reservoir, D. C.											.98	.10								.79	.11		.45	.45	.12	.15	.04							3.19	
Jewell		.07					†				†	1.12								.80	†	.40	.75	1.20	.80	.60	.05							5.79	
Laurel																																			
Maryland Agricultural College		†			†		†				1.50									.84	.07		.35	.10	.77	.13	.10	.06	.08					4.00	
Receiving Reservoir, D. C.										.12	.51	.31								.73	.11		.26	.50	.14	.21	.05							2.94	
Solomon's		.02					.03				.31									.04	1.42		.91	.38	1.17	.95	.12	.04		.03				5.42	
Washington, D. C.		†					†				.02	1.08								†	.92	.01	.02	.36	.20	.60	.28	.04						3.55	
EASTERN MARYLAND.																																			
Chestertown		.06					.02				.03	.85								.52	.20	†	.20	.32	.92	†	.02	.03	.10			.12	3.39		
Denton																																			
Easton		.03										.71										1.25		1.38		1.81	.12		.02					5.32	
Mardela Springs		.05					.11					.79									2.29		.46		3.02			.93		.08				7.73	
Pocomoke City																																			
Port Deposit												.30										.35	.10	.05	.63	.15	.75	.08	.02	.20				2.63	
Princess Anne		.05					.03				†	.33									.04	1.45	.23		.38	1.01	1.90	.36	.08					5.92	
DELAWARE.																																			
Dover																																			
Kirkwood																																			
Milford		.03																				1.46		1.03			2.51	.64		1.06				5.73	
Millsboro											.07	.75									1.85	.10	.50	1.39	1.14	1.36	.80	.10	.09	.02				8.17	
Newark (Delaware College)											†	.57									.31		.57	.67		.74								2.90	
Seaford		†										.12	.37								1.93										4.39			6.81	

† Trace, when precipitation is less than 0.01 inch.