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U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR MARCH, 1901.

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,

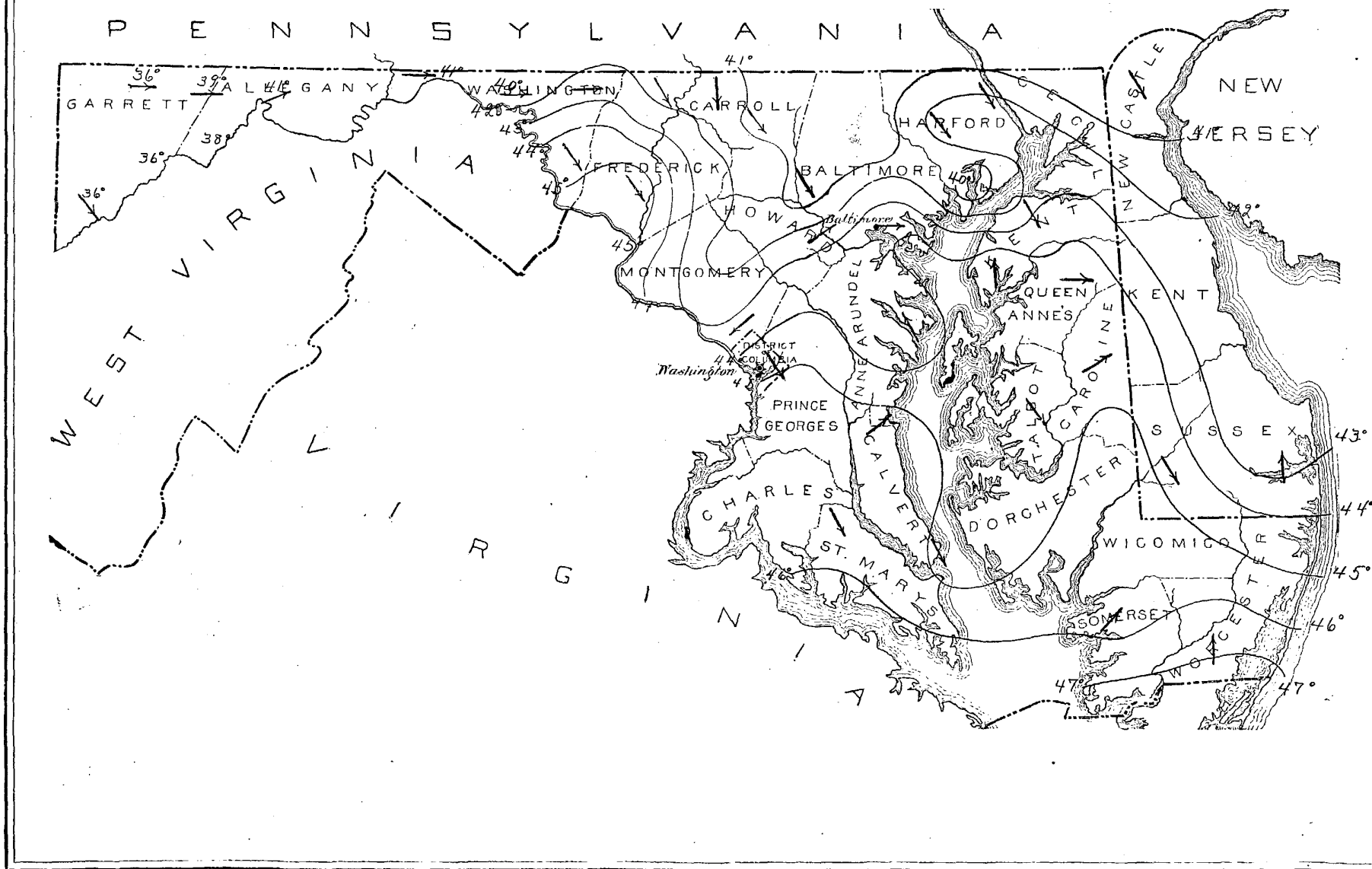
SECTION DIRECTOR.



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

1901.

MONTHLY MEAN ISOTHERMS AND PREVAILING DIRECTION OF WIND, MARCH, 1901.



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. VI.

BALTIMORE, MD.

No. 3.

Review of Weather and Crop Conditions. The hot, dry weather of the summer of 1900 extended into autumn

and furnished ideal conditions for the harvesting of matured crops, but when the farmers began to prepare for plowing and seeding they found the soil too hard to work. It is true that in September the rainfall was above normal in some districts, but in others there was a shortage and throughout the Section as a whole the total fall occurred practically during two brief periods, the 15th-16th and 29th-30th; so that the effects were much less beneficial than would have been produced by frequent showers. Very little was accomplished in winter wheat sowing during September.

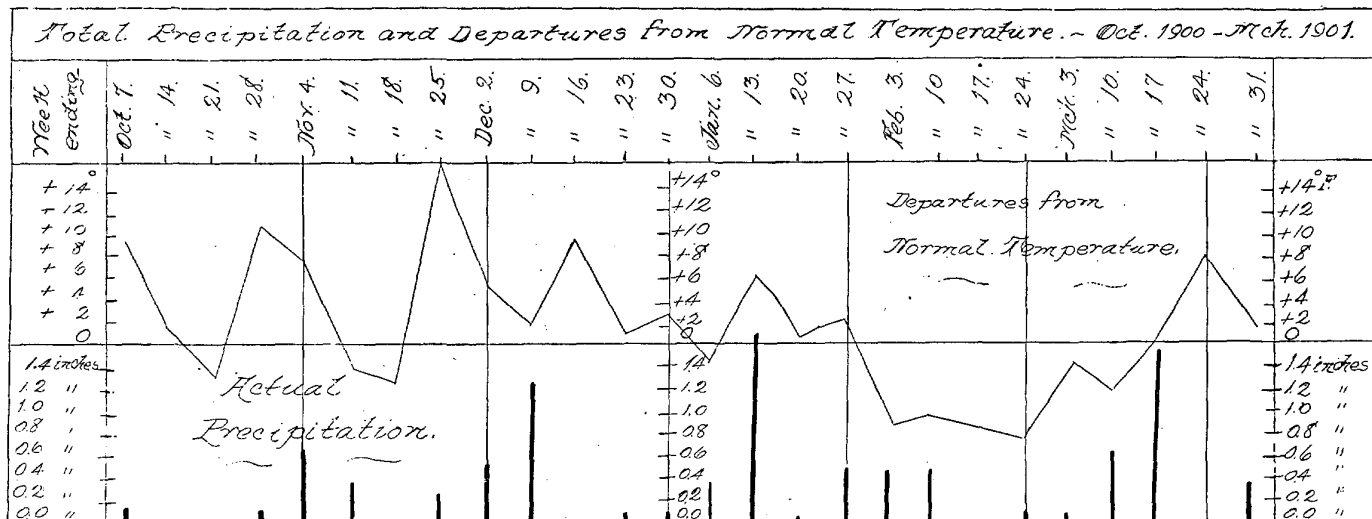
October continued warm and dry for the most part. Still the rains at the close of September and in early October placed the soil in better condition than at any earlier time in the season, and much of the wheat was put in the ground. Moderately heavy showers fell on the 13-14th and 23d, and proved of material benefit by softening the top soil and hastening seed germination.

November temperatures were mild and favorable to growth. The month was rather dry than otherwise; good rains helped drought conditions in the western counties on the 25th and 26th, but other sections received only light to moderate amounts of precipitation at that time. The first snow of the season occurred on the night of the 8th. It extended over nearly the entire Section but amounted to light flurries only in the east and south. Up to the middle of November

tender vegetation still continued to grow in the southern counties, but by that time winter, in its gradual advance, reached those districts and cut off all late garden products. Grain and grasses were favored throughout the month, however. Seeding was completed in the eastern and southern counties by about the 25th. Farther north much better progress had been made, and in the Plateau region some of the very early sown wheat had begun to joint and was kept down to a normal stage of development by grazing. Rye and barley were generally in good condition, although some late sown rye had not appeared above ground by the close of the month. The hessian fly was observed in the fields, but only light damage ensued. Crops showed a sturdy growth in the main, and were well rooted and of good color.

Precipitation occurred in fairly satisfactory amounts in December. The snowfall was light over the interior counties; in the mountains it reached a depth of eight inches, and was still heavier in Eastern Maryland and Delaware owing to the snows that fell in connection with the north-east passage of a coast storm on the 21st. The month was a trifle cooler than normal and had one sharp cold wave, from the 14th to the 17th. Some injury was felt by winter grain at this time, but no permanent damage occurred. Grass held its growth wonderfully well and many pastures still afforded good grazing at the close of the month.

In January the cold weather was of brief duration, the warm spells moderate but protracted. The precipitation was seasonable. The heaviest amounts fell in the extreme west where drought conditions thus far had been most severe. Snow depths were greater than in the preceding month and ranged from two inches in the extreme southeast to forty inches at some of the mountain stations. Nearly all of this snow fell during the last ten days of the month. The weather was continuously unfavorable to wheat and other grains in the southern counties owing to the open and freezing weather; farther north in the main wheat growing districts the crop was protected by four to ten inches of snow cover after the 25th, but for the Section as a whole wheat was in a less satisfactory condition than at any previous time during the season.



February was cold, dry, and windy. Temperatures were the opposite of those in January, the warm spells being brief and the cold prolonged but not severe. Precipitation was only about one-fifth of the normal amount. The month as a whole was hard on wheat, although the crop was protected by snow cover in the northern counties until about the 15th.

Cold and dry weather prevailed during the early part of March, but later in the month an increase in warmth and copious rainfall gave a marked impetus to growth and greatly improved the condition of wheat, rye, barley, and grasses. Scarcely any farm work was done in the extreme west, but in the northern-central counties some progress had been made, while farther south oats, peas, and potatoes were in the ground in some localities. The ground was quite wet from frequent rains towards the close of the month, and plowing was interrupted. The fruit trees had given no indications of spring in the upper counties, but in the south the buds were swelling. For all agricultural interests the outlook at the close of March was more favorable than it was a month before.

The accompanying diagram illustrates the distribution of temperature and precipitation from October to March, inclusive. When combined with the temperature chart published in the Annual Summary for 1900 it pictures the variations in the more important of the weather elements for more than a year past. Other diagrams will be furnished later to make this method of illustration continuous throughout the coming season.

* *

CLIMATOLOGY OF THE MONTH.

ATMOSPHERIC PRESSURE.

Monthly mean at Washington, D. C., 29.94 inches; at Baltimore, 29.93 inches; average, 29.94 inches; highest, 30.40 inches, at Washington, D. C., on the 7th; lowest, 29.34 inches, at Baltimore, on the 26th.

TEMPERATURE.

The monthly mean (entire territory), 42.7°, is 1.9° above the normal.

The highest monthly mean was 47.2°, at Pocomoke City.

The lowest monthly mean was 36.2°, at Sunnyside.

The highest temperature recorded during the month was 88°, at Receiving Reservoir, D. C., on the 20th.

The lowest temperature recorded during the month was -9°, at Sunnyside, on the 6th.

The greatest local monthly range was 85°, at Sunnyside.

The least local monthly range was 56°, at Chestertown.

The greatest daily range was 49°, at Boettcherville, on the 19th.

The least daily range was 1°, at Western Maryland College, on the 25th.

PRECIPITATION,

in inches and hundredths.

The monthly average (entire territory) 3.47, was 0.23 below the normal.

The greatest amount was 6.99, at Bachman's Valley.

The least amount was 1.13, at Johns Hopkins Hospital.

The greatest amount in twenty-four hours was 2.60, at Bachman's Valley, on the 11th.

The average number of rainy days, 9.

WIND.

The prevailing direction was from the northwest.

The total movement was 5,007 miles, at Baltimore, and 6,958 miles, at Washington, D. C.

The maximum wind velocity was 34 miles per hour from the northwest, at Washington, D. C., on the 27th.

MISCELLANEOUS PHENOMENA.

Snow.—Annapolis, 1; Bachman's Valley, 1, 4, 15; Baltimore, 1, 4, 5, 6; Boettcherville, 5; Boonsboro, 1, 4; Charlotte Hall, 5; Chestertown, 5; Clear Spring, 1, 5, 16; Coleman, 4, 5; Deer Park, 15, 16, 21; Denton, 5, 6, 16; Fallston, 1, 4, 5, 6; Frostburg, 4, 5, 11, 15, 16, 21, 28; Grantsville, 4, 5, 15; Green Spring Furnace, 1, 4; Hagerstown, 1, 4, 16; Hancock, 1, 4; Harney, 1; Jewell, 5, 6; Laurel, 4, 5; Maryland Agricultural College, 5; Millsboro, 6; Mount St. Marys, 1, 4; Newark, 4; New Market, 1, 4, 15, 16; Pocomoke City, 6; Prince Fredericktown, 5; Princess Anne, 5; Rock Hall, 5, 6; Seaford, 5; Sharpsburg, 1, 4, 5, 16; Smithsburg a, 1, 4, 5, 8, 10, 16, 25, 27; Smithsburg b, 1, 4, 5, 15, 16; Solomons, 5, 6, 16; Sunnyside, 1, 2, 4, 5, 11, 14, 15, 16, 20, 21, 27, 28; Taneytown, 1, 4; Western Maryland College, 1, 4; Westernport, 2, 4, 5; Woodstock, 1, 5.

Hail.—Boettcherville, Chestertown, 4; Fallston, Millsboro, 5; New Market, 1, 4; Prince Fredericktown, 4, 15; Princess Anne, 11; Solomons, 5, 16.

Sleet.—Boonsboro, 1, 4; Green Spring Furnace, 1, 21, 27; Laurel, 1; New Market, 1, 4; Sharpsburg, 1; Western Maryland College, 1, 4.

Fog (Dense).—Baltimore (Johns Hopkins Hospital), 14, 26; Chestertown, 25; Chewsville, 24; Clear Spring, 10, 11, 14; Frostburg, 9, 20, 25; Grantsville, 10; Harney, 20; Jewell, 11, 25, 26; Laurel, 9, 10, 25; Millsboro, 10, 14, 25, 26; New Market, 25, 26; Prince Fredericktown, 10, 14, 21, 25, 26; Princess Anne, 14; Queenstown, 20, 24, 25, 26; Seaford, 14, 20, 25; Smithsburg b, 10; Solomons, 10, 14, 24, 25, 26; Sunnyside, 10; Van Bibber, 24, 25; Westernport, 14, 20, 25.

Heavy Frost.—Baltimore, 3, 8, 18; Queenstown, 17.

Killing Frost.—Boonsboro, 17, 18, 22, 23; Frederick, 18; Hagerstown, 18; Millsboro, 29, 30; Princess Anne, 1, 17, 18; Solomons, 18; Taneytown, 1, 7.

Thunderstorms.—Annapolis, Carmichael, Charlotte Hall, Darlington, Denton, Fallston, Laurel, Mount St. Marys, Pocomoke City, Seaford, Taneytown, Washington, Westernport, 26; Boonsboro, Grantsville, Green Spring Furnace, New Market, 13; Baltimore, 11, 26; Boettcherville, 8, 13; Chestertown, 10, 26; Frederick, 13, 26; Frostburg, 10; Jewell, 21, 26; Millsboro, 11, 26; Newark, 11; Prince Fredericktown, 11, 20, 21, 26; Princess Anne, 11, 25, 26; Queenstown, 10, 26; Rock Hall, 11, 26; Solomons, 11, 21, 25, 26; Sudlersville, 12, 26; Van Bibber, 10, 14, 26.

High Winds.—Boonsboro, 10; Charlotte Hall, 28, 29, 30, 31; Chewsville, 20; Clear Spring, 21, 28, 29, 31; Frostburg, 26; Green Spring Furnace, 11, 27; Harney, 6, 31; Smithsburg b, 3; Washington, 27; Westernport, 21.

Rainbow.—Laurel, 14.

Lunar Halo.—Baltimore, 8; Chewsville, 29.

Lunar Corona.—Solomons, 29.

Aurora.—Chewsville, 2, 22.

Solar Halo.—Jewell, 19; Solomons, 8.

Parhelia.—Pocomoke City, 19.

ERRATA.

January, 1901, Report: Page 5.—Minimum temperature at Westernport, 7°, on 31st, should read 6°, on 19th.

Climatological data for Maryland and Delaware, March, 1901.

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.....	780	11	41.4	+1.4	80	20	3	6	49	3.53	+0.33	1.00	3.0	11	.....	.....	.....	.....	F. F. Brown.	
Boonsboro.....	Washington.....	600	3	43.4	.....	75	19	5	6	39	3.50	.....	1.40	.....	9	16	10	5	s.	C. E. Huntzberg.	
Chewsville.....	Washington.....	530	3	42.8	.....	72	19	10	7	39	3.92	.....	1.39	.....	8	9	17	5	w.	W. A. Henneberger.	
Clear Spring b.....	Washington.....	500	3	40.0	.....	74	20	5	6	38	.....	.....	2.0	10	11	14	6	w.	E. I. Oswald.		
Cumberland.....	Allegany.....	722	42	.....	.....	.....	.....	.....	.....	.....	2.78	-0.30	0.87	.....	12	9	2	20	sw.	W. W. Frantz.	
Deer Park.....	Garrett.....	2,457	10	36.4	+1.5	69	19	1	6	42	2.03	-1.57	0.55	7.5	9	.....	.....	.....	.....	James Webster.	
Frostburg.....	Allegany.....	2,200	6	38.7		69	19	1	3	7	41	4.26		0.66	7.0	18	11	0	20	w.	S. P. Specht.
Grantsville.....	Garrett.....	2,400	8	36.4	+1.1	68	24	1	3	37	4.99	+0.31	0.86	8.0	12	5	9	17	w.	Mrs. G. G. Townsend.	
Green Spring Furnace	Washington.....	450	9	41.2	+2.0	71	19	6	6	46	3.71	+0.69	2.00	1.3	10	12	8	11	w.	J. S. Miller.	
Hagerstown.....	Washington.....	552	10	43.1	+2.5	74	19	6	6	42	4.06	-0.18	1.69	.....	12	10	9	12	s.	E. G. Kinsell.	
Hancock.....	Washington.....	455	3	41.0	+2.4	77	19	8	7	48	3.28	.....	1.70	2.2	9	5	18	8	w.	Clyde B. Stouffer.	
Sharpsburg.....	Washington.....	420	7	45.5	+5.2	81	24	8	7	48	3.75	+0.61	1.40	T.	10	19	3	9	nw.	J. D. Stottemeyer.	
Smithsburg a.....	Washington.....	750	3	43.1	.....	74	19	4	6	39	2.14	.....	1.30	T.	9	8	15	8	w.	Chas. G. Biggs.	
Smithsburg b.....	Washington.....	900	9	35.2	+0.7	76	24	1	9	6	44	4.93	-0.35	0.89	17.8	17	9	0	22	w.	Chas. K. Shank.
Sunnyside.....	Garrett.....	2,440	9	35.2	+0.7	76	24	1	9	6	44	4.93	-0.35	0.89	17.8	17	9	0	22	nw.	George R. Crowther.
Westernport.....	Allegany.....	1,000	7	37.5	-0.1	70	19	3	5	37	3.24	+0.12	0.74	2.8	14	.....	.....	.....	.....	J. G. Knauer.	
Average.....	.....	.....	.....	40.5	+1.9	.....	.....	.....	.....	.....	3.59	-0.04	.....	4.5	11	10	9	12	w.	Prof. O. H. Bruce.	
NORTHERN-CEN. MD.																					
Bachman's Valley.....	Carroll.....	860	8	40.3	+1.6	70	19	8	16	36	6.99	+2.41	2.60	T.	6	17	6	8	nw.	J. M. Myers.	
Baltimore.....	Baltimore.....	123	67	43.9	+2.3	74	19	13	6	28	3.58	-0.52	1.52	0.1	12	11	11	9	w.	U.S. Weather Bureau.	
Baltimore, J. H. Hosp.	Baltimore.....	112	7	41.5	+0.8	74	19	8	6	38	1.13	-2.43	0.35	.....	10	15	1	15	sw.	W. L. Woods.	
Chase.....	Baltimore.....	25	3	39.5	.....	67	19	8	7	37	4.81	.....	1.80	.....	7	14	7	10	w.	J. W. Crouch.	
Darlington Academy.....	Harford.....	339	12	42.0	+2.0	72	19	9	7	34	4.21	+0.94	2.08	.....	4	13	10	8	nw.	Prof. A. F. Galbreath.	
Fallston School.....	Harford.....	450	33	42.0	+3.7	72	19	10	7	29	4.68	+0.39	2.19	0.2	11	3	20	8	nw.	G. G. Curtis, A. M.	
Frederick.....	Frederick.....	275	29	45.3	+4.7	73	19	10	6	37	4.34	+1.23	0.90	.....	13	7	14	9	nw.	McClintock Young.	
Great Falls.....	Montgomery.....	200	13	42.5	+1.1	74	20	7	7	38	2.95	-0.10	1.04	.....	7	15	0	16	ne.	Washington Aqueduct.	
Harney.....	Frederick.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.20	.....	2.25	0.5	6	12	12	7	.....	Daniel Bowersox.	
McDonogh.....	Baltimore.....	.....	.....	39.8	+1.1	72	19	8	6	35	1.90	-1.77	0.65	.....	9	20	6	5	.....	Wm. T. Purdum.	
Mt. St. Mary's Coll.....	Frederick.....	720	41	42.0	+3.5	71	19	7	6	32	5.40	+1.38	1.80	2.0	10	14	5	12	nw.	J. A. Mitchell, Ph. D.	
New Market.....	Frederick.....	550	18	42.6	+2.9	74	19	8	6	44	3.15	-0.62	1.05	T.	12	4	16	11	dw.	H. H. Hopkins, M. D.	
Takoma Park.....	Montgomery.....	.....	2	43.4	.....	77	20	10	7	37	3.32	.....	1.08	.....	10	.....	.....	.....	.....	G. A. Warren.	
Taneytown.....	Carroll.....	490	9	41.8	-0.4	75	19	9	6	36	4.42	+1.01	1.14	1.0	12	8	18	5	s.	Prof. H. Meier.	
Van Bibber.....	Harford.....	100	6	41.7	+2.2	69	19	11	6	32	4.54	+0.28	1.85	.....	12	10	6	15	nw.	H. A. Wroth.	
West'n Maryland Coll.	Carroll.....	900	7	41.6	+0.9	73	19	7	6	34	3.56	-0.38	1.75	T.	4	.....	.....	.....	.....	Prof. Roland Watts.	
Woodstock College.....	Baltimore.....	392	32	45.0	+6.1	73	19	10	6	38	1.91	-2.07	0.90	.....	14	2	16	13	nw.	James T. Dawson, S. J.	
Average.....	.....	.....	.....	42.2	+2.3	.....	.....	.....	.....	.....	3.89	-0.02	.....	0.4	9	11	10	10	nw.	.....	
SOUTHERN MARYLAND.																					
Annapolis.....	Anne Arundel.....	45	28	43.8	+1.7	70	19	11	6	37	3.76	-0.56	1.50	0.1	10	10	9	12	se.	W. M. Abbott.	
Charlotte Hall Sch.....	St. Mary's.....	167	8	45.8	+1.4	78	19	18	6	44	2.40	-0.76	0.80	T.	8	15	9	7	nw.	J. F. Coad.	
Distributing Reservoir	Dist. of Columbia	120	11	45.1	+2.4	71	19	14	6	30	2.02	-1.13	0.69	.....	7	.....	.....	.....	.....	Washington Aqueduct	
Jewell.....	Anne Arundel.....	165	14	45.0	+3.4	75	19	11	7	35	3.52	-1.02	0.90	T.	8	15	10	6	w.	J. Plummer.	
Laurel.....	Prince George's.....	150	7	43.6	+1.9	77	19	7	7	48	3.30	+0.10	1.20	.....	7	2	19	10	.....	Dr. T. M. Baldwin.	
Md. Agricultural Coll.	Prince George's.....	170	10	44.2	+0.7	76	19	6	0	40	3.53	+0.41	1.40	T.	5	16	7	8	.....	Prof. J. H. Patterson.	
Prince Fredericktown	Calvert.....	.....	.....	45.4	.....	74	19	9	7	35	3.83	.....	1.36	1.0	12	8	12	11	.....	Alfred Presson.	
Receiving Reservoir	Dist. of Columbia	160	11	44.7	+2.5	88	20	12	6	44	2.65	-0.98	0.87	.....	5	.....	.....	.....	.....	Washington Aqueduct	
Solomon's.....	Calvert.....	20	10	45.0	+1.8	73	19	15	6	25	3.06	-0.30	0.77	1.0	9	8	9	14	n.	W. H. Marsh, M. D.	
Washington.....	Dist. of Columbia	112	31	45.0	+3.7	75	19	11	6	40	2.64	-1.52	0.70	0.1	9	7	11	13	nw.	U.S. Weather Bureau.	
Average.....	.....	.....	.....	44.8	+2.2	.....	.....	.....	.....	.....	3.03	-0.64	.....	0.3	8	.....	11	10	nw.	.....	
EASTERN MARYLAND.																					
Berlin.....	Worcester.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. E. J. Dirickson.	
Cambridge.....	Dorchester.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Jordan.	
Carmichael.....	Queen Anne's.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. Frederick Capes.	
Chestertown.....	Kent.....	80	17	43.6	+1.6	70	19	14	6	30	2.67	-0.90	1.10	T.	8	12	13	6	nw.	Hon. M. de K. Smith.	
Coleman.....	Kent.....	80	12	44.9	+3.2	72	19	11	7	37	3.44	-0.88	1.44	1.0	6	0	9	22	sw.	James S. Harris.	
Denton.....	Caroline.....	42	12	44.9	+3.2	72	19	11	7	37	3.97	-0.88	1.22	.....	7	13	12	6	nw.	F. C. Ramsdell.	
Easton.....	Talbot.....	35	12	44.6	+1.6	77	19	14	7	39	2.19	-1.24	0.83	.....	7	13	12	6	nw.	Henry Shreve.	
Mardela Springs.....	Wicomico.....	25	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Pocomoke City.....	Worcester.....	37	8	47.2	-0.1	72	19	13	7	32	3.83	+0.30	1.36	0.8	6	11	17	3	s.	R. M. Stevenson.	
Port Deposit.....	Cecil.....	25	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Princess Anne.....	Somerset.....	20	27	45.9	-0.8	74	19	10	6	36	4.18	+0.54	1.35	2.0	8	8	12	11	sw.	J. R. Stewart.	
Queenstown.....	Queen Anne's.....	20	3	.....	.....	74	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. W. K. Carroll.	
Rock Hall.....	Kent.....	25	3	44.4	.....	73	19	12	7	41	1.75	.....	0.63	T.	10	15	6	10	s.	Isaac L. Leary.	
Sudlersville.....	Queen Anne's.....	.....	3	44.8	.....	78	19	11	7	37	2.68	.....	1.20	.....	5	13	9	9	sw.	J. S. Barwick.	
Average.....	.....	.....	.....	45.1	+1.1	.....	.....	.....	.....	.....	2.95	-0.44	.....	0.6	7	10	11	10	sw.	.....	
DELAWARE.																					
Milford.....	Kent.....	20	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. Y. Foulk.	
Millsboro.....	Sussex.....	23	9	43.0	0	74	20	10	7	41	3.80	+0.25	1.50	1.0	8	12	8	11	s.	Rev. L. W. Wells.	
Newark (Del. Coll.).....	Newcastle.....	136	8	40.1	+0.6	70	19	8	7	32	3.52	+0.02	1.42	T.	8	10	11	10	nw.	Prof. W. H. Bishop.	
Seaford.....	Sussex.....	40	11	45.0	+1.9	73	19	12	7	31	3.01	-0.79	1.22	0.8	6	11	4	16	nw.	W. T. Wallace.	
Wyoming.....	Kent.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. Jas. L. Crossmore.	
Average.....	.....	.....	.....	42.7	+0.8	.....	.....	.....	.....	.....	3.44	-0.17	.....	0.6	7	11	8	12	nw.	.....	
General average.....	.....	.....	.....	42.7	+1.9	.....	.....	.....	.....	.....	3.47	-0.23	.....	1.8	9	10	10	11	nw.	.....	

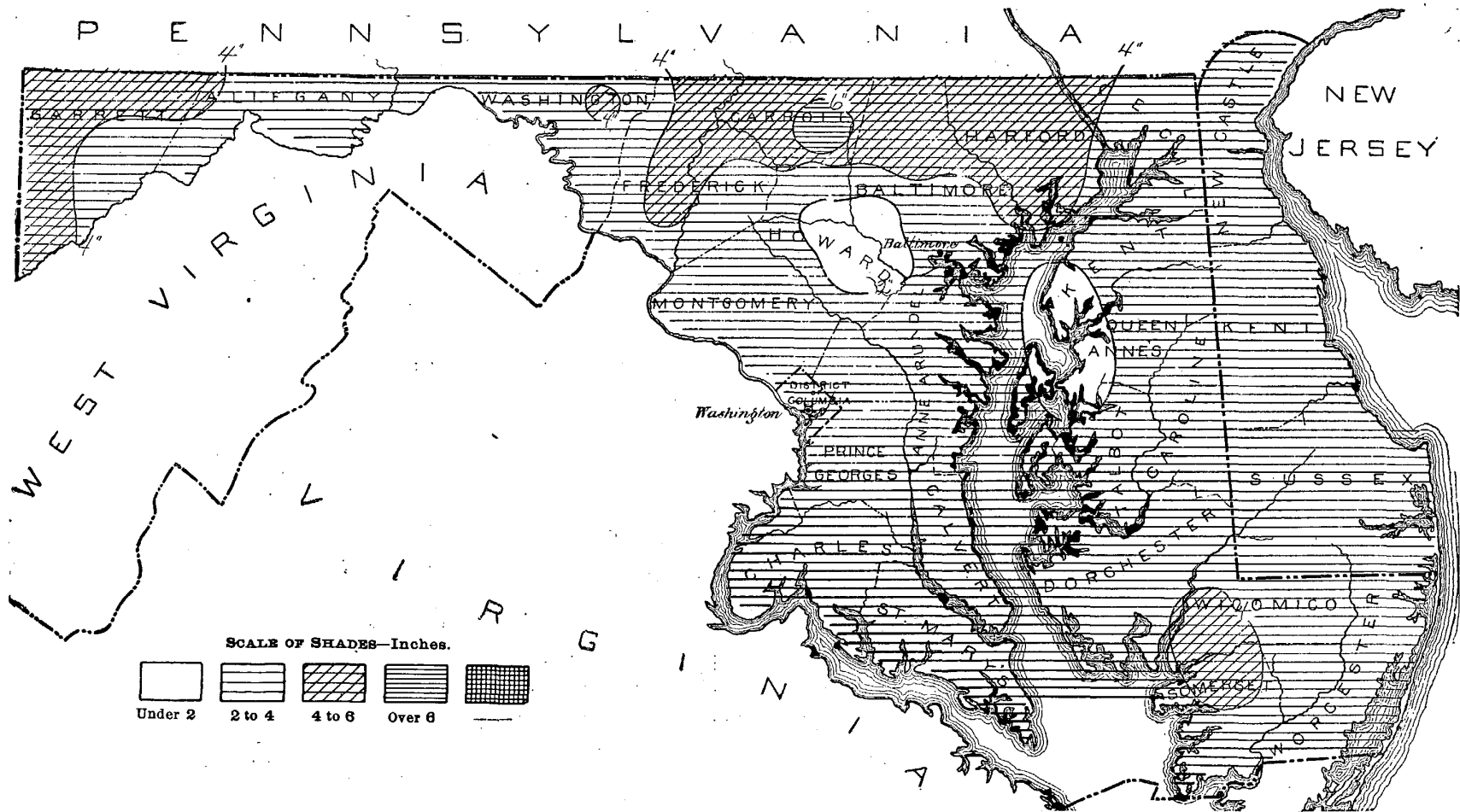
NOTE.—All records are used in determining State or district means, but State and district departures are determined by comparison of current data of only such stations as have normals. Letters of the alphabet indicate the number of days missing—e. g. "d" denotes four days missing. + Mean of 7 a. m. + 2 p. m. + 2. Incomplete record. * Not included in means. † On other dates also.

New normals of temperature and precipitation have been computed for all stations having a record of three years or more, from the beginning of observations to include the year 1900. The use of the new normals began in the January report.

Maximum and minimum temperatures for Maryland and Delaware, March, 1901.

[illegible]

TOTAL PRECIPITATION, MARCH, 1901.



Daily precipitation for Maryland and Delaware, March, 1901.

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.....	...	.10	...	.20	.40	...	...	...	.43	1.00	...	.10	.15	...	...	...	...	...	...	.56	...	...	...	.06	...	.44	.69	...	...	...	...	...	3.53	
Boonsboro.....	.09	T.	...	.19	...	T.	...	...	.27	.15	1.40	...	.05	...	...	...	...	...	...	T.	1.01	...	...	T.	.10	.34	...	...	...	T.	...	...	3.60	
Chewsville.....	.12	...	...	.34	...	...	...	...	.40	...	1.39	...	.09	...	...	...	...	...	...	...	.98	...	...	...	.07	.47	T.	...	...	...	...	...	3.92	
Clear Spring*.....	.05	...	.05	.15	...	...	...	...	.31	.33	...	...	.05	.02	...	T.	...	...	...	...	.61	...	...	...	.05	.23	...	...	...	...	...	...	1.79	
Cumberland.....	T.	T.	...	.02	.54	.01	...	...	.01	.30	.87	...	...	.16	...	...	...	...	...	...	.37	...	...	.05	...	.41	.02	...	...	...	.02	...	2.78	
Deer Park.....	...	...	.10	.40	...	...	...	...	.10	...	...	...	.05	.02	.05	.20	...	...	...	.55	.10	...	...	...	.48	...	...	...	...	...	...	...	2.03	
Frostburg.....	...	.22	...	.29	.59	...	.03	...	.46	.30	.66	.05	.15	.16	.03	.02	...	...	...	.03	.50	...	...	.08	...	.60	.05	.04	.04	...	...	...	4.26	
Grantsville.....	...	.80	.40	.20	.40	...	...	.50	.54	.33	...	.10	.01	...	.20	.02	...	...	...	.86	...	...	...	...	.65	...	...	...	...	...	...	...	4.99	
Green Spring Furnace.....	.05	.02	...	.40	...	...	...	...	.25	...	2.00	...	.07	.03	...	...	...	...	...	.70	...	...	...	...	.17	.02	...	...	...	...	...	...	3.71	
Hagerstown.....	.15	.03	.32	...	...	...	...	...	.38	T.	1.69	...	.05	.08	...	T.	...	...	...	.05	.90	...	...	.06	.02	.33	...	...	...	...	T.	...	4.06	
Hancock.....	.04	...	.49	...	...	...	...	...	.05	.05	1.70	...	.03	...	...	...	...	...	...	.73	...	...	...	...	.17	.02	...	...	...	...	...	...	3.28	
Sharpsburg.....	T.	.10	.15	T.	...	...	...	...	.42	.04	1.40	...	.03	...	...	...	...	...	...	.07	1.15	...	...	.06	.93	.33	...	...	...	...	...	...	3.75	
Smithsburg.....	.10	...	.05	.03	...	...	...	T.	.25	T.	1.30	...	.10	...	.03	.03	...	...	...	...	...	...	.05	T.	.30	T.	...	...	...	...	...	...	2.14	
Smithsburg*.....	.06	...	.05	.22	...	...	...	...	.22	T.	2.17	...	.10	...	...	...	T.	.02	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3.21	
Sunnyside.....	.20	.35	...	.37	.89	...	...	...	.73	.11	.32	...	.10	...	.21	.23	...	...	...	.02	.49	...	...	.08	...	.57	.03	.02	...	.21	T.	...	4.93	
Westernport.....	...	.10	.08	.20	.08	...	...	.50	.30	.55	.02	.10	...	...	...	...	...	...	...	.74	...	...	.04	...	.33	.08	...	...	...	.12	...	...	3.24	
NORTHERN-CENTRAL MARYLAND.																																		
Bachman's Valley.....	T.	...	...	T.	...	...	...	...	.75	T.	2.60	...	...	...	...	...	...	...	...	.40	1.90	...	...	...	.14	1.20	...	...	...	...	...	...	6.99	
Baltimore.....	.01	T.	...	.21	.12	T.	...	...	.18	.14	1.52	T.	T.	.04	T.	...	...	...	...	.22	.78	T.	...	.03	.04	.29	T.	T.	...	...	...	...	3.58	
Baltimore, Johns Hopkins Hosp.	...	.03	...	.04	.17	...	...	...	...	.08	.55	...	...	.04	...	...	...	...	...	...	.01	...	...	.03	.08	.10	...	...	...	...	...	...	1.13	
Chase.....	...	...	...	...	...	...	...	...	.76	.15	1.39	...	...	...	...	...	...	...	...	...	.34	1.80	...	...	.22	.15	...	...	...	...	...	...	4.81	
Darlington Academy.....	...	...	...	...	...	...	...	...	1.84	...	...	...	...	...	...	...	...	...	...	...	2.68	...	...	.04	...	.25	...	...	...	...	...	...	4.21	
Fallston School.....	.01	T.	...	.08	.03	T.	...	...	.06	.18	1.76	...	...	T.	T.	...	T.	...	...	.57	1.62	...	...	.08	.01	.28	T.	T.	...	...	...	...	4.68	
Frederick.....	.08	...	.37	...	...	...	...	...	.25	.80	.90	.02	.16	...	...	...	...	...	...	.40	.50	...	...	.04	.14	.61	.01	...	...	...	...	...	4.34	
Great Falls.....	...	...	...	...	.34	...	...	...	.03	.44	1.04	...	...	...	...	...	...	...	...	...	.81	...	...	.02	...	.27	...	...	...	...	...	...	2.95	
Harney.....	.40	...	...	.20	...	...	...	...	.05	...	2.25	...	...	...	...	...	...	...	...	1.05	...	...	...	...	1.25	...	...	...	...	...	...	...	5.20	
McDonogh.....	...	.02	.20	...	...	...	...	...	.25	.65	...	...	...	...	...	...	...	...	...	.47	...	...	.03	.05	.10	.13	...	...	...	...	...	...	1.90	
Mt. St. Mary's College.....	.10	...	.20	...	...	...	...	...	.20	.20	1.80	...	.10	...	...	...	...	...	...	1.40	...	...	...	.10	.30	1.00	...	...	...	...	...	...	5.40	
New Market.....	.06	T.	...	.28	...	...	...	...	.22	.04	.90	...	.10	.07	T.	T.	...	...	...	1.05	...	...	...	.04	.04	.33	.02	...	...	...	T.	...	3.15	
Takoma Park.....	...	...	...	.41	T.	...	...	...	.15	.30	.91	.02	...	...	...	...	...	...	...	1.08	...	...	...	.11	.02	.05	.27	...	...	...	...	...	3.32	
Taneytown.....	.11	T.	...	.25	...	...	...	...	...	...	1.85	...	...	.08	.01	...	...	...	...	...	1.14	...	...	.04	...	.93	...	...	...	...	...	...	4.42	
Van Bibber.....	...	...	.20	.02	...	...	...	.07	.15	1.52	.12	...	...	T.	.02	...	T.	...	T.	...	1.85	T.	...	.10	.17	.31	...	...	...	.01	...	...	4.54	
Western Maryland College.....	T.	...	T.	...	...	...	...	...	...	1.75	...	...	...	.17	...	...	...	...	...	...	.96	...	...	...	...	.68	...	...	...	...	...	...	3.56	
Woodstock College.....	T.	...	.03	.06	.06	...	...	...	.17	.03	.52	...	T.	.01	.01	T.	...	...	...	.03	.90	T.	...	.02	.01	.04	.02	...	...	...	...	...	1.91	
SOUTHERN MARYLAND.																																		
Annapolis.....	.01	...	...	.25	T.	...	...	...	.30	.95	...	...	...	.10	...	...	...	...	...	1.50	.10	...	...	.10	.15	.30	...	...	...	...	...	...	3.76	
Charlotte Hall School.....	...	...	...	.05	...	...	...	...	.12	.30	.08	...	...	T.	...	...	...	...	...	.60	.25	...	...	T.	.20	.80	...	...	...	...	...	...	2.40	
Distributing Reservoir, D. C.....	...	...	...	.27	T.	...	...	...	.05	.26	.63	...	...	...	...	...	...	...	...	...	.69	...	...	.04	...	.08	...	...	...	...	...	...	2.02	
Jewell.....	...	T.	...	.07	T.	T.	...	...	.35	...	.84	...	...	...	...	...	...	...	...	...	.90	.23	...	...	.08	.40	.65	...	...	...	...	...	3.52	
Laurel.....	T.	T.	...	.40	T.	...	...	...	.40	...	1.20	...	...	.10	...	...	...	...	...	1.10	...	...	...	...	.20	...	...	...	...	...	...	...	3.50	
Maryland Agricultural College.....	...	...	.30	T.	...	...	...	...	.40	1.40	...	...	...	T.	...	...	...	...	...	1.26	...	...	...	T.	.17	.17	...	...	...	...	...	...	3.53	
Prince Fredericktown.....	...	.01	...	.13	.04	...	...	...	.27	.02	1.14	...	T.	...	T.	T.	...	...	...	.43	.96	.03	T.	T.	.02	.63	.15	...	...	...	...	...	3.83	
Receiving Reservoir, D. C.....	...	...	...	.32	...	...	...	...	...	.31	.52	...	...	...	...	...	...	...	...	...	.87	...	...	...	.93	...	...	...	...	...	...	...	2.05	
Solomon's.....	T.	T.	...	.05	.09	T.	...	...	.29	.05	.77	...	...	...	T.	T.	...	...	...	...	.35	.51	...	T.	T.	.45	.50	...	...	...	...	...	3.06	
Washington, D. C.....	T.	T.	...	.21	.10	T.	...	T.	.32	.03	.92	...	T.	...	...	T.	...	...	...	...	.12	.76	...	...	.07	T.	.11	...	T.	...	...	...	2.64	
EASTERN MARYLAND.																																		
Cambridge.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.54
Carmichael*.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.54	...	...	...	...	...	...	...	2.67
Chestertown.....	...	...	.20	T.	...	...	...	.05	.07	.75	...	...	...	...	...	...	...	...	...	1.10	...	...	...	.08	...	.02	.40	...	...	...	...	...	...	3.44
Coleman.....	...	...	.07	T.	...	...	...	...	.06	1.40	...	...	...	.04	.05	...	...	...	...	1.40	...	...	...	.13	.05	.24	...	...	...	...	...	...	...	2.97
Denton.....	...	...	T.	.10	T.	...	T.	T.	.23	.01	...	...	...	...	...	...	...	...	...	1.22	...	...	...	...	.15	.26	...	...	...	...	...	...	...	2.19
Easton.....	...	...	.09	.04	...	...	...	...	...	...	.53	...	...	...	...	...	...	...	...	.83	.05	...	.01	...	...	.64	...	...	...	...	...	...	...	2.19
Mardela Springs.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pocomoke City.....	...	...	...	...	...	...	.07	...	...	...	...	...	...	...	...	...	...	...	...	1.06	...	...	...	...	...	1.35	...	...	...	...	...	...	...	3.83
Port Deposit.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Princess Anne.....	...	T.	...	...	.17	...	...	...	.39	.02	1.35	...	...	...	...	...	...	...	...	T.	1.00	...	...	T.	.63	.60	...	...	...	...	.02	...	4.18	
Queenstown*.....	...	...	...	...	...	...	...	...	...	.75	...	...	...	...	...	...	...	...	...	...	.02	.02	.02	.08	.02	.43	...	...	...	...	...	...	...	2.47
Rock Hall.....	...	T.	...	.06	.05	T.	...	...	.10	.04	.63	...	...	...	...	...	...	...	...	.03	.43	.03	...	.05	T.	...	...	...	...	...	...	...	1.75	
Sudlersville.....	...	...	.22	T.	...	...	...	...	...	.90	...	...	...	...	...	...	...	...	...	1.20	...	...	...	.05	...	.31	...	...	...	...	...	...	...	2.68
DELAWARE.																																		
Milford.....	...	...	...	...	...	...	...	...	...	...	...																							