

Recd Mar. 19, 1896.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU,

CO-OPERATING WITH THE

MARYLAND STATE WEATHER SERVICEEstablished by an Act of the General Assembly of the State of Maryland, 1892,
and Maintained in Connection with

The Johns Hopkins University and the Maryland Agricultural College.

CENTRAL OFFICE, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

PROF. WM. B. CLARK,
JOHNS HOPKINS UNIVERSITY,
Director.

PROF. MILTON WHITNEY,
MARYLAND AGRICULTURAL COLLEGE,
Secretary and Treasurer.

DR. C. P. CRONK,
U. S. WEATHER BUREAU,
Meteorologist in Charge.

VOL. V, No. 11.

MONTHLY REPORT.

MARCH 9, 1896.

Contains Review for the Month of February.

How to Preserve Woodland.

In the M. A. C. Record, published by the Michigan Agricultural College, there appears the following, in an article by Prof. A. A. Crozier:

The two principal enemies of forest property are live stock and fire. Where stock is confined to a limited section of woodland, all underbrush is soon destroyed and the woods become open and park like, the surface more or less covered with grass, attractive places for picnic parties, etc., but of little further use as a forest. The duration of such a forest is necessarily limited to the life of the large timber, and even this often prematurely dies from the unwonted exposure.

The College woodland has therefore been securely fenced against stock, and all the young growth preserved to take the place of the larger trees which are from time to time removed for lumber and fuel. This woodland lies mainly in two parcels. This division into two parcels serves as a measure of safety against fire, but direct means for further protection have also been taken. The south wood lot which extends for some distance along the D. L. & N. railroad, has been protected from fires from the engines by a strip of cultivated land cleared for that purpose.

The north wood lot has a similar "fire belt" cleared of all surface vegetation extending through its centre. In this wood lot is also maintained a system of roads or drives which are intended as a further protection against the spread of fire.

A botanical survey of the more prominent features of these wood lots has been made. For this purpose each parcel was laid off in wards of uniform size, securely marked at the corners with iron pipe. These wards have been num-

bered and platted, and the kind and relative amounts of the timber thereon recorded. Measurements of some of the trees have been taken to learn in the future their rate of growth. In one of the wards all of the large timber was cut off from several acres a few years ago, and a thrifty second growth is now taking its place. The College woods are therefore no longer wild land, but a source of profit and a means of study.

Miscellaneous Notes.

Crop correspondents are requested to report on March 28th (using the card, form 1053) to what extent the season's farming operations have been carried on up to that time, including the effects of the weather conditions during the winter and spring. The information is desired by the Chief of the Weather Bureau for use in preparing the National Climate and Crop Bulletin for March, 1896.

The first issue of the Climate and Crop Bulletin of the Maryland State Weather Service (co-operating with the U. S. Department of Agriculture, Weather Bureau), for the season of 1896, will be made on Tuesday, April 7th, proximo; and it is desired that the card reports be mailed so that they will reach Baltimore on Monday, the day preceding the publication of the Bulletin.

Observers will confer a great favor upon the Central Office by promptly forwarding meteorological forms. Some reports for February were not received until March 9th.

Review of the Month—Feb.

WEATHER.

General.—Six quite well defined areas of high pressure, as they moved eastward over the Atlantic Coast States, influenced Maryland's February weather, while nearly twice that number of low areas exerted their opposite influence. The natural result followed in that the precipitation greatly exceeded the normal for the month. Not only that, but it established a record at several stations, as the February of greatest rainfall known. At Baltimore the total of 7.07 inches is considerably above all previous records for the month, though even a greater amount was recorded at Annapolis, Cambridge, and Millsboro, Del. More than four inches fell at all stations from Hagerstown and Sharpsburg east to the Atlantic, as shown by the map, page 85, and the greater portion of Garrett county received an amount exceeding this limit.

The table of daily precipitation, page 83, shows rain or snow to have fallen in some portion of the State on every one of the first ten days. The last part of the month was comparatively dry.

The temperature was not, on the whole, essentially different from the normal. A number of the storms followed southerly tracks, with a resulting lower temperature for the Middle Atlantic States than would have resulted had the more usual northern routes been taken.

The isotherms, as shown on the map, page 85, are quite irregular, though they show a noticeably higher temperature for the valleys than for the more elevated regions.

Temperature (degrees).—Monthly mean (entire territory), 34.6, being 1.3 above the normal; highest monthly mean, 40.2, at Pocomoke City; lowest monthly mean, 26.6, at Sunnyside; highest temperature, 66, at Pocomoke City, on the 29th, Milford, Del., on the 6th, and Millsboro, Del., on the 28th; lowest temperature, —12, at Sunnyside, on the 17th; greatest local monthly range, 69, at Sunnyside; least local monthly range, 46, at St. Charles College (near Ellicott City), Great Falls, Distributing Reservoir, D. C., Receiving Reservoir, D. C., and Solomon's; monthly mean range, 55.9; monthly mean maximum temperature, 43.1; monthly mean minimum temperature, 26.4.

Precipitation (in inches).—Average, 5.41, being 2.30 above the normal; greatest amount, 7.48, at Annapolis; least amount, 2.40, at West-

ernport. The greatest fall of snow during the month, in Maryland, 17.3, is reported by the observer at Sunnyside. The next greatest, 14.5, is reported by the observer at Grantsville.

Wind.—Prevailing direction, northwest. Total movement in miles, Philadelphia, Pa., 9639; Baltimore, Md., 7297; Washington, D. C., 6912; Norfolk, Va., 8440.

Thunderstorms.—At Cambridge, on the 28th; at Charlotte Hall, on the 28th; at Cherryfields, on the 28th; at Chestertown, on the 28th; at College Park, on the 6th; at Fallston, on the 6th, 28th; at Jewell, on the 6th, 28th; at Mardela Springs, on the 28th; at Millsboro, Del., on the 28th; at Newark, Del., on the 28th; at Sharpsburg, on the 28th; at Solomon's, on the 28th; at Upper Marlboro, on the 28th; at Wilmington, Del., on the 6th, 28th.

Hail.—At Bachman's Valley, on the 3rd; at Chestertown, on the 3rd, 8th; at Dover, Del., on the 28th; at Grantsville, on the 3rd; at New Market, on the 3rd, 13th; at Oakland, on the 2nd; at Wilmington, Del., on the 3rd, 4th, 8th.

Sleet.—At Bachman's Valley, on the 3rd; at Burkittsville, on the 8th; at Chestertown, on the 3rd, 8th; at College Park, on the 3rd; at Dover, Del., on the 3rd, 4th; at Fallston, on the 3rd; at Grantsville, on the 3rd; at Green Spring Furnace, on the 13th; at Newark, Del., on the 8th; at New Market, on the 13th; at Oakland, on the 5th; at Sharpsburg, on the 3rd, 9th; at Sunnyside, on the 5th; at Wilmington, Del., on the 3rd, 4th, 8th, 9th, 13th; at Woodstock, on the 3rd.

Fogs, dense.—At Cambridge, on the 29th; at Cherryfields, on the 29th; at Jewell, on the 5th, 29th; at Mardela Springs, on the 4th, 9th, 27th, 29th; at Millsboro, Del., on the 4th, 5th; at Pocomoke City, on the 29th; at Solomon's, on the 29th; at Westminster, on the 4th, 5th; at Wilmington, Del., on the 1st, 4th, 5th, 6th, 10th, 13th, 17th, 24th, 27th, 28th, 29th.

Halos, Lunar.—At Cumberland, on the 1st, 20th, 21st, 22nd, 26th; at Green Spring Furnace, on the 22nd; at Jewell, on the 22nd; at Millsboro, Del., on the 22nd; at Pocomoke City, on the 22nd; at Solomon's, on the 19th, 22nd, 24th.

Halos, Solar.—At Jewell, on the 12th, 17th.

Coronas, Lunar.—At Millsboro, Del., on the 24th; at Wilmington, Del., on the 8th.

Auroras.—At Sunnyside, on the 15th; at Mardela Springs, on the 12th.

DAILY PRECIPITATION FOR FEBRUARY, 1896.

Table with columns for STATIONS (1-31) and Total. Rows list various locations like Sunnyside, Oakland, Deer Park, etc., with precipitation amounts and weather indicators (T, +).

NOTE.—"T" indicates a trace of rain or melted snow. † Not measured until next observation.

Reports for January, 1896, received too late for earlier publication.

Table with columns for STATIONS, COUNTIES, Altitude above sea in ft., Latitude, Longitude, TEMPERATURE (Monthly Mean, Max, Min), Total Precipitation, Total Snow-fall, Clear Days, Partly Cloudy Days, Cloudy Days, Rainy Days, Prevaling Winds.

* See foot-note on next page.

MONTHLY SUMMARY OF REPORTS FOR FEBRUARY, 1896.

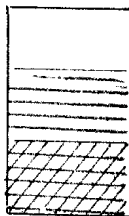
STATIONS.	COUNTIES.	Altitude above sea in ft.	Latitude.	Longitude.	TEMPERATURE.								Total Precipitation.	Total Snow-fall.	Clear Days.	Fair Days.	Cloudy Days.	Rainy Days. (.01 in. or more)	Prevailing Winds.
					Monthly Mean.	Mean of Max.	Mean of Min.	Max.		Min.		Monthly Range.							
								Degrees.	Date.	Degrees.	Date.								
WESTERN MARYLAND.																			
Sommyside.....	Garrett.....	2440	39°20'	79°21'	26.5	35.2	17.8	57	27, 28	-12	17	69	5.45	17.3	11	5	13	16	S. W.
Oakland.....	Garrett.....	2380	39 24	79 25	27.4	37.6	17.1	60	27	-7	17, 20	67	4.29	.....	5	9	15	16	N. W.
Deer Park.....	Garrett.....	2457	39 25	79 20	27.2	37.6	16.9	57	1, 27	-10	17	67	3.57	13.0	.....	.....	.....	.....	.....
Grantsville.....	Garrett.....	2100	39 45	79 10	27.4	35.2	19.6	58	27	-7	20	65	4.77	14.5	5	4	20	12	N. W.
Westernport.....	Alleghany.....	1000	39 45	79 10	30.6	40.8	20.5	57	28	-2	19	59	2.40	2.0	.....	.....	.....	.....	.....
Boetcherville ^{1*}	Alleghany.....	900	39 39	78 48	34.2	.....	.....	62	15	0	20	62	3.10	9.0	.....	.....	.....	.....	.....
Cumberland.....	Alleghany.....	650	39 39	78 46	35.8	45.4	26.3	65	27	1	20, 21	66	3.01	1.5	.....	.....	.....	.....	.....
Flintstone.....	Alleghany.....	.....	.....	.....	34.2	44.3	24.1	57	1	-2	18	59	3.16	4.7	9	11	9	8	.....
Green Sp. Furnace.....	Washington.....	500	39 38	77 58	35.1	40.9	25.4	59	23	3	18, 19	55	3.30	2.0	13	8	8	8	W.
Hagerstown.....	Washington.....	550	39 39	77 43	34.8	43.0	26.7	59	16	4	20	56	4.58	.....	13	7	9	7	.....
Sharpsburg.....	Washington.....	420	39 25	77 44	33.0	39.2	26.8	58	15	5	17, 20	53	4.57	0.5	17	3	9	8	N. W.
NORTHERN-CENTRAL MD.																			
Burkittsville.....	Frederick.....	.....	39 25	77 35	33.2	42.4	24.1	59	15	4	20	55	4.25	5.0	.....	.....	.....	.....	.....
Mt. St. Mary's Col.....	Frederick.....	720	39 40	77 20	32.4	39.2	25.7	56	23	6	18, 20	50	5.16	T	.....	.....	.....	.....	.....
Frederick.....	Frederick.....	250	39 25	77 25	34.7	41.5	27.9	60	6	6	20	54	6.15	0.2	.....	.....	.....	.....	.....
Woman's Col. Fred.....	Frederick.....	.....	39 25	77 25	36.5	42.9	30.1	60	15	6	20	54	.....	.....	14	6	9	.....	.....
New Market.....	Frederick.....	550	39 23	77 16	36.2	45.5	26.9	57	15, 22, 29	4	17, 18, 20	53	6.07	2.0	15	4	10	8	N. W.
Bachman's Val.....	Carroll.....	.....	39 37	76 55	32.8	41.1	24.4	54	15, 23	0	17	54	6.19	3.7	12	7	10	10	N. W.
Western Md. Col. } Westminster. }	Carroll.....	.....	39 25	77 0	34.9	43.7	26.1	59	15	1	17	58	6.46	3.0	17	5	7	7	.....
McD'n'gh Sch'l.....	Baltimore.....	545	39 23	76 46	34.3	47.8	26.8	56	6, 23	2	17	54	.....	.....	.....	.....	.....	.....	.....
Woodstock Col.....	Baltimore.....	400	39 20	76 52	34.4	44.0	24.8	60	23	3	17	57	5.15	0.5	11	8	10	9	W.
Baltimore.....	Baltimore.....	141	39 17	76 33	36.0	44.1	27.9	61	15	5	17	56	7.07	2.0	6	12	11	12	N.
Johns Hopkins Hos } St. Charles Coll. }	Howard.....	300	39 16	76 44	36.8	43.4	29.3	58	15	12	17, 20, 21	46	5.51	.....	.....	.....	.....	.....	.....
nr Ellicott City. }	Montgomery.....	150	39 0	77 15	35.6	.....	.....	55	15, 24	9	17, 18, 20	46	5.50	.....	.....	.....	.....	.....	.....
Great Falls **.....	Harford.....	450	39 30	76 24	33.1	.....	.....	60	23	3	17	57	6.35	3.5	6	14	9	11	S. W.
Fallston School, ^{1*}	Harford.....	.....	.....	.....	32.9	41.8	24.0	58	23	4	16, 17	54	5.49	.....	16	1	12	6	.....
Van Bibber.....	Harford.....	.....	.....	.....	32.9	41.1	24.5	61	23	2	17	59	5.12	4.0	13	8	8	9	N. W.
Darlington Acad'y.....	Harford.....	300	39 38	76 12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SOUTHERN MARYLAND.																			
Annapolis.....	Anne Arund ¹	20	38 58	76 30	34.8	42.0	27.6	63	23	8	17, 20	55	7.48	T	12	1	16	11	.....
Jewell.....	Anne Arund ¹	165	38 45	76 37	37.1	45.9	28.3	62	1, 23	8	17	54	5.60	T	14	7	8	7	S. W.
Dist. Res., D. C. **.....	.....	120	38 55	77 6	35.8	.....	.....	55	15, 23	9	17	46	5.02	.....	.....	.....	.....	.....	.....
Rec. Res., D. C. **.....	.....	160	38 57	77 7	35.6	.....	.....	55	15, 16	9	17, 18, 20	46	5.50	.....	.....	.....	.....	.....	.....
Washington, D. C. } Md. Agric't. Col. }	Pr. George's.....	170	38 58	76 56	36.8	44.6	27.1	58	15, 23	7	22	51	5.51	0.2	.....	.....	.....	.....	.....
College Park "a" } Upper Marlboro }.....	Pr. George's.....	60	38 47	76 45	35.7	44.5	26.9	60	23	7	22	53	6.86	T	15	7	7	10	N. W.
La Plata.....	Charles.....	190	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Solomon's.....	Calvert.....	20	38 19	76 27	37.4	45.1	29.8	58	6, 15	12	21	46	6.44	0.2	8	3	18	11	S. W.
Charlotte Hall.....	St. Mary's.....	167	38 48	76 48	36.8	47.3	26.4	64	23	5	22	59	4.87	T	14	7	8	6	swnw
Cherryfields.....	St. Mary's.....	20	38 11	76 24	36.8	.....	.....	.....	.....	.....	.....	.....	4.62	0.5	11	13	5	9	N. W.
EASTERN MD. AND DELAWARE.																			
Chestertown.....	Kent.....	80	39 13	76 4	34.2	41.8	26.5	60	28, 29	6	17	54	6.12	T	13	7	9	9	E.
Denton.....	Caroline.....	42	38 53	75 30	38.2	47.0	29.5	65	28	5	17	60	6.05	T	.....	.....	.....	.....	.....
Easton.....	Talbot.....	35	38 46	76 5	36.2	43.9	28.5	63	6	7	17	56	5.96	0.5	8	10	11	6	N. W.
Cambridge.....	Dorchester.....	.....	38 44	76 7	38.0	46.6	29.3	62	28	9	17	53	7.19	T	12	12	5	6	N. W.
Mardela Springs.....	Wicomico.....	25	38 23	75 45	36.6	44.9	28.3	64	6, 28	9	17	55	6.23	0.5	9	9	11	8	N. W.
Princess Anne.....	Somerset.....	20	38 12	75 41	36.2	46.4	26.0	65	6	9	17, 21, 22	56	6.80	T	8	12	9	11	N. W.
Pocomoke City.....	Worcester.....	37	38 5	75 34	40.2	49.4	31.0	66	29	10	17	56	6.52	0.2	11	10	8	12	W.
Wilmington, Del.....	Newcastle.....	115	39 44	75 33	34.6	42.3	27.0	62	28	1	17	61	6.00	0.7	10	13	6	12	W.
Delaware College, } Newark, Del. }	Newcastle.....	.....	39 40	75 37	33.0	41.0	24.9	58	6	0	17	58	4.81	1.0	10	10	9	7	W.
Dover, Del.....	Kent.....	40	39 10	75 30	36.1	43.8	28.4	63	6, 28	7	17	57	6.13	0.8	18	7	9	12	S. W.
Milford, Del.....	Kent.....	20	38 55	75 25	37.2	46.7	27.8	66	6	9	17, 18	56	6.71	2.0	20	3	6	8	N. W.
Seaford, Del.....	Sussex.....	.....	38 40	75 35	37.0	46.3	27.6	65	6	7	17	58	7.02	1.0	.....	.....	.....	.....	.....
Millsboro, Del.....	Sussex.....	.....	38 44	75 15	36.8	46.0	27.8	66	28	8	17	58	7.18	0.6	14	6	9	11	S. W.
PENNSYLVANIA. †																			
Philadelphia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
VIRGINIA. †																			
Warsaw.....	Northampton.....	.....	.....	.....	38.6	48.5	28.8	61	23	7	21	54	4.54	.....	13	7	9	5	N.
Birdsne ^{1*}	Northampton.....	.....	.....	.....	40.5	.....	.....	62	24	14	21	48	6.99	0.4	11	7	11	6	N. W.
Norfolk.....	.....	.....	.....	.....	42.8	51.7	33.9	70	13	11	21	59	4.39	.....	12	5	12	12	S. W.
AVERAGES { Western Maryland.....	.....	.....	.....	.....	31.3	39.9	22.1	.....	.....	.....	.....	61.5	3.84	7.2	10.4	6.7	11.9	10.7	N. W.
{ Northern-Cent'l Md.....	.....	.....	.....	.....	34.4	42.5	27.6	.....	.....	.....	.....	53.9	5.75	2.4	12.2	7.2	9.6	8.8	N. W.
{ Southern Maryland.....	.....	.....	.....	.....	36.2	44.9	27.8	.....	.....	.....	.....	51.3	5.72	0.1	12.3	6.7	10.0	9.3	N. W.
{ East. Md. and Del.....	.....	.....	.....	.....	36.5	45.1	27.9	.....	.....	.....	.....	56.8	6.86	0.6	11.6	9.2	8.4	8.5	N. W.
{ Entire territory.....	.....	.....	.....	.....	34.6	43.1	26.4	.....	.....	.....	.....	55.9	5.41	2.8	11.6	7.4	10.0	9.4	N. W.

* Extremes of temperature from observed readings of dry thermometer. A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:
¹ Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. + 4. ² Mean of 8 a. m. + 8 p. m. + 2. * Mean of 7 a. m. + 2 p. m. + 2.
The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers. Letters of the alphabet are used to denote the number of days that are missing from record; for instance, "a" denotes 1 day missing. † Omitted in computing averages. ‡ Received after report had gone to press and therefore omitted in computing averages and in preparing map.

MAP OF
MARYLAND AND DELAWARE

SHOWING
THE PRECIPITATION
AND
LINES OF MEAN TEMPERATURES
FOR FEBRUARY, 1896.

Scale of Shades:

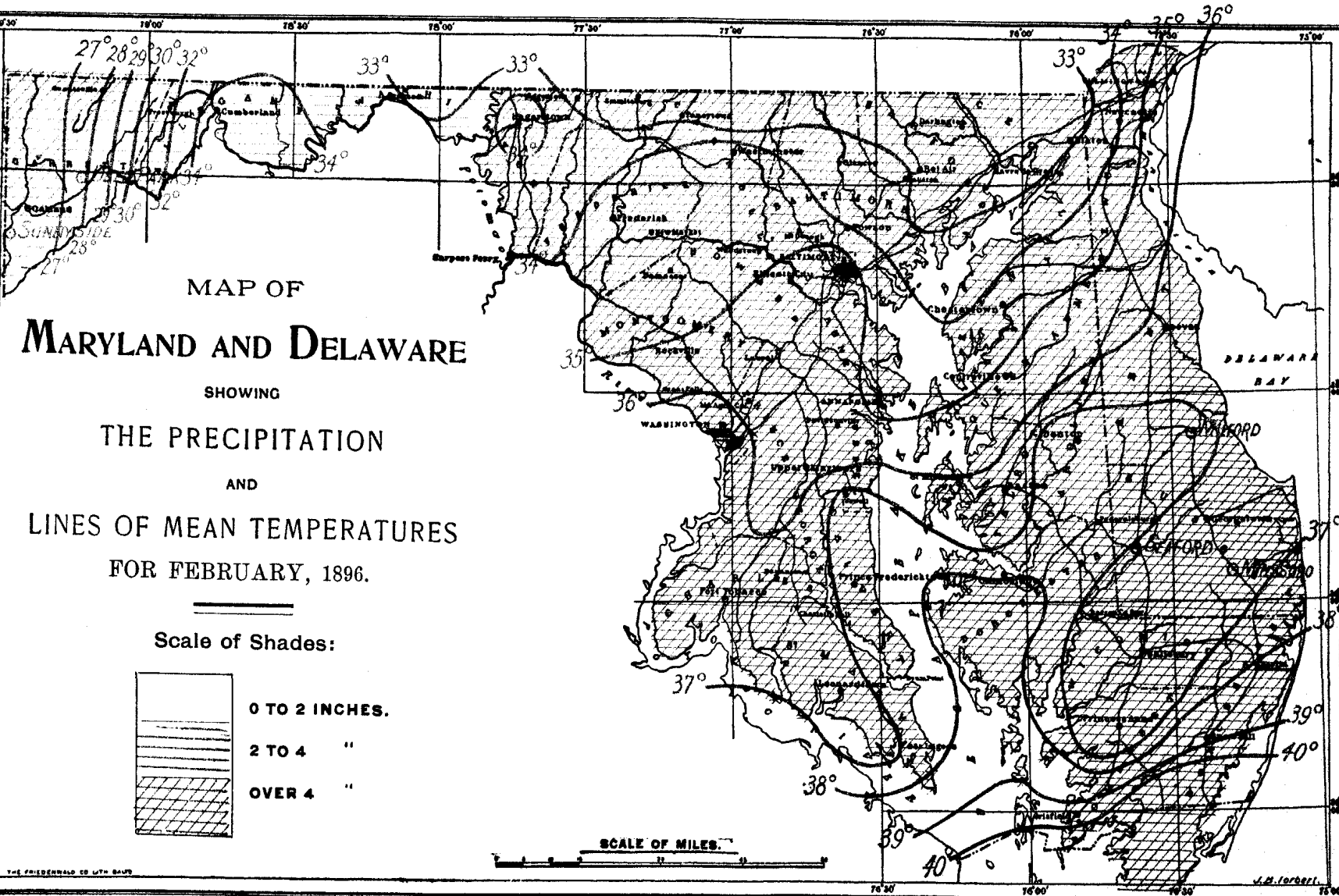


0 TO 2 INCHES.

2 TO 4 "

OVER 4 "

SCALE OF MILES.



Meteorological and Weather Signal Display Stations of the Maryland State Weather Service.

Stations.	Counties.	Meteorological Observers.	Displaymen.
Annapolis	Anne Arundel	J. E. Abbott.	W. M. Abbott.
Appleton	Cecil		W. C. Henderson.
Bachman's Valley	Carroll	J. M. Myers.	
Baltimore		{ C. P. Cronk. A. T. Brewer.	Weather Bureau.
Baltimore, (The Anchorage)			Thos. Hansen.
Bel Air	Harford		N. N. Nock.
Boettcherville	Allegany	F. F. Brown.	
Bradshaw	Baltimore		B. F. Taylor.
Buckeystown	Frederick		A. W. Nicodemus.
Burkittsville	Frederick	J. P. Slifer.	
Cambridge	Dorchester	J. S. Shepherd.	Samuel Lehman.
Charlotte Hall School	St. Mary's	J. Francis Coad.	
Cherryfields	St. Mary's	J. Edwin Coad.	
Chestertown	Kent	Hon. M. deK. Smith.	
Cumberland	Allegany	Shriver and Rizer.	
Darlington Academy	Harford	Prof. A. F. Galbreath.	
Deer Park	Garrett	S. P. Specht.	
Delaware City, Del.	New Castle		W. E. Reybold.
Delaware College, Newark, Del.	New Castle	Prof. Wm. H. Bishop.	
Denton	Caroline	F. C. Ramsdell.	
Dickerson	Montgomery		W. H. Dickerson.
Distributing Reservoir, D. C.		Washington Aqueduct.	
Dover, Del.	Kent	Jno. S. Jester.	
Easton	Talbot	Henry Shreve.	Henry Shreve.
Fallston School	Harford	G. G. Curtiss, A. M.	
Flintstone	Allegany	N. T. Downs.	N. T. Downs.
Frederick	Frederick	McClintock Young,	"The News."
Frostburg	Allegany		J. N. Benson.
Garay P. O.	Howard		Walter Dorsey.
Glyndon	Baltimore		J. J. Dyer.
Grantsville	Garrett	J. S. Miller	T. H. Bittinger.
Great Falls	Montgomery	Washington Aqueduct.	
Green Spring Furnace	Washington	E. G. Kinsell.	
Hagerstown	Washington	Prof. C. E. Carl.	
Hampstead	Carroll		H. H. Meals.
Hancock	Washington	Dr. J. S. Diehl.	
Hartly, Del.	Kent		Miss C. A. Forde.
Havre de Grace	Harford		W. S. McCombs.
Jewell	Anne Arundel	Jos. Plummer.	
Johns Hopkins Hospital, Baltimore		W. L. Woods.	
Kenton, Del.	Kent		W. S. Arthurs.
Kirkwood, Del.	New Castle	J. S. Carnagy.	
La Plata	Charles	J. S. Turner	J. S. Turner.
Laurel	Prince George's	Dr. T. M. Baldwin.	
Laurel, Del.	Sussex		E. D. C. Hegeman.
Lonaconing	Allegany		J. J. Robinson.
Mardela Springs	Wicomico	A. E. Acworth	L. A. Wilson.
Maryland Agricultural College	Prince George's	Prof. J. H. Patterson.	
McDonogh School	Baltimore	H. Norwig.	
Middletown	Frederick		G. C. Rhoderick, Jr.
Milford, Del.	Kent	J. Y. Foulk	J. Y. Foulk.
Millsboro, Del.	Sussex	Rev. L. W. Wells.	
Mt. St. Mary's College	Frederick	J. A. Mitchell, Ph. D.	Jos. H. Martin.
Oakland	Garrett	J. Lee McComas, M. D.	J. L. McComas, M. D.
Odenton	Anne Arundel		E. B. Watts.
Princess Anne	Somerset	Jas. R. Stewart.	
Pocomoke City	Worcester	R. M. Stevenson	R. M. Stevenson.
Pope's Creek	Charles	George Dent.	
Receiving Reservoir, D. C.		Washington Aqueduct.	
Rising Sun	Cecil		Dr. L. R. Kirk.
Salisbury	Wicomico		{ W. Benjamin. L. W. Gunby. H. L. Wallace.
Seaford, Del.	Sussex	H. L. Wallace	H. L. Wallace.
Sharpsburg	Washington	R. L. Hiberger.	
Snow Hill	Worcester		Purnell & Vincent.
Solomon's	Calvert	W. H. Marsh, M. D.	
St. Charles Coll., nr. Ellicott City	Howard	Rev. H. M. Chapuis, S. S.	
Sunnyside	Garrett	John G. Knauer.	
Sykesville	Carroll		J. S. Hyatt.
Upper Marlboro	Prince George's	J. B. Perrie.	
Van Bibber	Harford	H. A. Wroth.	
Washington, D. C.		S. W. Beall.	
Western Port	Allegany	Prof. O. H. Bruce.	
West Friendship	Howard		Postmaster.
Westminster	Carroll	Prof. Roland Watts.	
Westover	Somerset		E. D. Long.
Wilmington, Del.	New Castle	F. C. D. McKay	Wm. Lawton.
Woodsboro	Frederick		G. F. Smith.
Woodstock College	Baltimore	T. J. A. Freeman, S. J.	
Woman's College, Frederick	Frederick	Miss Irene Martin.	

U. S. WEATHER BUREAU STATIONS FURNISHING REPORTS.

Baltimore, Md.	{ J. B. Marbury. G. N. Wilson.	Weather Bureau.
Norfolk, Va.	{ J. H. Donaldson. Jas. J. Gray.	
Philadelphia, Pa.	L. M. Dey.	
Washington, D. C.	S. W. Beall.	