

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU,

CO-OPERATING WITH THE

MARYLAND STATE WEATHER SERVICE

Established 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.

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Meteorologist in Charge.

VOL. III, No. 7.

MONTHLY REPORT.

NOVEMBER, 1893.

Review of the Month—October.

Temperature (degrees).—Monthly mean (for entire territory covered), 54.9; highest monthly mean, 61.9, at Cambridge; lowest monthly mean, 48.4, at Oakland; highest temperature, 88, at Cambridge, on the 3rd; lowest temperature, 13, at Sunny Side, on the 31st. Greatest local monthly range, 68, at Sunny Side; least local monthly range, 47, at Solomon's; mean monthly range, 53.8. Mean maximum temperature, 65.3; mean minimum temperature, 45.6.

The map, page 69, is in error in that it shows the center of highest temperature to have been at Solomon's. The mean at Solomon's was 60.4, and by mistake it was made 64. Cambridge, with a mean of 61.9, should have been made the center of the warm area.

Precipitation (in inches).—Average, 4.42; greatest amount, 6.40, at Valley Lee; least amount, 2.59, at Darlington.

The table of daily precipitation, page 68, shows that four general rain-storms visited the State during the month. The first of these storms, from the 3rd to the 6th, was the result of a storm central off the west Gulf. It moved northward and passed into the Atlantic over North Carolina on the 4th.

The rain-storm of the 13th and 14th was the result of the West India cyclone which passed from south to north over Maryland on the night of the 13th. In a bulletin sent out by the Chief of the Weather Bureau, the cyclone is thus described:

"This storm was a typical West India cyclone, and was the second one of its class that has traversed the eastern part of the United States

for a number of years. It resembled in many respects the well-remembered storm of August of this year, and followed nearly the same path. These storms occur principally during the months of August, September, and October, the latter being the month of their greatest frequency. They usually develop in the region of equatorial rains east of the West Indies, move slowly westward over the West Indies, and in October generally recurve northward over or near the Bahamas. In exceptional cases, only, do they pass inland and traverse the Atlantic coast and the New England States during this month.

The presence of this disturbance near the Windward Islands, West Indies, was indicated by a report from Saint Thomas, received October 5th, and another from Antigua, October 6th. The westward advance of this storm was very slow. On the 7th it was apparently southeast of Port au Prince, and during the 8th the center apparently advanced to a position south-southeast of Santiago de Cuba. By the evening of the 9th its approach was indicated by reports from Nassau in the Bahamas, and southern Florida. On that date information signals were ordered on the Florida and east Gulf coasts. On the morning of the 10th brisk and high northerly winds were reported at Nassau, and signals for northeast gales were ordered at Key West and Jupiter, Fla.

By the evening report of the 10th the wind freshened to a gale at Jupiter, and storm northeast signals were ordered for all Florida stations, and information signals were displayed as far north as Wilmington. On the morning of the 11th the storm was apparently central east of the Bahamas, and the barometer was falling rapidly

over the Bahamas and at Jupiter. Northeast storm signals were ordered on the Atlantic coast from Savannah to Hatteras. Heavy south-east swells were reported on the south Atlantic and New Jersey coasts during the 11th. At noon, northeast storm signals were ordered as far north as the Chesapeake Bay, and information signals thence to Eastport. During the 12th severe northeast gales and heavy rains prevailed on the south Atlantic coast, and the barometer fell rapidly.

On the morning of the 13th the storm-center reached the South Carolina coast, and a barometer reading of 28.88 was reported at Charleston at 6.45 a. m.; at this report the conditions indicated that the storm would move northward over the interior through the Carolinas and the middle Atlantic States. Northeast storm signals were ordered for all stations on the middle Atlantic and New England coasts. Special noon reports showed the storm central midway between Wilmington and Charlotte, N. C.; at that time northeast storm signals were ordered for Lakes Ontario and Erie and southern Lake Huron. Special warnings were sent to all Weather Bureau observers in the Middle Atlantic States and New England, and observers from southern New England to Maryland were authorized to use the telegraph at their discretion in distributing these warnings in the most effectual manner possible. Special warnings were also sent to postmasters on the New Jersey coast, and to telegraph and railroad officials in the line of the storm.

The evening report of the 13th showed the storm central over northwestern North Carolina, the storm-center having passed Lynchburg about 5 p. m., where a barometer reading of 28.88 was recorded. The center passed west of Washington, D. C., about 9 p. m., and by the morning of the 14th it had crossed Pennsylvania and western New York, and was central north of Lake Ontario, a barometer reading of 28.74, the lowest noted during its passage, being reported from Toronto. Northwest storm signals were displayed at all Lake stations except Duluth, and heavy westerly gales prevailed over the Lake region until the morning of the 15th. During the 15th the storm disappeared in the direction of Labrador. From the appearance of this storm east of the Bahamas, on the morning of the 11th, its course was accurately forecasted and ample warnings given throughout its entire path as to its destructive character."

The third general rain-storm, from the 21st to the 23rd, was due to a cyclonic storm which commenced an eastward direction from the central part of the Gulf of Mexico as early as the 18th. On the 19th and the 20th it was apparently stationary to the south of Florida, but on the 21st it began a northward movement and

passed over Maryland on the 23rd. It was not a typical West India cyclone.

The last rain-storm of the month occurred on the 27th and 28th. It is recorded on the daily weather map that the storm which caused this precipitation originated in Western Kansas on the 25th. Its center passed northeast over the Great Lakes on the 26th, but a longer area of low pressure extending southward from the main body of the area of low pressure caused the rains of the 27th and 28th on the Middle Atlantic coast.

Wind.—Prevailing direction, northwest and southeast. Total movement in miles, Baltimore, 5360; Norfolk, Va., 5993; Washington, D. C., 4473.

Frost, killing.—At Baltimore, on the 17th, 30th, 31st; at Bachman's Valley, on the 17th, 18th, 26th, 29th, 30th, 31st; at Barron Creek Springs, on the 17th, 18th, 29th, 30th, 31st; at Benedict, on the 30th, 31st; at Fenby, on the 30th, 31st; at Charlotte Hall, on the 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st; at Cumberland, on the 16th, 17th, 25th, 29th, 30th, 31st; at Darlington, on the 17th, 18th, 20th, 30th, 31st; at Dover, Del., on the 17th, 30th, 31st; at Fallston, on the 17th, 30th, 31st; at Glyndon, on the 17th, 30th, 31st; at Milford, Del., on the 29th, 30th; at Millsboro, Del., on the 17th, 29th, 31st; at Mt. St. Mary's, on the 30th, 31st; at New Market, on the 16th, 17th, 18th, 26th, 30th, 31st; at Oakland, on the 1st, 8th, 9th, 17th, 18th, 31st; at Seaford, Del., on the 17th, 18th, 30th, 31st; at Upper Marlboro, on the 17th; at Washington, D. C., on the 17th; at Woodstock, on the 17th, 18th, 31st.

Thunder-storms.—At Barron Creek Springs, on the 27th; at Dover, Del., on the 27th; at Seaford, Del., on the 28th; at Solomon's, on the 27th; at Sunny Side, on the 20th; at Valley Lee, on the 28th.

Meteors.—At Baltimore, on the 29th; at Mt. St. Mary's, on the 30th.

Halos.—Lunar, at Barron Creek Springs, on the 19th, 20th, 21st.

Halos.—Solar, at Barron Creek Springs, on the 12th.

Hail.—At Oakland, on the 14th, 28th.

Fog, dense.—At Baltimore, on the 12th.

Notes by Observers.

Annapolis.—The severe storm of the 13th and 14th caused the tide to reach a point higher than has been known since the famous tide of 1876. Considerable damage to shipping interests. Telegraph and telephone lines down.

Bachman's Valley.—13th, a severe wind storm accompanied by heavy rain. The total rainfall at 6.20 a. m. on the 14th, 3.45 inches. Great damage was done to trees and fences. 20th, wild geese flying south. 30th, 31st, ground frozen; trees have lost their foliage.

Baltimore.—13th, the effect of the West India cyclone was first felt in this city during the night. The barometer began falling early in the night and reached the lowest point at 10 p. m. Rain began at 9.25 a. m. and, at intervals, fell quite heavily, and continued during the remainder of the day. The wind attained a storm velocity of 40 miles from the southeast shortly after midnight. Vessels sank or were torn from their moorings, houses were unroofed or blown down, stores and other business establishments were flooded, and trees were uprooted. The water in the harbor of Baltimore rose over the wharves and covered adjacent streets. At Sparrow's Point the tide rose higher than ever before.

Barron Creek Springs.—The storm of the 13th was unusually severe and destructive. From 5 p. m. to 8 p. m. the wind blew a gale. Fences and fodder were blown down and much property damaged; in fact, more destruction was done in this line than for many years past. The tide was 5 to 6 feet higher than the average. Ice on the 29th, 30th, 31st.

Benedict.—Unusually severe storm about 9 p. m. of the 13th, continuing until 4 a. m. of the 14th. Many vessels driven ashore along the Patuxent river.

Elkton.—The Elk river overflowed the marsh and causeway on the road leading from Elkton to Chesapeake City. Water street in Elkton was submerged, and the residents had to be taken off in boats or else compelled to seek the second story. The water is said to have been higher than during the storm of August last.

Centreville.—The severe storm of the 13th caused the tide to rise about 6 inches higher than during the storm of August last.

Fenby.—During October the weather was highly favorable for all farm work; wheat fields are looking well; severe storm on the 13th and 14th. During the night of the 30th ice formed in exposed, shallow vessels $\frac{3}{16}$ of an inch thick.

Fallston.—Severe storm on the 13th, accompanied by a most violent wind and very heavy rainfall.

Mean temperature for October at this point for 23 years, 53.3. Average rainfall, 3.45 inches.

Oakland.—13th, 14th, a terrific storm accompanied by heavy wind and rain. 29th, ground

frozen hard last night; sleet and ice on boardwalks; $\frac{1}{4}$ of an inch of ice formed in barrels.

Seaford, Del.—13th, another severe storm accompanied by rain and wind. The tide rose higher by 6 inches than during the storm of August last.

Solomon's.—13th, a cyclone more terrific than that of last August, accompanied by heavy rain, causing the highest tide known here for years. Much damage was done to property and shipping interests.

Port Deposit.—The severe cyclone of the 13th and 14th caused the Susquehanna river to rise higher than it did during the storm of August last.

Woodstock.—4th, the first notable change in leaves. 9th, the first notable fall of leaves. 13th, 14th, severe gale, uprooting trees and unroofing houses.

Cambridge.—Severe storm with heavy rain. The tide was higher by 6 inches than the famous tide of 1876.

Deal's Island.—13th, 14th, very severe storm; heavy rain; great damage to shipping interests and crops.

Prince George's County.—The severe storm of the 13th and 14th caused the Patuxent river to overflow its banks, destroying crops and carrying off cord-wood.

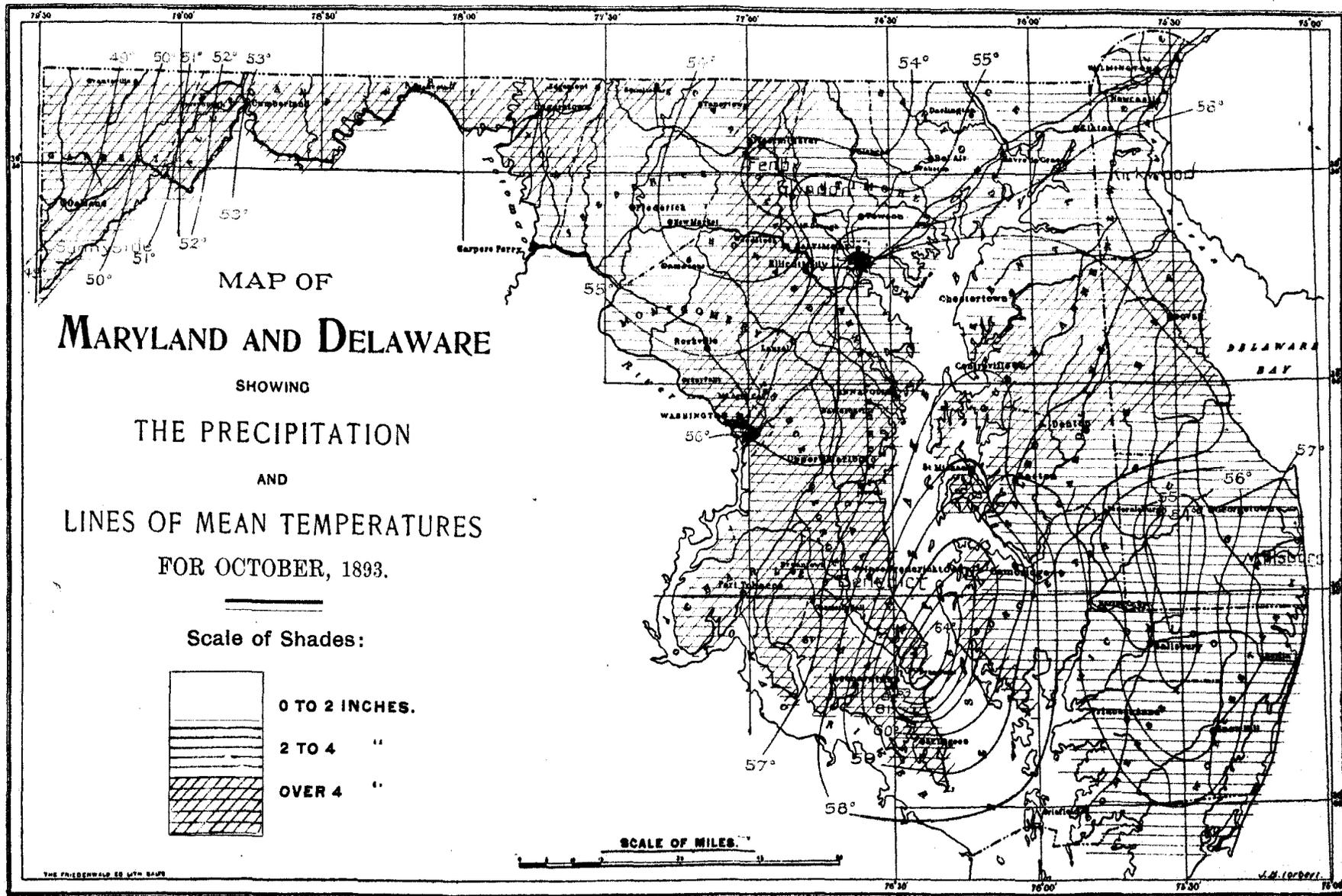
Miscellaneous Notes.

Prof. J. Francis Coad, of the Charlotte Hall School, St. Mary's Co., Md., and Col. J. Edwin Coad, of Valley Lee, St. Mary's Co., Md., forwarded meteorological reports for October, and the result of their observations is included in this report. Their data are carefully recorded, and their work shows their interest in the subject of meteorology.

Col. Lemuel Malone, who for the past year has rendered monthly meteorological reports from Salisbury, Md., has turned the government instruments in his possession over to Mr. Randolph Humphreys, who has kindly consented to take observations for the Maryland State Weather Service and U. S. Weather Bureau.

During the month of October Weather Signal Display Stations were established as follows: Dover, Del., Mr. Philip Burnett, Displayman; Oakland, Md., J. Lee McComas, M. D., Displayman.

Monthly meteorological reports received late.—Cumberland (1).—Monthly mean temperature, 56.7; mean maximum temperature, 65.5; mean minimum temperature, 47.9; highest temperature, 81, on the 9th; lowest temperature, 31, on the 31st. Total precipitation, 4.03.



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

| Stations. | County. | Meteorological Observer. | Displayman. |
|-------------------------------|----------------------|--|----------------------|
| Annapolis | Anne Arundel..... | ..... | W. M. Abbott. |
| Appleton | Cecil..... | ..... | W. C. Henderson. |
| Baltimore..... | ..... | G. N. Wilson. J. H. Donaldson. A. T. Brewer, Ass't Editor of Monthly Report. H. D. Stuart. R. C. New, Ass't Editor of Weekly Bulletin. | ..... |
| Bachman's Valley..... | Carroll..... | J. M. Myers. | ..... |
| Barron Creek Springs..... | Wicomico..... | A. E. Acworth..... | L. A. Wilson |
| Benedict..... | Charles..... | Thomas Berry. | ..... |
| Bel Air..... | Harford..... | ..... | N. N. Nock. |
| Boettcherville..... | Alleghany..... | F. F. Brown. | ..... |
| Bradshaw | Baltimore..... | ..... | B. F. Taylor. |
| Buckeystown..... | Frederick..... | ..... | A. W. Nicodemus. |
| Cambridge | Dorchester..... | Calvert Orem..... | Calvert Orem. |
| Charlotte Hall..... | St. Mary's | J. Francis Coad. | ..... |
| Chestertown..... | Kent..... | Hon. M. deK. Smith | ..... |
| Cumberland | Alleghany..... | Howard Shriver. E. T. Shriver. | ..... |
| Darlington..... | Harford..... | A. F. Galbreath. | ..... |
| Delaware City, Del..... | New Castle..... | ..... | W. E. Reybold. |
| Denton..... | Caroline..... | F. C. Ramsdell. | ..... |
| Dickerson | Montgomery ..... | ..... | W. H. Dickerson. |
| Distributing Reservoir, D. C. | ..... | Col. Elliot. | ..... |
| Dover, Del..... | Kent..... | Jno. S. Jester..... | Philip Burnet. |
| Easton..... | Talbot..... | G. W. Minnick..... | G. W. Minnick. |
| Edgemont..... | Washington | Chas. Feldman. | ..... |
| Fallston..... | Harford..... | G. G. Curtiss, A. M. | ..... |
| Fenby..... | Carroll..... | Wm. Fenby. | ..... |
| Frederick | Frederick..... | G. Ernest Bantz..... | W. T. Delaplaine. |
| Glyndon..... | Baltimore..... | A. W. Nyce..... | A. W. Nyce. |
| Grantsville..... | Garrett..... | ..... | T. H. Bittinger. |
| Great Falls..... | Montgomery..... | Col. Elliot. | ..... |
| Havre de Grace..... | Harford..... | ..... | W. S. McCombs. |
| Kirkwood, Del | New Castle..... | W. C. L. Carnagy. | ..... |
| Lonaconing..... | Alleghany ..... | ..... | J. J. Robinson. |
| McDonogh..... | Baltimore..... | H. Pender. | ..... |
| 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..... | Frederick | J. A. Mitchell, A. M..... | Jos. H. Martin. |
| New Market..... | Frederick | Miss Margaret D. Hopkins. | ..... |
| Oakland..... | Garrett..... | J. Lee McComas, M. D..... | J. L. McComas, M. D. |
| Odenton..... | Anne Arundel..... | ..... | E. B. Watts. |
| Receiving Reservoir, D. C. | ..... | Col. Elliot. | ..... |
| Rising Sun..... | Cecil ..... | ..... | E. A. Reynolds. |
| Rockville..... | Montgomery ..... | ..... | Emmit Dove. |
| Salisbury | Wicomico..... | Randolph Humphreys | L. W. Gunby. |
| Seaford, Del..... | Sussex..... | H. L. Wallace..... | H. L. Wallace. |
| Snow Hill | Worcester..... | ..... | Purnell & Vincent. |
| Solomon's..... | Calvert..... | W. H. Marsh, M. D. | ..... |
| †Sparrow's Point..... | Baltimore..... | ..... | Md. Steel Co. |
| Sunny Side..... | Garrett..... | John G. Knauer. | ..... |
| Upper Marlboro..... | Prince George's..... | J. B. Perrie. | ..... |
| Valley Lee..... | St. Mary's | J. Edwin Coad. | ..... |
| Washington, D. C. | ..... | S. W. Beall. | ..... |
| Westover..... | Somerset..... | ..... | E. D. Long. |
| Wilmington, Del..... | New Castle..... | ..... | Wm. Lawton. |
| Woodsboro..... | Frederick ..... | ..... | G. F. Smith. |
| Woodstock | Howard..... | T. J. A. Freeman, S. J. | ..... |
| *Birdsnest, Va | Northampton | C. R. Moore. | ..... |
| *Cape Charles, Va..... | Northampton | O. A. Browne. | ..... |
| *Norfolk, Va..... | Norfolk..... | A. B. Crane. | ..... |
| *Warsaw, Va..... | Richmond..... | C. H. Constable. | ..... |

*Stations of the Virginia State Weather Service. †Whistle signals only.

MONTHLY SUMMARY OF REPORTS FOR OCTOBER, 1893.

| STATIONS. | COUNTIES. | Altitude above sea in ft. | Latitude. | Longitude. | TEMPERATURE. | | | | | | | | Monthly Range. | Total Precipitation. | Clear Days. | Fair Days. | Cloudy Days. | Rainy Days. (01 or more.) | Prevailing Wind. |
|----------------------------|--------------|---------------------------|-----------|------------|---------------|--------------|--------------|---------|-------|---------|-------|--------|----------------|----------------------|-------------|------------|--------------|---------------------------|------------------|
| | | | | | Monthly Mean. | Mean of Max. | Mean of Min. | Max. | | Min. | | | | | | | | | |
| | | | | | | | | Degrees | Date. | Degrees | Date. | | | | | | | | |
| WESTERN MARYLAND. | | | | | | | | | | | | | | | | | | | |
| Boethcherville | Allegany | 700 | 39° 33' | 78° 48' | 52.8 | 63.2 | 44.8 | 80 | 9 | 24 | 22 | 31 | 58 | 4.70 | 16 | 7 | 8 | 7 | |
| Cumberland (2) | Allegany | 2380 | 39 39 | 78 45 | 54.0 | 63.2 | 44.8 | 80 | 9 | 25 | 25 | 30 | 55 | 4.37 | 16 | 7 | 8 | 7 | |
| Oakland | Garrett | 2380 | 39 25 | 79 20 | 48.4 | 59.0 | 37.7 | 74 | 11 | 16 | 16 | 31 | 58 | 5.00 | 13 | 13 | 5 | 12 | |
| Sunny Side | Garrett | | 39 20 | 79 28 | 49.0 | 61.1 | 36.9 | 81 | 11 | 13 | 13 | 31 | 68 | 5.02 | | | | | S. E. |
| NORTHERN-CENTRAL MARYLAND. | | | | | | | | | | | | | | | | | | | |
| Bachman's Valley | Carroll | 179 | 39 40 | 77 01 | *49.4 | 57.0 | 49.2 | *76 | 3 | | *20 | 31 | 56 | 4.45 | 20 | 4 | 7 | 4 | N. W. |
| Baltimore | | 300 | 39 17 | 76 37 | 57.0 | 64.8 | 49.2 | 84 | 9 | 9 | 31 | 31 | 53 | 3.44 | 18 | 4 | 9 | 9 | N. W. |
| Darlington | Harford | 300 | 39 47 | 76 14 | 55.3 | 65.4 | 45.2 | 79 | 9 | 9 | 26 | 31 | 53 | 2.59 | | | | | |
| Dist. Res., D. C. | | | 39 9 | 77 0 | *55.8 | | | *76 | 9 | | †28 | 31 | 48 | 3.80 | | | | | |
| Fallston | Harford | 300 | 39 30 | 76 24 | *54.7 | | | *80 | 9 | | *30 | 31 | 50 | 5.15 | | | | | N. |
| Fenby | Carroll | 950 | 39 33 | 77 5 | *57.6 | | | *78 | 9 | | *30 | 30, 31 | 48 | 5.30 | | | | | |
| Frederick | Frederick | 400 | 39 24 | 77 24 | 55.9 | 64.9 | 46.9 | 81 | 9 | 9 | 28 | 31 | 53 | 3.78 | 21 | 5 | 7 | 6 | 5 |
| Glyndon | Baltimore | 280 | 39 24 | 77 41 | 55.7 | 62.3 | 49.1 | 79 | 9 | 9 | 30 | 30 | 49 | 3.93 | 17 | 7 | 7 | 5 | S. E. |
| Great Falls | Montgomery | | 39 0 | 77 14 | *55.2 | | | *77 | 9 | | †28 | 31 | 49 | 4.29 | | | | | |
| McDonogh | Baltimore | 545 | 39 23 | 76 46 | 56.8 | 65.6 | 47.7 | 78 | 9 | 9 | 28 | 30 | 46 | 3.88 | | | | | |
| Mt. St. Mary's | Frederick | 720 | 39 43 | 77 20 | 54.4 | 64.8 | 43.9 | 84 | 9 | 9 | 22 | 31 | 62 | 4.43 | 15 | 8 | 8 | 8 | W. |
| New Market | Frederick | 500 | 39 10 | 77 15 | *53.9 | | | *79 | 9 | | *25 | 31 | 54 | 3.20 | 21 | 2 | 8 | 3 | N. W. |
| Rec. Res., D. C. | | | 38 52 | 77 0 | *55.7 | | | *77 | 9 | | †29 | 31 | 48 | 4.36 | | | | | |
| Taneytown | Carroll | | 39 40 | 77 9 | | | | | | | | | 3 | 2.25 | | | | | |
| Washington, D. C. | | 112 | 38 52 | 77 0 | 56.5 | 65.9 | 47.1 | 83 | 9 | 9 | 26 | 31 | 57 | 4.11 | 15 | 8 | 8 | 7 | N. W. |
| Woodstock | Howard | 400 | 39 19 | 76 51 | 53.9 | 64.3 | 43.5 | 81 | 9 | 9 | 24 | 31 | 57 | 5.60 | | | | | |
| SOUTHERN MARYLAND. | | | | | | | | | | | | | | | | | | | |
| Benedict | Charles | | 38 31 | 76 39 | 58.7 | 68.9 | 48.5 | 83 | 10 | 9 | 31 | 30, 31 | 52 | 3.09 | 26 | 0 | 5 | 4 | E. |
| Charlotte Hall | St. Mary's | | 38 30 | 76 44 | 56.6 | 66.3 | 46.9 | 77 | 9 | 9 | 29 | 31 | 48 | 4.48 | | | | | N. E. |
| Solomon's | Calvert | 20 | 38 19 | 76 27 | 60.4 | 69.0 | 51.9 | 83 | 7, 9 | 9 | 36 | 30, 31 | 47 | 4.88 | 15 | 5 | 11 | 7 | S. E. |
| Upper Marlboro | Pr. George's | | 38 47 | 76 45 | 56.0 | 66.4 | 45.6 | 82 | 9 | 9 | 28 | 31 | 58 | 5.45 | | | | | S. E. |
| Valley Lee | St. Mary's | | 38 12 | 76 35 | *59.3 | | | | | | | | 6 | 4.40 | 23 | 0 | 8 | 5 | N. W. |
| EASTERN MD. AND DELAWARE. | | | | | | | | | | | | | | | | | | | |
| Barron Ck. Springs | Wicomico | 25 | 38 30 | 75 39 | 56.8 | 66.4 | 47.3 | 85 | 9 | 9 | 26 | 31 | 59 | 2.85 | 18 | 8 | 5 | 11 | N. W. |
| Cambridge | Dorchester | | 38 39 | 76 7 | 61.9 | 68.8 | 55.0 | 88 | 3 | 3 | 36 | 31 | 52 | 3.61 | | | | | S. E. |
| Dover, Del. | Kent | 40 | 39 10 | 75 30 | 56.8 | 65.4 | 48.1 | 80 | 9 | 9 | 31 | 31 | 49 | 4.37 | 21 | 3 | 7 | 10 | S. E. |
| Easton | Talbot | 35 | 38 42 | 76 6 | 58.4 | 67.5 | 49.3 | 82 | 9 | 9 | 31 | 31 | 51 | 4.04 | 22 | 3 | 6 | 6 | N. W. |
| Kirkwood, Del. | New Castle | | 39 35 | 75 41 | *56.2 | | | | | | | | 52 | 3.87 | 22 | 5 | 4 | 5 | N. W. |
| Milford, Del. | Kent | 20 | 38 45 | 75 25 | 57.4 | 66.3 | 48.6 | 82 | 9 | 9 | 30 | 30 | 52 | 3.87 | 22 | 5 | 4 | 5 | N. W. |
| Millsboro, Del. | Sussex | | 38 41 | 75 15 | 56.8 | 66.7 | 46.4 | 81 | 9 | 9 | 29 | 31 | 52 | 2.88 | 21 | 5 | 5 | 8 | N. |
| Seaford, Del. | Sussex | | 38 40 | 75 35 | 54.0 | 65.0 | 43.0 | 80 | 9 | 9 | 28 | 31 | 52 | 3.15 | | | | | |
| † VIRGINIA. | | | | | | | | | | | | | | | | | | | |
| Birdsnest | Northampton | | | | *60.5 | | | *85 | 9 | 9 | *36 | 31 | 49 | 4.75 | 17 | 5 | 9 | 5 | N. E. |
| Cape Charles | Northampton | | | | 60.9 | 70.1 | 51.7 | 78 | 25 | 29 | 31 | 31 | 49 | 3.22 | | | | | |
| Norfolk | | | | | 62.0 | 68.0 | 55.0 | 83 | 9 | 9 | 40 | 30 | 43 | 2.86 | 17 | 6 | 8 | 8 | N. E. |
| Warsaw | Richmond | | | | 57.0 | 66.7 | 47.3 | 80 | 9 | 9 | 28 | 31 | 52 | 6.18 | 22 | 5 | 4 | 5 | E. |
| AVERAGES | | | | | | | | | | | | | | | | | | | |
| Western Maryland | | | | | 51.0 | 61.1 | 39.8 | | | | | | 59.8 | 4.77 | 14.5 | 10.0 | 6.5 | 9.5 | S. E. |
| Northern-Cent'l Md. | | | | | 55.1 | 64.7 | 46.4 | | | | | | 52.1 | 4.29 | 17.7 | 5.5 | 7.8 | 6.0 | N. W. |
| Southern Maryland | | | | | 56.2 | 67.6 | 48.2 | | | | | | 50.8 | 4.86 | 21.3 | 1.7 | 8.0 | 5.7 | S. E. |
| East. Md. and Del. | | | | | 57.3 | 66.9 | 48.2 | | | | | | 52.4 | 3.74 | 20.8 | 4.8 | 5.4 | 8.0 | N. W. |
| Entire territory | | | | | 54.9 | 65.3 | 45.6 | | | | | | 53.8 | 4.42 | 18.6 | 3.2 | 6.9 | 7.3 | N. W. |

NOTE.—Letters of the alphabet are used to indicate the number of days that are missing from record: e. g. a—one day, b—two days, etc. (1)—H. SHRIVER. (2)—E. T. SHRIVER. *From tri-daily readings. †From bi-daily readings. ‡Omitted in computing averages.

DAILY PRECIPITATION FOR OCTOBER, 1893.

| STATIONS. | 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 | Total. |
|----------------|-----|---|------|------|-----|-----|-----|---|---|----|----|----|------|------|-----|----|----|----|----|----|-----|------|------|------|-----|----|-----|------|-----|-----|-----|--------|
| Bach. V.y. | | | | T | | | | | | | | | | 3.45 | | | | | | | | | 1.00 | | | | | | | | | 4.45 |
| Baltimore | | | | .39 | | T | .03 | | | | | T | 1.00 | .80 | | | | | | | | .25 | 1.01 | | | | .06 | .08 | .01 | | | 3.44 |
| Barron C.S. | | | | † | .28 | † | .34 | | | | | | † | .36 | | | | | | | | .08 | 1.08 | | | | † | .67 | | | | 2.85 |
| Benedict | | | | .35 | | | | | | | | | † | * | | | | | | | | 2.20 | † | 1.08 | | | † | .54 | | | | 3.09 |
| Boethcherv. | | | | 1.70 | | | | | | | | † | 1.50 | | .10 | | | | | | | † | .30 | | | | † | .50 | T | | | 4.70 |
| Cambridge | | | | .30 | | .28 | | | | | | | .11 | | | | | | | | | 2.00 | | | | | | .93 | | | | 8.61 |
| Charl'eHall | | | | | | | | | | | | | 1.85 | | | | | | | | | 2.02 | | | | | | .61 | | | | 4.48 |
| Cumb. (2) | | | 1.31 | .41 | | | | | | | | | 1.23 | .11 | | | | | | | .65 | | .14 | | | | | .62 | | | | 4.37 |
| Darlington | | | .17 | | .10 | | | | | | | | 1.06 | | | | | | | | | | .90 | | | | | .37 | | | | 2.59 |
| Dist. R., D.C. | | | | .04 | .06 | | | | | | | | 1.68 | | | | | | | | | | .86 | .06 | | | | | | | | 3.30 |
| Dover, Del. | | | | † | .05 | † | .18 | | | | | | .51 | | | | | | | | | † | 2.09 | | | | † | 1.54 | | | | 4.37 |
| Easton | | | | .33 | | .08 | | | | | | | .93 | | | | | | | | | † | 1.53 | | | | † | 1.17 | | | | 4.04 |
| Fallston | | | | .21 | | .25 | | | | | | | 2.53 | | | | | | | | | | 1.93 | | | | | .23 | T | | | 5.15 |
| Fenby | | | | .50 | | .10 | .10 | | | | | | 3.60 | | | | | | | | | | T | .70 | | | | .20 | .10 | | | 5.30 |
| Glyndon | | | | .55 | | .02 | | | | | | | 2.14 | T | | | | | | | | | 1.05 | | | | | .17 | T | | | 3.93 |
| Great Falls | | | | .20 | .59 | | | | | | | | 2.60 | | | | | | | | | | .80 | | | | | .10 | | | | 4.29 |
| McDonogh | | | | | | | | | | | | | 3.53 | | | | | | | | | .85 | | | | | | | | | | 8.88 |
| Milford, Del. | | | | .12 | | .06 | | | | | | | † | .66 | | | | | | | | † | 1.77 | | | | † | 1.36 | | | | 3.87 |
| Millsbo, Del. | | | | .12 | | † | .14 | | | | | | .59 | | | | | | | | | .21 | .54 | .83 | | | | .02 | .43 | | | 2.88 |
| Mt. St. Mary's | | | | .83 | | .05 | | | | | | | .05 | 2.15 | | | | | | | | .11 | .13 | .95 | | | | .16 | | | | 4.48 |
| New Mark't | | | | † | .60 | | | | | | | | 2.00 | | | | | | | | | † | .60 | | | | | † | T | | | 3.20 |
| Oakland | .01 | | † | 1.25 | | .08 | | | | | | | 1.47 | .66 | | | | | | | .97 | | .04 | .04 | .03 | | | † | .19 | .21 | .06 | 5.00 |
| R. R., D. C. | | | | .07 | .53 | | | | | | | | .54 | 2 | | | | | | | | | | | | | | | | | | |