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U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR DECEMBER, 1900.

MARYLAND AND DELAWARE SECTION

OF THE

CLIMATE AND CROP SERVICE

OF THE

WEATHER BUREAU.

IN COOPERATION WITH THE

MARYLAND STATE WEATHER SERVICE.

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

PREPARED UNDER DIRECTION OF

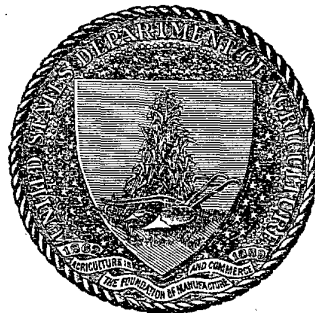
WILLIS L. MOORE,

CHIEF OF WEATHER BUREAU.

BY

OLIVER L. FASSIG,

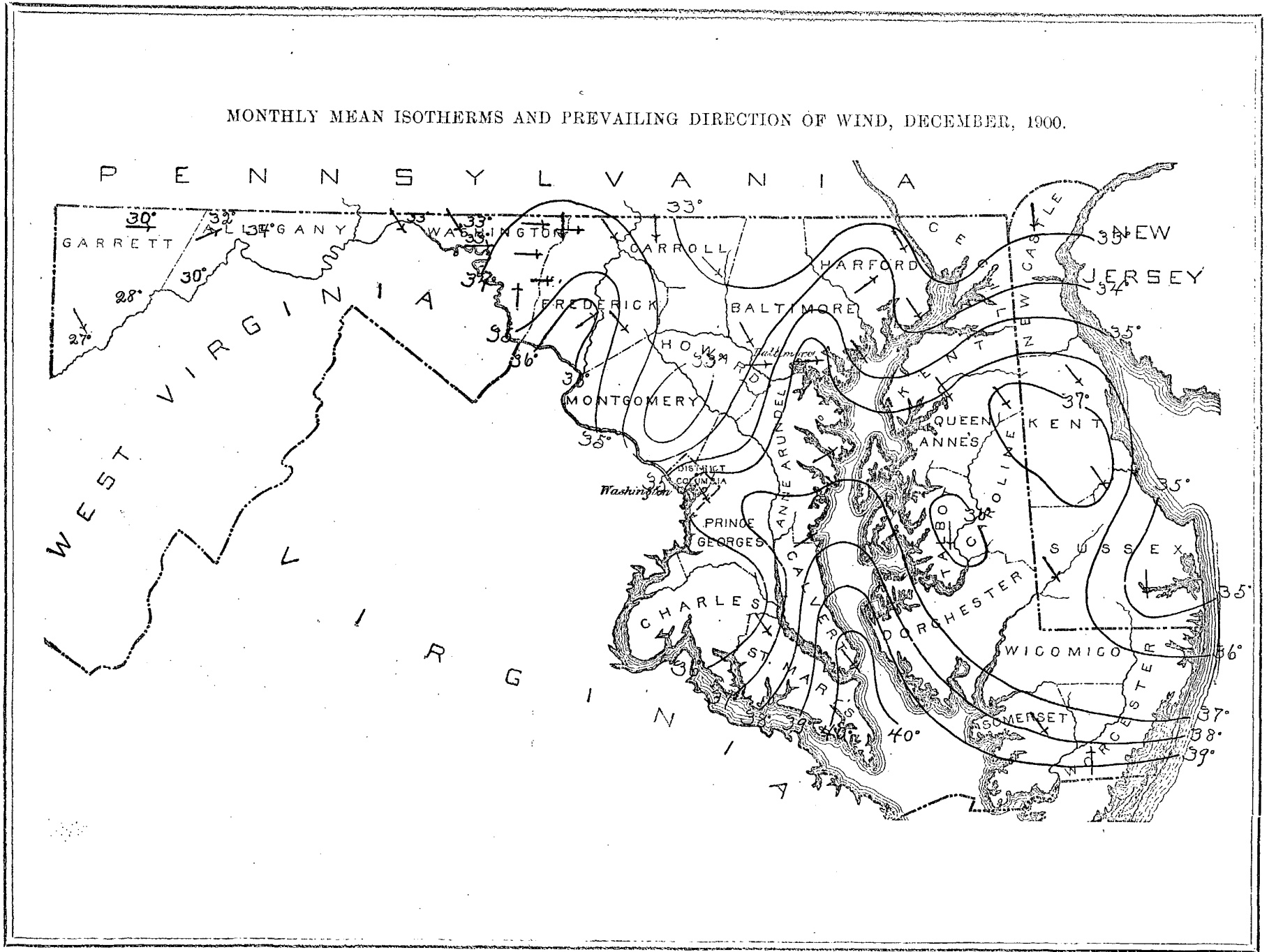
SECTION DIRECTOR.



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

1900.

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



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATE AND CROP SERVICE

OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

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

Vol. V. BALTIMORE, MD. No. 12.

THE CLIMATE OF ALLEGANY COUNTY, MARYLAND.
 (Continued from November Report.)

Rainfall. The rainfall record for Allegany County begins with August, 1871, and extends to the present time without interruption. The record from 1871 to December, 1895, is that of Mr. E. T. Shriver.

In 1840 Mr. T. L. Patterson kept a record of the rainfall at Cumberland for nearly one year, in connection with the construction of the Chesapeake and Ohio Canal.

In Table II we have the results of a long series of observations at Cumberland, and of shorter periods at other stations. The variations at Cumberland are graphically shown in Figures 3 and 4.

At the valley stations, Cumberland, Boettcherville, West-ernport, and Flintstone the annual rainfall is approximately 34 inches. We have at present but little more than one year's observations of rainfall at the high-level station at Frostburg. From September, 1898, to August, 1899, the rainfall measured 47.66 inches at this place. During the same period the fall at Cumberland was about 38.74 inches, which is 5.29 inches above the normal for Cumberland. Allow- ing a similar excess for this year at Frostburg we have 42.37 inches as an approximate normal rainfall for Frost- burg, or between 8 and 9 inches more than at the valley sta- tions.

In Figure 4b we have a graphic representation of the dis- tribution of rainfall during the year at Cumberland, based on twenty-seven years of observations. The curve indicates a fairly well-distributed rainfall throughout the year, with a maximum during the summer months and a minimum in winter. A marked feature of the curve is the sudden deflec- tion downward during the month of April, indicating a de- crease in the rainfall. A similar diminution in the amount of precipitation is shown in the records for all the stations in Allegany County.

Figure 4c shows that there has been no period of one month without some rain at Cumberland since August, 1871, though during September, 1895, there was but 0.15 inch. In this connection a quotation from a recent letter received from Mr. T. L. Patterson of Cumberland by the writer is inter- esting: "In 1838 there was no fall of rain here from May until early in October, excepting a smart shower on the 4th of July. It was the hottest and dryest year I have ever known."

In Figure 5, representing the average number of rainy days during each month of the year, we see again a fairly equal distribution of rain throughout the year, a character- istic feature of the weather in regions traversed by cyclonic storms.

TABLE II.—AVERAGE MONTHLY AND ANNUAL RAINFALL.

Stations.	Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.	Number of rainy days in a year.
Cumberland (a).....	1871-1895	2.16	2.57	2.90	2.49	3.33	3.75	3.36	3.09	2.71	2.45	2.17	2.20	33.18	86
Cumberland (b).....	1889-1899	2.49	3.19	3.61	2.60	4.38	3.60	2.90	3.17	2.64	2.62	2.51	2.39	36.10	82
Boettcherville.....	1892-1898	2.45	2.82	3.16	2.65	4.43	3.88	3.22	2.72	2.70	2.46	2.52	2.52	35.53	87
Flintstone.....	1895-1897	3.00	3.49	4.04	2.28	3.70	3.44	4.19	2.02	5.15	0.92	4.44	1.90	38.57	150
Frostburg.....	1898-1899	4.53	4.86	5.34	3.40	5.95	4.37	2.64	0.96	1.96	8.28	2.62	2.75	47.66	100
Westernport.....	1894-1899	2.58	2.53	3.17	2.35	3.75	2.72	4.28	3.28	2.40	2.21	2.31	1.73	33.31	.....
Cumberland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boettcherville.....	.....	2.43	2.66	3.12	2.49	3.88	3.38	3.63	3.09	2.64	2.41	2.42	2.19	34.34	.....
Westernport.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Figure 3 shows the fluctuations in the amount of rainfall from year to year at Cumberland from 1872 to 1898, a period of twenty-seven years. In Table II the average monthly and annual rainfall is given for each station and also the average number of rainy days during the year.

OLIVER L. FASSIG.

* *

CLIMATE AND CROP CONDITIONS.

December as a whole was slightly cooler than usual, but the prevailing dry weather and an absence of heavy snows or severe storms caused the month to be regarded as mild. A sharp cold wave prevailed from the 14th to the 17th, during which temperatures reached zero and below in the mountains of Garrett County and fell to 8° and 10° from Allegany County eastward over the greater part of the Plateau Region, while over southern and southeastern Maryland the lowest readings at that time were from 15° to 20°. The warmest

days of the month were the 19th, 20th, 23d, and 24th, when midday temperatures ranged from 50° to nearly 70°.

Precipitation was slightly deficient. The amounts ranged from less than two inches throughout the greater part of Allegany and Washington Counties to about an inch more both east and west, while at Mount St. Marys and Sunnyside the total falls were slightly over four inches. The distribution throughout the month was not satisfactory. At many stations over half the total fall occurred on the 4th. Light showers followed at intervals until the 11th when a dry period ensued that lasted until the 23d. After that date a period of showery weather prevailed, and the month closed with general and moderately heavy rains.

Snow depths were insignificant over the interior country. In the mountains the greatest monthly depth was 8 inches. The northeast passage of a coast storm on the 21st produced heavier snows in Delaware and Eastern Maryland than elsewhere in the Section. The greatest snow depth anywhere reported was 9 inches at Milford, Delaware.

The poor distribution of the month's moisture and the lack of protection or benefit from snow, together with severe weather that prevailed from the 14th to the 17th, were slightly injurious to the growing fields of wheat, rye, and barley, but the outlook was not seriously impaired. The early and middle sowings of wheat are more promising than the late sown, which is rather thin in places. Here and there the fly has worked some damage to the early wheat, but not enough to cause any particular apprehension. It has been a remarkable winter for grass thus far, many pastures still affording fairly good grazing at the close of December.

* *

CLIMATOLOGY OF THE MONTH.

ATMOSPHERIC PRESSURE.

Monthly mean at Washington, D. C., 30.13 inches; at Baltimore, 30.11 inches; average, 30.12 inches; highest, 30.52 inches, at Washington, D. C., on the 16th; lowest, 29.31 inches, at Washington, D. C., on the 4th.

TEMPERATURE.

The monthly mean (entire territory), 34.4°, is 1.2° below the normal.

The highest monthly mean was 40.7°, at Solomons.

The lowest monthly mean was 27.2°, at Sunnyside.

The highest temperature recorded during the month was 68°, at Hagerstown, on the 24th.

The lowest temperature recorded during the month was -2°, at Sunnyside, on the 17th.

The greatest local monthly range was 60°, at Sunnyside.

The least local monthly range was 41°, at Solomons.

The greatest daily range was 44°, at Sunnyside, on the 22d.

The least daily range was 2°, at several stations, and on a number of dates.

PRECIPITATION, in inches and hundredths.

The monthly average (entire territory) 2.43, was 0.29 below the normal.

The greatest amount was 4.10, at Mount St. Mary's College.

The least amount was 1.51, at Clear Spring.

The greatest amount in twenty-four hours was 2.57, at Hancock, on the 4th.

The average number of rainy days, 5.

WIND.

The prevailing direction was from the northwest.

The total movement was 3,450 miles, at Baltimore, and 4,231 miles, at Washington, D. C.

The maximum wind velocity was 36 miles per hour from the northwest, at Washington, D. C., on the 5th.

MISCELLANEOUS PHENOMENA.

Thunderstorms.—Prince Fredericktown, 28.

Ice.—Slush ice running on river at Green Spring Furnace on the 15th and 16th; river frozen over for the first time on the 17th, for the second time on the 30th.

Sleet.—Boettcherville, 28, 31; Hagerstown, 28, 31; Harney, 30, 31; Laurel, 28; Millsboro, 21; Sunnyside, 9, 28.

Hail.—Harney, 28; Millsboro, 21, 25; Princess Anne, 21; Solomons, 18, 21, 25; Sunnyside, 9.

Snow.—Annapolis, 21; Bachman's Valley, 11, 21, 26, 28; Baltimore, 11, 18, 21; Charlotte Hall, 17, 20; Chase, 11, 21; Chestertown, 11, 21; Clear Spring, 8, 11, 16; Coleman, 11, 21; College Park, 11; Deer Park, 6, 11, 26; Easton, 9; Fallston, 11, 21; Frostburg, 5, 8, 11, 18, 25; Grantsville, 5, 7, 11, 25; Green Spring Furnace, 11, 25, 26; Hagerstown, 11, 23, 25, 26, 28; Jewell, 11, 21; Laurel, 11; Milford, 11, 21; Millsboro, 11, 21; Mount St. Mary's College, 9; Newark, 11, 21; New Market, 11, 18, 21; Princess Anne, 21, 25; Rock Hall (b), 11, 21; Seaford, 11, 21; Sharpsburg, 11, 16, 21, 25; Smithsburg (a), 5, 11, 25; Smithsburg (b), 8, 11; Solomons, 11, 15, 18, 21, 25; Sudlersville, 11, 21; Sunnyside, 4, 5, 7, 11, 14, 15, 17, 25, 28; Takoma Park, 11, 21; Taneytown, 17; Van Bibber, 11, 21; Westernport, 4, 6, 16, 23; Wyoming, 21.

Solar Halo.—Clear Spring, 7, 11; Green Spring Furnace, 1, 3, 17, 21; Jewell, 1, 3; Washington, D. C., 3.

Solar Corona.—Clear Spring, 23; Millsboro, 7; Solomons, 4.

Lunar Halo.—Baltimore, 7; Laurel, 5, 6; Millsboro, 6; Rock Hall, 31; Solomons, 27; Washington, D. C., 7, 31.

Lunar Corona.—Millsboro, 6; Rock Hall, 7; Solomons, 6, 7; Washington, D. C., 5, 6.

Mock Sun.—Green Spring Furnace, 10.

Fog.—Baltimore, 19, 20, 22; Clear Spring, 31; Jewell, 31; Laurel, 3; Millsboro, 31; Princess Anne, 2, 4, 24, 31; Solo-30, 31; Van Bibber, 23.

High Winds.—Clear Spring, 23; Green Spring Furnace, 4; Millsboro, 4, 5; Sunnyside, 13, 23.

ERRATA.

November, 1900, Report: Page 5.—Mean temperature at Easton, 47.6, should read 49.3. Page 6.—Mean maximum temperature at Easton, 56.1, should read 58.0; mean minimum temperature, 39.2, should read 40.6.

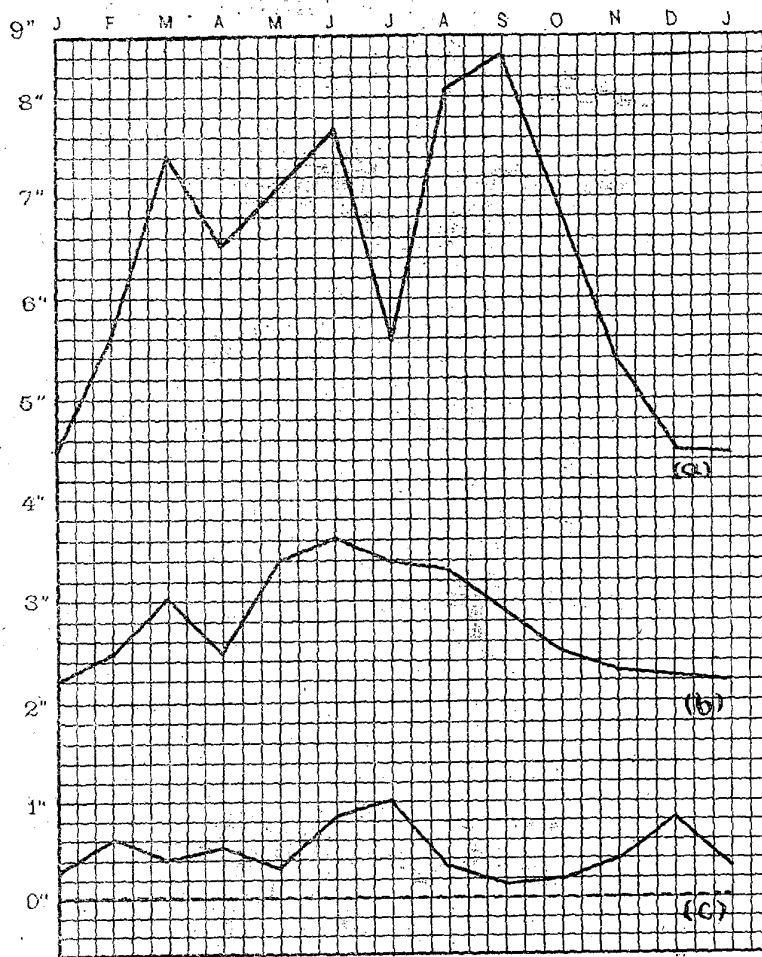


Fig. 4. - Rainfall at Cumberland (averages for 25 years.)
 (a) Maximum monthly amounts.
 (b) Average " "
 (c) Minimum " "

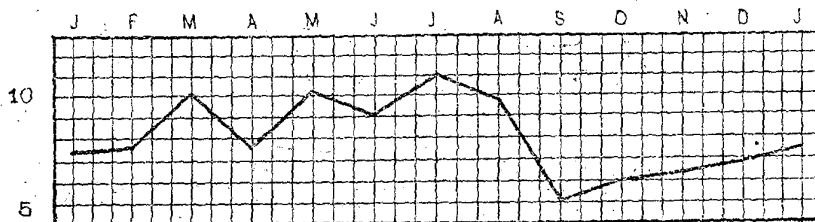


Fig. 5. - Average number of rainy days in the valleys of Allegany County.

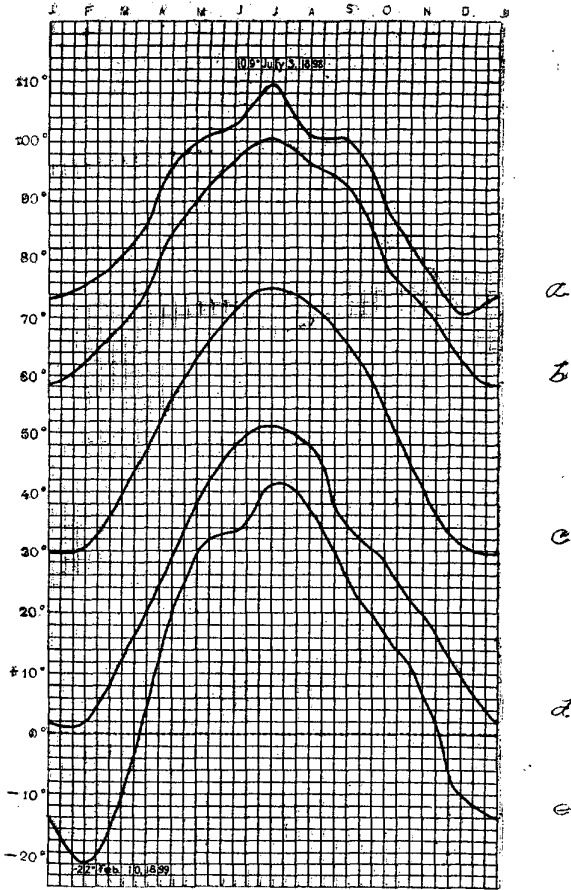


Fig. 1.

- (a) Absolute maximum temperatures in Allegany County.
- (b) Average maximum temperatures in Allegany County.
- (c) Normal temperatures in Allegany County.
- (d) Average minimum temperatures in Allegany County.
- (e) Absolute minimum temperatures in Allegany County.

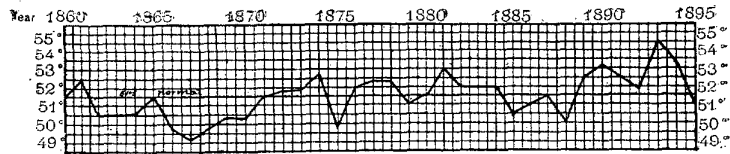


Fig. 2. - Fluctuations in mean annual temperature at Cumberland.

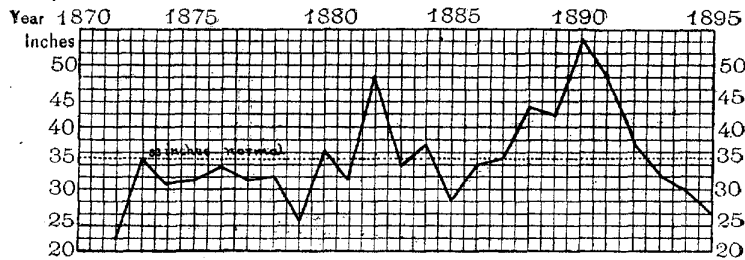


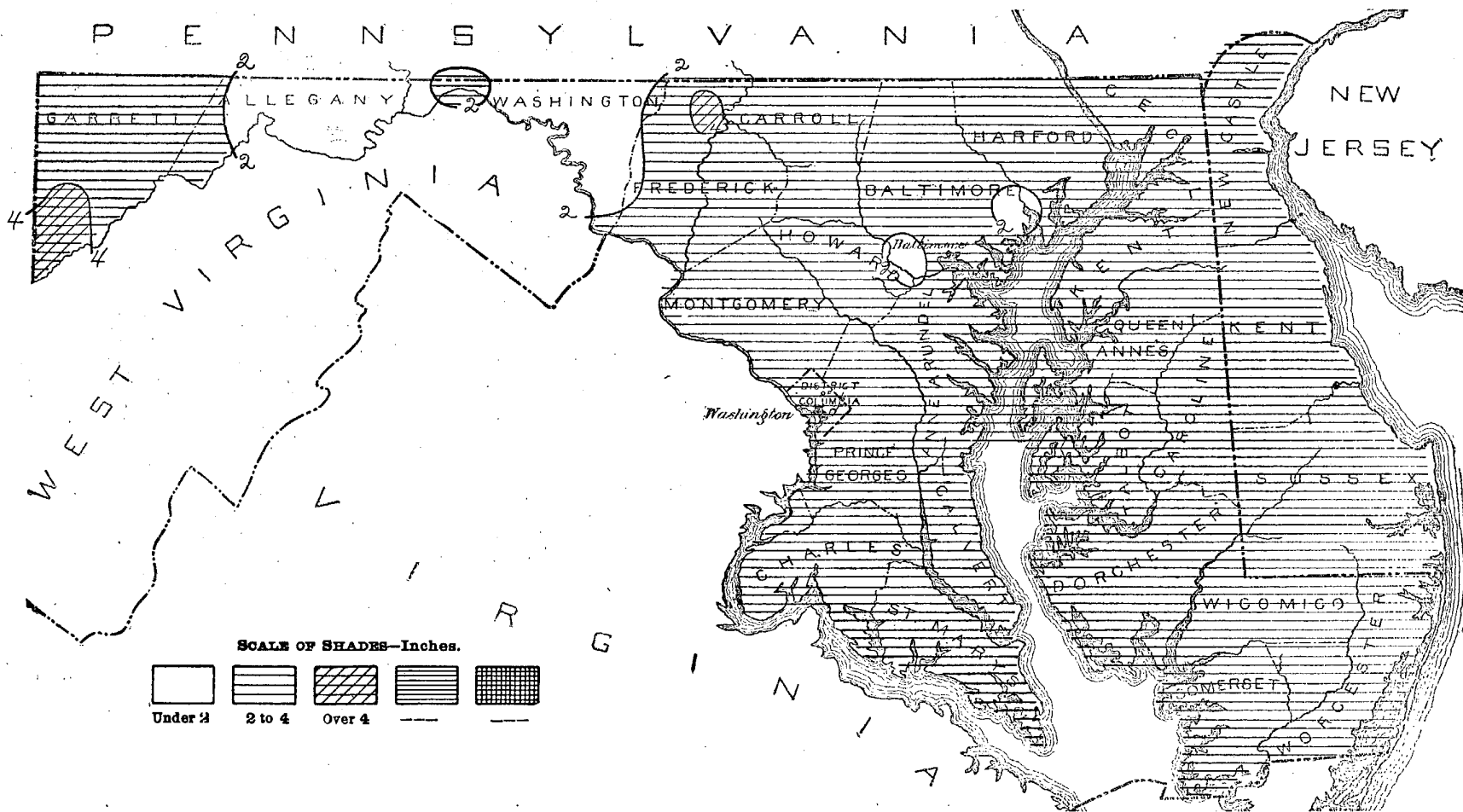
Fig. 3. - Fluctuations in the mean annual rainfall at Cumberland.

Climatological data for Maryland and Delaware, December, 1900.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number rainy days), Sky (Number clear days, Number partly cloudy days, Number cloudy days), Prevailing direction of wind, Observers. Rows are categorized by region: WESTERN MARYLAND, NORTHERN-CEN. MD., SOUTHERN MARYLAND, EASTERN MARYLAND, and DELAWARE.

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

TOTAL PRECIPITATION, DECEMBER, 1900.



SCALE OF SHADES—Inches.



Daily precipitation for Maryland and Delaware, December, 1900.

Stations.	Day of month.																															Total.										
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.											
WESTERN MARYLAND.																																										
Boettcherville				1.40																													.12			.10	1.62					
Boonsboro				1.45				.08																												.35	1.88					
Chewsville				1.49				.07																												.26	1.75					
Clear Spring				1.37				.11																													.17	1.54				
Cumberland				1.75																																	.17	1.69				
Deer Park				1.25	.30																																.10	2.66				
Frostburg				1.41	.13	.02		.11																													.10	2.08				
Grantsville				1.25	.30		.10																														.15	2.52				
Green Spring Furnace				1.58																																	.17	1.80				
Hagerstown				1.39				.10																													.23	1.81				
Hancock				2.57				.09																													.14	2.79				
Sharpsburg				1.20				.09																													.33	1.69				
Smithsburg a				1.24	T.																																.24	1.52				
Smithsburg b				1.46				.07																													.18	1.71				
Sunnyside				1.63	.40			.66	T.	T.																											.40	4.06				
Westernport				1.10	.58	T.	.12																														.21	2.26				
NORTHERN-CENTRAL MARYLAND.																																										
Bachman's Valley				2.40																																	.19	3.14				
Baltimore				1.50				.02	T.																												.01	2.07				
Baltimore, Johns Hopkins Hosp.				1.55	1.05			.04																													.05	2.19				
Chase				1.54																																	.04	2.42				
Darlington Academy				1.64																																		.58	2.46			
Fallston School				1.83	T.			T.																													T.	2.49				
Frederick				1.31				.01	.12																												.13	2.49				
Great Falls				.03	1.31			.63																													.22	3.29				
Harney				1.65																																	.03	2.29				
McDonogh				1.60				.02																													.10	2.34				
Mt. St. Mary's College				1.80					T.																													.30	4.10			
Now Market				1.62				.15																														.12	2.67			
St. Charles College				1.05					.01																												.30	1.76				
Takoma Park				.85	.87			.32	.02																												.22	2.72				
Taneytown				1.49	T.																																.30	2.19				
Van Bibber				.39	1.36				.01																												.10	2.38				
Western Maryland College				1.64																																		.80	2.44			
Woodstock College				.64	.94	T.		.06	T.																												.48	2.35				
SOUTHERN MARYLAND.																																										
Annapolis				1.80																																		.70	3.00			
Charlotte Hall School				1.95				.24																														.21	2.89			
Distributing Reservoir, D. C.				.95	.72			.30																														.10	2.41			
Jewell				2.00				.30																														.03	3.06			
Laurel				1.60				.20																														.13	2.51			
Maryland Agricultural College				1.65																																		.75	2.40			
Prince Fredericktown																																										
Receiving Reservoir, D. C.				.95	.79			.30																														.14	2.47			
Solomon's				.02	1.50			.02																														.10	2.39			
Washington, D. C.				1.73				.31																														.15	2.52			
EASTERN MARYLAND.																																										
Cambridge																																										
Chestertown				.80	.85																																		.28	2.50		
Coleman				2.40																																			.15	3.22		
Denton																																							.15	2.47		
Easton				1.16				.08																															.03	2.49		
Mardela Springs																																							.50	2.49		
Pocomoke City																																										
Port Deposit				.81																																				.72	2.69	
Princess Anne				.02	.84																																			.03	2.48	
Queenstown																																								.02	2.27	
Rock Hall a																																							.06	2.27		
Rock Hall b				1.57	.03			.02																															.13	2.22		
Sandy Point																																										
Sudlersville				1.60																																				.03	2.41	
DELAWARE.																																										
Milford				1.20																																				.40	2.67	
Millsboro				.53	1.00			.01																																T.	.37	3.65
Newark (Delaware College)				1.90																																				.02	2.63	
Seaford				1.37																																					.92	2.50
Wyoming				2.00																																					.50	2.92