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The CLIMATIC HANDBOOK

For Washington, D. C.

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FOREWORD

Early in the war the Weather Bureau organized a War Advisory Council on Meteorology to accomplish various assignments from the armed forces. Among them was the preparation of graphic analyses showing the climatic characteristics of 26 different localities in Europe, Africa, Asia, and the Pacific Islands. These climatic analyses were called "Weather Guides," and they were met with an appreciative response on the part of those planning military operations in these theaters of war.

The experience naturally prompted the suggestion that this method of organization of climatological data could serve many useful peacetime purposes. Accordingly, data gathered for Washington, D. C., were selected to demonstrate the mode of presentation. Ideas and experience gained in preparing the foreign weather guides were useful in this work. Because the Washington data assembled here are so much more comprehensive than those used in any of the foreign "Weather Guides," and because they will be used in many practical ways by Weather Bureau Offices and by others, this publication is called a HANDBOOK.

The HANDBOOK was prepared under the direction of Mr. Richmond T. Zoch, with the assistance of numerous persons in the Division of Climatological and Hydrologic Services.

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THE CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

PURPOSE AND PLAN

This HANDBOOK presents a compilation of the climatological data recorded at Washington during the past 75 years. Many of these data have been previously published in one form or another in the ANNUAL METEOROLOGICAL YEARBOOK, the MONTHLY METEOROLOGICAL SUMMARY, and in numerous climatological references and texts. The HANDBOOK attempts, for the first time, it is believed, to organize, analyze, and present climatological material in a form and arrangement best suited to serve the largest number of users. Throughout the development of the HANDBOOK particular attention was directed toward the form of presentation. Combinations of meteorological elements in terms of magnitude and duration are presented to make a reasonably comprehensive picture of Washington climatology.

The text, section I, is in two parts: The first describes briefly the individual tables and charts; the second deals with unusual meteorological events. Certain of these events are considered extreme because of their duration—others because of their intensity. On the assumption that there will be no radical changes in the large-scale meteorological controls affecting Washington weather during the next 75 years, the period equal to that of the existing record, these extreme conditions may be considered indicative of those to be experienced in the future.

The tables, section II, summarize averages and extremes, as well as present frequency distributions of the various meteorological elements. They contain data which, through further statistical treatment, can be used to amplify the charts in section III.

The charts, section III, present diagrams and maps which show annual, seasonal, and diurnal variations; the relations of two or more meteorological elements; and the weather associated with selected meteorological conditions at Washington.

It is not expected that this publication will provide the complete solution of all individual problems in which climate and weather affect human activity. However, it is believed that in the HANDBOOK more data have been made accessible for the solution of climatic problems than have previously been assembled for a single location in the United States.

HISTORY OF METEOROLOGICAL OBSERVATIONS AT WASHINGTON, D. C.

There are in existence published summaries of meteorological observations which were made at Washington, D. C., at least as early as 1820. The observations on which these summaries are based were made by the Surgeon General's Office of the United States Army, the Hydrographic Office (later the Naval Observatory) of the United States Navy, the Smithsonian Institution, and private individuals. Little is known about the location, exposure, calibration, and type of instruments used by any of the institutions which made meteorological observations prior to 1862. Because of this lack of information the early observations have not been used in the present study.

The old location of the United States Naval Observatory was at Twenty-fourth and E Streets NW. Observations were taken there from 1844 until December 31, 1892. According to J. R. Eastman (for many years a member of the staff of the United States Naval Observatory), reliable records made by that institution begin in 1862. The Naval Observatory was moved to Georgetown Heights on Massachusetts Avenue, and meteorological observations were taken at this new location from September 1, 1891 to 1912. The Naval Observatory meteorological records were published from 1862 to 1902. The manuscript records for the period from 1844 to 1912 are now in the United States National Archives. They have not been used in this study, but those made since 1862 are worthy of analysis, especially for microclimatic research.

Observations by the United States Signal Service began in November 1870, in a building located on G Street between Seventeenth and Eighteenth Streets NW. (near the site of the present YMCA). From time to time the location of instruments varied and official instructions changed the time of day at which observations were taken; however, from November 1870 to the present time, not one observation has been missed. On March 15, 1889, instruments were moved from G Street to the southwest corner of Twenty-fourth and M Streets NW., where observations have been made since that time. (See figs. 34 to 36.)

Airport observations were begun at Bolling Field, on the District of Columbia side or left bank of the Anacostia River, on July 1, 1929. On July 27, 1931, the airport was moved to Hoover Field, and on June 16, 1941, to the National Airport. Both of the latter locations are on the Virginia side, or right bank of the Potomac River.

A network of stations in the vicinity of Washington with the purpose of studying microclimate, was established by the Weather Bureau in 1941 and enlarged in 1946; however, only the observations made prior to January 1, 1946, have been used in this work.

Some of the manuscript records made by the Weather Bureau and United States Signal Service are on file at the Weather Bureau. Most, however, are at the United States National Archives. Meteorological observations have also been made by the United States Army Air Service and the United States Naval Air Service. They have not been used in preparation of this volume.

LOCATION OF INSTRUMENTS

1. 1719 G Street NW., November 1, 1870, to August 14, 1888.
2. 1744 G Street NW., August 15, 1888, to March 22, 1889.
3. 2416 M Street NW., March 22, 1889, to ----------

Elevation of Instruments

ANEMOMETER

Location	From—	To—	Feet
1	Nov. 1, 1870	Mar. 10, 1872	119.55 above sea level.
1	Mar. 10, 1872	Aug. 15, 1888	65.43 above ground.
2	Aug. 15, 1888	Mar. 22, 1889	57.3 above ground.
3	Mar. 22, 1889	Jan. 1, 1907	76.0 above ground.
3	Jan. 1, 1907	Apr. 11, 1907	64.0 above ground.
3	Apr. 11, 1907	July 27, 1907	79.0 above ground.
3	July 27, 1907	Mar. 2, 1942	85.2 above ground.
3	Mar. 2, 1942	----------	99.8 above ground.

THERMOMETER

Location	From—	To—	Feet
1	Nov. 1, 1870	Mar. 10, 1872	111.55 above sea level.
1	Mar. 10, 1872	Aug. 15, 1888	44.1 above ground.
2	Aug. 15, 1888	Mar. 22, 1889	57.5 above ground.
3	Mar. 22, 1889	Sept. 1, 1906	59.0 above ground.
3	Sept. 1, 1906	Jan. 1, 1907	44.0 above ground.
3	Jan. 1, 1907	Apr. 11, 1907	44.0 above ground.
3	Apr. 11, 1907	Mar. 5, 1942	62.3 above ground.
3	Mar. 5, 1942	----------	55.8 above ground.

RAIN GAUGE

Location	From—	To—	Feet
1	Nov. 1, 1870	Mar. 10, 1872	116.55 above sea-level.
1	Mar. 10, 1872	Aug. 15, 1888	50.77 above ground.
2	Aug. 15, 1888	Mar. 22, 1889	51.1 above ground.
3	Mar. 22, 1889	Mar. 2, 1942	42.0 above ground.
3	Mar. 2, 1942	----------	54.0 above ground.

Definitions of Statistical Terms Used in This Work

For convenience, the following definitions are given of certain elementary statistical terms. With the exception of the last term, these definitions are more fully explained in elementary works on statistics.

Frequency distribution.—The frequency distribution is the arrangement of statistics to show the number of times, or frequency with which, an event happens in a given range of magnitude, or in a particular way.

Arithmetic mean.—The arithmetic mean is the sum of the sizes of the individual items divided by the number of items.

Median.—The median is the value of the middle item when the items are arranged according to size.

Standard deviation.—The standard deviation is the square root of the mean value of the squares of the deviations of the individual items from the arithmetic mean.

First quartile.—The first quartile is the value such that one-fourth of the items are smaller and three-fourths larger when the items are arranged in order of size. This is also called the lower quartile.

Third quartile.—The third quartile is the value such that three-fourths of the items are smaller and one-fourth larger when the items are arranged in order of size. This is also called the upper quartile.

Most likely range.—The most likely range is the smallest range which includes at least 50 percent of the events in the period of record. The significance of this range is that it includes those events which have occurred most often during the period of record and hence this range serves as an index of what should occur at least half the time during a similar future period. This range of values is more representative of the meteorological element than the median or arithmetic mean, since it reflects the magnitude of the day-to-day fluctuations in the element.

References

The following works may be helpful to the user of this Handbook in applying the data to his particular climatic problems:

General Climatology

1. *Climate, Considered Especially in Relation to Man*, by Robert DeCourcy Ward, second edition, New York, 1918.
2. *Grundriss der Klimakunde*, by K. Koppen, Berlin, 1931.
3. *Climate*, by W. G. Kendrew, second edition, Oxford, 1938.
4. *Physical Climatology*, by H. Landsberg, Pennsylvania, 1941.
5. *Fundamentals of Physical Climatology*, by V. Conrad, Milton, Mass., 1942.
6. *Climatology*, by Bernard Haurwitz and James M. Austin, New York, 1944.
7. *Methods in Climatology*, by V. Conrad, Cambridge, Mass., 1944.

Special Climatology

1. *Hail Insurance*, by Alfred Manes and Walter Rohrbeck, published by *Int. Rev. of Agric. Econ.*, new series, volume 4, No. 3, July–September 1926.
2. *Windstorm and Tornado Insurance*, by Frederick L. Hoffman, New York, 1926.
3. *Is Our Climate Changing*, by J. B. Kincer, Springfield, Ill., 1938.
4. *Medical Climatology*, by C. A. Mills, Baltimore, 1939.
5. *Drought, Its Causes and Effects*, by Ivan Ray Tannehill, Princeton, 1947.

Climate of American Cities

1. *The Climate and Weather of Baltimore*, by Oliver L. Fassig, Baltimore, 1907.
2. *The Weather and Climate of Chicago*, by A. J. Cox and J. H. Armington, Chicago, 1914.
3. *Fifty Years' Weather in Kansas City, Missouri, 1888–1938*, by A. M. Hamrick and H. H. Martin, Washington, 1941 (Monthly Weather Review Supplement No. 44).
4. *Meteorological Means and Normals—Computed from Observations at St. Louis University, 1911–35*, by John J. Renk, St. Louis, 1940.
5. *The Climate of Bloomington*, chapter XXVI of *Climate of Indiana*, by S. S. Visher, published by Indiana University, 1944.

Applied Climatology

1. *Meteorology's Frozen Assets*, by W. J. Humphreys, *Science*, volume 69, pages 255–259, 1929.
2. *Climate as a Natural Resource*, by H. Landsberg, *Scientific Monthly*, October 1946, volume LXIII, pages 293–298.
3. *Putting the Weather to Work for You*, by Lawrence Drake, Washington, 1946.
4. *Wartime Developments in Applied Climatology*, by W. C. Jacobs, volume 1, No. 1, Meteorological Monographs, published by the American Meteorological Society, January 1947.

DESCRIPTION OF THE CHARTS AND TABLES

GENERAL

There are 87 pages of charts and 137 tables. The charts are arranged in groups with 7 pages devoted to temperature, 6 to precipitation, 4 to sky cover, 24 to temperature-precipitation relations, 2 to wind, 4 to humidity, 4 to pressure maps, 16 to weather maps, 3 to upper air, 4 to ceiling and visibility, 1 to thunderstorms and, finally, 4 pages of location maps. The tables are likewise arranged in groups which follow the arrangement of the charts fairly closely. There are 47 tables devoted to temperature, 22 to precipitation, 13 to sky cover and sunshine, 12 to wind, 13 to humidity, 9 to pressure, 1 to weather maps, 9 to upper air, and 8 miscellaneous tables.

It is believed that most of the tables are largely self-explanatory. Tables No. 1, 2, 3, 4, 5, 9, 13, 37, 38, 39, 44, 45, 46, 48, 49, 52, 55, 56, 62, 68, 69, 70, 71, 72, 73, 77, 83, 90, 96, 99, 100, 103, 104, 105, 108, 109, 110, 114, 115, 116, 128, 129 and 130, a total of 43 tables, are chronological monthly tables in which the average, total, or extreme value of a meteorological element are shown for each calendar month of record. Tables No. 11, 12, 15, 16, 17, 18, 19, 29, 30, 53, 54, 63, and 82, a total of 13 tables, are daily tables which show the average or extreme value for the period of record of a meteorological element for each calendar day of the year. Tables No. 7, 50, and 111 show standard deviations; they are the only tables of standard deviations in this work and give the standard deviation of the mean monthly temperature, precipitation, and pressure, respectively. Tables No. 36, 57, 58, 59, 75, 80, 84, 107, and 113, a total of 9 tables, are chronological seasonal tables which give the total or average of a meteorological element for each season of record; for these tables December, January, and February constitute winter, March, April, May are used for spring, likewise June, July, and August for summer and September, October, and November for autumn. Tables No. 32, 33, 40, and 41 show chronological seasonal data where the year is divided into only two seasons. Tables No. 6, 8, 20, 25, 26, 27, 28, 47, 51, 60, 64, 65, 66, 67, 74, 78, 79, 85, 86, 89, 97, 101, 106, 112, 118, 119, 120, 121, 122, 124, 125, and 126, a total of 32 tables, are summary tables which show averages or extremes of a meteorological element by months. Tables No. 10, 14, 21, 22, 23, 24, 34, 35, 42, 43, 76, 87, 88, and 91, a total of 14 tables, are frequency tables. Tables No. 31, 92, 95, 98, and 102 are diurnal tables which show the average value of a meteorological element for each hour of the day and for each month of the year. The remaining tables are of a miscellaneous nature. Table 61 shows the maximum precipitation at 16 locations for the storm of September 4, 1939. Effort was made to prepare similar tables for other heavy rains but extensive data were not available. Table 81 is a weekly table showing the average intensity of solar and sky radiation for each week. Table 93 is a chronological list of tornadoes in Maryland and Virginia and table 94 is a chronological list of tropical hurricanes which have passed over or near Washington. Table 123 is a seasonal table showing the average seasonal lapse rate in the upper air. Table 127 shows the daily average rag weed pollen count during the pollen season. Tables 131 and 132 are copied from "Climate and Man," the 1941 Year Book of the Department of Agriculture, and show climatic information at places near Washington. Table 133 shows data to accompany the selected synoptic weather maps. Table 134 is devoted to frost data.

It is also believed that the charts are to a great extent self-explanatory. Many of the charts make use of the "expectancy diagram" which shows for each month or season the greatest, most likely and least events of record, and by making use of the term "most likely" which was explained in the introductory part (p. 2) the data depicted by these "expectancy diagrams" will be readily understood. Each page of the charts which makes use of the "expectancy diagram" has a small key inserted on one of the charts on the page to aid the reader. Bar diagrams are used rather frequently; they occur on 13 pages, but these require no special explanation. Line charts are also frequently used; and frequent use has been made of the scatter diagram; these types of charts will be easily understood. The weather maps and special charts are explained in the general body of the text below.

TEMPERATURE

The first page of the charts devoted to temperature shows expectancy diagrams and bar charts of the data contained in tables 1–5. Usually the atmospheric temperature responds noticeably to both a diurnal and an annual cycle. As a rule, a thermometer is not necessary to observe this fact, but a thermometer is necessary to measure these cycles accurately. The chart entitled "Average Hourly Temperature" on the fifth page of the charts devoted to temperature shows the average temperature at Twenty-fourth and M Streets NW., for each hour of the day and for each month of the year. This chart clearly shows for any particular hour, along a vertical line, the annual variation; and for any particular month, along a horizontal line, the diurnal variation.

The highest temperature for any one day usually occurs at Washington about the middle of the afternoon; it is called the daily maximum temperature. The average of all the daily maximum temperatures for a given month is called the "average monthly maximum temperature" or more briefly the "average maximum temperature." Table 2 is a chronological table of all the average monthly maximum temperatures since 1872. It will be noted that there is much variation in these averages from year to year. The least, most likely and greatest values of these average monthly maximum temperatures is shown in the expectancy diagram entitled "Average Maximum" on the first page of charts devoted to temperature.

The lowest temperature for the day usually occurs about sunrise; it is called the daily minimum temperature. The average of all the daily minimum temperatures for a given month is called the "average monthly minimum temperature." Table 3 is a chronological table of these values since 1872 and they are shown graphically by the expectancy diagram entitled "Average Minimum" on the first page of charts devoted to temperature.

If the average monthly maximum and average monthly minimum temperatures are added and their sum divided by two a value is obtained which is called the "average monthly temperature." Table 1 is a chronological table

of the average monthly temperature beginning with 1871, and an expectancy diagram is shown among the charts. The difference between the daily maximum temperature and the daily minimum temperature is called the "daily range in temperature." The average of all the daily ranges for 1 month is called the "average daily range." A chronological table of the average daily range is not given but an expectancy diagram is shown. Should a chronological table be desired it can be obtained by subtracting the average monthly minimum from the average monthly maximum for each month.

The expectancy diagram in the center of the first page of the temperature charts shows the daily mean temperature. Two methods are used by the United States Weather Bureau to obtain the "daily mean temperature." The more accurate method is to add each of the 24 hourly temperatures and divide by 24. The more simple and approximate method is to add the daily maximum and daily minimum temperatures and divide the sum by 2. A frequency chart of daily mean temperatures is shown on the fifth page of the temperature charts. In all of the graphs dealing with daily mean temperatures the basic data have been computed by the simpler of the two methods stated.

The two expectancy diagrams at the bottom of the first page dealing with the greatest temperature rise and fall are based on unpublished data. The last expectancy diagram on the first page of the temperature charts is devoted to heating degree days. The subject of degree days in the heating industry has become increasingly important with each season. It was more than 20 years ago that this unit of measure was devised. Since that time it has become widely accepted in practically all branches of the heating industry. In fact, it could be said that the trade "sets its course" and "trims its sails" by degree days because they take the guesswork out of heating. Heating engineers made a careful study some years ago of the effect of outside temperatures on the quantity of fuel required to heat various types of residences. Most important of all the information resulting from this study was the discovery that the amount of fuel required to heat any certain residence for a month depends quite closely upon the number of degrees by which the average temperature for that month falls below 65° F.

Thus, checking the data for any residence for the entire winter, it was found that the fuel consumed in a month having an average daily mean temperature of say 15° F., as compared to a month with a corresponding temperature of 40° F., would be as $\frac{65-15=50,}{65-40=25}$ or twice as great.

This study reveals for the first time that the difference between 65° F. and the average mean outside temperature for any stated period is an accurate index of the fuel consumed for heating a residence over that period of time. Later investigations conducted by the National District Heating Association on 163 buildings in 22 different cities confirmed the fact that steam consumed in heating a building varies almost directly with the difference between 65° F. and the average mean outside temperature. Furthermore, it was demonstrated that the system could be equally applied not only to residences but also to office buildings, hotels, stores, theaters, and other types of buildings.

To understand degree days it is first necessary to understand the mean or average outside temperature used in their computation. Practically all of the average outside temperatures used in figuring degree days are based on observations taken by the United States Weather Bureau. Standard thermometers are used and the readings are taken under the same conditions in all parts of the country to insure temperature data that are scientifically accurate and readily comparable over the Nation as a whole.

In order to compute the degree days for a given period the mean daily outside temperatures for that period must be known. The mean daily outside temperature is determined by adding together the highest, or maximum, temperature for each day (24 hours, midnight to midnight), and the lowest, or minimum, temperature for the same day, and dividing by 2. For example, if the highest temperature for a given day was 46° F., and the lowest temperature for that day was 24° F., the average outside temperature would be 46+24=70, divided by 2, which would be 35° F. In case the highest temperature is above zero and the lowest is below zero, the 2 must be added algebraically. For example, with highest temperature, 19° F., and the lowest, −5° F., the average outside temperature would be 19−5=14, divided by 2, or 7° F. The procedure above described and used by the United States Weather Bureau, is expressed by the following formula:

$$\text{Average outside temperature} = \frac{\textit{maximum temp.} + \textit{minimum temp.}}{2}$$

The heating degree day is defined as "a departure of one degree per day in the mean daily temperature from an adopted standard reference temperature, usually 65° F." For example, if the mean outside temperature was 25° we would record 65−25 or 40 degree days.

Degree days for any given period are computed by determining the number of degrees the mean temperature for each individual day falls below 65° F. and totaling them for the period. Thus, if the average outside temperature for each day of a week is as follows: Sunday 58° F.; Monday 60° F.; Tuesday 65° F.; Wednesday 67° F.; Thursday 62° F.; Friday 56° F.; and Saturday 59° F.; we get the following numbers of degree days: Sunday −7; Monday −5; Tuesday −0; Wednesday −0; Thursday −3; Friday −9; and Saturday −6. This makes a total of 30 for the week. It will be noted in this example that there were no degree days on Tuesday and Wednesday. When computing degree days, days having a mean outside temperature higher than 65° F., are omitted. For any such day the degree days would have a negative value and to subtract this from positive degree days would be tantamount to assuming that such a day puts fuel back into the bin.

The average outside temperature for a period of 1 week, or 1 month, when subtracted from 65 and multiplied by the number of days in that period *will not give the correct* number of degree days unless the average outside temperature on *every* day during the period was 65° F., or lower. In the above example, the average temperature for the week would be the average of the 7 daily temperatures, 58, 60, 65, 67, 62, 56, and 59. The sum of these temperatures is 427. Divided by 7 this gives 61 as the average temperature for the week; subtracting 61 from 65 gives 4 degree days per day, or 28 for the week. As noted above, the correct answer is 30, not 28.

Degree day records compiled over a period of many years are used by the Weather Bureau in establishing monthly averages of degree days in all parts of the country. Long-term averages of this type form the basis for general standards of estimating and gaging fuel requirements and consumption.

Table 9 shows the total degree days for each month of record and for each heating season. Table 10 shows a frequency distribution of heating degree days for each

calendar day. There is no table for the average as it can be quickly obtained by subtracting the average daily temperature from 65°.

Tables 44, 45, and 46 show the total heating degree days for each month of record for three locations near Washington.

Tables 13, 14, and 15 are indicative of cooling requirements for Washington, D. C. The contents of these tables employ 75° F., as the base mean daily outside temperature for computing cooling degree days. For example, a day with a mean outside temperature of 80° has 80—75 or 5 cooling degree days, etc. The monthly and seasonal cooling requirement, expressed in terms of cooling degree days, is shown in table 13 for the last 56 years. Table 14 illustrates in frequency table form the cooling load in terms of degree days for a 48 year period 1898–1945. Table 15, presents the maximum cooling degree day load, per calendar day, for the 48-year record, 1898–1945. There is no chart dealing with cooling degree days.

There are three charts on the second page devoted to temperature. The two upper ones deal with the frequency distributions of the daily maximum and minimum temperature respectively. Similar data, though based on a longer period of record, are shown in tables 21–24. The bar diagrams below show the highest annual temperature and the lowest wintertime temperature respectively. The highest annual temperature is merely a graphical presentation of the data contained in the "Annual" column of table 4. However, the lowest wintertime temperature is not a graphical presentation of the "Annual" column of table 5; the latter is based on the *calendar* year while the bar chart is based on the actual wintertime season and begins in one calendar year and ends in the next.

The expectancy chart for the daily maximum temperature 90° or above is in six sections. The first gives the number of days each month and for the season as a whole. The second, immediately below, shows the number of periods each month and the entire season; here a period means one isolated day or several consecutive days each with a maximum temperature 90° or above. The third section is a bar diagram showing the percentage distribution of periods by days. The fourth section, just below the third, shows the duration of the longest period in days. The fifth shows the odds in favor of persistence of the condition (the maximum temperature being 90° or above) for at least 1 day. The sixth and final section shows the expectancy of the dates of the opening and closing of the season.

The expectancy charts for the daily maximum and minimum above and below 32° are similarly arranged.

Tables 25–28 show similar data but the data in these tables are not as complete as those in the charts.

The first chart at the bottom of page 138 on temperature shows percentage frequency distributions of the July minimum temperatures as taken at the 8 a. m. synoptic observation and covering a 12-hour period and the midnight–midnight period plotted on the same scale. The differences are partly accounted for by minima occurring with afternoon thunderstorms. However, this is not the main reason, the important reason being the recording of a minimum temperature at midnight from the thermograph trace when there is no actual minimum temperature due to some meteorological cause, such as a thunderstorm, front passage, wind shift, etc. The second chart gives a similar comparison for the January maximum. Actually two charts for each of the 12 months of the year could be shown but space did not permit. The reader further interested in this subject should refer to an article by Arnold B. Tinn, "Variation in Daily Maximum and Minimum Temperatures Owing to Difference in Hours of Setting of Thermometers," published in volume 71 of the Quarterly Journal of the Royal Meteorological Society.

The charts on the sixth and seventh pages devoted to temperature deal with microclimatology. Here are compared the differences between the daily maximum and minimum temperatures at Twenty-fourth and M Streets and (1) the National Airport, (2) the Navy Building, (3) Brightwood, and (4) Sleepy Hollow. The locations of these four stations are shown on the map on page 210. Tables 38–46 deal with data collected at locations different from Twenty-fourth and M Streets NW. and may be used for comparative purposes.

Tables 29 and 30 show the daily normal temperature. Table 29 is copied from Supplement 25 of the MONTHLY WEATHER REVIEW and is based on a 49-year period ending with 1921.

GROUND TEMPERATURES

Soil temperature observations have not been extensively made in or near Washington. The observations given in the first section of table No. 47 for the Arlington Farms were made by the Bureau of Soils of the United States Department of Agriculture. Their results were first published in the "Proceedings and Papers of the First International Congress of Soil Science," volume 1, 1927. In this paper the observations are discussed in considerable detail. The observations at the Hopkins Farm were made by the University of Maryland. No results of these observations have been previously published.

PRECIPITATION

The method of dealing with precipitation is somewhat different from that for temperature. The fundamental reason for this is that temperature is a continuous function with time in the atmosphere while precipitation is a discontinuous function with time. Because of this the detection of the diurnal and annual cycles of temperature is easy and simple while a longer record is required to detect diurnal and seasonal variation in precipitation; to emphasize this, consider the frequency with which each calendar month has been the coldest or warmest of the year. A table as follows shows this frequency:

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Warmest	0	0	0	0	0	3	60	12	0	0	0	0
Coldest	33	30	2	0	0	0	0	0	0	0	0	11

Compare the above figures with the frequency with which each calendar month has been the wettest or the driest for the year.

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
Wettest	2	3	7	6	6	6	15	13	10	6	1	1
Driest	3	6	3	6	5	3	3	6	9	16	12	4

These tables clearly show that at Washington the annual cycle in precipitation is not nearly so regular as that in temperature.

The tables and charts for precipitation follow a different plan than those for temperature for the necessary reason just explained and illustrated.

Table 48 (the first table devoted to precipitation) shows the total monthly precipitation for each month of record, and table 49 shows the greatest precipitation in 24 hours for each month of record. Expectancy diagrams of these two tables are shown on the first page of charts devoted to precipitation. Table 50 shows the average and median value of the monthly precipitation as well as the standard deviation. Table 51 shows the average number of days with precipitation for each month. This is shown in graphic form in the section on charts. Table 52 shows the number of days with a trace or more of precipitation.

This table is shown in graphic form along with expectancy diagrams of the number of days with 0.01 inch or more, 0.04 inch or more, and 0.25 inch or more. Table 53 shows the average daily precipitation and table 54 shows the greatest precipitation for each calendar day. Table 55 shows the number of hours with precipitation for each month of record; these data are also shown in the form of an expectancy diagram in the section of charts. Table 55 shows the total precipitation for each 12-month period ending with the close of each month; it is made by adding the total monthly precipitation for each period of 12 consecutive months. Table 56 shows the total hours of precipitation and table 57 the total amount of precipitation by seasons. Table 58 shows the total number of days with a trace or more of precipitation by seasons. Table 59 shows the maximum precipitation of record for each month for 12 different time intervals; the time intervals vary from 5 minutes to 3 days. Table 60 shows the maximum precipitation at 15 different locations for the storm of September 4, 1939; it will be noted from table 59 that this storm established the 2-hour record at Twenty-fourth and M Streets NW.; effort was made to get data for a similar table for the storms which established the 1-hour and 3-hour records, but as these were earlier, sufficient data for a similar table could not be located. Table 61 shows the total monthly snowfall and table 62 shows the greatest snowfall for each calendar day. Tables 63–67 are summary tables showing pertinent data about snow. Tables 68 and 69 show the average monthly precipitation for each month of record over central Maryland and northern Virginia; these tables can be compared with table 48 and serve to show just how representative was the catch of precipitation at Twenty-fourth and M Streets NW.

The charts on the probability of precipitation show the probability of the persistence of (1) a day with a trace or more of precipitation after a similar day disregarding the duration of the period; (2) a day with a trace or more after a specified number of similar days; (3) a day with fair weather after a specified number of fair days and (4) a day with 0.04 inch or more of precipitation after a similar day disregarding the duration of the period.

Scatter diagrams of the total seasonal precipitation and the average seasonal temperature are shown on page 147. Expectancy diagrams accompany these scatter diagrams.

SKY COVER AND SUNSHINE

Tables 70, 71, and 72 show respectively the number of days clear, partly cloudy, and cloudy, and expectancy diagrams of these data are also shown on page 148.

Table 73 gives the mean monthly cloudiness for each month and there is also an expectancy diagram of these data in the section of charts.

Table 74 gives a summary of averages and extremes taken mainly from the four preceding tables. While the arithmetic means contained in this table are not shown in graphic form, the extremes are shown in the corresponding expectancy diagram. Table 74, in all cases, gives the dates of the extreme.

Table 75 shows the average seasonal cloudiness. There is no expectancy diagram of these data.

Table 76 is an analysis of sky conditions by hours and months. This table was obtained from observations taken at the airport and analyzed by machine.

Table 77 shows the percentage of possible sunshine for each month and there is an expectancy diagram of these data. Tables 78 and 79 show averages and extremes of sunshine data. Table 80 shows the total hours of sunshine by seasons.

Table 81 is pyrheliometric data and shows the average hourly total of solar radiation received on a horizontal surface by weeks.

Table 82 shows the time of sunrise and sunset.

Some of the charts show data not contained in the tables. One chart on page 148 shows the average daily sky cover frequency and beside it are expectancy diagrams showing the temperature range on overcast and clear days.

Three of the charts on page 149 show the sky cover on days with measurable amounts of precipitation, while the fourth chart shows a comparison of the mean temperature on days with 0.04 precipitation with that on days without precipitation or less than this amount.

The charts on page 150 are devoted to an analysis of sky cover periods and persistence.

The first chart on page 151 shows the average hourly sunshine by months. Also on this page are shown three expectancy diagrams of pyrheliometric data. These expectancy diagrams deal with observations made by a pyrheliometer exposed normally to the sun's rays while table 81 is based on a horizontal exposure.

TEMPERATURE—PRECIPITATION RELATIONS

There are no tables devoted to the connection between temperature and precipitation. However, 24 pages of charts are given to this idea, namely 2 to each month. Twelve of the charts are scatter diagrams, one for each month, of the total monthly precipitation and the average monthly temperature. From these diagrams one can tell at a glance whether a month was wet or dry and whether the month had relatively high or low temperature. There are expectancy diagrams along the borders for convenience. These diagrams show that there is little correlation between the total monthly precipitation and the average monthly temperature for any month at Washington. They do show that the scatter for temperature is greater in winter than in summer, while the scatter of precipitation is greater in summer than in winter.

In referring to these diagrams, it should be borne in mind that for the months of May to September, inclusive, precipitation is plotted on the horizontal scale while for the remaining months the temperature is plotted on the horizontal scale. These scatter diagrams also illustrate a principle which should be kept in mind when two expectancy diagrams are used simultaneously. The central portion (most likely) of an expectancy diagram shows the smallest range which contains at least half of the events of record. When two elements are considered simultaneously, however, unless there is appreciable correlation between them, only about one-fourth of the events of record will lie in the most likely ranges of both of the elements. The remaining 12 charts are selected illustrative months. Climatologists, meteorologists, and weather forecasters are all frequently asked for a day to day forecast for a month or more in advance. At the present state of meteorological science such a forecast cannot be made with confidence. However, the past climatological record does furnish a guide as to the variations of what may be expected in the future. To show this, for each month of the year there has been selected a month to illustrate: (1) a warm (or hot) wet, (2) a warm (or hot) dry, (3) a cool (or cold) wet, and (4) a cool (or cold) dry month. Also a recent month which was approximately near the average as regards the average temperature and the total precipitation has been selected. These selected illustrative months appear opposite the respective scatter diagrams of average monthly temperature and total monthly precipitation. The period of record used to show the day-to-day course

of weather for these illustrative months was 1889–1945, thus using records made entirely at Twenty-fourth and M Streets NW.

It will be noted in studying these illustrative months that those which are designated warm or hot seldom have every day with a mean temperature above the average for the period of record and likewise months designated cool or cold seldom have every day with a mean temperature below the average for the record period. In fact, January 1937 is the only one of the 24 months designated warm or hot with no day with the mean temperature below the average for the record period, although March 1945, and September 1930, have only 2 days apiece with the mean temperature below the average for the record period.

It should be emphasized that in making the selections on a combined basis, that is considering both the average temperature and the total precipitation, the extreme condition of just one element was frequently eliminated. Thus, February 1934, the coldest February of record, was eliminated because it was neither wet nor dry—its total precipitation was approximately close to the average. For the same reason February 1890, the warmest February of record, was not used in these illustrative months.

These selected illustrative months serve the additional purpose of providing actual examples (or rather samples) of the persistency of the (1) daily mean temperature, (2) precipitation periods, and (3) sky cover periods. In studying the diagrams on the charts where these persistencies are shown, these illustrative months of daily sequences of weather may be found useful, as they can be regarded as random samples of these meteorological elements.

WIND

Table 83 shows the number of hours the wind blew from each direction by months. The averages for this table are shown in table 85. The data contained in tables 85 and 86 form the basis for the surface wind roses displayed in the chart section. On the same page with the wind roses are expectancy diagrams of the wind direction by quadrants; the basic data for these expectancy diagrams were obtained by combining pairs of directions of table 83.

Table 84 shows the number of hours the wind blew from each direction by seasons.

Tables 87–90 are devoted to maximum and extreme wind speeds. The observations for these data were obtained by the Robinson cup anemometer. The terms "maximum wind speed" and "extreme wind speed" are officially defined as the speed during the *fastest* 5-minute interval and the speed during the passage of the *fastest* mile of wind respectively.

Table 90 shows the highest wind gust of record for each month. These data were obtained from records made by the Dines pressure tube anemometer. Table 91 is a frequency analysis of the highest gust for each day.

Table 92 shows the average hourly wind movement. These data are also shown in a chart.

Table 93 is a list of tornadoes occurring in states near the District of Columbia and table 94 is a list of tropical hurricanes which have passed over or near Washington.

On page 177 a chart shows expectancy diagrams for the temperature range and wind speed on clear days. This chart should be compared with the one on page 148, where the wind speed is not considered.

HUMIDITY

Tables 95–98 deal with relative humidity; tables 99–101 with wet bulb temperature, and tables 102–107 with dew point.

Table 95 shows the average hourly relative humidity by months and these data are also shown in graphic form. Table 96 shows the average monthly relative humidity for each month of record. These data are not shown in graphic form. However, there are two expectancy diagrams—one showing the average monthly maximum relative humidity and the other showing the average monthly minimum relative humidity.

Table 97 shows extremes of relative humidity readings taken at the time of synoptic observations.

Table 98 shows the average hourly wet bulb temperature. Tables 99 and 100 show the highest and lowest wet bulb temperature for each month of record respectively. Table 101 shows the averages and extremes of wet bulb temperatures taken at the time of synoptic observations.

Table 102 shows the average hourly dew point temperature. Table 103 shows the mean monthly dew point for each month of record, and there is an expectancy diagram of these data. Tables 104 and 105 give the highest and lowest dew points for each month of record; also there is an expectancy diagram for the highest monthly dew point.

Table 106 is similar to tables 97 and 101 and gives the averages and extremes of dew points observed at the time of synoptic readings. Finally table 107 shows the average seasonal dew point.

The charts on page 180 are scatter diagrams showing the scatter between the maximum temperature and minimum relative humidity. These conditions are representative of the midafternoon which is ordinarily considered to be the most uncomfortable time of day. Charts are shown for the 4 months June–September, inclusive, which are the 4 most humid months of the year.

The charts on page 181 are devoted to dew point periods and combinations. That on dew point periods 70° or higher is in six sections and follows the same system as that for maximum temperature 90° or higher. The other charts on this page show the connection between dew point and maximum temperature and wind speed.

PRESSURE

There are no charts dealing with pressure. Tables 108–110 give the average station, the highest sea-level, and the lowest sea-level pressure for each month of record. Table 111 gives the average and standard deviation of the mean monthly station pressure. Table 112 shows the extremes of pressure while table 113 shows the average seasonal pressure.

The purpose of tables 114–116 is explained under the heading of weather maps below.

WEATHER MAPS

There are four pages given to the presentation of selected sea-level pressure charts for the Northern Hemisphere and 16 pages to daily synoptic weather maps. One page of Northern Hemisphere maps and 4 pages of daily weather maps are given to each season.

These maps were selected in the following manner. A table of differences was prepared from table 1. From this table of differences the outstanding case of a cold month following a warm month and also the outstanding case of a warm month following a cold month were found. The weather maps used covered only 40 years of record and as table 1 covers 75, only a little more than half of table 1 could be used in making the selection of weather maps. In the same way, a table of differences was prepared from table 48 and from this table of differences the outstanding cases of a wet month following a dry month and a dry month following a wet month were found.

The complete selection included 4 cases for each pair of the possible 12 pairs of calendar months. However, to save space only 2 cases for each season were used in this publication.

SELECTED SEA-LEVEL PRESSURE CHARTS

The charts on pages 182 to 185 show the average sea-level pressure distribution over the Northern Hemisphere for the months shown. These months are the same ones used for the daily synoptic weather maps. These maps are reproduced from an unpublished manuscript file of those which cover the same period of record as the published daily synoptic series of Historical Weather Maps of the Northern Hemisphere. The 16 months here shown are thus a sample of an available 500.

As an index as to how representative these 18 months may be in the region of Washington tables showing the departure of the pressure gradient from the normal have been prepared. These tables are based on the average monthly station pressures at Washington, Wilmington, N. C., Cincinnati, Ohio, and Oswego, N. Y. These three stations were used because of all the stations having the same record period as Washington and in the region of Washington they are the nearest to being located south, west, and north, respectively. The latitude, longitude, and elevation of these three places are as follows:

Wilmington, 34°14′ N., 77°57′ W., elevation 72 feet.
Cincinnati, 39°6′ N., 84°30′ W., elevation 628 feet.
Oswego, 43°29′ N., 76°35′ W., elevation 335 feet.

The difference in latitude between Washington and Wilmington is 280′ or 321.7 miles or 517.8 kilometers, and between Washington and Oswego 275′ or 316.3 miles or 509.0 kilometers. The difference in longitude between Washington and Cincinnati is 401.0 miles or 645.4 kilometers.

These tables show for each month of record the departure of the pressure difference for that month from the average difference of station pressures for the period of record. The average difference of station pressures is shown at the end of the tables.

The units for these monthly departures are thousandths of inches. They can be converted to millibars by multiplying with an appropriate factor (0.001 inch=0.033864 millibar).

SELECTED SYNOPTIC WEATHER MAPS

Sixteen of the pages of charts show eight sets of synoptic weather maps. These maps are reproduced from the publication, "Daily Synoptic Series, Historical Weather Maps, Northern Hemisphere Sea Level." Only the small portion of these maps immediately around Washington are here reproduced. The period of record from which the selections were made is the period 1899–1939, and includes over 15,000 individual daily weather maps.

Each of the 8 sets includes 24 consecutive daily weather maps and 2 sets belong to each of the 4 seasons. For the winter season the first set shows a cold month, December 1910, followed by a warm month, January 1911. The second set shows a warm month, January 1934, followed by a cold month, February 1934. Each consists of the 12 days at the end of the initial month and the 12 days at the beginning of the second month. However, it should be emphasized that the significant change in the weather at Washington does not change exactly with the change in the calendar month. Thus the significant change in the first winter set takes place on December 29 when the mean temperature at Washington rises from 40° to 52°; and the significant change in the second winter set takes place on January 29 when the mean temperature at Washington drops from 50° to 22°. For the summer season the first set shows a cool month, July 1918, followed by a hot month, August 1918, and the second set shows a hot month, June 1923, followed by a cool month, July 1923. For the spring and autumn seasons the two sets show a wet month followed by a dry one and a dry month followed by a wet one, respectively. The daily course of the weather at Washington for these sets of daily weather maps is shown in the table on pages 83 and 84. The column headings of these tables make them self-explanatory.

UPPER AIR DATA

Table 118 shows the frequency of the direction of the wind at selected upper levels separated according to the surface wind direction.

Table 119 shows the average upper air wind speed for the four different times of day when observations were made. Tables 118 and 119 are based on pilot balloon observations. The chart on page 204 gives the upper air wind roses for selected levels and these also are based on pilot balloon observations.

The remaining upper air tables are based on radio sounding balloon observations. Table 120 gives the average relative humidity and table 121 gives the average pressure.

Table 122 gives the average daytime temperature while table 123 gives the average nighttime temperature. The data in this latter table are shown in graphic form. The data in table 124 are based on a combination of tables 122 and 123 and these data are also shown in graphic form. Tables 125 and 126 give the highest and lowest temperatures for each month of record.

CEILING AND VISIBILITY

There are no tables treating ceiling and visibility. A bar diagram shows the diurnal variation in ceiling and another shows that for visibility. Another set of charts shows the frequency of ceiling and visibility combinations. Finally, there is a page of fog expectancy diagrams.

MISCELLANEOUS

Thunderstorms.—Table 127 gives the average, greatest, and least number of days with thunderstorms for each month. The years of the extremes are also shown. Page 209 is devoted to thunderstorms and hail. The expectancy diagrams show the days and periods of thunderstorms. Bar charts show the duration of periods by days and the probability of persistence.

Bar charts show the annual frequency of days with hail and also the frequency of occurrence by months. Bar charts also show the diurnal frequency of hail and thunderstorms.

Pollen table.—Table 127 shows the smoothed pollen count for 12 years. The exposure was on the roof of the Weather Bureau Building at Twenty-fourth and M Streets NW. Exposure was that standard before 1946. The basic data were supplied by the Abbott Laboratories.

Potomac River.—Tables 129–131 deal with gage heights on the Potomac River. Table 129 shows the highest and table 130 the average river stage for each month at the Leiter gage which is above tide water. Table 131 shows the highest stage for each month at the Wisconsin Avenue gage which is affected by tides.

Climatic data for nearby stations.—Table 132 is in two sections: one for stations in Maryland and one for those in Virginia. These data were copied from "Climate and Man" the Yearbook of the Department of Agriculture for 1941.

Frost.—Table 133 is a record of frost for Washington, D. C. Table 134 is a similar record for nearby stations. Both of these tables should be compared with tables 32–35 treating with Twenty-fourth and M Streets NW. (prior to 1889, Eighteenth and G Streets NW.) temperature data and also tables 40–43 treating with College Park temperature data.

Table 135 gives a comparison of the mean monthly and annual temperature at Washington with other places throughout the world.

Table 136 gives a comparison of the mean monthly and annual precipitation at Washington with other places throughout the world. Tables 135 and 136 make it easy to compare the average monthly conditions at Washington with the other places listed in these tables.

Table 137 is a frequency analysis of a 57-year record of precipitation. For this analysis all the precipitation records made at Twenty-fourth and M Streets NW. were used; this record beginning in March 1889 (when the Weather Bureau Office was moved from Seventeenth and G Streets NW.) and ending in March 1946. The table is divided into 52 sections, one section for each week. There is 1 week which invariably has 8 days and another week which occasionally has 8 days, these being the seventh week of summer and the thirteenth (last) week of spring, respectively. These weeks were so arranged that the first day of the first week of summer was the day after the summer solstice. Each section of the table shows the frequency distribution for each hour and a total column which shows the frequency distribution for the day as a whole. The frequency distribution shows the number of hours without precipitation, the number with a trace, and the number for each hundredth of an inch from 0.01 to 0.30 inch, inclusive. Above 0.30 inch the actual amounts are shown. In the total columns the total frequency is shown and also the total amount of precipitation. The total frequency for each column for each 7-day week is 399 hours for the seventh week of summer and the last week of spring; this total frequency is 456 and 413, respectively.

UNUSUAL AND NOTEWORTHY METEOROLOGICAL EVENTS AT WASHINGTON, D. C.

Some of the outstanding conditions of temperature, precipitation, wind, etc., have been selected for more or less detailed review here. In many of these cases the actual significance of an unusual meteorological event is not emphasized by the table or graph where they are displayed along with numerous other values. Moreover, the table or graph can only depict the numerical magnitude of a temperature, wind speed, etc., while the effects on life and property are not considered. It is these effects of meteorological extreme conditions that a planner, designer, or operator must consider when he estimates the importance of weather on his activities and plans. In this section an effort is made to show the effects that extreme weather conditions can cause on human activity in this locality.

In the text which follows units of measurement have generally been omitted to save space. Wherever temperature figures are given it is to be understood that degrees Fahrenheit are meant. Likewise wind speed is in miles per hour, dew point temperatures are in degrees Fahrenheit and precipitation is in inches. The pressure figures are in inches of mercury and are in all cases reduced to sea level. Millibars have not been used for pressure because nearly all of the manuscript records are in inches.

TEMPERATURE

Of the meteorological events here discussed, 15 have been chosen because of the behavior of the temperature. The duration of unusual temperature varies from a single day as in the case of the afternoon temperature of July 8, 1891, to 5 months in the case of the winter of 1931–32.

LOW TEMPERATURES

During the 76 winters since records have been kept at Seventeenth and G Streets NW., and Twenty-fourth and M Streets NW., respectively, temperatures of zero or below have occurred on 33 days. These 33 days were grouped into 25 periods or "spells." Only 16 winters have had days this cold; one winter, that of 1898–99 had 5 days with a temperature of zero or below. The earliest date of occurrence of zero or below was December 30 in 1880 and again in 1917 and the latest was February 28 in 1934. The three coldest spells have been selected for detailed discussion. The lowest temperatures recorded during these spells were −14, −15, and −13, respectively; the next coldest temperature was −6, which has been recorded four times.

The following is a chronological list of these 25 cold spells:

Winter	*Month spell began*	*Day spell began*	*Duration days*	*Lowest temperature*
1872–73	January	30	1	−6
1874–75	do	10	1	−3
1874–75	February	10	1	−2
1876–77	January	3	3	−3
1877–78	do	8	1	0
1878–79	do	3	1	0
1880–81	December	30	3	−14
1885–86	January	13	2	−1
1885–86	February	5	1	−2
1892–93	January	14	1	−5
1892–93	do	18	1	−6
1894–95	February	3	1	0
1894–95	do	8	1	0
1898–99	January	2	1	−1
1898–99	February	9	3	−15
1898–99	do	15	1	−6
1904–05	January	31	1	−2
1911–12	do	13	2	−13
1913–14	February	25	1	−1
1917–18	December	30	1	−3
1917–18	February	5	1	−2
1933–34	do	9	1	−6
1933–34	do	28	1	−1
1934–35	January	28	1	−2
1935–36	do	23	1	0

The cold spell of 1880–81.—The coldest weather was from December 30, 1880, to January 1, 1881. The morning minimum temperatures for these days were −7, −11, and −14, respectively, and the afternoon maximum temperatures were 9, 13, and 19. The highest barometer was 30.51 at 11 a. m. December 31. The first 2 days of this cold spell were cloudless, it was cloudless till noon on January 1 but by 9 p. m. it was overcast. This cold spell was preceded by several snowstorms during which rain and sleet as well as snow fell. The following table gives a summary of them:

Dates	*Precipitation (melted)*	*Duration of precipitation (hours)*
Dec. 18	0.04	4
Dec. 20–21	.93	30
Dec. 23–24	.09	18
Dec. 25–26	.83	27
Dec. 28–29	.17	24

Records of the amount of unmelted snow or of the depth of snow on the ground were not kept by the Weather Bureau (Signal Corps) at this time. An examination of the United States Naval Observatory record shows that 18.5 inches of snow fell from December 18 to 29. It is noteworthy that this amount exceeds any for the whole month of December since records of snowfall have been kept by the Weather Bureau. The following is copied from the MONTHLY WEATHER REVIEW:

> Monthly snowfalls for December: Philadelphia, Pa., 22; Cumberland, Md., 22; Mount Solon, Va., 28; Dover, Loudon County, Va., 24. Snow on ground at end of month of December: Washington, D. C., 14; Brownsville, Tex., 1. Minimum temperatures for December: Emmittsburg, Md., −19; Baltimore, Md., −3; Distributing Reservoir, District of Columbia, −15; Dover, Va., −34; Fort Whipple, Va., −11. Minimum temperatures for January: Woodstock, Md., −17; Baltimore, Md., −6; Sandy Spring, Md., January 1 marks the close of the coldest 3-day period ever recorded here, minimum temperature at station −10, and in a low valley half-a-mile distant −24; Mount Solon, Va., −18; Fort Whipple, Va., −8; Petersburg, Va., −4, coldest in past 25 years, birds frozen to death in the fields; Fredericksburg, Va., −22, much suffering among the people, cattle, and game frozen to death.

Cold spell of February 5–15, 1899.—At midnight of February 4–5, 1899, the temperature fell below freezing. It did not rise above the freezing point until the afternoon

of February 15, over 10 days later. While this, in itself, is not a record as may be noted from one of the temperature tables, several other records were established during this cold spell.

During February 5–8 there were four separate snowstorms. Snow began at 4 a. m. February 5; there was snow during 6 hours on the 5th, 16 hours on the 6th; 14 hours on the 7th and 6 hours on the 8th. The accumulations of snow on the ground were as follows: On the 5th, 5.5 inches; 6th, 9.5 inches; 7th, 12.7 inches and the 8th, 13.7 inches. The morning minimum temperatures on the 9th, 10th, and 11th were −7, −8, and −15, respectively. The minimum temperature on the 11th of 15 below zero is the lowest temperature of record at this location.

Snow began again at 3:30 p. m. February 11 and continued without interruption until 11 p. m. of the 13th. During this period 20.5 inches of snow fell and there was a total accumulation on the ground of 34.2 inches at the end of this snowstorm. This was the greatest depth of snow on the ground during the period of meteorological records at Washington. (See fig. 2.) This storm is commonly referred to as Washington's worst blizzard. Most snow fell, and the wind blew hardest, on the 13th, the final day of the storm. During the 24-hour period beginning midnight of the 12th and 13th the total wind movement was 571 miles and the "extreme speed" was 40 miles per hour. On the morning of February 15 the temperature was again below zero, the fourth time for the month, and this month was the only calendar month of record with as many as 4 days with the temperature below zero.

While the lowest temperature at Twenty-fourth and M Streets was on the 11th many stations in central and eastern Maryland reported the lowest temperature on the 10th. The lowest temperature at Laurel, Md., was −18; at Manassas, Va., −21; at Fredericksburg, Va., −21 and at Quantico, Va., −20. At the Naval Observatory on Massachusetts Avenue the lowest temperature was only −10.

The meteorological conditions which caused this weather at Washington were most unusual. On page 191 of "Weather Forecasting in the United States" it is referred to as an example of freezing weather in Florida. In the MONTHLY WEATHER REVIEW for February 1899 the cold weather is mentioned in nearly all stations of the United States. Maps of the snowfall which occurred during this cold weather appear in the MONTHLY WEATHER REVIEW for June 1914, pages 318–330. Another interesting article on this cold weather appears on pages 25–29 of the January 1926, issue of Tycos-Rochester, volume XVI. The coldest temperature recorded in the United States during this cold period was 61 below zero at Fort Logan, Mont.

The cold spell of January 13–14, 1912.—The temperature at Twenty-fourth and M Streets NW. remained below freezing from the afternoon of January 10 till the evening of the 17th; the 2 coldest days during this period were the 13th and 14th when the morning minimum temperatures were 0 and −13 respectively and the afternoon maxima were 8 and 20. The ground was covered with snow from January 3 till January 20 but the greatest depth was only 6.5 on January 12. The highest pressure during this period was 30.68 at 10:30 a. m. January 13.

Minimum temperatures were reported as follows on January 14, 1912 at nearby cooperative stations:

College Park, Md	−26	Culpeper, Va	−20
Frederick, Md	−21	Fredericksburg, Va	−11
Great Falls, Md	−21	Lincoln, Va	−25
Laurel, Md	−19	Quantico, Va	−16
Takoma Park, Md	− 8	Warsaw, Va	−10

HIGH TEMPERATURES

During the 75 summers since records have been kept at Seventeenth and G Streets NW. and Twenty-fourth and M Streets NW. temperatures of 100 or more have occurred on 47 days. These 47 days were grouped into 33 periods. Only 23 summers have had days with temperatures so high. One summer, that of 1930, had 11 days with a temperature of 100 or above. The earliest date of occurrence was June 5 in 1925 and the latest September 8 in 1939. The three hot spells of August 1918, July 18–22, 1930, and July 1936 have been selected for detailed discussion.

The following is a chronological list of these 33 hot spells:

Summer	*Month spell began*	*Day spell began*	*Duration, days*	*Highest temperature*
1872	July	3	1	101
1873	do	3	1	101
1874	June	9	1	102
1874	do	29	1	101
1874	August	20	2	100
1879	July	16	1	102
1881	August	5	1	100
1881	do	12	1	101
1881	September	7	1	104
1887	July	16	1	100
1887	do	18	1	103
1898	do	2	2	101
1900	August	11	1	101
1901	July	1	2	102
1911	June	11	1	101
1911	August	11	1	100
1918	do	6	2	106
1919	July	4	2	101
1924	August	6	1	102
1925	June	5	1	100
1926	July	21	2	104
1930	do	19	4	106
1930	do	25	2	103
1930	August	3	3	102
1930	do	8	2	102
1932	do	31	1	100
1933	June	9	1	100
1934	do	29	1	101
1934	July	21	1	100
1936	do	9	2	105
1939	September	8	1	100
1940	July	27	1	100
1943	August	14	1	100

The hot spell of August 5–9, 1918.—From August 5–9, 1918, Washington experienced its worst hot spell. Its intensity was felt worse because July and the first 4 days of August were relatively cool. The average maximum temperature for these 5 days was 99.6; the average nighttime minimum temperature 76.4; and the average dewpoint 72.3. The highest temperature during these 5 days was 105.5 on the 6th and the highest dewpoint was 82 on the 8th. This dewpoint was the highest ever observed at Twenty-fourth and M Streets NW.

The hourly average temperature on August 5 was 85.7; on the 6th, 91.3; on the 7th, 87.3. The daily mean temperatures for these 3 days were respectively, 86, 92, and 88. The highest pressure during this heat wave was 30.15 at 11 p. m. on August 7 and the lowest 29.82 at 6 p. m., August 5.

The following is copied from the Daily Record:

> August 5: Temperature rose rapidly today, reaching a maximum of 98 about 3 p. m. Humidity high during the day, adding materially to uncomfortable conditions.
>
> August 6: Intensely hot weather continued today with a maximum temperature of 105.5, which is the highest ever recorded at this station. Many prostrations from heat have been reported in the newspapers.
>
> August 7: The heat wave continued today with a maximum temperature of 104.5. A thunderstorm developed after 5 p. m., causing a drop in temperature from 102 at

5 p. m. to 73, at 8:30 p. m. This storm afforded great relief, and the night was cool and comfortable. A vivid display of atmospheric electricity occurred between 7 and 9 p. m.

First thunder heard, 5:12 p. m.
Last heard, 11:35 p. m.
Storm from west.

Preceding the thunderstorm, about 5 p. m. a remarkable formation of Mammato Cumulus clouds was observed in the north and northwest.

August 8: Excessive heat prevailed again today, although less intense than yesterday. Highest temperature today, 96.

August 9: Hot weather continued today, but was somewhat moderated by fresh northwest winds during the day. Very sultry at night, on account of increased humidity. Maximum temperature 94.

The highest temperatures recorded in the United States (east of the Rocky Mountains) during August 1918 were 115 at Searcy, Ark., Minneapolis, Kans., and Fremont, Nebr.

There is an article in the August 1918 issue of the Monthly Weather Review by A. J. Henry on this hot spell (pp. 361–363).

The hot spell of July 18–22, 1930.—A noteworthy hot spell took place during July 18–22, 1930. The average maximum temperature during these 5 days was 101.2; the average nighttime minimum was 75.2. Thus the average temperature during these 5 days was 0.2 higher than during the hot spell of August 5–9, 1918. However, the average dewpoint during July 18–22, 1930, was only 65.9 while in August 1918 the average dewpoint was 72.3. The average daily temperature on the 19th was 87.7; on the 20th, 89.9; and on the 21st, 90.0.

Notes appear in the Daily Local Record as follows:

July 18, 1930: High temperature prevailed today, with maximum of 95.

July 19, 1930: Unusually hot weather continued today, maximum 102.

July 20, 1930: Extreme heat continued today, with maximum of 105.6, breaking all previous records for high temperature.

July 21, 1930: Heat wave continues unbroken, maximum temperature 103 at 4 p. m.

July 22, 1930: Extreme heat wave broken in afternoon, by a series of light thunderstorms, maximum temperature of 100, at 12:30 p. m. During the progress of one of these squalls, at about 3:20 p. m,. the wind reached an extreme gust velocity of 36 miles, northwest. Thunderstorm, northwest: First thunder, 12:40 p. m., last heard, 1:20 p. m. Thunderstorm, south of station: First thunder, 2:18 p. m.; last heard, 2:40 p. m. Thunderstorm, northwest: First thunder, 3:05 p. m.; last heard about 4:50 p. m.

The highest temperature for the United States east of the Rocky Mountains this month was 115 at Rison, Ark., and Holly Springs, Miss.

It was 108 at Newburg and Frederick, Md., and 109 at Woodstock, Va.

The hot spell of July 8–12, 1936.—The third hottest 5-day period at the Twenty-fourth and M Street Station was from July 8 to 12, inclusive, 1936. The average temperature for these 5 days was 87.5 and the average dew point was 67.4. The hottest day was the 10th when the maximum temperature reached 105 and the average for the 24 hours was 89.9. July 1936 was recognized as an unusually hot month over much of the United States. The hottest weather was not reached during this 5-day period at all places but sometime during this month temperatures were recorded for places east of the Rocky Mountains as follows:

Cumberland and Frederick, Md	109
Lincoln, Va	109
Runyon, N. J	110
Phoenixville, Pa	111
Greenville, Ill., and Memphis, Tex	115
Collegeville, Ind	116
Logan and Atlantic, Iowa	117
Clinton and Lamar, Mo., and Hartington and Minden, Nebr	118
Alva and Altus, Okla., and Gannvalley, S. Dak	120
Fredonia, Kans., and Steele, N. Dak	123

West of the Rockies a temperature of 123 was recorded at Gila Bend, Ariz., and 125 was recorded at Greenland Ranch, Calif., Clay City and Logandale, Nev., 115.

UNSEASONABLE TEMPERATURES

Five cases of rather unusual temperatures occurring out of season have been selected for special mention.

The cold afternoon temperature of July 8, 1891.—In July 1891, the lowest temperature for the month was 54 and this occurred on the 8th at 4 p. m. A temperature of 55 or below has been recorded 23 times during July since observations were begun at Twenty-fourth and M Streets NW. Besides the one on July 8, 1891, they were as follows:

Year	*Day*	*Temperature °F.*
1890	20	53
1890	22	53
1891	9	55
1892	8	54
1892	18	55
1894	10	54
1895	12	53
1895	31	52
1898	11	54
1899	1	54
1907	4	52
1909	5	53
1909	8	55
1918	3	53
1920	26	54
1920	27	55
1923	1	54
1925	1	54
1929	20	55
1933	4	52
1940	2	55
1945	12	55

In all of the cases these low temperatures occurred near the time of sunrise when the night had been clear. On July 8, 1891, however, the sky was overcast and rain fell. The hourly temperature, rain, and wind data for July 8, 1891, are tabulated as follows:

A. m. hourly data for July 8, 1891

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*Noon*
Temperature (°F)	76	75	72	69	68	65	62	60	60	60	57	57
Rainfall (inches)	---	---	0.05	T	T	0.02	0.03	0.14	0.12	0.06	0.06	0.17
Wind direction	Sw.	Sw.	Sw.	Nw.	Nw.	N.	N.	N.	N.	N.	Ne.	Ne.
Movement (miles)	13	11	9	9	7	8	8	9	8	9	13	12

P. m. hourly data for July 8, 1891

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*Mid-night*
Temperature (°F.)	56	56	55	54	55	56	56	56	56	57	57	57
Rainfall (inches)	0.17	0.06	0.06	0.35	0.18	0.06	0.06	0.01	---	---	---	---
Wind direction	Ne.	Ne.	Ne.	Ne.	Ne.	N.	N.	N.	N.	N.	N.	N.
Movement (miles)	10	12	12	12	13	9	9	8	6	6	5	6

There was no thunderstorm on July 8, 1891, and the lowest pressure was 29.75 at 2 a. m.; this was also the lowest pressure during that month. July 1891 was the coolest July of record at Washington. On July 7–8, 1891, a low-pressure center moved from near Memphis, Tenn., eastward across North Carolina and out over the

Atlantic. On the morning of the 8th a high-pressure area was centered over southern Minnesota and frost injurious to vegetation was reported as far south as Fond du Lac, Wis.

The cold weather of September 23, 1904.—On September 23, 1904, a minimum temperature of 36 was recorded at Twenty-fourth and M Streets, the lowest temperature ever recorded in September at this location. The next lowest temperature recorded during September was 38 in 1942 but it occurred at a later time of the month, namely, the 30th. On this morning a temperature of 30 was recorded at College Park, Md. (now in the metropolitan area of Washington). Frost of varying intensities was reported in 16 of the 23 counties of Maryland and in 12 counties of Virginia—in fact, light frost was reported in Surry County of Virginia which lies south of the James River in the so-called tidewater section. The lowest temperature reported from a Maryland station was 27 at Grantsville (elevation 2,400 feet) and from Virginia was 30 at Lincoln (Loudoun County, elevation 500 feet). The pressure was 30.59 on September 23, 1904, at 9 a. m. On the preceding day at 9 a. m. it was 30.64, which is the highest September pressure of record.

The cold weather of May 11, 1906.—On May 11, 1906, a temperature of 33 was recorded at Twenty-fourth and M Streets NW., which is the lowest temperature ever recorded in May. Other low May temperatures were 35 on the 2d in 1945 and 34 on the 1st in 1876, but this last case was during the period when records were kept at the old location at Eighteenth and G Streets NW. On May 11, 1906, temperatures were recorded as follows in Maryland and Virginia: 27 at College Park and Laurel, both in Prince Georges County, Md.; at Lincoln, Loudoun County, 27; at Quantico, Prince William County, 28; at Warsaw, Richmond County, 29; at Dinwiddie and Petersburg, both in Dinwiddie County, 27 and 29, respectively. It is worth comparing this low temperature in the late spring with that of May 12, 1913. On this last date the Twenty-fourth and M Street minimum temperature was 37. The temperature recorded at cooperative stations was as follows: College Park 27, Laurel 30, Lincoln 29, Quantico 30, and Warsaw 30. Thus while the Twenty-fourth and M Street temperature was 4° higher than in 1906 at these five stations, it averaged only 1.5 higher.

The pressures which accompanied these cold mornings in May were not especially high. On May 11, 1906, the highest-pressure reading at Washington was 30.33 and on May 12, 1913, it was 30.34.

Warm January temperatures.—High January temperatures, together with the times of day when they occurred, have been recorded as follows at Twenty-fourth and M Streets NW.:

Year	Day	Time	Temperature
1890	12	4 p. m.	76
1890	13	2 p. m.	73
1906	22	2 p. m.	71
1906	23	3 p. m.	71
1907	7	3 p. m.	76
1911	27	3 p. m.	68
1913	8	11 a. m.	68
1913	17	4 p. m.	68
1914	28	4 p. m.	69
1914	29	4 p. m.	69
1914	30	3 p. m.	72
1914	31	2 p. m.	69
1916	2	3 p. m.	70
1916	26	4 p. m.	69
1916	27	2 p. m.	69
1916	28	1 p. m.	69
1916	31	4 p. m.	71
1927	22	3 p. m.	76
1928	13	4 p. m.	69
1928	15	1 p. m.	69
1929	19	2 a. m.	69
1930	8	3 p. m.	68
1930	9	3 p. m.	70
1932	13	3 p. m.	75
1932	14	4 p. m.	76
1932	15	2 p. m.	77
1933	19	4 p. m.	68
1934	25	4 p. m.	69
1937	8	4 p. m.	69
1937	9	4 p. m.	76
1937	15	4 a. m.	69
1943	16	4 p. m.	68
1943	17	2 p. m.	74
1943	25	3 p. m.	71
1944	26	3 p. m.	71
1944	27	3 p. m.	71
1944	28	2 p. m.	69

The above table includes all days when the temperature rose to 68 or higher.

The warm temperature during the night of January 18–19, 1929.—The high temperature at 2 a. m. January 19, 1929, was preceded on January 14 by cold weather. The daily maximum and minimum temperatures were as follows:

Day	Temperature	
	Maximum	Minimum
14	27	8
15	47	26
16	37	24
17	40	33
18	67	38
19	69	40

On the 18th the temperature rose steadily from the minimum of 38 at midnight (17–18) to the maximum of 67 the following midnight, while the wind was southerly. At 2 a. m. on the 19th the wind shifted to the northwest and the temperature fell. The lowest pressure was 29.55 at midnight January 18–19.

The warm temperature during the night of January 14–15, 1937.—The wind was southerly from 10 a. m., January 13, till 6:30 a. m., January 15, when it shifted to northwest. The minimum temperature in the morning of January 13 was 39 and of the 14th, 46. The temperature rose to 67 by 1 a. m. of the 15th and to 69 at 2 a. m., and remained at this temperature till the wind shifted. The sky was overcast throughout each of these 3 days.

TEMPERATURE CHANGES

Two of the diagrams on page 1 show extreme temperature changes within a 24-hour period and one of the diagrams on page 5 shows the frequency of changes in daily mean temperatures. Naturally, the average change in mean monthly temperatures can be quickly found by subtracting the average temperatures of the 2 months. The following table shows the extreme differences in mean monthly temperatures between 2 consecutive months:

Month warmer (or only slightly colder) than preceding month

	January	February	March	April	May	June
Year	1911	1918	1936	1941	1911	1925
Temperature difference (degrees)	7.7	13.1	12.6	20.8	18.8	16.8

	July	August	September	October	November	December
Year	1878	1895	1921	1879	1909	1923
Temperature difference (degrees)	11.1	4.4	1.6	(−)2.4	(−)2.4	(−)0.1

Month colder (or only slightly warmer) than preceding month

	January	February	March	April	May	June
Year	1912	1934	1932	1907	1915	1918
Temperature difference (degrees)	16.0	14.4	2.9	0.4	(+3.1)	(+1.2)

	July	August	September	October	November	December
Year	1895	1887	1871	1925	1910	1909
Temperature difference (degrees)	1.8	7.3	14.5	20.8	18.8	19.0

NOTE.—Four of the more remarkable temperature changes are discussed below.

The weather of March–April 1907.—The year 1907 is the only one of record when April was cooler than March; the average temperature for these months being 48.8 for March and 48.4 for April. This anomaly was brought about by the weather prevailing during the last 10 days of March when the average temperature was 62.3 and that prevailing during the first 20 days of April when the average temperature was 44.0. On March 22, 23, and 29 the maximum temperature was 90 or higher (on March 23 it was 93) and these days are the only ones in March when a maximum temperature of 90 or over was recorded in Washington. The lowest temperature in April was 23 on the morning of the 2d. On March 22 another record was made at Twenty-fourth and M Streets: The temperature rose from 40 at 7 a. m. to 90 at 3 p. m. This was the greatest rise in temperature within a 24-hour period. At College Park, Md., on this day the temperature rose from 34 in the morning to 88 in the afternoon.

In connection with the temperature of 23 on April 2, 1907, it is worth pointing out that only twice during the period of record has a temperature this low been reached in April: On April 19, 1875, it was 22 and on April 1, 1923, it was 15.

Some of the pressure readings associated with these temperature changes were as follows: On March 22 at 5 p. m. the lowest pressure was 29.75, on March 24 at 4 p. m. it was 29.67. On April 1 and again on April 2 at 9 a. m. it was 30.33.

The temperature warmed up some April 21–30. The average temperature for these 10 days was 57.2. However, May 1907 was the coolest May of record (average temperature 59.2) and June 1907 was the coolest June of record. (The average temperature was 65.9; the average temperature for the first 20 days of June was 61.8.) Interesting comments on the weather of these months will be found in the Maryland and Delaware section of CLIMATOLOGICAL DATA.

The cold wave of March 29, 1921.—The month of March 1921 was the second warmest March since 1870, being exceeded only by March 1945. Moreover, the first 28 days of March 1921 averaged warmer than the same period of March 1945. The coldest temperature of March 1921 was on the 29th and was 26. This temperature coming after a period of unseasonably warm weather caused great damage to fruit blossoms (and hence the resulting fruit crop for the year) in nearby Maryland and Virginia.

The maximum temperature on March 28 at Twenty-fourth and M Streets NW., was 82 at noon and the minimum temperature on the 29th, 26 from 5 a. m. to 7 a. m. This fall in temperature of 56 was the greatest temperature fall in 24 hours or less during the period of record. The lowest pressure on March 28 was 29.76 at 3 p. m. and the highest on March 29 was 30.46 at 11 a. m. On March 30 the pressure was 30.48 at 8 a. m.

At College Park, Md. (Washington metropolitan area) the highest temperature on March 28 was 83 and the lowest on the 29th was 25. On the morning of the 30th when the wind had subsided the lowest temperature at Twenty-fourth and M Streets NW. was 27 and at College Park, Md., 20.

The following note appears in the Daily Local Record on the 30th:

> Killing frost this morning. Heavy damage to fruit reported from neighboring districts of Maryland and Virginia. In the vicinity of the Arlington Experiment Farm, the loss of peaches was estimated at about 50 percent, cherries, 40 to 50 percent, and apples at about 25 percent. Strawberries were also badly injured through northern Virginia. Fruit loss very large in Maryland according to statement of Mr. E. S. Johnston, of the College Park Station. Mr. George Sabine, Montgomery County, Md., reports about 90 percent cherries and plums killed in his vicinity. Less damage to apples.

There are three notes in the MONTHLY WEATHER REVIEW for March 1921, about this cold wave. The first by P. C. Day on page 167, the second by E. H. Bowie on page 169, and the third by J. W. Smith on page 171.

The winter of 1931–32.—There have been two winter seasons since 1870 when March was the coldest month. These were the winters of 1889–90 and 1931–32. In both cases each of the 3 months, December to February, inclusive, was unusually warm; in the first case December 1889 was the warmest December of record and February 1890 was the warmest February of record. November 1889 was about average in temperature; in the second case November 1931 was the warmest November of record, and January 1932 was the warmest January of record. March 1889 had an average temperature of 41.4 and March 1932 had only 40.0. While these were below normal they were not the coldest Marches of record; however, they did contain very cold periods. The coldest 10-day period in March 1890 was the period March 1–10 when the temperature averaged 30.4; that in 1932 was March 6–15 with an average temperature of 26.9.

The coldest temperature of the winter season of 1931–32 was 14 on March 10. The cold weather of March 6–15, 1932, was brought in by a very intense storm. The lowest pressure reading of record for Twenty-fourth and M Streets occurred at 2 p. m. March 6 when the barometer read 28.67. At Norfolk, Va., the pressure fell to 28.35 on this day, and at Cape Henry, 28.32. The lowest pressure reading of record at these places and at Baltimore, Richmond, and Philadelphia occurred on this day.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

THE STORMS OF MARCH 1932

> Following what was, at Baltimore, the warmest winter in over 114 years, a series of centers of low pressure developed over the Gulf of Mexico and the Gulf States, moved northeast with increase in force, and gave Maryland, Delaware, and adjacent ocean regions gales, rain, sleet, and snow. Space does not permit detailed description of these disturbances and for such information the reader is referred to the national MONTHLY WEATHER REVIEW and other publications. The storm of March 6–7 caused the most damage in this section, the gales, particularly in the western portion of Maryland, being accompanied by rain, sleet, and snow, that intensified their effect. At Baltimore, the barometer reached the lowest point in over 62 years of record, being 28.68 inches, sea level, at 2 p. m., March 6.
>
> The damage to communication lines alone was extensive and quite unusual in amount, exceeding $1,000,000, while the grand total of damage from storms during the month is probably in excess of $2,000,000. March 6–7. —— Rain set in over the section in the morning of the 6th, as the storm approached from the southwest, accompanied by increasing northeast winds, which reached gale force at times. With backing of the wind into northwest, as the storm passed over the section and to the northeastward thereof, lowering temperature resulted, the rain changed to sleet and then to snow,

the snow ending during the night. The northwest winds increased to a gale in the afternoon and continued at gale force through the night and on the 7th. The rain was heavy, except in the Allegheny Mountain region, while the snow was light, except moderate to heavy over the western portion of Maryland with depths 3 to 7 inches in the Allegheny Mountain region, 6 to 9 inches in the Blue Ridge Mountain region, and 3 to 6 inches between the two mountain regions. Under the northwest gales the snow drifted badly, to heights of 5 feet or more in the Blue Ridge Mountain region, where hundreds of motorists were marooned and general traffic was interrupted.

Frederick County and adjacent portions of neighboring counties were isolated by the general prostration of communication lines, under the weight of accumulated snow upon the wires and the pressure of the gales against the poles; power lines were also prostrated. Several days to a week or more passed before restoration of service was possible in some districts.

Approximately $1,000,000 will be expended by the Chesapeake & Potomac Telephone Co. for extraordinary repairs, including a wide area in Maryland, Virginia, and West Virginia, necessitating replacement of 21,400 poles, 10,000 miles of open wire lines, and 60 miles of cable. The loss suffered by the Potomac Edison Co. was placed at $75,000, and by the Postal Telegraph Co. at $12,500; that by the Western Union Telegraph Co. has not yet been determined. On the 6th the weather was unusually stormy on Chesapeake Bay. Hundreds of small vessels at anchorage were driven ashore by high tide and gale, and damaged; wharves were also damaged. Five steamers, moored for scrapping at Fairfield near Baltimore, broke away; four were recovered and one sank. Grounding of a steamer at Sandy Point resulted in loss of the entire cargo of 18,000 bunches of bananas. The severe cold wave of 7th to 10th, the only one of the season, that followed in the wake of the snow, caused the death of 10 persons. March 22. —— Two workmen were killed at Baltimore, when a piece of sheet metal on a tank, on which they were standing, was lifted by a westerly gust of gale force, throwing them to the ground 30 feet below. Slight property damage resulted locally over the section. March 27–28. —— High winds and a heavy fall of wet snow in Garrett and western Allegany Counties during the night caused a general prostration of communication lines, resulting in a loss of $500,000. One hundred telephone poles were leveled and roads were blocked by snowdrifts of 7 to 8 feet.

The high northwest winds on the 28th damaged some dwellings and barns, uprooted some trees, and felled some poles in northeastern Anne Arundel, Queen Annes, and Kent (Maryland) Counties. Loss by the Postal Telegraph Co. was estimated at $13,000, that by the Western Union Telegraph Co. has not yet been determined.

The following is copied from the Virginia section:

During March 6 and the forenoon of the 7th, a severe wind, rain, sleet and snow storm caused two fatalities in Virginia, and a property loss estimated at $555,300. The greatest property loss occurred in northern counties and throughout the middle and northern Great Valley, where the damage, particularly to overhead wire systems, was severe. Heavy losses were also reported in the vicinity of Norfolk and around Chesapeake Bay, and minor damage occurred throughout the State.

Some strawberries and tender truck, and the buds of peaches, pears and plums were damaged severely by the low temperatures of the 8th to 10th. Apples escaped serious injury. Most crops made rapid progress during the latter half of the month, and at its close gardens and truck had been planted in many southern localities, and winter grains, pastures, and alfalfa were in excellent condition throughout Virginia.

The cold wave of January 29, 1934.—Since 1905 there have been only four occasions when the temperature fell 50 or more in 24 hours or less. These occasions were: March 29, 1921, which has been referred to above; February 9, 1933, when there was a fall of 52 from the preceding day; January 29, 1934, with a fall of 55, and March 19, 1934, when the temperature fell 50 from the previous day. From this viewpoint the cold wave of January 29, 1934, was the second greatest for the 41-year period of record.

On the morning of January 28 the lowest temperature was 45, the wind was from the south and southwest. The temperature rose to a maximum of 65 from the hours of 2 to 4 p. m. At 4 p. m. rain began and the lowest barometer reading was reached at 4:15 p. m., 29.16. About 5 p. m. the wind shifted to the northwest. The rain stopped at 5:40 p. m. and there had been a fall of only 0.03. The minimum temperature on the morning of the 29th was 10. The speed of the wind for the 12 hours following the shift at 5 p. m. on the 28th averaged 22.8 miles per hour and for the 24 hours following it 22.0. The barometer reading at 8 a. m. on the 29th was 29.96. The barometer continued to rise until 8 a. m. of the 31st when it read 30.45.

This cold wave is most noteworthy because of the persistence of the cold weather which it brought in. February 1934 was the coldest February on record at Washington. The average temperature for the first 28 days of January 1934 was 41.2 while the average temperature for the period January 29–February 28, was 24.0.

Interesting comments on this cold weather will be found in the Maryland and Delaware, the Pennsylvania, and the New York sections of CLIMATOLOGICAL DATA for January and February 1934—more especially those for February.

PRECIPITATION

Notable occurrences of precipitation are here discussed under the headings of snow, sleet and glaze, and protracted precipitation. Heavy rains are mentioned in connection with local flooding below.

SNOW

The greatest accumulation of snow in December has already been mentioned above in connection with the cold spell of December 1880–January 1881. The greatest 24-hour snowfall and the greatest accumulation of snow on the ground for February were likewise mentioned above in connection with the cold spell of February 5–15, 1899. Five additional noteworthy snowstorms are treated below.

The snowstorm of February 16–17, 1900.—Snow began to fall at 7 a. m., February 16, when the temperature was 28; it continued without interruption until 11 p. m., February 17. The total depth unmelted was 14.3 inches and melted 1.03. This was the fourth greatest snowstorm on record.

The snowstorm of January 27–29, 1922.—The greatest snowstorm in the meteorological history of Washington took place from January 27–29, 1922. Notes appear in the Daily Local Record as follows:

January 27: Snow beginning at 4:20 p. m., this date, was exceedingly light and dry, and had attained a depth of about 9.0 inches at 12 midnight.

January 28: (Heavy snowfall continued throughout the day and until after 12 midnight.) There was approximately 18 inches of snow on the ground at 8 a. m. Great confusion in traffic conditions existed through the day, increasing at night. Practically all traffic confined to street railway tracks, which were kept open through the day, but the car service was finally abandoned about 7 p. m.

The depth of snow at 2 p. m. was 25 inches, and 26 inches, at about 7:30 p. m.; 28 inches at 12 midnight. During this storm there occurred a great disaster, about 9 p. m., when the roof of the Knickerbocker Theater, at Eighteenth Street and Columbia Road, collapsed, killing about 100 people and injuring perhaps 100 others.

January 29: The snowstorm abated materially after 9 p. m. of the 28th, but continued as light snow until 12:30 a. m. of this date. The total fall of snow for the storm was 28 inches, which is the greatest of record for this station. The water equivalent was 3.02 inches. An average of about 30 measurements, made in an open field on the Virginia side of the river (Fort Myer), by Mr. H. Lyman,

indicated a fall of 30 inches. Other measurements, taken in the vicinity of the Zoological Park, averaged about 30 inches, running as high as 36 inches in some places. Traffic conditions still in great confusion. Five hundred marines were employed today clearing the tracks at the Washington Terminal Station.

January 30: The tracks of the Capital Traction Co. were cleared yesterday (Sunday), from Georgetown to the Union Station, although many suburban lines are still unable to operate, which is causing great inconvenience to a considerable proportion of the population. Traffic conditions were very bad, confined chiefly to the car tracks, on principal thoroughfares. All side streets practically blocked, with deep snow, except to heaviest motorcars.

January 31: Considerable progress made today in clearing principal thoroughfares of snow. Side streets still badly blocked. Mild weather of today melted snow quite rapidly.

This snowstorm is commonly referred to as the "Knickerbocker Storm" because of the disaster connected with it. There is an article in the MONTHLY WEATHER REVIEW for January 1922 (pp. 21–24) about this storm. A map accompanies this article which shows that Washington was near the center of the heaviest fall of snow caused by this storm.

The behavior of the wind and pressure deserves special note. From 10 p. m., January 22, till 6 a. m., January 30, a period of 176 hours, the wind blew from the east for 6 hours, from the northeast 50 hours, and from the north 120 hours. The lowest pressure was 29.93 inches at 11 p. m., January 28, and the highest was 30.73 at 9 a. m., on January 25. After January 28 the pressure rose to a high reading of 30.61 at 10:30 a. m. on January 30. During the 7-day period of north and northeast winds the average pressure was 30.41 inches. During the 32-hour period while snow was falling the average pressure was 30.10 inches.

The snowstorm of February 7, 1936.—Snow began falling at 11:55 p. m., February 6, with a temperature of 25 and continued falling until 4:45 p. m. of the 7th. During this period of slightly less than 17 hours 14.4 inches of snow fell, the melted amount was 1.01. This was the third greatest snowstorm of record. (See figs. 1 and 10.)

The snowstorm of November 24–25, 1938.—The snow of November 24–25, 1938, was the heaviest ever recorded in November, but it is not the earliest ever recorded in the season for on October 19, 1940, there was a fall of 1.5 inches and on October 30, 1925, there was a fall of 2.2 inches. The snow of 1938 did not entirely melt until December 1 and this established a record for the number of days with snow on the ground for November. The following notes are copied from the Daily Local Record:

November 24, 1938: Seven inches of snow fell on the 24th–25th, breaking all previous Weather Bureau records for November for 24-hour snowfalls and for total monthly November snowfalls. This storm began as rain at 9:30 a. m., 24th, turning to sleet and rain at 11:20 a. m. at which time it began to freeze on autos and other cold surfaces. The pavements did not become slippery until about 6:30 p. m. Snow (mixed with sleet) began 7 p. m., 24th, the sleet continuing until 9:30 p. m. and the snow until 4 a. m. of the 25th. During the evening and night of the 24th, slippery streets caused much trouble to traffic. Streetcars, autos, and busses stalled, causing many traffic jams.

November 25, 1938: Snow on ground at 9 a. m., 7.0 inches. Pavements and sidewalks remained slippery until past midnight. The frozen snow and ice on them melted somewhat from middle forenoon, resulting in a slushy condition. Extreme wind velocity (Dines anemometer) 29 – NW. at 1:10 a. m. The total fall of sleet during this storm was 0.6 inch and the total of snow 6.4 inches. The snow did not completely melt until December 1.

The Virginia section of CLIMATOLOGICAL DATA states that "Snowfall was the greatest ever recorded in November and was seven times the normal snowfall." The State average for November 1938 was 4.2 inches.

The following is copied from the Maryland and Delaware section:

The change to much colder on Thanksgiving Day was attended by heavy snow during the 24th and at night of the 24–25th in western Maryland and by light rain and light sleet during the 24th followed by moderate to heavy snow at night of the 24–25th in the central and eastern divisions. This snowfall was the heaviest of record in November.

Snow depths of the 24–25th increased from 2.5 inches in extreme southern Somerset County northward to 8 to 12 inches over the northern half of the section. Snow flurries occurred in north-central Maryland and light snow fell in southern Maryland and on the Eastern Shore during the night of the 26–27th. Light snow fell on the 27th and snow flurries occurred on the 28th in the Allegheny Mountain region. The monthly average snowfall for the section, 8.3 inches, is 7.1 inches above normal.

The snowstorm of March 28–29, 1942.—Rain began on March 28 at about 4 a. m. and lasted, except for a brief interruption until 8:30 p. m. when it changed to rain and snow mixed and at 10 p. m. the precipitation turned to pure snow. The snow ended shortly before 5 p. m. on the 29th. The total duration of precipitation was 36 hours and the fall 2.05. The duration of snow was about 19 hours and the melted amount 1.58. The snowstorm of March 28–29, 1942, was not the greatest one in March as it was exceeded by the one of March 26–28, 1891, when the fall was 12.0 in a storm that lasted 41 hours and had a total melted amount of 2.44. Nevertheless the snowstorm of March 28–29, 1942, was a heavy snowstorm for Washington as it has been equalled or exceeded only by the falls of March 27–28, 1891; February 11–13, 1899; January 27–29, 1922; February 16–17, 1900; February 6–7, 1936 (which have been mentioned above), and by the ones of January 29–30, 1930, when 11.5 inches fell and December 17, 1932, when 12.0 inches fell. Notable snowstorms later in the season than the one of March 28–29, 1942, have been recorded as follows: April 6, 1889, with 4.0 inches, April 11–12, 1894, with 2.0 inches, April 3, 1915, with 3.5 inches, April 11–12, 1918, with 3.0 inches, and April 1, 1924, with 5.5 inches. The snowstorm of March 28–29, 1942, is notable not only for being the second heaviest in March and the eighth heaviest of record (since 1888) but it is the heaviest fall so late in the season and the greatest fall in 24 hours during March. The following notes are copied from the Daily Local Record:

March 29: The total snowfall for the 28th–29th, 11.5 inches, was the greatest 24-hour fall recorded in March since 1888. The wet snow accumulated to unusual depths on power lines and limbs of trees, causing considerable damage. Many suburban districts were without electric current all day Sunday and for some time Monday. The streets in Washington and vicinity were littered with fallen tree branches and there were many cases in which electric power lines sagged dangerously near the ground. Street car traffic was not much impeded and relatively few accidents were reported. By early afternoon many of the streets had been made quite passable.

March 30: Because of wet, packed snow many pavements and sidewalks were quite slippery in places in the early morning. By the middle of the afternoon and continuing throughout the day, pavements and sidewalks where the snow had not been removed were covered with slush.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

The feature of the month was the phenomenal heavy snow fall of Sunday, the 29th. Heavy rain and light snow fell over the eastern half of the Eastern Shore, heavy rain and heavy snow over the western half of the Eastern Shore and over southern Maryland, very heavy snow over north-central Maryland and Washington County, moderate rain and light

snow in Allegheny County, and light snow in Garrett County. The depths over the extensive area of heavy snowfall increased westward from 5 to 10 inches along the western boundary of Delaware, northward from extreme southern Maryland, and eastward from extreme western Washington County to above 20 inches in northern Anne Arundel, Howard, south-central and western Baltimore, Carroll, eastern and northern Frederick, and northeastern and north-central Washington Counties, with maximum depths of 31 inches at Clear Spring, 32 inches at Westminister, 30 to 36 inches at State Sanatorium, and 36 inches at Edgemont. It was a record snowstorm for March and for so late in the season; the maximum depths were the greatest of record within a 24-hour period. Under the weight of the very heavy snow some branches and limbs were broken from trees and shrubbery was damaged. Some minor property damage resulted in Baltimore.

SLEET AND GLAZE

Both sleet and glaze are common at Washington; outstanding cases are rare. Only one storm of each class has been selected for this section and these are chosen from among those of rather recent occurrence.

The sleet storm of February 19–20, 1927.—On the night of February 19–20, 1927, 4.0 inches of sleet (ice pellets) fell. The sleet lasted almost exactly 12 hours. It was both preceded and followed by rain, the total duration of continuous precipitation being 36 hours and 20 minutes; and the total fall of rain and melted sleet was 2.10 inches. This was the greatest sleet storm since the one of February 3–6, 1920, when 4.5 inches of sleet fell in a storm which lasted 61 hours. No fall of sleet since February 19–20, 1927, has been so great as either of these two.

Notes appear in the Daily Local Record as follows:

> February 19: Rain of this date changed to sleet at 4:15 p. m., continued through the night, interfering very materially with street traffic. The ground was covered with about 2 inches at 8 p. m., and about 3 inches at 12 midnight. Considerable melting in progress during the afternoon and evening.
>
> February 20: Sleet continued until 4:10 a. m. of this date, then changing again to rain. The rain froze to trees and shrubbery, streets and walks, making unsafe and slippery conditions.

The pressure was 30.03 at 11:30 a. m., February 19, and fell more or less steadily to a low of 29.65 at 7 a. m., February 20. The wind was mainly from the northeast.

The following note from the Maryland and Delaware section of CLIMATOLOGICAL DATA is also of interest:

> "Northeaster" of the 19th–20th. The high winds attending this storm were of gale force during the night of the 19th–20th over the eastern portion of the section. Extremely high tide resulted on the Atlantic coast. The tide was also high along the western shore of Chesapeake Bay. The storm produced heavy sleet and heavy snow, 10 to 17 inches, in western Maryland; from the Blue Ridge Mountains eastward to the Atlantic coast heavy rain and heavy sleet fell in the northern and central portions of the section, and heavy rain in the southern third. The fall of sleet in north-central Maryland was 3 to 7 inches; in southern Maryland and on the Eastern Shore, trace at the southern limit to 3 inches at the north. In western Maryland, train service was delayed by snowslides and drifts, roads were blocked, and 783 telephone poles were blown down. Along the Delaware coast, considerable damage was caused by the gale and the high tide as far north as Delaware City. The high water ranged from a 20-foot tide on the southern Delaware coast to 9.5 feet above mean low water at Delaware City. Some cottages were wrecked, some small bridges were floated, a part of Rehobeth pier was washed away, and small craft were beached. The new east entrance to the Chesapeake and Delaware Canal was damaged, and wash-outs occurred along the banks of the canal between Delaware City and St. George. At Delaware City and vicinity the damage was estimated at $200,000. Elsewhere over the section, locally, some trees were uprooted and property was slightly damaged. The heavy fall of sleet of the 19th–20th disappeared on the 21st or 22d on the Eastern Shore and in southern Maryland and on the 23d or 24th in north-central Maryland, except on the 26th in the Blue Ridge Mountain region. In western Maryland the heavy fall of sleet and snow of the 19th–20th had not disappeared by the close of the month.

The ice storm of January 22–23, 1935.—A notable instance of rain freezing as it fell (also termed "glaze" or "ice storm") was the one of the night of January 22–23, 1935. Precipitation began in the form of rain about 11 p. m. on January 21 when the temperature was 51. Precipitation continued as rain until 12:40 p. m., January 22, when it changed to rain mixed with sleet and the temperature had fallen to 34. At 6:30 a. m., January 23, when the temperature was 28 the rain and sleet turned to snow. The snow ended at 11:40 p. m., January 23, with a temperature of 19. During this 49-hour period the water equivalent of the rain, sleet, and snow which fell was 2.85 inches. The anemometer cups froze and the sunshine recorder failed due to being covered with ice. Notes appear as follows in the Daily Local Record:

> January 22, 1935: Streets and walks slippery and dangerous at night, due to rain freezing as it fell.
>
> January 23, 1935: Streets and roads in dangerous condition, due to snow and ice. Great damage to telephone poles and wires in northern Virginia has been reported by Chesapeake & Potomac Telephone Co. In this section, about 2,500 poles were down. Gust velocity of wind, 37 miles N at 2:50 p. m. Snow on ground at:
>
> 9 a. m., 1.0 inch.
> 10:45 a. m., 3.0 inches.
> 12 noon, 5.5 inches.
> 1 p. m., 6.5 inches.
> 2:15 p. m., 7.5 inches.
> 4 p. m., 8.0 inches.
> 8 p. m., 11.0 inches.
> 12 midnight, 11.3 inches.

The January 1935 issue of the Maryland and Delaware section of "CLIMATOLOGICAL DATA has the following statement: "More than 1,000 poles were felled on the Eastern Shore and several hundred poles were felled in southern Maryland under the weight of heavy glaze (ice-coat) upon wires on the 22d–23d." The Virginia section mentions that three Norfolk, Va., barges foundered during this storm with the loss of 13 men. (See figs. 6, 7, and 8.)

PROTRACTED PRECIPITATION

Periods of precipitation lasting 48 hours or more are reasonably common, but most of the time there are interruptions with fair weather lasting several hours. The following list gives the cases of continuous precipitation of 48 hours or more for the period of records at Twenty-fourth and M Streets NW.:

Year	*Month*	*Day*	*Duration (hours)*
1889	April	25–27	56
1894	July	21–24	55
1899	February	11–13	56
1902	----do	20–23	55
1903	April	13–15	48
1906	October	18–20	52
1907	January	15–17	48
1912	September	23–25	50
1914	December	5–8	59
1918	April	8–12	94
1920	February	3–6	61
1929	April	15–17	51
1935	January	21–23	48
1935	September	4–6	54
1937	April	24–27	57
1938	----do	6–8	48
1940	November	13–15	54
1946	March	17–19	48

The precipitation of 56 hours for February 1899 has already been mentioned above under "cold spells"; that

of 48 hours for January 1935 likewise has been mentioned under "Glaze." That of 54 hours for September 1935 will be discussed below under "Floods." Those for December 1914, April 1918, and February 1920 will be treated here.

The protracted precipitation of December 5–8, 1914.—Rain began at 6 p. m., December 5, and continued without interruption till 4:25 a. m. of the 8th. Some sleet and snow was mixed with the rain on the 7th. The total precipitation during this 59-hour period was 1.64.

No precipitation fell on December 3, nor until 11:50 p. m., of the 4th. Then there was precipitation each day through the 11th. The amounts and duration by days are given below:

Day	Amount	Duration (hours)
5	0. 14	17
6	1. 01	24
7	. 57	24
8	. 01	11
9	. 02	10
10	. 19	18
11	. 04	19

Each of these days was overcast and the wind was from a northerly direction.

The protracted precipitation of April 8–12, 1918.—The longest duration of continuous precipitation at Twenty-fourth and M Streets was from 5:15 p. m., April 8, 1918, till 2:45 p. m., April 12, 1918.

From the beginning of the rain till 1 a. m., April 9, the wind was variable in direction and light. The next 5 hours it increased in speed and blew from the northwest. Then, from 6 a. m., April 9, till 11 a. m., April 12, a period of 77 hours, the wind blew from the east 2 hours, from the northeast 37 hours, and from the north 38 hours. At 11 a. m., April 12, it shifted to the northwest.

The daily maximum and minimum temperatures and amounts of precipitation are as follows:

	Temperature		Precipitation
	Maximum	Minimum	(Inches)
April 8	61	45	0. 22
April 9	53	37	1. 44
April 10	42	38	1. 57
April 11	38	32	. 46
April 12	38	32	. 35

On the 11th and 12th, 3 inches of snow fell as well as a trace of sleet. The highest pressure for the month was 30.50 at 10 a. m., on April 7. The pressure when the precipitation began was 30.16 inches and the lowest pressure during the period of precipitation was 29.81 at 2:30 p. m. on the 12th. The average pressure while precipitation was falling was 30.00.

The protracted precipitation of February 4–6, 1920.—Rain began at 4:45 p. m. on February 3, and rain, sleet, or snow continued steadily until 5 a. m. February 6. There was some intermittent precipitation after this time on February 6. The wind blew from the northeast from noon February 3 to 7 a. m., February 5, then from the north till 11 p. m. on the same day and then from the northwest till the end of the intermittent precipitation. The highest pressure for this month of February was 30.92 at 8 a. m. on the 1st. The pressure fell steadily until 8 p. m. of February 6 when it was 29.63. The following notes are from the Daily Local Record:

> February 4: The fall of sleet, which continued throughout the day, after 9:15 a. m., was about 3 inches deep at midnight causing some interference to traffic.
>
> February 5: Rain during the early morning froze the trees, fences, and other objects covering everything with a film of ice. The sleet on the ground owing to rain freezing on surface and crusted to a depth of about one-half inch. Traffic conditions bad on all streets.
>
> February 6: From nine measurements of the depth of snow and sleet on the ground taken with a snow sampler, in the immediate vicinity of the Weather Bureau Station, after the end of the snow this morning, the following results were shown:

	Inches
Average depth on ground	6. 0
Average water equivalent	2. 17
Average density	. 366

> Traffic badly hampered on all streets today.

FLOODS

Washington is so situated that it is subject to floods of four different types. First, it is subject to local flooding by locally heavy rains as are all places over the earth, even deserts. Secondly, as it is on a river, the Potomac River, it is subject to floods when the river overflows its banks. This happens when there has been generally heavy rains over the entire Potomac Basin. Third, as occasionally cold winters occur when ice forms on the Potomac River it is subject to floods caused by ice gorges when the ice breaks up. Fourth, while Washington is more than 100 miles from the Atlantic Ocean by air, more than this as a ship or boat would travel, nevertheless the Potomac River at Washington is at tide water. The Potomac River is an estuary as far as Key Bridge. The lower portions of the city are therefore subject to floods caused by tidal waves.

LOCAL FLOODING

Local flooding is liable to result whenever heavy rains fall in a short time. The following list includes all cases where more than 2.00 inches of rain fell in 1 hour at Twenty-fourth and M Streets NW., since 1905:

Year	Month	Day	Amount
1905	July	5	2. 77
1906	August	24	2. 48
1912	July	14	2. 61
1917	June	14	2. 48
1922	July	13	2. 79
1922	September	2	2. 38
1926	----do	2	2. 15
1934	----do	12	3. 42
1939	----do	4	2. 85
1940	July	23	2. 23
1944	August	2	2. 18

Rains of this type are usually caused by thunderstorms although that of August 1944 was caused by a tropical hurricane. The cases of July 1905 and September 1934 are discussed here.

The next list includes all cases where more than 4.00 inches fell in 24 hours at Twenty-fourth and M Streets NW., since 1905.

Year	Month	Day	Amount
1905	July	5	4. 22
1922	September	2	5. 16
1924	----do	29	4. 53
1928	August	11	7. 31
1933	----do	23	6. 40
1934	September	12	4. 25
1935	----do	4	4. 49
1939	----do	4	4. 49
1942	August	8	6. 05
1944	----do	2	6. 15

It will be noted that five of the cases in this list also appear in the list of rains of 2.00 or more in 1 hour; both lists combined only have a total of 16 cases. The rains of September 1924, August 1928, August 1933, September 1935, and August 1944, were associated with tropical hurricanes. The rain of August 1933 will be treated later under "Tidal Waves." Four cases, namely, August 1928, September 1935, August 1942, and August 1944, will be treated here.

The thunderstorm and rain of July 5, 1905.—The following is copied from the Daily Local Record:

> Thunderstorm from the west; first thunder heard at 5:10 p. m., last at 1 a. m., 6th. Very heavy rain from 7:25 p. m. to 8:38 p. m. during which time 3.26 inches fell. From 7:29 p. m. to 8:29 p. m., 2.77 inches fell. Streets much flooded; deposit of sand and mud on car tracks impeded traffic on streetcar lines. In the southern and eastern parts of the city the rain was light during the storm only a trace having fallen in some sections till later in the night. Very dark clouds and a number of sharp flashes of lightning accompanied by heavy peals of thunder.

The rain of August 11–12, 1928.—Rain fell continuously from 6 a. m., August 11, 1928, to 9:45 p. m., August 12 (with the exception of 45 minutes on the afternoon of the 12th). The measured depth at Twenty-fourth and M Streets NW. was 5.97 inches on the 11th and 2.70 inches on the 12th, making a total of 8.67 inches in less than 40 hours. No other period of 72 hours or less has had a rainfall amount exceeding this value.

The Daily Local Record has notes as follows:

> August 11, 1928: Thunderstorm, southeast: First thunder, 5:35 p. m., last heard, 7:45 p. m.
>
> August 12, 1928: The storm of August 11–12 was the heaviest on record —— 8.67 inches falling between 6 a. m., of the 11th, and 9:40 p. m., of the 12th. 7.31 inches fell in the 24-hour period from 6:15 p. m., 11th, to 6:15 p. m., 12th. Streets were submerged and cellars flooded in all sections of the city. Scores of people were removed from houses in Congress Heights. Traffic was most seriously interrupted east and south of Washington due chiefly to the wash-out of bridges. Sixty persons were trapped at Waldorf, Md., being forced to spend the night in automobiles. Potomac park was flooded, in places, to a depth of more than 1 foot. No fatalities reported.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

> Northeast Wind and Heavy Rainstorm of 11th–12th
>
> A tropical storm passed inland on the east-central Florida coast on the 8th and moved northward over the South Atlantic States. It overspread the Maryland-Delaware section on the 11th and continued on the 12th, the center moving northeastward over extreme southern Maryland. The northeast wind reached gale force during the night of the 11th–12th over the Eastern Shore and Chesapeake Bay and was high between the Bay and the Blue Ridge Mountains. It caused high seas on Chesapeake Bay and high tide along the western shore and low tide along the eastern shore of the Bay. Many small vessels were torn from their moorings; some were damaged, others were swamped. Two barges broke adrift in the Bay. A tug foundered in Delaware Bay, and two men therefrom were drowned. At Ocean City 500 feet of boardwalk was undermined and several hotels were slightly damaged. Uprooted trees, in falling, broke wires, interrupting telephone, and electric-light services. Corn fields were flattened. The rainfall was exceptionally heavy in the District of Columbia and southern Maryland, and thence northeastward across the section. Over this area the totals were between 6 and 10 inches, except between 10 and 14 inches over the northern portion of southern Maryland. At Cheltenham, Prince Georges County, the total fall for the storm was 13.25 inches, with a maximum of 11.66 inches in 24 hours. This is next to the greatest 24-hour fall of record; namely, 14.75 inches on July 26–27, 1897, at Jewell, Anne Arundel County, during a local thunderstorm. The heavy rainfall caused streams to rise above their banks and many small bridges were washed away in southern Maryland and on the northern Eastern Shore. The bridge at Upper Marlboro, Prince Georges County, was washed away, and 18 bridges were washed away in Charles County. A dam gave way at Millington, Kent County, and another at Wye Mills, Talbot County. Roads were damaged, and wash-outs occurred along railroad beds in southern Maryland and on the northern Eastern Shore. In western Maryland the storm was but little felt. Loss by wind and rain estimated at about $1,000,000.

This rain was preceded by clear or partly cloudy skies on the 8th, 9th, and 10th. The barometer was remarkably steady on these 3 days and also the morning of the 11th; the barogram shows the diurnal variation very clearly. The lowest pressure for the month was 29.66 inches on August 11th at 11 p. m.

This rain was associated with a tropical hurricane which moved across the Bahamas and Florida. An article about it appears on page 411 of volume 56 of the MONTHLY WEATHER REVIEW.

The wet weather of September 1934.—September 1934 was the wettest month of record at Twenty-fourth and M Streets NW. An interesting fact about this is that no other station in either Maryland or Virginia had as much rainfall this month as the Twenty-fourth and M Streets station in Washington. While it was the wettest month, neither the 72-hour or the 48-hour maximum precipitation was established at this time. In fact the only other maximum precipitation records established this month were those for 1 hour and for 30-minute durations, and these were on the 12th during a thunderstorm. Except for the excessive precipitation the thunderstorm was not unusual for no hail was observed and the highest wind was a speed of 18 miles per hour. Local flooding was caused by the heavy rainfall this day.

The wet weather of September 4–6, 1935.—The second heaviest rainfall in a 48-hour period at Twenty-fourth and M Streets NW., was from 6 a. m., September 4, to 6 a. m., September 5, 1935, and amounted to 6.70 inches. The second heaviest rainfall in a 72-hour period begins 24 hours earlier and amounts to 6.83 inches. This rainfall was caused by a tropical hurricane. An article about it appears on pages 269–271 of the MONTHLY WEATHER REVIEW for 1935, but there is no reference to the effect this hurricane had at Washington. The wind was relatively light at Washington. The extreme wind speed was 19 miles per hour and this was at the time the rain stopped on the 6th; the average wind speed during the rain was less than 6 miles per hour. No thunderstorm accompanied this hurricane.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

> The excessive rain of September 4–6, 1935, in Maryland and Delaware. The Florida hurricane that developed southeast of the Bahamas August 30, 1935, recurved over the Matacumbe Keys, and, after passing the Florida coast east of Apalachicola, moved northeast over the Carolinas and Virginia, crossing the lower Chesapeake Bay north of the Capes the night of September 5. It lost most of its wind force in its course over land, so that unusual gales and very high tides did not occur. In Maryland and Delaware though, on the coast, winds were estimated at 50 to 55 miles per hour. Over the North Atlantic, winds of hurricane velocity were again attained. A full description of the hurricane will appear in the national MONTHLY WEATHER REVIEW. The disturbance was preceded by low pressure and unsettled, humid weather in the Atlantic States, with rains beginning as early as September 1 in the Middle Atlantic States. An unusual feature was a local tornado near Farmville, Va., on the 5th, and one on the 4th and another on the 5th in southern Maryland. Excessive rains attended the northwest quadrant of the disturbance, falling on the 4th to 6th in Virginia and Maryland, the estimated damage to crops in Virginia, principally corn, being $1,650,000, and to highways, $450,000. In Maryland and Delaware the damage was confined to a southern area comprising about two-thirds of Delaware and one-third of Maryland. The damage was especially heavy in Talbot, Caroline, and Dorchester Counties of Maryland, where rain of 15 to 16 inches occurred within a period of 52 hours. In Dorchester and Caroline Counties the damage to tomatoes alone is estimated at $300,000 by a leading canner. At Federalsburg, Caroline County, flood waters caused damage estimated at $500,000 and many people were made homeless temporarily. Some other estimates of damage are as follows: to the Pennsylvania Railroad, $155,000; to matured crops in Calvert County, $25,000; to tobacco, chiefly in Charles County, $25,000; in the vicinity of Greenwood, Del., crops, etc., $14,000; crops in the vicinity of Salisbury, Md., tomatoes 80 percent, snapbeans 20

percent, sweetpotatoes 25 percent, cut hay 50 percent, standing hay 20 percent, field corn 20 percent, clover crops in some places completely washed out, total cash damage unknown; State roads in Maryland, $175,000; roads in Delaware, $150,000; Seaford, Del., vicinity, 7,000 acres corn, 3,000 acres tomatoes, 1,000 acres soybeans, destroyed or damaged; Caroline County, many mill dams, etc., total loss approximately a million dollars. The entire loss was so general and widespread in the counties affected that it is impracticable to give a close estimate of it. It is probably around $2,000,000. The rainfall was the greatest of record in any one storm in the following counties: Charles, St. Marys, Prince Georges, Calvert, Dorchester, Wicomico, Somerset, Talbot, Caroline, and Queen Annes in Maryland, and Sussex and Kent in Delaware. Some total amounts of rain in 51 to 52 hours were as follows, the measurement being made with standard Weather Bureau gages: Easter, 16.63 inches; Cambridge, 15.15; Ridgely, 14.56; Salisbury, 12.10; Solomons, 11.39; Princess Anne, 12.10; Bridgeville, Del., 12.60; Milford, Del., 11.89.

The rain of August 8–9, 1942.—This rain was not associated with any tropical hurricane and neither was any thunderstorm observed on these days. The following is copied from the Daily Local Record:

> The almost continuous rainstorm that began 5:12 p. m., August 7, and ended 2:50 p. m., August 9, was one of the heaviest August rainfalls at Washington since 1871, when the records began. 6.04 inches fell in the 24-hour period, 3:20 a. m., 8th to 3:20 a. m., 9th. This 24-hour rainfall was exceeded only once during preceding Augusts, viz, on August 11–12, 1928, when 7.31 inches fell. The heavy rain caused some damage to crops, inundated lower sections of the District, flooded many basements and blocked auto traffic on some streets. Light fog n. a. to 2:30 p. m.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

> Heavy rains of the 8th–9th yielded 3 to 6 inches in southern and north-central Maryland. Flood waters from the Anacostia River were 4 feet deep in the business section of Bladensburg and forced 30 families from their homes at Edmonston, west of Hyattsville. The highway near Upper Marlboro and the highway 6 miles west of La Plata were covered by 2 to 3 feet of water. Homes and the airport fields at Dundalk were flooded. Parkton was inundated by flood waters 10 feet deep; homes and buildings were flooded.

The rain of August 2–3, 1944.—The following is copied from the Daily Local Record:

> Firemen and sewer department employees today continued pumping water out of hundreds of basements flooded by yesterday's all-day torrential downpour, the heaviest in 2 years, which forced approximately 450 persons from their homes, disrupted traffic and marooned thousands in homes, offices and stores. Several cars in Silver Spring were damaged when a brick wall at the Wolfe Motor Co. on East-West Highway was loosened by the rain and caved in, police reported. Thirty-five families on Valley Street SE., near Anacostia High School, were removed to the school, while others were rescued from flooded houses in the 3300 block of Croffut Place SE. Streets here were converted into miniature canals by the driving rain. Government employees, many of them removing their shoes, sloshed through 2 feet of water at Constitution Avenue and Fourteenth Street NW. At many intersections Constitution Avenue looked like a roaring stream during the downpour. The avenue was practically deserted of automobiles, except for taxicabs jammed by stranded persons going home. Elsewhere throughout the city bus and streetcar traffic was frequently tied up with passengers in many cases forced to wade in foot-deep water as they left the vehicles. Metropolitan police reported that the hardest-hit sections were the low-lying area around Gallinger Hospital on the Anacostia River, the municipal fish wharf where a storm sewer top was washed off as the water in it backed up, and the blocks in Half Street SW., between 700 and 1000. Throughout the night weary firemen answered emergency calls from householders whose basements had been flooded. By 9 a. m. today 200 complaints had been answered.

POTOMAC RIVER FLOODS

Four floods have been selected for discussion. Besides those mentioned here notable floods took place in October 1896, April 1937, and March 1924.

The flood of May 31–June 1, 1889.—The following note about this flood and the weather accompanying it are copied from the Daily Journal:

> May 30, 1889: Cloudy, dense fog in morning. Fresh and brisk southeast winds. Thunderstorm 3:20 to 6:45 p. m. moving from southeast to northwest. Wind before storm southeast, temperature 80.3. Wind after storm southeast, temperature 70.5. High wind reached velocity 28 miles, extreme velocity 30 miles. Rain excessive (1.42 inches) from 3:20 to 6:45 p. m.
>
> May 31, 1889: Cloudy. Excessive rain from midnight to midnight amounting to 2.98 inches; cool. Great damage to the farming interests from heavy rains during the month in the vicinity of Washington.
>
> June 1, 1889: Heavy rain during the night. Potomac River rising rapidly; great danger of high water. People preparing for it. Cleared away in the morning. Fresh northwest wind.
>
> June 2, 1889: Cloudless. The river reached its highest point about the middle of the day. The water was about as high as ever before. Great damage along the river front and lower part of the city. A span out of the Long Bridge.

The flood of May 13–14, 1924.—The following is from the Daily Local Record:

> The second great flood in the Potomac River reached a crest stage of approximately 12.2 feet, at high tide; 3:44 a. m., this date—the most destructive flood in the lower river since 1889. Heavy property losses were sustained at Cumberland, Harpers Ferry, Point of Rocks, and in the vicinity of Washington, and much damage was done to the Chesapeake & Ohio Canal. Total losses estimated at $1,000,000, exclusive of damages to canal. No loss of life has been reported. Crest stage at Cumberland, 13.8 feet, 3 p. m., May 12. Crest stage at Harpers Ferry, 27.6 feet, 9 a. m., May 13 (9.6 feet above flood stage).

The following is from the Maryland and Delaware Section of CLIMATOLOGICAL DATA:

> As a result of moderate to heavy rains on May 7 and 8, over the Potomac and Shenandoah watersheds a moderate flood occurred at and immediately below Harpers Ferry, W. Va., during the night of May 9–10. Steady rain that set in again on May 11 over the now thoroughly saturated watersheds resulted in the most extensively destructive flood in the lower Potomac since 1889. Near 9 a. m., on May 12, Cumberland, Md., reported a stage of 12 feet (4 feet above flood stage), with the Potomac rising and Wills Creek flooding a portion of the city, and at about the same hour reports from Riverton, Va., on the Shenandoah River indicated a considerable rise (though the flood stage was not yet reached) in that river. The crest occurred at Cumberland, Md., with 13.8 feet at 3 p. m. on May 12, and a slow recession of water began at that place. Rains stopped in the afternoon of the 12th, but a steady rise continued below Cumberland and in the Shenandoah at Riverton, finally reaching a stage of 34.0 feet (12 feet above flood stage) at the latter place at 8:30 p. m. of the 12th, and of 27.6 feet (9.6 feet above flood stage) at Harpers Ferry at 9 a. m. of the 13th. In the early morning of the 13th the flood stage of 8 feet was passed at Washington, where the rise continued steadily to a crest of approximately 12.2 feet at high tide, 3:44 a. m., May 14. No fatalities were reported, except one unconfirmed newspaper statement that the body of a man had been washed ashore at St. Johns Run, Md. Losses were approximated at $35,000 each for Cumberland, Md., and Harpers Ferry, W. Va., and $15,000 for Point of Rocks, Md. It is probable that $1,000,000 will cover the total damage of the flood, exclusive of that done the Chesapeake & Ohio Canal. Western Port, Md.—The damage from the May flood is not to be compared with

that of the March flood. The most serious damage was the washing out of the temporary bridge between Piedmont and Western Port, causing a loss of $10,000 and great inconvenience. Cumberland, Md., and vicinity, were just beginning to recover from the effects of the flood of March 29, when visited by the flood of May 12. The water during this flood did not reach within 4 feet of the height of that of March 29. The flooded sections of the city were the same as during the first flood, but the water was not so deep. Paw Paw, W. Va.—The water was 4 feet higher in May than in March, and 300 acres of crops were flooded. Great Cacapon, W. Va.—The water was 4 feet higher in May than in March. Not much loss here. Hancock, Md.—Losses from the May flood not great. Sleepy Creek, W. Va.—20 inches more water in May than in March. Not much loss. Shepherdstown, W. Va.—River 2 feet higher in May than in March. Harpers Ferry, W. Va.—No comparison between the March and May floods. Losses in May were terrific against practically no loss in March. Great Falls, Md.—Heavy damage from May flood to Chesapeake & Ohio Canal. Contractor on new Washington, D. C., aqueduct experienced losses of several thousand dollars.

The flood of March 19, 1936.—(See fig. 18.) The highest water stage of record at the Leiter gage on the Potomac River near Washington (above tide water) was on March 19, 1936.

The following table is taken from page 146 of the MONTHLY WEATHER REVIEW for 1936, volume 64:

Station	River	1936 stage	Previous record	
			Stage	Year
Hancock, Md	Potomac	47.6	39.7	1889
Harpers Ferry, W. Va	do	36.5	36.0	1889
Washington, D. C	do	19.8	19.5	1889

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

The River Floods of March 1936

The unusually cold winter of 1935–36 caused heavy ice in practically the entire Potomac River system; the streams were frozen, except the swiftly running water, over a period of several weeks in January and February. In addition to the heavy ice in the rivers the entire drainage basin was covered with snow averaging more than 15 inches in depth. Several days of mild weather and warm rains late in February and early in March of this year caused moderate rises and some gorging with the break-up of ice. Crest stages, due to this cause, were well below flood stage at all points, except at Sycamore Island, Md., where the crest was 1.4 feet above flood stage. Some damage occurred to bridges in the Shenandoah River from ice gorging, but elsewhere the damage was slight. By March 16 all streams were falling although the stages were several feet above normal. On March 17 a storm that originated in Texas 2 days before had moved to south-central North Carolina and was causing general rains over the Middle Atlantic seaboard and the upper Ohio Basin. These rains were unusually heavy in the upper portion of the Potomac Basin where amounts in excess of 4.00 inches occurred in less than 12 hours over a large area. The 48-hour amounts over the entire drainage basin of the Potomac ranged from slightly less than 1.00 inch over the lower reach to more than 5.00 inches over the headwaters. The occurrence of a period of mild thawing weather of several days' duration just prior to the heavy rainfall left the soil in a well-saturated condition and the percentage of run-off was unusually high. This, coupled with the fact that the rivers were somewhat above normal stage when the heavy rainfall began, gave the most disastrous Potomac River flood since records began. From below Cumberland, Md., to Washington, D. C., the gage heights exceeded the flood of 1889. Practically all towns along the rivers suffered inundation to some extent. Numerous bridges were wrecked and carried away; many miles of highway and railroad tracks were washed out and badly damaged. A few persons were drowned, but the loss of life was not great, considering the magnitude of the flood.

The Flood of October 17, 1942

On October 17, 1942, the highest water stage of record was reached at the Wisconsin Avenue gage on the Potomac River at Washington. An article about the flood appears on page 240 of the MONTHLY WEATHER REVIEW for October 1942. The following table is copied from that article:

Summary of flood stages in Potomac Basin for flood of October 1942

River and station	Miles above Washington	Years of record	Maximum flood of record			Maximum during flood of October 1942		
			Date	Time [1]	Stage (feet)	Stage (feet)	Date	Time [1]
North Branch of Potomac, Cumberland, Md.	196	41	Mar. 17, 1936	11:30 p. m.	29.1	24.0	15	4 p. m.
South Branch of Potomac, Springfield,[2] W. Va.	193	18	Mar. 18, 1936	5:30 a. m.	34.2	21.1	16	5:30 a. m.
North Fork of Shenandoah, Cootes Store, Va.	188	18	Mar. 17, 1936	8:00 p. m.	23.25	25.2	15	3 p. m.
South Fork of Shenandoah, Lynnwood, Va.	198	13	Mar. 18, 1936	4:00 a. m.	26.6	27.2	15	8:15 p. m.
Shenandoah, Riverton, Va.	118	35	do	10:00 a. m.	37.5	[3]46.0	16	[4]4 a. m.
Potomac:								
Hancock, Md	127	18	do	6:00 p. m.	47.6	36.6	16	3 p. m.
Williamsport, Md.	98	11	do	10:00 p. m.	48.6	36.1	16	7 p. m.
Harpers Ferry, W. Va.	60	52	Mar. 19, 1936	5:00 a. m.	36.5	33.8	16	6 p. m
Washington (near), D. C. (Leiter gage).	6	13	do	4:45 p. m.	28.1	26.9	17	5:45 a. m.
Washington, D. C. (Wisconsin Ave. gage).	0	76	do	7:00 p. m.	17.2	17.5	17	7 a. m.

[1] Eastern standard time.
[2] Gage heights from U. S. Geological Survey gage.
[3] From flood marks.
[4] Approximate.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

The Potomac River Flood of October 15–17, 1942

The crest of this flood was several feet below the crests of the June 1889 and March 1936 floods, but several feet above the crest of the October 1937 flood. It reached Cumberland at 6 p. m. of the 15th; Hancock at 5 p. m., Williamsport at 8 p. m., and Harpers Ferry, W. Va., at 7 p. m., of the 16th; and Washington, D. C., at 8 a. m. of the 17th. At Cumberland downtown streets were covered with 3.5 feet of water; damage estimated at $50,000. At Hancock the main business street was covered with 8 feet of water; damage estimated at $10,000. At Williamsport the flood spread over the lowlands to a distance of 4 miles from the river; damage estimated at $5,000. Two homes were carried away at Harpers Ferry, W. Va. At Point of Rocks several houses were lifted from their foundations. A number of water-front shacks were destroyed at Brunswick. The water was 6 feet deep at Point of Rocks, and 7 feet deep at Brunswick over the tracks of the B. & O. Railroad. The number of families forced from their homes by the flood were: Cumberland, 350; Ridgely, W. Va., 250; Hancock, 40; Williamsport, 12; Harpers Ferry, W. Va., 30; and Point of Rocks, 40. At Washington, D. C., 1.5 feet of water covered Maine Avenue along the water front for 1 hour, slight damage was caused at the navy yard, and hundreds of homes in Georgetown were flooded. The B. & O. Railroad suffered property damage of $52,125 and rolling-stock damage of $24,450 in Maryland. Streams were in flood on the 16th in north-central and southern Maryland. The boulevard in Bladensburg was covered by 6 feet of water by the flood from the Anacostia River. Repairs to highways in Maryland cost $85,865.

The following is copied from the Virginia section:

October 1942 was the fifth wettest of record, but the rainfall was unevenly distributed. At Fredericksburg, Manassas, Mount Weather, Riverton, Winchester, and Woodstock, it was the wettest month of record, and at six other stations it was the wettest October. At Big Meadows, in Madison County, 12.30 inches of rain fell during the 24

hours ending at 4:30 p. m. on October 15. This is probably the greatest 24-hour rainfall ever recorded in Virginia. Torrential rains in central and northern Virginia from the 12th to the 16th caused one of the worst floods in the history of the State. Little damage occurred along the James except to crops in the river bottoms, but all of the streams north of the James reached stages not equaled for more than 50 years. Complete figures covering the damage are not yet available, but the total will be several millions of dollars. At Fredericksburg alone the damage was estimated at $2,000,000. Numerous highway and railway bridges were washed away. County agricultural agents estimated that 1,000 miles of fence was destroyed. About 1,300 people were made homeless in Albemarle, Spottsylvania, Stafford, and Warren Counties. One death was caused by the flood. Traffic of all kinds was interrupted for 3 or more days. Crops were adversely affected. Too much rain for fall harvesting severely damaged peanuts, cotton, sweetpotatoes, soybeans, and late hay. Shocked corn was damaged. The heavy rains caused nearly a million bushels of apples to drop before they could be picked. Preparation of soil and seeding small grains made little progress.

The meteorological conditions associated with the heavy rain which caused this flood are of special interest. The warmest temperature at Twenty-fourth and M Streets for this month of October was 81, on October 9. From 5 a. m., October 10, to 10 p. m., October 17, a period of 185 hours, the wind blew from the east 13 hours, from the north 27 hours, and from the northeast 145 hours. Rain initially began at 1:55 a. m., October 13, and finally ended at 7:50 a. m., October 17. The number of hours with rain, the total amount of rain and the mean temperature are given in the table below:

Date	Precipitation Hours	Precipitation Amount (inches)	Mean temperature (°F.)
Oct. 13	19	0. 80	57. 8
Oct. 14	20	1. 51	64. 5
Oct. 15	21	2. 59	67. 2
Oct. 16	24	1. 04	66. 7
Oct. 17	8	. 33	61. 8

October 15 was the warmest day of the month when the average temperature was as shown in the above table. The maximum temperature was 69 and the minimum 66. The pressure was relatively high while the rain fell. (See figs. 19 to 27 inclusive.)

ICE GORGES

Potomac River ice gorges are rare at Washington. Two instances of them are discussed below:

The ice gorge of February 1881.—The following note is taken from the MONTHLY WEATHER REVIEW, page 14 and page 16. "Washington, D. C., 12th, ice broke up, carrying away about 600 feet of the Long Bridge, lower portion of city flooded, causing great damage to property." "Washington, 12th, Potomac River overflowed, lower portion of city completely inundated, water highest ever known, people passed about in boats in front of the Metropolitan Hotel and about the Baltimore and Potomac Depot, houses and stores flooded above the first floors."

February 1881

Day	Temperature Maximum	Temperature Minimum	Temperature Mean	Precipitation
1	30	12	21	0
2	14	2	8	0.16
3	19	4	12	0
4	26	6	16	.64
5	25	8	16	.66
6	34	14	24	.34
7	35	7	21	0
8	40	26	33	0
9	51	36	44	1.17
10	64	39	52	.34
11	56	33	44	.13
12	63	36	50	T

The ice gorge of February 1918.—The following table gives the daily weather for the first half of February:

February 1918

Day	Temperature Max.	Temperature Min.	Temperature Mean	Precipitation	Sky	Snow on ground
1	26	20	23	0	10	11.0
2	28	17	22	T	10	10.5
3	41	26	34	0.01	10	8.0
4	40	4	22	0	0	7.8
5	14	−2	6	0	2	7.5
6	45	11	28	T	7	6.5
7	59	38	48	0	3	4.7
8	42	29	36	.01	2	4.0
9	43	30	36	.14	10	3.0
10	53	31	42	0	5	2.2
11	52	31	41	0	0	1.5
12	62	40	51	0	8	.5
13	57	35	46	0	4	T
14	53	29	41	0	5	T
15	62	34	48	.01	1	T

The minimum temperature on the night of February 12–13 was 47, and this was the night the ice broke. The following is from the MONTHLY WEATHER REVIEW:

> February 13, 1918.—Ice broke up at 2 a. m. and a gorge formed from Chain Bridge nearly to the Aqueduct Bridge, gorged from Rock Creek to Highway Bridge; water 6 feet above bank at Chain Bridge and ice left 6 feet deep from river to canal bank. Gorges broke in places during the day and re-formed at night. A firm gorge formed against Aqueduct Bridge during the night of February 13–14 and extended to Highway Bridge on the District of Columbia side. The old channel on the Virginia side of the Analostan Island cleared about 5 a. m. and allowed the flow of the river to go by that channel. Before the old channel on the Virginia side cleared, the ice was piled up 3 to 4 feet above the river wall at the gage, Twenty-seventh and G Streets, and would probably have gone 5 feet higher if the Virginia channel had not cleared. The water was 3.5 feet deep on K Street and Thirty-first Street, but stores were not flooded below Eighth and Pennsylvania Avenue.
>
> February 16, 1918.—Small gorges still held between Chain Bridge and Aqueduct Bridge.
>
> February 18, 1918.—Channel on District of Columbia side cleared from Aqueduct Bridge to Highway Bridge. All houseboats on the river were crushed by the ice and all boathouses, except three, were practically destroyed. Many dredges were carried down the river, but most of these were recovered later. Loss to houseboats estimated at $1,500. Loss to boathouses estimated at $15,000. Loss to barges, stores, and business houses on K Street estimated at $38,200.

HIGH TIDES

Records of tide heights have not been maintained continuously at Washington. However, from the available broken records it is evident that floods caused by tidal waves are rare.

The high tide of August 23, 1933.—(See fig. 28.) The highest recorded tide (as distinguished from a flood or freshet) was at 9:40 p. m. on August 23, 1933, when the tide reached a height of 11.0 feet above mean low water. This high tide was caused by a tropical hurricane. An account of this hurricane appears on page 209 of the book, HURRICANES, by I. R. Tannehill, and also on pages 233–234 of the MONTHLY WEATHER REVIEW for August 1933.

The following is copied from the Daily Local Record for August 23, 1933:

> Northeast gales and torrential rain throughout the day. Extreme gust velocity of wind, 51 miles northeast, at 10 a. m. and of rain about 10:50 a. m. The greatest amount for 24 hours, 6.40 inches, has been exceeded but once since the beginning of the record. On August 11–12, 1928, 7.31 inches fell during 24 hours.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

The storm of August 23, while not the most severe in the history of Maryland and Delaware, certainly caused the greatest and most widespread damage. Originating near the Cape Verde Islands on August 14, it moved westward across the ocean to longitude 55° W., and thence northwestward, arriving at the Virginia capes on August 22. From thence it sped northward, its center passing over Maryland. The first hurricane advisory messages were distributed in this section on the morning of the 17th and storm warnings were hoisted in Maryland, Delaware, and the District of Columbia on the morning of the 21st, 2 days before the passage of the storm. All interests were then on the alert and loss of life was negligible, about 13 persons dying by accidents in Maryland. Further meteorological details may be found in the national MONTHLY WEATHER REVIEW and in the weekly and monthly publications of the Virginia, New Jersey, and Pennsylvania sections. The following extract from the Baltimore instrumental record illustrates the conditions that prevailed on the 23d:

Hours ending at—	Total rainfall	Maximum wind	Maximum wind direction	Total wind movement
8 a. m.	0.36	36	NE.	30
9 a. m.	.35	40	N.	35
10 a. m.	.39	46	NE.	38
11 a. m.	.58	40	NE.	34
Noon	.55	41	NE.	33
1 p.m.	.72	41	NE.	35
2 p. m.	.65	49	NE.	40
3 p. m.	.61	44	NE.	41
4 p. m.	1.02	50	NE.	42
5 p.m.	.53	43	NE.	40
6 p. m.	.34	40	NE.	35
7 p. m.	.40	37	NE.	32
8 p. m.	.19	38	E.	32
9 p. m.	.41	46	SE.	35
10 p. m.	.16	46	SE.	41
11 p. m.	.03	40	SE.	36
Midnight	.01	35	S.	30

The 24-hour rainfall at Baltimore (7.62 inches) exceeded the record for over 116 years and made the month of August 1933, the wettest month of any name in that period. The steady northeast gale, shifting to southeast in the evening, caused very high tides, and the excessive rain and the high tides made extensive river and lowland floods. The prevailing dampness favored the development of molds and fungi in stored crops, animal feeds, and merchandise. The damage to property, exclusive of crops, is estimated to be in excess of $10,000,000, and to crops about $7,500,000. Crop damage in Maryland alone, estimated by the State Extension Service of the University of Maryland from the reports of county agents, was as follows: Tobacco crop, more than $1,500,000 (Baltimore tobacco experts estimate $2,000,000, including stocks in warehouses); tomatoes somewhat more than $1,000,000; corn crop, including the loss of fodder, more than $2,000,000. (On September 12 the agricultural statistician estimated a reduction of 1,692,000 bushels in Maryland and 294,000 bushels in Delaware.) Worcester County suffered the most damage to the corn crop ($300,000). The least was $6,000 in Allegany County. The fisheries industry was injured severely, the amount being difficult to estimate but probably around $3,000,000. Many boats were destroyed and a larger number sunk and damaged; buildings and wharves were wrecked, etc. At Crisfield, Md., alone, the damage to the industry was $100,000. The damage to highways was $406,851 in Maryland and $150,000 in Delaware. Railroads suffered a property loss of about $555,000; telephone and electric companies about $364,000; Federal buildings and works probably about $1,100,000 (Naval Academy at Annapolis alone, $90,000); passenger, freight, and pleasure boats and establishments about $392,000 (Maryland Yacht Club at Baltimore in excess of $60,000); miscellaneous damage to dwellings, pleasure resorts, coast towns, etc., about $2,000,000; shore land lost in Maryland by wave action (estimated by State conservation commissioner) about 2 square miles, in Delaware about 1 square mile.

The following is from the Virginia Section:

The principal storm damage of the month occurred on the 23d, when an unusually severe low pressure crossed the eastern part of the State from Norfolk to Washington, D. C., and beyond, taking a toll of 15 lives, and leaving in its wake a loss of approximately $5,000,000 to crops, and another $5,000,000 to other property. Most of the property loss occurred in Norfolk and vicinity, where gusts of wind, reaching measured velocities of 88 miles per hour, unroofed houses, shattered windows, uprooted trees, and drove unprecedented ocean tides into business districts. Water covered many blocks of streets to a depth of 4 to 6 feet, and flooded the first floors of many offices and stores. On Willoughby Spit water reached the ceiling of many houses, and 141 cottages were wrecked. Similar but less extensive damage occurred at Ocean View and Virginia Beach. At Buckroe Beach and Old Point 60 dwellings and stores were demolished, in addition to the destruction of many concession stands, fishing camps, and seine houses. At Fortress Monroe water covered the parade grounds to a depth of 3.5 feet. At Langley Field similar conditions existed. Light, power, and phone lines were out of condition over much of this southeastern area for many hours. As the storm moved northward from this densely populated section, the principal damage was that occurring to crops and truck, through sand deposits, flooded fields, and wind-stripped vegetation. The loss in corn amounted to $2,100,000; tobacco, $1,800,000; apples, $750,000; and other crops, $500,000. To these losses should be added approximately $200,000 for relief work.

DROUGHTS

Washington is located too close to the Atlantic Ocean and Gulf of Mexico with reference to the general circulation of the atmosphere for long spells of dry weather to be common. Droughts are likely to be most injurious to vegetation in summer. This is the season of most frequent thundershowers; and it may happen, even in a generally dry season, that a particular rain gage may catch a greater-than-average rainfall.

For these reasons the following tables are based on the average rainfall over central Maryland and northern Virginia; Washington is near the approximate center of these districts.

The first table shows the 10 driest years since 1891 when the 2 months of April and May are considered:

Year	*Percent of average precipitation*
1911	59.2
1926	59.8
1925	62.0
1941	63.8
1896	64.0
1915	64.4
1899	66.4
1936	67.9
1900	68.9
1930	70.0

The next table shows the same information when the 2 months of June and July are considered:

Year	*Percent of average precipitation*
1930	57.0
1894	57.6
1913	65.6
1944	65.9
1943	67.9
1918	69.5
1932	70.5
1898	71.8
1921	76.1
1926	76.2

This third table likewise is for the 2 months of August and September:

Year	*Percent of average precipitation*
1930	24.8
1943	41.7
1941	42.1
1895	45.5
1897	53.0
1932	53.9
1910	54.5
1925	56.3
1921	67.7
1916	68.5

The dry weather of 1930.—The following excerpts from the Maryland and Delaware section of CLIMATOLOGICAL DATA for July are of interest:

This July was warm, sunshiny, and exceptionally dry. It was not the warmest July of record, however, when the monthly mean temperature is considered, though such an impression was created by the heat wave of unprecedented intensity and duration, which began on the 18th and continued at the close of the month. The maximum temperature of 110 at Millsboro on the 21st was the highest summer temperature ever recorded in the section. Highest temperatures of the month equaled or exceeded previous highest temperatures recorded in July, except between the Allegheny and Blue Ridge Mountains. The month was 2° warmer than normal; 3° warmer than July 1929; and the warmest July since 1921; but it was nearly 2° cooler than July 1901, the second warmest July. July 1872, was the warmest July of record.

This was the driest July of record in western and north-central Maryland. Southern Maryland and the Eastern Shore were better favored. For the section, as a whole, the average monthly rainfall was the least of record for July. Monthly sunshine was 10 percent above normal. Relative humidity was unusually low, being between 10 and 15 percent below normal. The heat wave caused many prostrations and deaths in Baltimore. The drought was the cause of many forest and grass fires in the section.

The period from 1st to 17th averaged 1° to 2° daily below normal; moderately warm weather prevailed during the 1st–2d and 6th–13th, while the 3d–5th and 14th–17th were cool. The heat wave of the 18th–31st gave an average daily temperature of 8° to 10° above normal. The 15th was the coolest day, while the 19th–22d was the hottest period. Highest temperatures were 100 to 110 in the divisions between the Allegheny Mountains and the Chesapeake Bay on the 19th, 25th, 26th, 27th, and 29th, and over the entire section, except the Allegheny Mountain region, on the 20th, 21st, and 22d. They were also 100 or slightly above in Washington and southern Frederick Counties on the 23d, 24th, and 30th; at Millsboro and Rock Hall on the 26th and 27th; at Ridgely on the 27th; and in Allegany, Washington, and southern Frederick Counties and at Newburg on the 28th. In the Allegheny Mountain region the highest temperatures occurred on the 28th and were 95 or slightly above.

Monthly rainfall averaged about two-fifths of normal. Rainfall was mostly in the form of thundershowers. Monthly amounts were 0.2 to 1 inch generally in western and north-central Maryland; 1 to 3 inches in southern Maryland; and 2 to 4 inches generally on the Eastern Shore, except 4 to 6 inches in the Milford district. They averaged 19 percent of normal in western Maryland; 14 percent in north-central Maryland; 33 percent in southern Maryland; and 53 percent on the Eastern Shore.

Despite the drought that prevailed, beginning June 27, crops were in fair to good condition and pastures were poor to fair during the first and second decades. The heat wave of the 18th–31st, and the absence of rain, were severe on all crops and grasses. Most of the crops wilted or dried up, except in the Allegheny Mountain region and in those districts on the Eastern Shore favored by generous thundershowers.

During the first and second decades corn tasseled; tomatoes were fruiting; sweetpotatoes were making vines; tobacco came into bloom; cowpeas and soybeans were doing well; truck and gardens were fair; peas were harvested in the Allegheny Mountain region; and a light hay crop was gathered.

At the close of the month the crop situation was serious.

The following is copied from the Virginia section:

It was the driest July of record, with the smallest number of rainy days, and also one of two Julys since State-wide records began with a mean temperature above 78—78.3 this year and 78.6 in 1901. The extremes this year, however, 109 and 40, exceed those of 1901—106 and 47; in fact, 109 is the highest for all months, the next highest being 108 in July 1902 and in August 1918.

Two periods with a high percentage of sunshine and subsequent high day temperatures, 5th to 12th and 18th to 30th, furnished a large temperature excess for the month, the warmest days being, as a rule, the 20th to 22d. There were only a few stations in the interior that did not record maximum temperatures of 100 or higher; while in July 1901, with a higher monthly mean, less than one-third of the total number of stations recorded maxima as high as 100. The higher daytime temperatures of the past month were offset in the daily means, to some extent, by comparatively low night temperatures, due mainly to absence of cloudiness.

The month was unusually dry, the average rainfall for the State, 1.77 inches, being the least on record for July. Showers were fairly well distributed as to time, but monthly totals of 1 inch or more were confined to the eastern third of the State, southern border counties, and the extreme southwest. The remainder of the State, including much of middle Virginia, Piedmont, and the Great Valley section, received less than 1 inch, while the totals in western border counties from Craig to Rockingham were less than 0.50 inch. In tidewater and middle Virginia the heavier rains came on the 1st, but on the 14th in Great Valley division.

The large deficiency in rainfall and high percentage of sunshine served to accentuate the droughty conditions prevailing in many parts of the State at the first of the month, so that farm crops have deteriorated and dried up in some localities; all streams are low and small streams in mountain areas have ceased to flow, causing scarcity of water for stock. It is believed the drought-stricken area is the most extensive and the situation the most serious of record in Virginia.

The following is copied from the August issue of the Maryland and Delaware section:

For the section, as a whole, this was the driest August of record, and it marked the second month of a summer drought unprecedented for intensity and duration. The heat wave that began on July 18 was ended on August 10 by fresh to strong northwest winds, ushering in much cooler weather. This has been the longest and most intense summer heat wave of record, with an average daily temperature of 8° to 10° above normal. Monthly rainfall averaged one-fourth of normal. Rain was mostly in the form of light showers. Monthly amounts were less than 1 inch generally, and the least of record in August, in southern and north-central Maryland, in eastern Washington County, and in the southern and central portions of the Eastern Shore; were between 1 and 2 inches in western Washington County, eastern and central Allegany County, and over the northern Eastern Shore, except between 2 and 4 inches in the Dover and Millington districts; and were between 2 and 3 inches in the Allegheny Mountain region. The area of least rainfall, 0.2 inch, embraced Anne Arundel and Calvert Counties. Crops wilted or dried up during the hot spell. Pastures and grasses were dry or burned up. Crops and pastures revived somewhat in the Allegheny Mountain region after the good rains of the 14th and 17th. Corn, sweetpotatoes, tobacco, late potatoes, cowpeas, soybeans, truck, and gardens were failures generally. Tomatoes were affected by scald and rot. Cutting of corn with few or no ears for silo and shock and harvesting light crops of tomatoes, tobacco, apples, peaches, and pears were in progress. Tomatoes and tree fruit were small, light to fair crops of cantaloupes and watermelons were marketed. Stock was fed. Streams, wells, and springs were very low. Water was hauled in some localities for stock and home.

HIGH WINDS

High winds are infrequent at Washington. Those few which occur from time to time are usually caused by tornadoes, thunderstorms, or tropical hurricanes although there are rarely high winds not associated with these three phenomena.

TORNADOES

Only four tornadoes have been observed within the District of Columbia since 1916. Three of these are discussed below and the fourth took place in May 1927 and is mentioned in that issue of the MONTHLY WEATHER REVIEW. There is no record of a tornado within the District of Columbia prior to 1916. Probably the most noteworthy tornadoes which came near, but not within, the District of Columbia were those of June 23, 1944, which extended from West Virginia to the Eastern Shore of Maryland.

The tornado of April 5, 1923.—The following note

appears in the MONTHLY WEATHER REVIEW for April 1923, page 208:

> A true tornado apparently originating between 2:30 and 3 p. m., April 5, 1923, in the northern portion of Rock Creek Park, Washington, D. C., about 5 miles from the United States Capitol, moved thence northeastward, crossing the Baltimore and Ohio Railroad tracks about a quarter-mile north of the Silver Spring Station, Md., and continued thence north-northeast for about 11 miles. Its path was from 100 to 250 yards in width; a funnel-shaped cloud was seen by some observers. Four persons were seriously injured, seven houses were demolished, and about a dozen more suffered some damage. The property loss is estimated at $100,000. At the time this storm occurred a vigorous cyclone was moving northeastward, with its center probably between 200 and 300 miles distant, in a northwesterly direction. The morning map (8 a. m.) showed the center in southern Ohio, the sea-level pressure near the center being about 29.58 inches; the evening chart of the day (8 p. m.) located the center in the north central part of New York, with pressure about 29.46 inches. The trace of the siphon barograph at the Washington office shows a rapid fall in pressure and an even more rapid rise about the time the storm occurred, the marked dip and rise covering about 45 minutes. The trace indicates 29.55 at 2 p. m., lowest, 29:46 about 2.35, and return to 29.54 by 2:45 and to 29.57 by 2:55. The thermograph trace shows a sharp fall of about 9° (72 to 63) about the time the tornado formed. The wind, from south-southeast, 12 to 16 miles per hour, during the period 2 to 2:40, shifted to west-northwest by 2:45, and at about 2:50 reached the highest velocity for the day, 30 miles. Light rain began at the Washington office 2:27 p. m., but became heavy, only at 3:22, many minutes after the sharp pressure changes, the drop in temperature, and the shift in wind had occurred; in 12 minutes, ending 3:34, 0.13 inch fell, then the rain returned to light, and continued so till it ceased, at 8:10 p. m.

The maximum wind movement during any 5-minute interval at Twenty-fourth and M Streets NW., was at a speed of 27 miles per hour at 2:46 p. m.; the extreme was at a speed of 30 miles per hour. This tornado was preceded by a very strong and slow moving high pressure area: On April 1, 1923, the temperature was 15, the lowest of record for April, and the pressure was 30.74, the highest of record for April. The pressure fell steadily but slowly till the 5th.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

> On the afternoon of the 5th, about 2:30 to 3 a tornado traversed the northern part of the District of Columbia, the southeastern part of Montgomery County, Md., and the northwestern part of Prince Georges County. The first damage occurred in Rock Creek Park, west of the creek, where many fine trees were destroyed. The creek was crossed not quite a mile directly south of the north corner of the District, and the storm continued northeastward, crossing the State line in a region of fields and pastures. The railroad tracks and the important Brookeville Road were crossed a quarter-mile north of Silver Spring Station, at a point where, fortunately, there were but few houses in the way. The path continued to northeastward across fields and woods. There was injury to buildings near the Montgomery-Prince Georges County line, in the vicinity of Avenel, about 3 miles from Silver Spring; also about 1 mile northwest of the railroad station at Beltsville; and again near Muirkirk. In all, the storm traveled about 11 miles, in direction between northeast and east-northeast. The path was from 100 to 250 yards wide. Some eye witnesses saw the dark, funnel-shaped, whirling clouds; and the wreckage, especially of the trees, clearly indicates rotary winds of great violence. Four persons were seriously hurt, seven houses were demolished, and about a dozen more suffered some damage. The property loss was about $100,000 Hundreds of trees, some very large, were uprooted, broken, or twisted and torn, but their marketable value was very little; however, considerable expense and many years will be needed to replace the shade trees that were ruined.

The tornado and waterspout of November 17, 1927.—This tornado is especially noteworthy because of the automatic records of the weather elements obtained during its passage by the naval air station. The following data is copied from the MONTHLY WEATHER REVIEW:

> During November 17, 1927, a low from the south, central over southwestern Virginia by the morning weather observations of that date, moved north-northeastward, the center passing some 50 miles west of the District of Columbia near midday. About 2:15 p.m. a tornado formed in rough country in Fairfax County, Va., reaching the ground about 3 miles southwest of Alexandria. It traversed the western part of that city and the extreme southeast corner of Arlington County, then crossed the Potomac River at an acute angle. In the District of Columbia the naval air station and navy yard were visited, and from the latter (about Eighth and M Streets SE.) for about 2 miles to Benning Road and Nineteenth Street NE., the tornado swept a strip in a thickly built area. Beyond there was practically undeveloped land. The tornado went on in to Prince Georges County, Md., to near East Riverdale. The length of path, well authenticated; is 17 miles. The width was found to vary from 20 yards or less to not quite 300 yards, but seemingly averaged about 140 yards. The best established times were 2:34 p. m. at the naval air station and 2:38 at Benning Road, the latter noted by a trolley car conductor. These are in good accord, but separated by too short a distance to fix the speed of advance satisfactorily. The tornado was probably most intense in Alexandria and in Arlington County, it seemed to be rather intense again just before and just after crossing the District-Maryland line. There was no fatality really due to the tornado, but those injured enough to require more than first-aid treatment numbered 31—10 in Alexandria, 2 in Arlington County, and 19 in Washington. The total damage to property, according to conservative estimates, amounted to $690,000, distributed as follows: Alexandria, $200,000; Arlington County, $125,000; naval air station, $100,000; navy yard, $80,000; remainder of District of Columbia, $120,000; nearby communities in Maryland, $65,000. In Fairfax County the damage was so slight as not to be considered. The advance of the tornado, when the path is plotted on a large-scale map, is found to have been in direction north 33° east. The primary low during this 12-hour period between observations advanced about north 38° east, according to the Washington weather map. This is the third tornado noted in the District of Columbia within a 5-year period and very much the most serious. Also it is noteworthy that the Virginia portion of the track shows far greater damage than any one tornado ever before caused in that State.
>
> It is of interest that the observatory of the naval air station obtained an actual meteorological record of the tornado at close quarters, since it was struck by the right-hand edge of the funnel just prior to the destruction done to hangar, planes, and buildings. In advance of the tornado the reading of the barometer was 29.57 inches, which is only a hundredth of an inch lower than the simultaneous reading at the central office of the Weather Bureau, almost 4 miles to northwestward. The first violent blast at 2:34 p. m. gave a velocity of 93 miles from the south and south-southeast on the observatory register, with pressure suddenly dropping to 29.11 inches. The wind then shifted rapidly to southeast, east-southeast, and east, by which time the wind speed had dropped to 33 miles, with recovering pressure. At the Weather Bureau (distant about 3 miles) the wind at the time was from the southwest, velocity 16 miles, both wind and pressure being unaffected as far as the records indicate. Nearly an hour and a half after the tornado of November 17, 1927, struck the eastern shore of the Potomac or, precisely, at 3:54 p. m., at which time the worst rain and wind squall of the general cyclone occurred at Twenty-fourth and M Streets NW., a waterspout formed in the river west of Anacostia. Although the spout was considerably veiled by the gloom and heavy rain then prevailing, it was seen from the naval air station to move directly toward the southeast and dash itself in pieces on the shore 2 minutes later. It is said to have been some 300 feet in height, reaching to the squall cloud, with river water seen to course up about one-third of its length. At this time the extreme wind speed of 47 miles an hour for a 2-minute period from the southwest was registered at Twenty-fourth and M Streets NW. The wind direction for the hour preceding 3:45 p. m. had been from the south. This is probably the first waterspout known to have occurred along this portion of the Potomac.

The time of the waterspout is marked by abrupt change on the automatic records at the naval air station, though less marked than the changes caused by the tornado.

The highest pressure for the month was 30.74 at 9 a. m. on November 13; the pressure fell steadily till 3 p. m. on the 17th when at Twenty-fourth and M Streets it was 29.56. The November 5, 10 and 15 minute maximum precipitation records at Twenty-fourth and M Streets were established at this time. (See figs. 30 to 33, inclusive.)

The tornado and waterspout of May 21, 1943.—This tornado passed closer to the Twenty-fourth and M Streets location than any other tornado in the District of Columbia. The following notes about it are copied from the Daily Local Record:

> May 21, 1943: Thunderstorm: first thunder heard at 1:58 p. m.; last heard at 3:05 p. m.; storm came from west. During this storm a Negro boy was killed by a falling tree limb in the 300 block of Eye Street SW. Extreme wind velocity (Dines anemometer): 38 N. 2:20 p. m. During the afternoon of May 21, 1943, an energetic thundersquall moved into Washington from the northwest. An extremely turbulent area was just ahead of the rain sheet. It was characterized by violent updrafts as indicated by the high vertical velocity of the low-hanging clouds. Condensation in this particular portion of the cloud was occurring at a much lower altitude than in other visible portions of the cloud. The activity was marked in this one location of the cloud. When first noted, its location was approximately Thirtieth and Pennsylvania Avenue NW. When it reached the approximate vicinity of the Naval Hospital at Twenty-fourth Street, a definite funnel cloud formed and its revolving motion could be seen. This funnel appeared to reach to the ground, although this could not be verified because of buildings in line of vision. The funnel cloud existed for an estimated duration of 5 to 10 seconds and then disintegrated. After disintegration, a few objects could be seen in the air although they could not be identified. They might have been newspapers. After an elapsed time, estimated at 3 to 5 minutes, a second pendant formed. This second formation was slim and cylindrical, having much more the usual appearance of a waterspout than a tornado. Its location at that time could have been over either the Potomac or the Tidal Basin. This second formation also lasted for only a few seconds. After the second formation disappeared the time was 3:22 p. m.

Thunderstorms were numerous on this day in Maryland and Virginia. However, there is no special comment about them in CLIMATOLOGICAL DATA (see fig. 29.)

HIGH WINDS WITH THUNDERSTORMS

Most thunderstorms recorded at Washington are not accompanied by very high winds. Of the thunderstorms with high winds, three have been selected for special mention below.

The thunderstorm and high wind of July 7, 1911.—A gust recorder was installed at Twenty-fourth and M Streets NW. in 1907. The highest gust of record, 77 miles per hour, was recorded on July 7, 1911. The following is copied from the Daily Local Record:

> First heard at 1:13 p; last heard at 6:20 p. A very severe and destructive storm past over the city from the northwest, unroofing houses and blowing down trees. Nearly every street in the western part of the city was for a time blockaded with fallen trees and limbs. Wind attaining a maximum velocity of 32 miles and an extreme velocity of 42 miles an hour was accompanied by excessive precipitation and some hail.

The thunderstorm of July 30, 1913.—The most violent thunderstorm ever recorded at Twenty-fourth and M Streets, occurred on July 30, 1913. The observer keeping the daily local record writes as follows about it:

> A most terrific thunder and lightning storm broke over the city at 3 p. m. Clouds began to gather early in the forenoon, in the north, after a most sultry and humid day. Thunder was first heard at 2:30 p. m., increasing in intensity at the hour of 3 p. m. The storm was most intense between 3:10 and 3:17 p. m., terrific thunder and lightning accompanied with excessive rain and for a period of 11 minutes great quantities of hail from size of a pea to a chestnut fell. During the storm the wind attained a maximum speed of 53 miles per hour, the total rainfall being 2.02 inches. Streetcar traffic interrupted considerably, some lines being tied up for hours. Much damage done to trees and buildings, especially roofs, throughout the city. Two people killed and several injured in collapse of building at Seventh and L NW.
>
> (NOTE.—The speed of wind is the highest of record for the Washington station.) Last thunder heard 5:30 p. m.

The following is copied from the MONTHLY WEATHER REVIEW:

> On the afternoon of July 30, 1913, between 3 and 4 o'clock, there occurred one of the most severe thunderstorms that ever visited the city of Washington. While the extent of territory affected by the storm was comparatively small, it presented some unusual phenomena in the matter of high winds, heavy rains, and destruction to property. Up to the time of the occurrence of the storm the atmospheric pressure presented no marked variation from the usual conditions. The barometer was steadily falling as the result of the diurnal change and stood at about 29.9 inches when the storm broke. The day had opened clear with temperature about 76, from which point it rapidly climbed to 94 by noon and to 97 at 2 p. m., with prospects of going even higher had not the gathering clouds interferred with its further upward march. Light variable winds, mostly from the north or west, had prevailed up to about 3 p. m., when the direction changed to north and then to northeast, the velocity increasing rapidly from 4 or 5 miles per hour to a gale of unusual force. Clouds began to gather early in the afternoon and by 2:30 they had obscured the sun, at which time the first thunder was heard. The storm rapidly gathered force, and angry, dust-colored lower clouds formed in the north and northeast, moving rapidly southward, while the ragged edges of the more elevated clouds indicated the probability of still higher winds to follow. Light rain began at 3 p. m., becoming torrential about 3:10 p. m., at which time the wind shifted from north to northeast, and increased greatly in velocity. At the same time heavy hail began, the rattling of which, with the brilliant flashes of lightning, the terrific thunder, the violence of the wind, the flying debris from houses and trees, and the near approach to total darkness, probably produced a more terrifying condition than was ever before experienced in the District. At the Weather Bureau office the wind attained a velocity of 68 miles from the north and northeast from about 3:10 to 3:20 p. m., with occasional gusts that probably exceeded 70 miles, the highest velocity ever recorded at that point. With the beginning of the rain and the increased velocity of the wind the usual rise in pressure that accompanies the thunderstorms occurred, the barograph responding promptly to the increased pressure, and showing a sudden rise of nearly two-tenths of an inch. At the same time there was a rapid fall in the temperature, the change from 3 to 3:15 p. m., 15 minutes, amounting to slightly more than 30°. The severest portion of the storm lasted about 15 minutes, during which time the fall of rain amounted to more than an inch and a half, and damage from wind and hail in the District alone probably amounted to several hundred thousand dollars. The most significant feature of the storm was the apparent shortness of its path considering the length of the period during which it raged with such severity. From reports from postmasters and others in the immediate vicinity of Washington it seems that the storm suddenly developed its severe character near the northeastern boundary of the District, only light winds and but little rain as a rule occurring in the adjoining portions of Maryland.
>
> The severest portion of the storm appears to have traveled in a course slightly west of south across the central part of the city, and was dissipated rapidly on reaching the hills on the Virginia side of the Potomac. In its course through the city severe damage was wrought to many different interests. Houses were unroofed and flooded, windows on the north sides of buildings were shattered by the hail, many shade trees were broken sharply off or uprooted, while thousands of others had many of their branches torn off or badly broken. Several buildings collapsed from the force of the storm, the falling of one at Seventh and L Streets NW., causing the death of two persons and the severe injury of several others. Numerous narrow escapes from death were reported, and many persons were injured in the streets or at their homes by flying debris of various kinds. On the river the wind was even more severe than in the city, but sufficient warning of the approach of the storm had enabled those interested to prepare for it.

Some damage was done, however, to the smaller craft, and to property along the river front, the flooring of the Aqueduct Bridge being partly torn up and several persons narrowly escaping death from the flying boards. Hundreds of telephones were damaged, poles and wires were broken down, and streetcar traffic was delayed. Much damage occurred in the parks and to the shade trees throughout the city, many magnificent and noted trees being uprooted or broken off, or so badly injured as to require their removal. Outside the limits of the District the rainfall, wind, and other evidences of the storm were light, no rain falling at nearby points to the northwest and southwest, and but little beyond the first few miles on the Virginia side of the Potomac, while the severe wind was likewise confined largely within the limits of the District. From reports received it appears that the storm began near Laurel, Md., at about 2:30 p. m., with moderate winds from the northwest, and accompanied by heavy thunder; it increased in intensity as it approached the District line and at Takoma Park rain began at 3 p. m. and continued until 4:15 p. m., accompanied by hail heavy enough to crack windows and shred leaves of vegetables and plants. At College Park, Md., rain began at 3 p. m. and ended at 5 p. m.; total fall, 0.66 inch. At Rockville, Md., it began at 2:30 p. m. and ended at 5 p. m., with 0.90 inch rain, light hail being reported east of the town. The wind was heavy from the north, but did very little damage. A trace of rain fell at Poolesville, Md., at 3 p. m., with wind from the east, but without damage. The wind was brisk southeast at Germantown, Md., but there was no evidence of the storm to the westward in Virginia. To the southeastward of the District line there was little evidence of the storm, and it appears to have soon spent its force after crossing the Potomac, as only 0.05 inch of rain, and light wind were reported from Fairfax, and there was no rain or wind at Manassas and other nearby points in Virginia.

The 10 and 15 minute maximum precipitation of record for Twenty-fourth and M Streets NW. were established during this thunderstorm.

This thunderstorm is described on page 348, third edition of PHYSICS OF THE AIR by W. J. Humphreys.

The thunderstorm and high wind of June 9, 1928.—There was nothing particularly unusual in the course of the weather as recorded at Twenty-fourth and M Streets NW., on June 9, 1928. There was a thunderstorm with the first thunder heard at 4:10 p. m. and last heard at 9:30 p. m. and 0.21 of rain fell during its progress. The temperature fell from 90 at 4 p. m. to 67 at 10 p. m. and the wind shifted from south during the afternoon to northwest at night. The maximum wind movement during any 5-minute interval was at a speed of 18 miles per hour beginning at 6:23 p. m. The lowest pressure on this day was 29.60 at 5 p. m.

However, it was on this day that the highest recorded wind speed within the District of Columbia occurred. The Daily Local Record contains the following note:

Thunderstorm, northwest, first thunder, 4:10 p. m. last heard, 9:30 p. m. This storm was violent, over a restricted area in southeast Washington, in the vicinity of Hains Point, Bolling Field, and the Naval Air Station. The chief damage was reported from Bolling Field, where 12 airplanes were destroyed. The Naval Air Station reported a maximum wind velocity of 89 miles, south-southwest, registered by a cup anemometer, and an extreme velocity of 100 miles, on the pressure tube anemometer. One fatality occurred at Hains Point, where a woman was struck by the branch of a tree.

The MONTHLY WEATHER REVIEW for June 1928, lists the width of path as 100 yards and the length 1 mile, describes it as a severe thunder squall and states that 115 trees were uprooted and 6 persons injured. The total value of property destroyed is listed at $100,000.

HIGH WINDS WITH TROPICAL HURRICANES

Washington is situated so far from the open sea that the winds of most tropical hurricanes have diminished when the storm affects this city. The three hurricanes with highest wind speeds at Washington were those of September 1896 and October 1893 which are discussed below and August 1933 (see fig. 28) which was mentioned above under High Tides.

The tropical hurricane of October 13, 1893.—There is much written about this hurricane in the MONTHLY WEATHER REVIEW for that month but little about its effect on Washington. The following is copied from the Daily Journal:

Cloudy. Barometer falling rapidly, wind increasing. Hurricane approaching from the south. Rain set in at 8:28 a. m., heavy showers at intervals. Wind increased to 34 miles at 7 p. m. Barometer readings taken at 5 p. m., 29.34; 6 p. m., 29.24; 7 p. m., 29.15; 8 p. m., 29.05. The lowest point was reached between 8 p. m. and 9 p. m. The northeast wind during the day had veered to southeast at 7 p. m. At 4 p. m. the rain was being driven in blinding sheets along the streets. Great damage to telegraph and telephone wires, communication nearly cut off. Church in course of erection at Eighth and H Streets blown down. Considerable damage to shade trees in the parks. Rainfall, 1.82; rain ended 9:20 p. m., began again at 11:45 p. m.

The extreme wind speed recorded during this hurricane was 39 miles per hour, and this is the third highest recorded at Twenty-fourth and M Streets NW. due to a tropical hurricane.

The high wind of September 29, 1896.—This wind occurred during the passage of a tropical hurricane. The fastest wind movement during any 5-minute period was a wind speed of 51 miles per hour, while the fastest movement during any mile recorded was a speed of 62 miles per hour. This "extreme speed" of 62 miles per hour on September 29, 1896, was the highest "extreme speed" ever recorded at the Twenty-fourth and M Streets location. This high wind took place before a gust recorder was installed at Twenty-fourth and M Streets so that the highest gust during this tropical hurricane passage is not known. The anemometer cups at the Naval Observatory on Massachusetts Avenue were blown away at 11:05 p. m. This is the only known instance of anemometer cups being blown away in the District of Columbia. The lowest pressure during this storm was 29.14 at 10:50 p. m. This is the lowest pressure of record for September. The loss of property in the District of Columbia due to this storm was recorded as $443,000. One person was killed. There are three separate notes in the MONTHLY WEATHER REVIEW for September 1896 about this storm. The first is by H. A. Hazen on page 316; the second by A. J. Henry on pages 316–317; and the third also by H. A. Hazen on pages 322–323.

The following is copied from the Daily Journal:

September 29: Cloudy: Rain 2:30 a. m. to 2:50 a. m. Fresh to brisk east to southeast wind. Rain 8:15 a. m. Special observation at 1:30 p. m. Rain continued during day and evening. Wind increased in velocity during the evening reaching a hurricane at 11 p. m. Maximum velocity 66, extreme 80 miles. Barometer fell off rapidly reaching lowest point 29.30 at 11:20 p. m. Roof of instrument shelter carried away at 11:15 p. m. No thermometers broken. The damage to property and shade trees exceeded that of any storm on record.

September 30: Telegraph and telephone wires all prostrated, no reports received except by mail until evening, and then only a few. Clear. Rain until 12:40 a. m. Wind 34 miles continued from southwest until 8 a. m., gradually decreasing to light. Clear in the morning and during day. Cloudy at night.

The following is copied from the United States Naval Observatory Record of Observations:

At 10 p. m. a violent gale of wind from southeast, increasing in force and lasting nearly until midnight. The anemometer cups were blown away at 11:05 p. m. when the wind was at force 60 miles per hour. This storm left devastation in its track all around, unroofing houses, uprooting trees that withstood every storm of this century. The copper roof on the southern exposure of main building of Observatory was

swept bare, some of it landed in northern lawn about 800 feet from building.

HIGH WINDS FROM OTHER CAUSES

The frequency tables of high-wind speeds all show that speeds of 50 miles per hour at Twenty-fourth and M Streets NW. are rare. These frequency tables do not make any classification as to the cause of the high wind. After excepting those due to tornadoes, thunderstorms, and tropical hurricanes the frequency is even smaller.

The high wind of March 1–2, 1914.—From 7 p. m., March 1, to 7 p. m., March 2, 1914, the actual wind movement was 799 miles or an average speed of 33.3 miles per hour. The following is copied from the Daily Local Record:

> March 1: Heavy northwest gale set in about 2 p. m., increasing in force during the night, and was accompanied by rapidly falling temperature.
>
> March 2: The northwest gale continued throughout the day, the most violent of record, in point of duration. A maximum velocity of 47 miles was recorded about 3 a. m., and an extreme velocity of 56 miles, for an interval of about 1 minute. Considerable damage was done in sections of the city. The tin roofs of many houses were stripped off; fences, awnings, and chimneys blown down; and many plate-glass windows broken. Telegraph and telephone service was seriously interrupted, all eastern communication being suspended. Portions of the city were in darkness in the evening owing to damages sustained by the power companies. No fatalities reported.

PRESSURE

Unbroken records of pressure readings on which synoptic weather maps are based are available from 1870. Many barograms are available and hourly pressure readings are also available prior to 1915 but these records are not unbroken. Since 1915 there are unbroken records of barograms available. In the following discussions of large pressure rises and falls and of highest and lowest pressures the limitations of the record should be kept in mind.

PRESSURE RISES AND FALLS

Washington is so situated that it has more and larger pressure changes than places to the south, as in Florida, but fewer and smaller pressure changes than to the north as in New England. Below is a table which shows the greatest, average, and least monthly range of station pressure for each month of the year. This table is based on records from 1915 to 1945, inclusive.

Monthly range of pressure (inches)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Greatest	1.87	1.65	1.66	1.39	1.45	0.92	0.76	1.39	0.95	1.43	1.42	1.76
Year	1922	1918	1932	1931	1929	1920	1926	1933	1942	1929	1930	1942
Average	1.28	1.18	1.21	1.06	.83	.68	.59	.63	.76	.95	1.10	1.24
Least	.87	.78	.80	.70	.57	.54	.38	.42	.56	.66	.66	1.00
Year	1941	1931	1915	1919	1942	1929	1938	1926	1921	1919	1939	1931

The above table gives an idea of the limit of the pressure changes which take place over a whole month. The two tables below give a list of the pressure rises and the falls equalling or exceeding 1 inch. These tables are compiled from observations since 1889.

Pressure rises

Time of beginning				24-hour change
Year	Month	Day	Time	
1896	February	6	Noon	1.00
1912	February	21	10 p. m.	1.15
1914	January	24	9:15 p. m.	1.00
1918	March	10	5 a. m.	1.07
1932	December	31	10 a. m.	1.08
1939	February	15	10 a. m.	1.22
1943	January	19	10:30 a. m.	1.05

Pressure falls

Time of beginning—				24-hour change
Year	Month	Day	Time	
1893	October	12	9 p. m.	1.10
1894	February	25	6 a. m.	1.25
1896	February	5	Noon	1.17
1899	December	23	8 a. m.	1.00
1900	February	28	8 a. m.	1.15
1901	April	2	8 a. m.	1.01
1907	December	22	2 p. m.	1.12
1908	January	6	5 p. m.	1.14
1908	January	11	2 p. m.	1.16
1908	January	31	10 a. m.	1.25
1909	March	24	8 a. m.	1.15
1912	February	20	10 p. m.	1.14
1913	January	2	10 a. m.	1.47
1914	February	13	5 a. m.	1.13
1915	November	18	10 a. m.	1.13
1929	January	5	6 a. m.	1.16
1933	August	22	8 p. m.	1.06
1942	March	2	5 a. m.	1.35
1944	December	10	11 p. m.	1.10

Two of the above pressure changes have already been mentioned, namely that of October 1893, in connection with the tropical hurricane under High Winds, and August 1933, under High Tides. Three more of the above pressure changes have been selected for special mention.

The pressure rise of February 15–16, 1939.—The lowest pressure for the month was 29.33 at 10 a. m. on the 15th when the temperature was 68 and the highest for the month was 30.68 at 1 a. m. of the 17th with a temperature of 26. The greatest rise in 24 hours is given in the foregoing table. For the 24 hours preceding the lowest pressure the wind had been steady from the south and the temperature rather warm for that time of the year. When the pressure began to rise at 10 a. m., February 15, the wind shifted from the south to the southwest and rain began. The wind remained southwest till 3 p. m. when the temperature had fallen 55; the wind then shifted to northwest. The temperature continued to fall till 9 a. m. of the 16th when it was 23. The wind was not unusually strong; the highest gust being at a speed of 42.

The pressure fall of January 2–3, 1913.—As shown in the above table the 24-hour fall of pressure at this time was 1.47 inches and is the greatest of record. The temperature rose from a minimum of 29 on the morning of the 3d to a maximum of 60 on the following morning. Some rain fell but it was not heavy. The wind was very light throughout the 2d, the average speed being only 4.7 and also for the first 8 hours of the 3d with an average speed of 6.2. After 8 a. m. the wind increased. The following note is from the Daily Local Record:

> Very low barometer, and high winds, which blew off many roofs and injured trees, signs, and awnings, prevailed during most of the day.

The following is copied from the MONTHLY WEATHER REVIEW:

> At the beginning of the month a depression of fair proportions was central over Manitoba, with a high area of

moderate strength over the Rocky Mountains. Temperatures were high and precipitation was unimportant except along the Atlantic coast. By the evening of the 1st the northwestern depression had moved to Lake Superior and a secondary one had formed over northeastern Texas, so that a narrow trough extended from that locality, to Lake Superior. There was no precipitation to the eastward, but westward to the mountains there were light local snows, accompanied by lower temperatures and rapidly rising pressure with a strong crest over southern Idaho. There had also been a rapid rise in pressure to the eastward of the narrow trough. On the evening of the 2d the low-pressure trough extended from Alabama to Georgian Bay and the barometer had fallen decidedly to the eastward, with rapidly rising temperature from the eastern Gulf of Mexico northward, and with rains south of the Ohio River and rains and snows to the northward. Pressure had also fallen considerably over the west and northwest with a decided rise in temperature over the latter district, but with a fall to nearly normal conditions over the upper lake region, and central valleys, and the southwest. During the ensuing 12 hours there was a fall in pressure over the Atlantic States that was unprecedented in respect to rapidity and extent. The barometer read 28.90 inches over Virginia, a fall of nearly 1 inch in 12 hours and, except over the east Gulf States, there was also a fall westward to the Pacific Ocean, especially over the western slope of the northern Rocky Mountains. General rains were in progress east of the Mississippi River, with some snow north of the Ohio River, and temperature had fallen to somewhat below normal conditions from the Gulf States northward and had risen decidedly over the Plains States, the Rocky Mountain region, and the northwest. Winds had become high over the south and they were increasing to the northward, and the storm warnings were soon extended to Eastport, Maine. The pressure continued to fall as the storm center moved northward, and by the evening of the 3d the barometer at Montreal, Canada, read 28.24 inches, a fall of 1.06 inches in 12 hours, and of 1.52 inches in 24 hours. The barometer was below 29 inches as far west as the Pennsylvania-Ohio Line and the readings were the lowest of record over the eastern lower lake region, the Middle Atlantic States, and New England. Rains and snows, severe local storms, and dangerous gales had occurred over the east, and temperatures had fallen considerably although not to low readings, east of the Mississippi River, except in New England. The gales were especially severe, with wind velocities ranging from 50 to 88 miles an hour from the south and southwest from North Carolina northward, and much damage was caused both on land and sea.

The storm of March 2–3, 1942.—At 5:30 a. m., March 3, 1942, the pressure was 28.74 inches; at this same time of day on March 2 it was 30.09 inches; the fall of pressure in 24 hours was thus 1.35 inches which was the next greatest drop in pressure over a 24-hour interval for the period of record.

Hourly wind, temperature, and precipitation values are given here in the table:

Hourly data for Mar. 2–3, 1942

A. M.

Mar. 2	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*Noon*
Temperature	37	35	34	33	32	30	32	34	37	38	40	43
Wind direction	SE.	SW.	S.	S.	SW.	SW.	SW.	NW.	E.	E.	E.	E.
Movement	2	2	2	1	1	2	2	2	3	6	5	9
Precipitation	----	----	----	----	----	----	----	----	----	----	----	----
Pressure	----	30.15	----	----	----	----	----	30.09	----	----	----	----

P. M.

Mar. 2	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*Mid.*
Temperature	43	42	43	38	36	34	35	36	37	40	41	44
Wind direction	SE.	E.	E.	E.	NE.	NE.	NE.	NE.	NE.	NE.	NE.	NE.
Movement	11	11	12	16	15	15	18	20	20	21	23	16
Precipitation			T	0.01	0.04	0.04	0.06	0.11	0.12	0.14	0.20	0.34
Pressure		29.93						29.51				

A. M.

Mar. 3	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*Noon*
Temperature	44	46	44	44	45	41	37	37	37	39	39	38
Wind direction	NE.	NE.	NE.	NE.	NE.	NE.	NW.	NW.	NW.	NW.	NW.	NW.
Movement	20	25	19	18	13	8	15	17	17	20	15	15
Precipitation	0.21	0.01	0.02	0.04	0.04	T	0.01	0.02	T	T	T	T
Pressure		28.86						28.78				

P. M.

Mar. 3	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*Mid.*
Temperature	38	38	40	41	41	40	40	40	39	39	38	38
Wind direction	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW
Movement	17	17	16	15	16	17	17	20	21	20	21	17
Precipitation	0.04	0.03	0.02	0.01								
Pressure		28.93						29.19				

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

Heavy rain fell over the Eastern Shore and southern Maryland, heavy rain and light snow over north-central Maryland and in eastern and central Washington County, and heavy snow (7 to 18 inches) in western Washington, Allegany, and Garrett Counties during the 2d–3d.

The following is copied from the Virginia section:

The snow storm of March 2d–3d was one of the worst of record in the mountain districts, particularly the southwestern counties. Depths of snow ranged from 6 to 36 inches and high winds caused huge drifts. County schools were closed in many places and at Meadows of Dan pupils were marooned in school for 2 days. Two deaths occurred as a result of the snowstorm.

The following is copied from the Pennsylvania section:

In a general storm of the 2d–3d, snow depths ranged from 2 inches in the south-central counties to 19 inches in southwestern counties. Four people died at Pittsburgh in accidents caused by the storm. Roads were blocked, schools closed, and industries retarded as the heavy snow, blown by high winds, caused short circuits and broke down wires, poles, and trees.

HIGH AND LOW PRESSURES

The following tables give the highest and lowest pressures of record since 1915 and prior to 1915.

From Jan. 1, 1915, to Dec. 31, 1945

Month	Highest				Lowest			
	Inches	Year	Day	Time	Inches	Year	Day	Time
Jan	31.01	1927	27	10 a. m.	28.85	1922	11	11 a. m.
Feb	30.97	1934	28	9 a. m.	29.04	1940	14	Noon
Mar	30.92	1943	29	10 a. m.	28.67	1932	6	2 p. m.
Apr	30.74	1923	1	8 a. m.	29.10	1929	16	4 p. m.
May	30.62	1936	22	11 a. m.	29.09	1929	3	1 a. m.
June [1]	30.46	1919	13	8 a. m.	29.37	1918	12	4 p. m.
July	30.38	1943	2	8 a. m.	29.40	1932	1	6 p. m.
Aug	30.47	1925	24	Noon	28.94	1933	23	8 p. m.
Sept	30.57	1942	29	10 a. m.	29.40	1920	30	2 p. m.
Oct	30.72	1929	10	10 a. m.	29.22	1926	25	6 a. m.
Nov	30.84	1930	29	10 a. m.	29.26	1920	17	3 a. m.
Dec	30.94	1933	29	10 a. m.	29.08	1944	12	6 a. m.

[1] 30.47 in 1946.

Prior to Jan. 1, 1915

Month	Highest				Lowest			
	Inches	Year	Day	Time	Inches	Year	Day	Time
Jan	31.04	1899	2	10 a. m.	28.72	1913	3	11 a. m.
Feb	30.97	1876	5	Noon	28.71	1896	5	2 p. m.
Mar	30.92	1913	18	9 a. m.	28.92	1909	25	8 a. m.
Apr	30.70	1909	11	9 a. m.	29.10	1901	3	8 a. m.
May	30.56	1914	19	9 a. m.	29.35	1883	21	3 p. m.
June	30.50	1884	15	11 a. m.	29.37	1902	26	2 a. m.
July	30.53	1892	7	10 a. m.	29.59	1900	8	7 p. m.
Aug	30.42	1880	17	7 a. m.	29.46	1888	21	8 p. m.
Sept	30.64	1904	22	9 a. m.	29.14	1896	29	11 p. m.
Oct	30.83	1879	26	8 a. m.	28.79	1878	23	7 a. m.
Nov	30.85	1891	19	10 a. m.	28.99	1878	22	2 p. m.
Dec	30.97	1896	28	10 a. m.	28.72	1872	10	5 p. m.

It will be noted that the extreme range of pressure is from 31.04 on January 2, 1899, to 28.67 on March 6, 1932. There have been only two occasions when the pressure rose above 31.00 as follows:

The high barometer of January 2, 1899.—This was the highest of record and occurred on one of the few days when a temperature below zero has been recorded at Twenty-fourth and M Streets NW. The observer did not enter any note of special interest on this day.

The high barometer of January 27, 1927.—The next highest pressure reading of record at Twenty-fourth and

M Streets NW. was on January 27, 1927, when the weather was not otherwise very unusual. The barometer read 30.44 at 8 a. m. on January 26 and rose to 30.99 at 8 a. m., January 27, and to 31.01 at 10:30 a. m. The weather was not unusually cold, the minimum temperature being 8 on this day and the dry bulb temperature was 16 at the time this high pressure was reached. The sky was cloudless and the wind light. This minimum temperature was the coldest temperature of the winter season of 1926–27.

The following table is a list of occurrences of pressures below 29.00 inches:

Year	Month	Day	Pressure
1878	October	23	28.79
1878	November	22	28.99
1878	December	10	28.72
1886	January	9	28.96
1888	December	17	28.97
1896	February	6	28.71
1908	January	7	28.93
1909	March	25	28.92
1912	February	21	28.99
1913	January	3	28.72
1918	----do	12	28.89
1922	----do	11	28.85
1924	March	11	28.98
1932	----do	6	28.67
1933	August	23	28.94
1942	March	3	28.74

The low pressures of 1913, 1932, 1933, and 1942, have already received special mention. One more case will be treated here.

The low barometer of February 6, 1896.—This low pressure was accompanied by heavy rains for this time of the year. The following is copied from the Daily Journal:

> Cloudy. Heavy rain continued throughout the night ended 8:20 a. m. Barometer fell very rapidly through the night continuing to fall until 1:30 p. m. when it reached 28.706, the lowest ever recorded at this station up to the present date. Thunderstorm. First thunder 11:05 a. m. and loudest 11:05 a. m., last 11:09 a. m. Flash of lightning at 11:09 a. m. Thunderstorm seemed to be in the west without a decided movement, temperature before, 56, temperature after, 43. Direction of wind before east and after west. Rain 11:10 a. m. to 12:55 p. m. and 1:45 p. m. to 4:20 p. m. Special observation at 1:30 p. m. Wind changed to west at 12:15 p. m. Rain ended at 4:20 p. m. followed by clearing and clear weather becoming cloudy again at 9 p. m. Brisk to high west to southwest winds reaching 30 miles.

MISCELLANEOUS

Under this heading will be discussed Thunderstorms, Hail, Lightning, Fog; Humid Weather, Dust, Tropical Hurricanes and Ice on the Potomac River.

THUNDERSTORMS

Thunderstorms are likely to be especially noticed on account of four different meteorological phenomena commonly associated with them. The heavy rain which sometimes falls during a thunderstorm may cause floods; the high wind may do damage; the lightning may start fire; and the hail may cause damage. The heavy rains and high winds with thunderstorms have already been discussed above; Lightning and Hail will be treated separately below; here will be mentioned unseasonable thunderstorms and long periods of consecutive days with thunderstorms. Thunderstorms are least common in December and January; the following table is a list of days with thunderstorms during these months since 1889:

Year	Month	Day
1896	January	24
1898	----do	25
1898	December	22
1899	January	24
1907	December	30
1908	January	12
1908	----do	27
1913	----do	23
1916	----do	21
1916	December	22
1918	January	12
1918	December	14
1920	----do	5
1923	----do	6
1923	----do	23
1928	January	24
1929	December	19
1934	----do	1
1937	January	19
1941	December	24
1942	----do	1
1947	January	26

The thunderstorm of January 12, 1918.—January 1918 was the coldest month of record. Nevertheless a thunderstorm took place on the 12th. The lowest pressure was 28.89 at 2:30 a. m. on January 12. The highest temperature for the month was 50° at this same time. The total precipitation between 8 p. m., January 11, and 2:30 a. m., January 12, when the rain ended, was 1.48 inches.

The following note appears in the Daily Local Record for this day:

> The heavy rainstorm during last night and early this morning culminated in a thunderstorm at 2 a. m. First thunder heard at 2 a. m., last at 2:10 a. m. Storm appeared to be southeast of station. Some damage was done to business houses in lower Pennsylvania Avenue due to show windows collapsing. No wind velocity of consequence was recorded at station.

Periods of five or more consecutive days with thunderstorms have been recorded as follows since 1905:

Year	Month	Day of beginning	Duration (days)
1905	June	19	5
1908	July	21	6
1912	do	14	5
1913	do	28	5
1914	June	22	7
1918	August	10	5
1921	June	26	5
1925	July	4	5
1931	do	14	5
1933	June	3	6
1945	July	26	7

The thunderstorms of July 21–26, 1908.—The following table shows the maximum and minimum temperature, average daily sky cover and total precipitation for this 6-day period:

1908	Maximum temperature	Minimum temperature	Average daily sky cover	Precipitation
July 21	88	69	8	0.20
July 22	87	70	8	.13
July 23	89	71	8	.77
July 24	88	69	8	.17
July 25	88	70	9	.05
July 26	81	71	9	.88

The following notes are taken from the Daily Local Record:

> July 21, 1908: Thunderstorm passed over station; storm came from the northwest and moved southeast. Thunder first heard at 8:45 p. m. and continued at frequent intervals to midnight.

July 22, 1908: Thunderstorm that prevailed at midnight ended at 2:25 a. m. Thunderstorm: Thunder first heard at 4 p. m. in the southeast; last heard at 5 p. m. in the south.

July 23, 1908: Thunderstorm: Thunder first heard at 3:40 p. m. and continued at intervals to some time during the night.

July 24, 1908: Thunderstorm: Thunder first heard at 5:55 p. m. Last heard at 9:50 p. m.

July 25, 1908: Thunderstorm: Thunder first heard at 4:45 p. m. Last heard at 6 p. m.

July 26, 1908: Thunderstorm: Thunder first heard at 6:50 p. m. and continued to 10 p. m.

At this time there were thunderstorms each day from the 21st to 26th at Bachman's Valley and 21st to 27th at Taneytown in Carroll County, Md.; from the 21st to 27th at Baltimore; from the 22d to 26th at Frederick and Monrovia in Frederick County, Md.; from the 21st to 27th at Rockville in Montgomery County, Md.; from the 22d to 27th at Laurel in Prince Georges County, Md.; and from the 22d to 27th at Solomons in Calvert County.

HAIL

Hail has been observed at Twenty-fourth and M Streets NW. on 72 days since observations were begun there in 1889. The more notable (since 1905) of these falls of hail were those of June 10, 1916, June 14, 1917, April 21, 1929, May 13 and 18, 1936, April 29, 1938, June 28, 1940, and June 2, 1945. One of these is discussed in detail here.

The hailstorm of April 29, 1938.—(See fig. 15) The hail that fell on April 29, 1938, at Twenty-fourth and M Streets NW. was perhaps the most severe ever observed at that location. On that day at this location hail fell from 12:32 to 12:34 p. m. and again from 12:36 to 12:54 p. m. The following note appears in the Daily Local Record:

> Today's hailstorm was unusual for this vicinity. The stones were larger than usually fall here and they were of unusual form. The first ones that fell were spherical and about the size of marbles; later ones were conical shaped, some of them appearing to have segments sliced from their sides. The largest stones that fell near Twenty-fourth and M Streets, were about 1⅛ inches long and had a base diameter of about three-fourths inch. Spherical stones having a 3-inch diameter were reported from the Maryland suburbs. The principal damage was to greenhouses. This damage in Washington and vicinity was reported to be as much as $100,000. Comparatively small damage was done to skylights, windows and auto tops. Thunderstorm first heard at 12:23 p. m., last at 12:56 p. m., came from southwest.

There is an article and photograph about this hail on page 275 of the MONTHLY WEATHER REVIEW for 1938.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

> Light to heavy hail fell over an area 20 to 25 miles wide and 110 to 115 miles long, from southern Montgomery County and the District of Columbia east-southeastward to the coast of Sussex County, in the afternoon of the 29th. Heavy hail of 29th, damage by: Size of marbles to golf balls, hen eggs, and lemons. At Washington, greenhouse glass, $100,000. At Shadyside, considerable to crops. At Wittman, Claiborne, and St. Michaels, many roofs and auto tops pierced, many windowpanes broken, some poultry killed. Between Easton and Cordova, many windowpanes broken, loss of crops $10,000. Near Federalsburg, hail 2 inches deep over 5-mile area, 72 large glass panes of one greenhouse and $150 of glass in another greenhouse shattered, loss of strawberries and plants was heavy. In the Seaford-Bridgeville-Georgetown area, loss of tree fruits, strawberries, and asparagus was heavy.

LIGHTNING

From time to time the lightning which accompanies thunderstorms kills people or sets fire to property. (See fig. 16.) About one such case is usually reported each year. Most thunderstorms pass without any damage to life or property because of lightning. One occurrence of damage by lightning is selected for special mention.

The lightning of July 22, 1945.—There was a thunderstorm on this day between 12:35 p. m. and 1:50 p. m. The following is copied from the Daily Local Record:

> Three persons, including a fireman, were injured, two church steeples and six houses were struck by lightning and streetcar traffic was delayed in several sections by a rain and thunderstorm which swept through the Washington area today. Homes throughout the city were flooded and electric power was cut off in a number of areas for a short time as the result of the downpour. The storm was heralded by vivid streaks of lightning which remained in the sky for more than a second in some instances following which a veritable torrent of rain poured over the city, amounting to almost cloudburst proportions in the northeast section of the city. The sewer system was unable to carry off the water immediately and water backed up in several places across streetcar tracks causing short interruptions to service. On the H Street car line water backed over the tracks so high that service was halted at Kenilworth junction and passengers transported by bus to the District Line from that point.

FOG

While Dense Fog, visibility 1,000 feet or less, is common at Washington the usual duration is considerably less than 12 hours. Two unusual cases of dense fog lasting 24 and 25 hours are discussed below.

The fogs of December 20–23, 1923.—The maximum and minimum temperatures, precipitation, average daily sky cover and wind speed, and the observer's notes for each of these days is listed in the table below:

Day	Lowest temperature	Highest temperature	Sky cover	Precipitation	Wind speed	Notes
20	41	59	9	T	3.3	Light fog from 8:20 a. m. to 2 p. m. Light fog from 10 p. m. to 11:55 p. m.; dense fog from 11:55 p. m. until after 12 midnight.
21	49	68	8	.01	2.8	Dense fog from 12 midnight (20th), ended 4:10 a. m., light fog from 4:10 a. m. to 5 p. m. Light fog began 10 p. m. and continued after 12 midnight.
22	49	57	10	0.17	4.8	Light fog from 12 midnight (21) changed to dense fog 4 a. m., which continued throughout the day until after 12 midnight.
23	49	57	10	.37	5.6	Dense fog from 12 midnight (22), ended 4 a. m., light fog from 4 a. m. to 4:30 p. m. Moderate thunderstorm from northwest: First thunder at 3:16 p. m. Last heard 4:07 p. m. During the prevalence of thick fog, which prevailed for about 24 hours, the newspapers reported 4 fatalities and 9 persons injured, due mostly to motor accidents, caused by the fog and slippery streets.

The dense fog of January 9–10, 1935.—The longest duration of dense fog (visibility 1,000 feet or less) recorded at the Twenty-fourth and M Streets location was from 11 a. m., January 9 to 11:30 a. m., January 10, 1935. From 1:30 a. m., January 7 to 8:30 p. m., January 10, a period of 91 hours, either light or dense fog prevailed. There was some blue sky visible and sunshine through light fog and broken clouds on the 7th but the sky was completely overcast on the 8th, 9th, and 10th. The wind was light in speed and variable in direction.

The following data show the lowest and highest tem-

perature average wind speed and the observer's notes for each day:

Day	Lowest temperature	Highest temperature	Precipitation	Average wind speed	Observer's notes
Jan. 8	41	56	T	3.5	Dense fog continued from 12 midnight (7th) until 12:30 p. m.; light fog to 5:30 p. m.; dense fog until after 12 midnight.
Jan. 9	44	52	0.35	3.2	Dense fog continued from 12 midnight (8th) to 3:30 a. m.; light fog to 11 a. m.; dense fog until after 12 midnight.
Jan. 10	48	55	T	4.0	Dense fog continued from 12 midnight (9th) until 11:30 a. m.; light fog ended about 8:30 p. m.
Jan. 11	51	57		3.7	

The lowest barometric pressure for the month was at 3:30 p. m. on the 10th when the sea level value was 29.56 inches. During the night of the 10th–11th the wind shifted to the northwest and increased in speed; also the fog dissipated and the sky cleared. CLIMATOLOGICAL DATA for the Virginia and the Maryland and Delaware sections comment briefly on this fog. It is stated that it grounded air transportation, interrupted shipping activities, and delayed land traffic. It is also stated that it gave rise to spinach mold in the coastal truck region.

HUMID WEATHER

Long spells of humid weather are not common at Washington. The following list gives all periods of 14 days or longer when the dew point was 70° or higher each day since 1889.

Year	*Month*	*Day of beginning*	*Duration days*
1901	July	10	16
1905	July	3	19
1920	August	6	14
1938	July	27	16
1945	July	19	16

The humid weather of July 3–21, 1905.—This was the longest period that the dew point remained above 70 each day. The table below gives the maximum, minimum, and mean temperature, the total precipitation and the average dew point for each day during this period. The highest observed dew point was 77° on July 3. It is of interest that, while the observer gives special notes to thunderstorms, haloes, excessive precipitation, haze and smoke from time to time during this period, he entered no note whatever about the high or prolonged humidity.

Day	Temperature			Precipitation	Dew point
	Maximum	Minimum	Mean		
July 3	88	69	78	0	72
July 4	87	71	79	T	70
July 5	87	70	78	3.68	70
July 6	78	70	74	.55	73
July 7	87	74	80	.06	74
July 8	88	72	80	0	72
July 9	89	71	80	0	72
July 10	89	73	81	0	70
July 11	88	73	80	.09	70
July 12	87	71	79	.84	71
July 13	79	72	76	.56	71
July 14	85	67	76	1.14	71
July 15	88	67	78	0	72
July 16	84	67	76	0	70
July 17	93	72	82	0	73
July 18	95	74	84	0	74
July 19	93	68	80	.94	70
July 20	88	70	79	0	72
July 21	84	70	77	0	70

The average dew point during this 19-day period was 71.4. There have been just two calendar months when the average dew point for the entire month was 70 or more. These were July 1901 with 70.6 and August 1906 with 70.3.

DUST

Regular observations of dust have not been made at Washington for any long period of time. Washington is so situated that dust storms are very infrequent. The single case of May 11, 1934, will be mentioned here.

The dust storm of May 11, 1934.—On May 11, 1934, a dust cloud passed over Washington. Observations were made by an Owens dust counter and the highest dust count ever observed at Washington was on this day. The following note appears in the Daily Local Record:

> An unusual condition of the sky prevailed throughout the day, due to dust particles in the air, presumably carried eastward from the dry areas farther west and northwest. Visibility was poor, although there was an absence of cloud, and the disc of the sun was visible throughout the day until 2:30 p. m. Light conditions resembled, somewhat, the effect produced by a partial eclipse of the sun.

An article on this dust appears on pages 156–157 of the MONTHLY WEATHER REVIEW for May 1934.

The New Jersey, the Virginia, the West Virginia, and the Maryland and Delaware sections mention this dust storm but they give no detailed description of it so that it can be inferred that no damage resulted from it.

TROPICAL HURRICANES

Tropical storms have already been given detailed treatment above in connection with Floods (August 1938, September 1935, August 1944) high tides (August 1933) and high winds (October 1893, September 1896). Several more will be mentioned here because the tracks of their centers passed over Washington. The centers of the following hurricanes passed directly over Washington:

September 17, 1876
October 23, 1878
October 13, 1893
September 29, 1896
August 4, 1915
September 19, 1928
October 2, 1929
August 23, 1933

The tropical hurricane of September 17, 1876.—The following is copied from the MONTHLY WEATHER REVIEW:

> This hurricane struck the coast of North Carolina, near Wilmington, early on the morning of Sunday the 17th. As its center passed directly over Washington between 4 and 6 o'clock of the afternoon of the 17th, the accompanying copy of the records of self-registering instruments will be interesting.

Sept. 16	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight
Temperature	63	62	63	62	62	61	61
Pressure	30.14	30.13	30.10	30.10	30.07	30.05	30.00
Rain-cumulated amounts	.02	.04	.06	.07	.08	.10	.12
Wind direction	NE.	NE.	NE.	NE.	NE.	NE.	NE.
Wind movement		13	14	15	18	20	16

Sept. 17	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.
Temperature	60	60	60	60	60	61	61	60
Pressure	29.97	29.94	29.93	29.92	29.94	29.96	29.93	29.91
Rain-cumulated amounts	.13	.15	.20	.30	.35	.37	.40	.46
Wind direction	NE.	NE.	NE.	NE.	NE.	NE.	NE.	NE
Wind movement	21	23	23	21	21	17	14	10

Sept. 17	9 a. m.	10 a.m.	11a.m.	Noon	1 p. m.	2 p. m.	3 p. m.	4 p. m.
Temperature	62	64	68	70	71	72	71	71
Pressure	29.87	29.83	29.73	29.70	29.59	29.50	29.39	29.25
Rain-cumulated amounts	.48	.52	1.10	1.76	1.95	2.08	2.26	2.75
Wind direction	NE.	NE.	NE.	NE.	NE.	NE.	NE.	NE.
Wind movement	11	13	15	8	22	22	24	26

Sept. 17	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p.m.	11 p.m.	Midnight
Temperature	70	69	68	67	64	63	64	64
Pressure	29.30	29.43	29.60	29.71	29.74	29.80	29.81	29.82
Rain-cumulated amounts	2.79	2.83	Rain ends					
Wind direction	NE.	E.	W.	SW.	SW.	SW.	SW.	SW.
Wind movement	13	15	28	26	23	18	18	15

A pecular interest attaches to this hurricane, inasmuch as it is one of the few that, after approaching the Atlantic coast, has been deflected to the northwest instead of to the northeast, and is apparently accounted for by the presence of the area of decidedly high pressure north of the Alleghenies on the 17th. At Washington, D. C., the records of the central office show that the lowest barometer was 29.15 about 4:35 p. m., during a period of calm which lasted from 4:50 to 5:50 p. m., after which the wind, which had been steady from the east, shifted to the west; the maximum wind velocity was west, 36 miles.

The tropical hurricane of October 23, 1878.—This hurricane caused great damage around Wilmington, N. C., on Chesapeake Bay, and around Philadelphia. The following is copied from the MONTHLY WEATHER REVIEW:

> The barometric vortex passed almost directly over Washington, probably a little to the east; at 4:40 a. m. the anemoscope was swung suddenly from east to south, and then back again, twice round the compass to west, settling down to northeast, where it remained with little or no wind, until 7 a. m., when it backed to northwest, with the abrupt beginning of the northwest wind; the lowest barometer, 28.80, occurred about 7:15 a. m. This hurricane produced 3.48 inches of rain at Washington; the maximum wind speed recorded during this passage was 32 miles per hour from the northwest.

The tropical hurricane of October 2, 1929.—There is a long article in the MONTHLY WEATHER REVIEW of October 1929, about this hurricane but there is no mention of its behavior at Washington. Rain fell continuously from 1:20 a. m., October 1 till 9:40 a. m., October 2. For 2 hours there was no rain and the sun shone intermittently for 18 minutes. The temperature was 58 when the rain stopped. The wind blew from northeast from 6 p. m., September 30 till 9:40 a. m., October 2. After the rain stopped the temperature rose to 76. At 11:40 a. m. the rain resumed, the wind shifted to the south and the temperature fell to 68. The lowest pressure was 29.29 at 11:30 a. m.

ICE ON POTOMAC RIVER

When the Twenty-fourth and M Street mean monthly temperature falls below 30° ice usually forms on the Potomac River. One case has been selected for special mention.

Ice on the Potomac River in January 1940.—The month of January 1940, was the third coldest January since 1870, the Januaries of 1893 and 1918 being colder. The daily course of the weather for January 1893 and 1918 is shown graphically in the charts of "Selected Illustrative Months."

The daily mean temperature for January 1940 is as follows:

Date	Mean temperature °F.	Date	Mean temperature °F.	Date	Mean temperature °F.
1	21	11	32	21	24
2	22	12	36	22	28
3	22	13	36	23	26
4	22	14	46	24	27
5	26	15	38	25	22
6	22	16	32	26	16
7	23	17	22	27	16
8	26	18	22	28	20
9	22	19	17	29	19
10	24	20	16	30	21
				31	25

It will be noted that the coldest weather was at the close of the month. The weather moderated on February 3. The following notes, all copied from the Daily Local Record, are of interest:

January 25; Thickness of ice on the Potomac River above Key Bridge, 9 to 12 inches; below Key Bridge near shore in vicinity of Washington, about 9 inches; Washington and Georgetown channels, 4 to 6 inches; from Haines Point to Alexandria, mostly open water. Pavements and sidewalks became quite rough and slippery due to packed frozen snow.

January 26: Ice along shore below Key Bridge in vicinity of Georgetown reported to be about 8 inches thick. Pavements and sidewalks still quite rough and slippery in many places.

January 27: Ice in Potomac River above Key Bridge and along shores reported to be 10 to 12 inches thick. Pavements quite rough and slippery in many places due to a covering of frozen snow and ice.

January 29: Ice on Potomac River above Key Bridge and along shore south of Key Bridge reported to be 12 to 15 inches thick. Pavements and sidewalks rough and slippery in places.

February 2: Ice in Potomac River reported as being about the same thickness as it was on January 29. See note on January 29. Traffic was impeded this morning by slippery pavements and to the light fall of snow and thin coating of glazed ice. Pavements became sloppy in the afternoon in many places.

February 5: Thickness of ice in Potomac River below Key Bridge along shores, about 11 inches. Pavements and sidewalks rough and slippery in some places.

February 6: Light fog from 8:30 a. m. to 5 p. m.; moderate fog to past midnight. Thickness of ice in Potomac River above Key Bridge about 15 inches. Pavements and sidewalks rough and slippery in some places.

February 9: Thickness of ice in Potomac River along shore below Key Bridge 8 inches and showing signs of breaking up. Solar halo (22°) visible from 10:30 a. m. to 11:30 a. m.

February 12: For more than 2 weeks the Norfolk and Washington steamers had been confined to port, so dangerous was navigation on the Potomac. Not only did the ice block the channel, but it had beaten down familiar buoys and course markers and frozen solidly over them. Only twice before since the steamboat company was established in 1891 had ice forced cancellation of schedules. Once in 1918 for 4 weeks. And again in 1936, when the ships lay idle for about the same time. But both times the line had waited longer—until the channel ice was thinner and weaker—before making a trial run. Thanks to the toughest job of ice breaking that boats using the route regularly have encountered in 49 years, the Potomac River today is navigable from Washington to Chesapeake Bay. Ten miles below Washington, the tough going began. Winter had knitted a thick, white blanket that extended in most places from bank to bank. The irregular course of the river had played its part; the ice, with little chance to drift downstream, was compressed in almost a solid layer, varying from 6 to 20 inches in depth. Ice above Key Bridge still solid from shore to shore near Washington.

February 14: Channel in Potomac River below Key Bridge free of ice; above bridge river is completely covered with ice.

The following is copied from the Maryland and Delaware section of CLIMATOLOGICAL DATA:

> Rivers and lakes, the tributaries of Chesapeake Bay, and the upper Chesapeake Bay were frozen over throughout the month. Ice was making during the first decade and was making rapidly during the 16th–20th in the lower Chesapeake Bay, which was frozen over or was mostly filled with ice during the third decade, and prevented oystering. Ice disappeared by the 15th from the lower Chesapeake Bay and by the 20th from the upper Chesapeake Bay; oystering and navigation of small craft were resumed.

TEMPERATURE

TABLE 1.—*Monthly and annual average temperature*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1871	32.6	35.9	48.0	58.2	63.9	73.2	74.0	76.8	62.3	58.1	42.3	32.1	54.8
1872	31.7	33.7	35.4	56.0	67.4	75.4	81.1	79.0	69.0	55.5	42.5	30.3	54.8
1873	30.9	34.8	41.8	53.1	63.6	75.1	79.8	74.8	68.0	54.9	40.8	40.5	54.8
1874	40.3	37.2	44.5	47.1	63.8	77.5	78.9	72.7	70.1	55.9	44.6	39.2	56.0
1875	29.5	28.8	39.1	48.0	63.6	72.9	77.0	71.9	64.6	53.6	41.0	36.8	52.2
1876	40.8	36.7	39.4	51.4	64.5	75.8	80.4	75.5	65.2	50.7	45.2	26.5	54.3
1877	29.4	39.4	41.0	52.9	61.9	73.9	77.8	76.3	66.9	58.6	46.2	41.8	55.5
1878	33.5	39.8	49.4	58.3	62.5	69.1	80.2	75.0	68.9	57.0	45.4	33.3	56.0
1879	30.8	31.6	43.5	51.8	65.3	72.9	78.6	73.9	64.4	62.0	45.6	41.1	55.1
1880	41.9	40.8	41.8	55.5	70.5	74.3	76.7	74.9	67.9	54.9	40.2	29.0	55.6
1881	27.6	32.8	40.1	50.3	67.0	70.7	77.4	76.5	77.0	62.9	47.5	41.7	56.0
1882	33.2	40.4	44.1	50.8	59.2	73.8	76.0	73.9	69.1	60.9	42.9	34.1	54.9
1883	29.6	37.5	37.6	50.9	63.6	74.4	76.8	72.1	65.1	56.9	47.2	36.9	54.0
1884	29.4	40.9	42.2	50.9	64.4	72.5	74.2	74.2	71.7	59.6	44.7	36.0	55.1
1885	32.9	26.9	34.5	53.1	62.3	71.1	77.8	73.4	66.1	54.7	45.3	37.5	53.0
1886	28.9	32.1	42.0	55.5	62.1	69.9	73.9	73.1	69.3	57.6	46.1	30.7	53.4
1887	32.9	38.9	38.5	51.6	67.9	72.1	80.5	73.2	65.0	55.4	44.9	37.2	54.8
1888	29.2	35.7	37.4	52.9	62.7	73.0	73.6	75.8	64.8	52.6	47.4	37.5	53.6
1889	39.2	31.1	43.4	54.4	64.6	70.8	75.8	72.4	65.6	52.5	46.2	45.6	55.1
1890	43.8	43.4	41.4	53.6	63.8	74.8	75.0	73.6	67.8	56.4	48.0	34.2	56.3
1891	37.4	41.4	38.6	55.4	61.4	71.6	72.0	74.5	70.3	54.4	44.0	43.2	55.4
1892	31.6	37.0	37.7	51.4	63.8	76.2	75.8	76.2	66.1	55.4	43.7	33.2	54.0
1893	24.6	35.1	41.1	53.8	61.6	72.5	77.0	74.6	66.0	56.6	43.6	38.3	53.5
1894	37.8	35.2	48.5	53.2	65.9	73.6	77.9	74.0	71.4	57.9	44.0	37.4	56.4
1895	31.6	26.2	41.8	53.8	62.6	74.6	72.8	77.2	72.4	52.1	46.4	38.8	54.2
1896	33.3	36.7	38.5	56.6	68.8	71.3	76.7	75.8	67.8	54.0	50.6	35.6	55.5
1897	31.0	36.6	46.0	52.9	62.4	69.6	76.9	73.4	68.2	58.0	46.0	38.1	54.9
1898	36.7	35.0	48.8	50.9	64.4	73.5	78.8	76.9	71.0	57.8	44.0	35.6	56.1
1899	33.4	27.4	42.2	54.0	64.4	74.3	76.6	74.8	65.8	58.5	45.3	36.2	54.4
1900	35.2	33.7	38.8	54.2	64.4	72.2	78.7	79.6	73.6	61.6	49.2	36.5	56.5
1901	34.4	29.8	45.0	50.6	62.5	72.4	79.8	76.0	67.4	55.6	40.6	34.8	54.1
1902	31.8	29.8	46.7	52.9	65.4	71.8	77.0	72.6	66.8	57.6	51.3	34.4	54.8
1903	33.5	37.4	50.0	54.0	64.4	67.0	76.0	71.8	67.2	56.8	41.6	32.2	54.3
1904	27.5	28.4	42.2	49.7	65.0	71.0	74.4	72.3	67.4	54.1	43.1	30.9	52.2
1905	29.8	26.4	45.0	54.0	65.2	71.8	76.4	73.6	68.2	56.9	44.4	37.5	54.1
1906	40.0	34.0	37.6	55.5	64.4	72.8	75.2	76.4	72.9	56.9	47.8	37.0	55.9
1907	37.2	30.2	48.8	48.4	59.2	65.9	75.8	72.4	69.4	52.0	44.5	38.1	53.5
1908	34.2	30.8	47.4	56.4	65.3	71.8	78.0	73.2	66.6	58.2	46.0	37.0	55.4
1909	36.0	43.0	42.1	54.2	64.4	73.4	74.7	73.0	66.4	53.2	50.8	31.8	55.2
1910	33.6	34.6	51.2	57.9	61.4	69.7	77.6	73.8	71.0	60.2	41.4	30.5	55.2
1911	38.2	37.0	41.0	51.2	70.0	73.0	78.7	76.6	70.4	57.2	42.8	41.0	56.4
1912	25.0	31.0	40.9	55.6	65.1	70.4	75.8	73.4	70.4	59.3	46.9	40.0	54.5
1913	43.6	36.6	49.0	55.5	64.4	72.8	77.6	74.2	67.4	58.8	47.8	40.4	57.3
1914	38.6	30.1	39.4	53.5	67.0	73.8	75.9	76.4	66.0	60.2	45.4	32.8	54.9
1915	35.6	38.8	38.8	59.4	62.5	70.6	76.1	74.0	71.0	58.6	46.2	35.2	55.6
1916	39.8	34.2	37.9	53.4	66.7	69.7	77.8	75.2	66.6	56.6	43.3	35.5	55.0
1917	35.0	32.8	43.4	54.2	59.6	72.6	76.6	75.9	63.8	52.0	42.8	27.9	53.0
1918	23.7	36.8	48.4	53.2	69.6	70.8	74.4	77.6	64.2	60.6	46.3	41.6	55.6
1919	38.1	37.2	46.4	53.8	64.6	73.9	77.2	73.6	69.4	63.2	46.8	32.6	56.4
1920	28.7	32.7	45.5	52.6	60.0	71.6	75.0	74.8	68.8	61.2	45.9	39.3	54.7
1921	36.6	39.0	55.5	59.2	62.3	74.2	79.3	72.8	74.4	57.0	47.5	37.9	58.0
1922	32.0	38.6	45.4	55.6	66.8	74.5	76.6	73.1	69.9	59.4	47.9	37.6	56.4
1923	36.8	32.6	45.4	53.6	63.4	75.6	75.7	74.4	69.6	56.1	45.1	45.0	56.1
1924	35.0	34.2	42.6	51.9	60.0	71.3	75.0	74.8	64.3	57.4	46.0	36.4	54.1
1925	32.9	43.0	46.4	56.9	60.6	77.4	76.8	73.0	72.8	52.0	44.3	37.0	56.1
1926	33.8	36.5	40.1	51.9	64.3	69.1	76.7	76.4	69.0	57.2	45.1	33.8	54.5
1927	34.0	42.1	47.6	51.9	64.0	68.6	76.4	70.0	70.1	60.4	51.0	39.1	56.3
1928	35.9	37.6	44.1	51.9	63.1	71.0	78.1	77.0	64.9	59.9	49.4	39.2	56.0
1929	34.8	35.0	50.2	57.6	64.5	72.4	76.9	74.4	70.2	55.6	47.6	38.4	56.5
1930	35.6	41.9	45.0	53.2	67.3	75.1	80.4	76.8	76.0	56.2	46.7	35.7	57.5
1931	37.0	39.4	41.3	54.2	65.1	73.3	79.6	75.6	74.1	61.2	54.0	44.2	58.2
1932	46.8	42.9	40.0	52.6	64.2	73.2	77.4	77.8	70.3	58.0	44.7	39.6	57.3
1933	42.6	38.4	43.0	55.7	67.2	74.7	76.1	76.0	71.8	56.5	45.0	38.6	57.1
1934	39.1	24.6	41.2	53.9	66.5	77.2	80.8	74.1	70.6	56.2	49.6	37.3	55.9
1935	33.3	35.4	50.2	51.9	61.8	73.4	79.4	76.8	67.0	58.2	50.2	32.1	55.8
1936	30.8	29.6	50.3	52.2	67.4	72.8	78.4	77.9	71.4	59.7	45.0	39.8	56.3
1937	43.8	36.6	42.1	53.4	65.8	75.1	77.2	77.8	65.9	55.3	46.6	37.0	56.4
1938	35.7	40.9	49.8	57.1	63.4	72.8	78.4	78.6	67.4	58.8	49.8	38.4	57.6
1939	37.8	42.3	46.4	53.4	68.0	75.4	76.2	78.8	71.0	58.4	46.0	40.1	57.8
1940	24.9	37.1	40.7	50.8	64.4	74.8	77.5	73.4	66.8	55.7	48.2	42.8	54.8
1941	34.8	33.8	39.8	60.6	66.8	73.2	77.4	76.1	72.8	64.4	50.4	41.9	57.7
1942	34.8	34.2	47.4	59.0	69.1	74.4	78.8	75.0	70.4	60.3	48.3	34.8	57.2
1943	36.3	38.8	45.4	51.2	67.1	79.2	78.5	79.0	67.6	56.4	46.6	36.4	56.9
1944	37.4	38.2	43.0	53.8	71.6	74.8	79.2	76.2	70.5	56.4	47.4	34.4	56.9
1945	30.8	38.4	56.2	59.5	62.8	74.5	76.8	75.4	73.1	57.4	49.0	33.0	57.2

TABLE 2.—*Average maximum temperature—Washington, D. C.*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1872			45.6	66.8	78.5	86.3	91.9	89.3	79.3	64.3	51.2	39.6	
1873	40.4	43.2	51.7	63.9	73.4	86.2	91.1	84.6	77.6	65.4	47.7	48.1	64.4
1874	47.7	45.5	54.0	55.9	74.0	86.7	87.3	82.9	79.1	66.8	54.7	48.1	65.2
1875	35.2	38.2	46.8	57.4	74.3	83.0	85.1	80.0	74.2	65.4	48.3	43.2	60.9
1876	49.1	47.4	48.1	61.0	74.4	85.8	89.3	83.9	72.4	61.1	52.8	34.5	63.3
1877	37.9	49.4	50.1	61.2	72.0	83.3	87.0	86.1	75.4	68.0	54.8	50.2	64.6
1878	40.8	48.4	59.3	67.5	71.4	78.0	90.3	84.2	77.4	67.8	54.4	39.8	64.9
1879	38.4	38.4	53.4	59.8	75.4	83.3	87.8	83.9	74.3	73.0	54.6	48.5	64.2
1880	49.6	49.9	50.0	67.1	81.5	84.3	87.0	83.9	78.0	65.6	48.4	35.8	65.1
1881	33.3	40.8	47.5	59.6	77.5	80.4	88.2	88.3	88.2	72.9	55.4	50.3	65.2
1882	40.3	48.8	52.8	61.0	68.4	84.5	86.2	82.7	77.7	69.7	51.2	41.5	63.7
1883	35.6	46.1	48.4	61.0	74.8	84.8	87.7	82.5	74.7	65.5	56.2	44.4	63.5
1884	37.2	49.2	49.8	60.7	75.3	84.1	84.5	84.3	83.3	70.3	55.4	43.3	64.8
1885	42.6	34.4	43.1	64.5	71.2	80.8	87.9	82.6	76.1	64.2	52.1	45.8	62.1
1886	36.4	42.4	50.7	65.5	70.8	78.2	82.4	81.9	78.5	68.6	55.8	38.8	62.5
1887	41.3	47.7	46.7	61.3	78.2	81.1	89.1	82.0	74.3	64.8	53.8	43.7	63.7
1888	37.5	44.6	47.1	64.4	71.4	82.6	82.5	85.5	72.1	60.9	54.9	45.1	62.4
1889	46.6	37.5	51.7	63.5	74.8	79.1	83.4	81.3	73.4	60.9	53.2	54.9	63.4
1890	51.7	51.2	50.0	64.4	73.1	84.3	84.5	82.0	76.0	63.3	57.1	40.9	64.9
1891	44.2	48.6	44.7	65.7	70.6	81.2	80.6	82.7	79.8	62.7	53.5	53.0	63.9
1892	38.7	44.3	45.3	59.7	73.8	85.2	85.4	85.7	76.2	66.3	50.9	40.2	62.6
1893	32.7	42.8	49.8	63.2	72.0	81.5	87.1	84.9	74.5	65.9	51.7	47.0	62.8
1894	44.4	42.2	58.5	62.3	75.7	84.4	88.1	83.2	80.0	66.6	51.4	44.9	65.1
1895	38.6	34.2	50.0	62.7	71.9	84.6	82.1	87.6	83.0	63.4	54.6	46.1	63.2
1896	40.1	45.2	47.6	66.5	78.6	79.9	85.3	86.0	78.1	63.7	6 0.8	44.4	64.7
1897	38.9	43.7	55.7	64.2	72.3	78.9	85.5	83.3	79.7	67.5	54.6	45.7	64.2
1898	43.7	44.0	57.3	60.0	74.1	84.1	87.9	85.7	81.4	67.1	52.5	44.0	65.2
1899	42.2	35.6	50.1	65.4	74.9	84.5	86.4	83.6	76.4	68.5	55.4	46.0	64.1
1900	44.5	43.5	48.0	64.3	76.8	81.6	89.2	89.7	83.1	70.6	58.4	45.0	66.2
1901	41.7	37.9	54.9	58.6	72.1	82.8	89.2	83.9	77.4	67.6	49.5	43.3	63.2
1902	39.3	36.6	56.4	62.9	76.2	82.4	87.3	83.0	76.3	67.2	60.3	41.2	64.1
1903	41.1	46.1	59.3	63.9	75.2	75.4	86.1	79.4	77.4	66.3	52.1	40.2	63.5
1904	35.4	36.8	50.6	69.2	75.8	80.3	83.4	81.4	77.2	65.3	52.1	38.8	61.4
1905	38.2	33.9	54.7	64.4	75.5	80.9	84.5	82.2	78.1	67.8	54.4	45.6	63.4
1906	47.5	43.3	44.0	66.5	75.4	81.8	83.8	83.5	82.6	65.3	57.3	44.6	64.6
1907	45.7	38.9	60.1	58.0	69.1	75.1	85.5	81.3	78.3	63.2	51.9	45.9	62.8
1908	42.6	37.7	56.8	67.8	74.3	82.0	87.4	82.0	77.0	68.7	56.3	44.6	64.8
1909	43.1	52.4	50.7	64.8	75.2	82.3	85.1	82.9	76.1	64.2	61.1	39.5	64.8
1910	41.0	42.7	61.8	68.9	71.5	78.6	87.3	82.6	80.4	71.0	48.5	38.0	64.4
1911	46.9	44.7	50.7	60.8	82.8	83.1	89.6	85.9	79.6	66.1	51.4	48.4	65.8
1912	33.0	38.9	49.6	65.5	76.0	79.9	85.1	82.9	79.0	70.8	56.9	49.1	63.9
1913	53.6	45.4	59.0	65.1	75.3	83.1	88.1	84.0	76.8	66.7	57.1	48.1	66.9
1914	46.9	38.3	47.8	63.9	78.5	84.1	84.9	86.4	77.0	69.2	55.7	38.4	64.3
1915	42.8	46.8	47.2	71.5	72.4	80.4	86.0	82.9	81.3	67.7	55.8	41.7	64.7
1916	48.8	42.1	46.7	63.6	76.7	79.2	86.4	85.2	77.7	68.2	55.8	42.8	64.4
1917	43.2	42.1	52.4	64.1	68.8	83.0	84.9	85.3	72.9	62.7	52.1	34.4	62.2
1918	29.8	47.0	59.4	62.8	80.6	80.6	84.8	87.6	74.8	71.3	55.1	48.1	65.2
1919	46.4	43.6	56.1	63.7	74.3	83.2	86.0	82.9	79.5	71.7	55.7	41.2	65.4
1920	35.6	39.7	56.3	61.7	70.0	81.8	85.1	82.5	78.1	72.7	53.0	45.4	63.5
1921	44.2	46.9	66.7	70.0	71.8	85.2	88.5	82.5	84.0	68.2	55.4	45.2	67.4
1922	38.9	46.2	53.6	65.1	77.2	83.1	85.2	82.1	79.7	70.1	56.7	44.9	65.2
1923	43.4	39.6	56.9	64.4	74.9	86.2	85.1	83.7	78.4	66.1	52.6	53.1	65.4
1924	44.2	40.3	50.5	61.8	69.3	80.7	84.5	85.1	73.2	69.3	54.6	43.9	63.1
1925	40.8	52.9	56.2	68.3	72.5	88.8	86.5	83.3	82.1	59.3	52.4	43.0	65.5
1926	42.2	44.0	49.1	62.5	76.3	79.2	86.4	85.0	77.1	66.1	53.7	40.2	63.5
1927	41.2	50.3	56.4	62.1	73.2	78.2	86.1	78.7	80.3	70.7	59.5	46.8	65.3
1928	45.3	45.6	52.7	61.5	73.6	79.4	87.5	85.9	72.9	69.7	58.2	48.1	65.0
1929	43.5	43.7	60.4	68.7	74.9	82.5	87.0	83.9	80.6	65.5	54.9	46.3	66.0
1930	43.4	51.6	55.3	63.3	78.3	86.2	91.6	87.8	87.0	66.3	54.2	42.1	67.3
1931	44.9	47.4	47.5	64.5	75.1	82.8	88.9	84.3	84.1	72.3	62.9	52.4	67.3
1932	54.2	52.1	48.9	63.2	74.3	83.0	86.7	88.3	80.2	67.0	53.5	48.3	66.6
1933	50.8	46.5	50.7	65.6	76.1	85.3	85.4	84.3	80.3	66.9	53.0	46.8	66.0
1934	46.5	33.5	51.0	64.1	77.1	86.7	90.2	82.7	78.1	65.8	58.8	44.7	64.9
1935	40.7	43.9	60.1	60.6	71.3	83.6	88.4	85.1	75.9	68.5	57.1	37.8	64.4
1936	37.2	37.5	59.8	61.8	78.7	82.6	88.0	87.1	80.2	68.7	53.2	47.2	65.2
1937	50.3	44.6	50.9	62.4	76.6	84.6	86.3	86.3	75.4	63.9	55.2	44.1	65.0
1938	42.6	49.1	60.4	67.3	72.3	82.4	87.6	88.1	74.8	69.1	60.0	44.8	66.5
1939	45.3	51.1	55.6	63.2	79.1	84.1	84.5	87.5	80.3	67.9	54.7	46.8	66.7
1940	31.8	44.2	48.7	59.8	73.7	84.0	87.7	80.2	76.3	63.9	55.4	50.3	63.0
1941	40.4	41.2	49.1	71.3	78.7	82.6	85.7	85.7	83.0	74.1	61.3	49.5	66.9
1942	42.4	41.9	56.1	70.8	78.7	82.8	87.7	83.2	79.7	68.6	56.9	41.8	65.9
1943	43.1	47.5	55.5	61.7	76.9	88.0	87.5	89.7	77.6	65.8	56.1	45.4	66.2
1944	45.2	45.7	51.4	63.3	82.3	84.8	89.6	86.0	78.4	66.4	55.2	41.6	65.8
1945	37.2	46.5	67.6	70.1	73.0	84.6	85.3	85.3	81.9	67.8	57.7	38.5	66.3

TABLE 3.—*Average minimum temperature—Washington, D. C.*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1872	20.3	25.4	26.8	44.9	56.1	64.4	72.7	71.0	58.4	47.3	33.0	22.8	45.3
1873	23.8	25.4	31.5	43.8	54.1	64.9	67.3	67.4	59.0	44.5	32.5	32.5	45.6
1874	31.1	29.0	34.5	38.3	51.8	66.8	68.7	62.5	59.1	45.8	35.1	30.1	46.1
1875	21.7	19.6	31.5	38.9	52.0	63.1	69.0	65.3	55.0	43.8	33.7	30.5	43.7
1876	31.6	28.2	31.3	41.0	54.4	66.1	71.4	67.5	58.4	42.7	39.3	19.7	46.0
1877	21.6	30.9	32.3	43.6	51.1	64.9	69.9	67.4	59.6	49.3	38.6	34.9	47.0
1878	26.1	32.5	39.9	49.9	53.0	59.7	69.7	67.3	58.8	47.6	37.9	27.1	47.5
1879	22.6	25.6	34.6	40.9	55.0	63.0	68.4	66.0	54.8	53.1	37.0	33.8	46.2
1880	33.9	31.6	34.2	44.5	59.6	64.5	68.2	66.8	59.1	45.1	32.8	21.9	46.8
1881	20.2	23.5	33.3	42.4	57.7	62.3	68.5	66.3	68.2	53.8	39.2	34.3	47.5
1882	26.3	32.5	36.6	41.6	50.0	64.0	67.1	66.1	61.2	53.4	35.8	26.6	46.7
1883	23.3	29.9	28.5	42.2	52.7	64.1	67.2	62.7	56.2	49.3	39.4	29.5	45.4
1884	22.7	32.9	34.8	42.6	54.5	62.5	65.7	66.1	61.5	50.4	35.5	29.7	46.6
1885	24.8	19.6	26.6	42.8	53.5	61.8	68.8	65.1	57.2	46.7	38.7	30.4	44.7
1886	22.4	23.9	34.3	46.3	53.9	61.9	66.1	64.8	60.2	46.7	36.4	22.9	45.0
1887	23.5	31.8	30.8	42.1	58.0	61.8	71.7	64.6	56.7	46.8	36.8	29.9	46.2
1888	22.7	22.8	29.0	42.4	54.5	63.1	64.6	66.2	57.4	44.3	39.9	29.9	45.2
1889	31.7	24.7	35.1	45.3	54.5	62.4	68.1	63.6	57.9	44.1	39.3	36.3	46.9
1890	35.8	35.7	32.7	42.7	54.6	65.2	65.6	65.1	59.5	49.4	38.8	27.4	47.7
1891	30.5	34.3	32.4	45.2	52.1	61.9	63.3	66.3	60.8	46.1	34.4	33.3	46.7
1892	24.5	29.7	30.1	43.2	53.9	67.3	66.3	66.8	56.0	44.5	36.5	26.1	45.4
1893	16.5	27.4	32.4	44.4	51.2	63.5	66.8	64.4	57.4	47.1	35.4	29.6	44.7
1894	31.1	28.2	38.5	44.0	56.1	62.8	67.7	64.7	62.9	49.2	36.5	29.8	47.6
1895	24.7	18.3	33.7	44.8	53.2	64.7	63.5	66.8	61.9	40.8	38.3	31.5	45.2
1896	26.5	28.2	29.4	46.7	59.0	62.7	68.1	65.6	57.6	44.3	40.5	26.9	46.3
1897	23.2	29.4	36.2	41.6	52.4	60.2	68.3	63.6	56.8	48.6	37.3	30.5	45.7
1898	29.6	25.9	40.4	41.8	54.8	62.9	69.8	68.1	60.6	48.4	35.6	27.1	47.1
1899	24.6	19.1	34.3	42.7	53.8	64.1	66.7	66.0	55.3	48.5	35.2	26.4	44.7
1900	25.9	23.9	29.7	44.2	52.1	62.9	68.2	69.6	64.2	52.7	40.1	28.0	46.8
1901	27.1	21.6	35.2	42.5	52.9	61.9	70.4	68.2	57.3	43.6	31.7	26.2	44.9
1902	24.4	23.0	37.0	42.9	54.5	61.3	66.7	62.1	57.4	48.0	42.3	27.7	45.6
1903	25.8	28.6	40.8	44.1	53.7	58.7	65.9	64.2	56.9	47.4	31.2	24.1	45.1
1904	19.6	20.0	33.8	40.2	54.2	61.7	65.4	63.2	57.6	42.9	34.1	23.0	43.0
1905	21.3	18.9	35.3	43.7	54.9	62.7	68.2	65.1	58.4	46.0	34.4	29.4	44.9
1906	32.5	24.7	31.2	44.5	53.3	63.9	66.7	69.4	63.2	48.5	38.3	29.4	47.1
1907	28.7	21.4	37.5	38.8	49.4	56.7	66.1	63.4	60.5	40.8	37.1	30.3	44.2
1908	25.9	23.9	38.0	45.0	56.3	61.6	68.6	64.3	56.3	47.7	35.7	29.3	46.0
1909	28.8	33.5	33.5	43.7	53.5	64.6	64.3	63.2	56.7	42.1	40.4	24.1	45.7
1910	26.4	26.6	40.5	46.9	51.4	60.8	68.0	65.1	61.7	49.5	34.3	23.0	46.2
1911	29.6	29.2	31.3	41.5	57.3	62.9	67.8	67.3	61.1	48.3	34.2	33.5	47.0
1912	16.9	23.1	32.2	45.8	54.2	60.9	66.6	64.0	61.8	47.8	36.9	30.9	45.1
1913	33.7	27.8	39.1	45.9	53.4	62.5	67.2	64.5	58.1	50.9	38.5	32.6	47.8
1914	30.3	21.9	31.0	43.1	55.4	63.5	66.9	66.5	54.9	51.2	35.1	27.1	45.6
1915	28.5	30.9	30.3	47.3	52.6	60.7	66.2	65.2	60.6	49.6	36.5	28.7	46.4
1916	30.9	26.2	29.1	43.2	56.7	60.2	69.2	65.1	55.4	45.1	36.8	28.2	45.5
1917	26.8	23.5	34.5	44.2	50.4	62.2	68.3	66.5	54.8	41.3	33.4	21.4	43.9
1918	17.6	26.6	37.4	43.6	58.5	61.0	64.1	67.7	53.7	49.8	37.5	35.1	46.0
1919	29.8	30.8	36.8	43.9	55.0	64.6	68.3	64.3	59.3	54.6	38.0	23.9	47.4
1920	21.8	25.7	34.7	43.6	50.0	61.3	65.0	67.2	59.4	49.7	38.8	33.2	45.9
1921	29.0	31.1	44.3	48.3	52.8	63.2	70.1	63.0	64.7	45.7	39.6	30.6	48.5
1922	25.0	31.1	37.1	46.0	56.5	65.9	68.0	64.1	60.1	48.6	39.1	30.4	47.7
1923	30.1	25.6	33.8	42.8	51.9	65.0	66.3	65.0	60.9	46.1	37.6	36.9	46.8
1924	25.9	28.2	34.7	42.0	50.7	61.9	65.5	64.6	55.4	45.6	37.5	29.0	45.1
1925	25.0	33.2	36.6	45.5	48.7	66.0	67.1	62.8	63.5	44.7	36.2	30.9	46.7
1926	25.3	29.0	31.1	41.3	52.3	59.0	67.0	67.7	60.9	48.4	36.5	27.4	45.5
1927	26.9	33.9	38.8	41.7	54.8	58.9	66.8	61.2	59.9	50.2	42.5	31.3	47.2
1928	26.5	29.8	35.5	42.3	52.6	62.5	68.7	68.2	56.9	50.1	40.5	30.3	47.0
1929	26.3	26.5	40.1	46.6	54.1	62.0	66.8	65.0	59.7	45.8	40.3	30.6	47.0
1930	27.9	32.2	34.7	43.0	56.3	64.0	69.3	65.9	65.2	46.0	39.2	29.3	47.7
1931	29.1	31.4	35.1	44.0	55.1	63.8	70.4	66.9	64.1	50.1	45.2	36.1	49.3
1932	39.4	33.7	31.2	42.0	54.0	63.4	68.1	67.3	60.4	49.0	35.9	30.9	47.9
1933	34.5	30.2	35.2	45.8	58.2	64.1	66.8	67.6	63.3	46.1	37.0	30.3	48.2
1934	31.5	15.6	31.4	43.7	55.9	67.6	71.4	65.5	63.1	46.6	40.4	29.9	46.9
1935	25.9	26.9	40.4	43.2	52.4	63.3	70.5	68.5	58.1	48.0	43.4	26.4	47.2
1936	24.1	21.6	49.8	42.6	56.2	63.1	68.7	68.7	62.7	50.7	36.7	32.5	47.4
1937	37.4	28.5	33.3	44.3	55.1	65.6	68.1	69.4	56.4	46.7	38.0	29.9	47.7
1938	28.8	32.7	39.2	46.9	54.5	63.1	69.1	69.2	59.9	48.4	39.5	31.9	48.6
1939	30.2	33.5	37.2	43.7	56.9	66.7	67.8	70.2	61.7	48.8	37.4	33.4	49.0
1940	18.0	30.0	32.7	41.9	55.2	65.5	67.3	66.6	57.4	47.5	40.9	35.4	46.5
1941	29.1	26.5	30.6	49.8	54.9	63.8	69.1	66.5	62.5	54.7	39.4	34.3	48.4
1942	27.3	26.4	38.6	47.3	59.5	66.0	69.9	66.9	61.2	52.0	39.7	27.9	48.6
1943	29.3	30.1	35.2	40.7	57.3	70.5	69.5	68.3	57.6	47.0	37.2	27.5	47.5
1944	29.6	30.6	34.5	44.3	60.8	64.9	63.9	66.5	62.6	46.5	39.5	27.2	48.0
1945	24.5	30.4	44.9	48.9	52.7	64.4	68.4	65.5	64.3	46.9	40.4	27.5	48.2

TABLE 4.—*Highest temperature—Washington, D. C.*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1871	59	59	69	79	86	89	91	92	82	81	63	58	92
1872	56	61	71	90	91	94	101	98	98	82	65	56	101
1873	64	63	70	87	92	94	101	98	92	76	63	73	101
1874	71	78	75	72	92	102	98	100	94	79	71	70	102
1875	52	62	68	74	92	97	96	90	93	79	64	71	97
1876	71	57	70	78	90	96	98	96	89	78	76	60	98
1877	61	67	70	82	96	96	98	94	87	80	68	66	98
1878	60	67	73	84	87	95	98	94	91	82	66	60	98
1879	66	58	75	86	94	95	102	94	88	92	80	64	102
1880	66	70	79	82	96	96	98	95	94	82	70	54	98
1881	44	64	65	87	95	94	98	101	104	92	76	70	104
1882	58	62	71	84	86	95	95	91	92	81	79	54	95
1883	51	68	70	76	90	92	97	94	87	84	72	60	97
1884	52	70	67	82	92	96	96	95	97	90	74	67	97
1885	66	52	70	86	86	95	99	94	91	76	71	64	99
1886	60	68	69	88	84	89	91	92	91	83	73	54	92
1887	67	73	65	84	89	95	103	92	90	85	70	59	103
1888	54	61	76	89	89	94	94	97	84	75	75	61	97
1889	66	54	70	83	93	90	92	90	86	82	70	72	93
1890	76	73	77	82	86	92	98	95	87	77	75	60	98
1891	60	74	60	85	89	94	89	95	90	84	68	67	95
1892	62	61	66	81	89	94	99	95	88	84	71	67	99
1893	57	65	64	84	89	95	97	95	88	83	66	65	97
1894	58	60	83	83	88	98	97	92	95	84	68	60	98
1895	62	67	74	86	95	98	94	97	98	74	77	66	98
1896	59	60	70	93	94	92	94	98	94	76	77	66	98
1897	64	63	82	88	83	93	92	90	97	89	76	68	97
1898	63	67	78	83	91	97	101	93	95	83	69	68	101
1899	60	61	72	82	90	97	94	96	94	80	72	67	97
1900	64	69	68	82	94	93	99	101	97	87	79	62	101
1901	66	57	75	87	84	98	102	91	92	85	69	66	102
1902	51	60	78	89	90	94	99	90	91	80	76	60	99
1903	58	73	74	89	91	87	96	96	88	80	73	51	96
1904	62	63	73	81	89	94	92	92	90	86	68	60	94
1905	65	49	80	82	87	93	95	90	88	88	73	59	95
1906	71	64	62	87	92	95	91	94	94	82	75	69	95
1907	76	58	93	83	85	89	93	91	91	81	65	68	93
1908	58	67	80	87	92	97	99	95	86	86	72	69	99
1909	61	70	75	88	90	94	96	96	84	80	77	66	96
1910	58	68	86	92	87	94	95	90	94	90	66	62	95
1911	68	68	75	80	96	101	99	100	89	80	70	67	101
1912	58	56	76	81	90	93	94	92	94	87	77	73	94
1913	68	68	77	86	90	96	97	97	93	77	76	66	97
1914	72	59	75	86	95	97	98	97	96	86	79	64	98
1915	63	68	62	95	86	92	95	97	94	81	77	62	97
1916	71	61	71	85	93	87	95	97	93	87	76	71	97
1917	59	66	82	85	89	95	99	96	87	76	70	50	99
1918	50	69	79	81	93	96	96	106	87	83	72	67	106
1919	64	60	76	83	92	93	101	93	94	91	73	69	101
1920	59	55	77	84	86	95	95	92	89	85	73	68	95
1921	67	73	89	90	88	96	95	93	95	79	80	66	96
1922	62	72	78	89	88	93	95	92	92	87	74	64	95
1923	65	58	80	85	88	98	96	94	87	82	64	68	98
1924	63	59	76	80	88	95	95	102	94	83	76	74	102
1925	58	69	77	94	97	100	98	92	94	78	69	59	100
1926	62	62	76	86	88	91	104	99	91	88	73	50	104
1927	76	71	80	90	91	95	96	90	97	93	74	70	97
1928	69	63	80	84	94	91	97	97	89	88	78	62	97
1929	69	65	84	95	92	93	97	95	97	78	83	70	97
1930	70	84	75	91	95	97	106	102	98	84	71	56	106
1931	64	60	60	82	92	99	97	98	97	88	77	70	99
1932	77	76	71	81	91	93	95	100	98	81	68	68	100
1933	68	68	74	83	91	100	99	98	94	86	75	69	100
1934	69	50	78	84	95	101	100	92	87	81	78	68	101
1935	59	68	80	89	95	98	98	89	82	79	62	98	
1936	58	64	76	86	92	96	105	98	93	83	79	65	105
1937	76	64	70	93	91	92	96	97	94	82	75	72	97
1938	63	71	85	87	86	95	96	96	90	88	79	59	96
1939	63	74	85	90	95	96	93	96	100	92	72	67	100
1940	55	64	70	82	92	93	100	91	92	83	75	63	100
1941	55	55	68	94	97	96	99	96	96	96	75	66	99
1942	65	59	76	92	96	95	99	93	91	81	79	50	99
1943	74	71	82	81	90	95	94	100	97	84	72	65	100
1944	71	70	81	84	92	97	97	96	92	86	74	57	97
1945	55	65	89	86	89	99	99	96	94	82	78	58	99

TABLE 5.—*Lowest temperature—Washington, D. C.*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1871	8	10	34	40	46	61	57	60	45	38	23	1	1
1872	3	6	6	31	41	53	64	61	44	34	14	3	3
1873	−6	1	4	36	43	46	62	57	44	26	22	18	−6
1874	9	15	20	24	40	52	61	50	50	32	22	16	9
1875	−3	−2	20	22	40	54	61	56	40	32	16	12	−3
1876	16	8	12	30	34	50	58	53	46	30	25	4	4
1877	−3	20	13	32	40	52	62	61	44	40	22	21	−3
1878	0	20	22	42	39	48	64	58	48	30	28	14	0
1879	0	11	21	27	36	51	59	55	38	28	16	13	0
1880	14	14	22	28	38	50	60	59	48	30	12	−13	−13
1881	−14	2	25	24	44	54	62	57	60	37	21	21	−14
1882	8	20	23	27	37	51	58	56	44	44	24	8	8
1883	9	21	14	26	43	51	62	55	44	36	21	15	9
1884	2	9	13	32	42	50	56	57	45	32	24	6	2
1885	10	2	10	30	40	52	54	51	44	35	30	14	2
1886	−1	−2	13	34	43	50	60	56	47	33	22	11	−2
1887	6	19	21	28	50	50	64	51	40	31	23	14	6
1888	29	13	10	32	39	52	56	52	39	35	24	16	9
1889	23	4	29	32	39	48	59	55	42	34	27	22	4
1890	19	24	13	25	42	50	53	49	44	30	24	18	13
1891	21	16	17	29	38	45	54	54	49	30	17	15	15
1892	4	6	17	31	44	53	54	60	48	30	22	13	4
1893	−6	11	17	35	40	54	57	55	42	26	21	11	−6
1894	17	12	20	30	41	46	54	54	47	36	21	6	6
1895	4	0	22	33	40	53	52	54	45	29	24	13	0
1896	8	8	14	28	42	52	56	50	42	31	26	12	8
1897	8	12	26	29	43	43	61	57	42	34	26	14	8
1898	17	2	25	26	36	53	54	57	48	30	22	12	2
1899	−1	−15	19	27	42	53	54	58	41	32	24	3	−15
1900	8	6	11	30	38	54	56	59	45	35	25	15	6
1901	13	13	11	36	42	52	64	59	43	32	20	7	7
1902	14	5	18	32	41	46	57	51	43	30	28	16	5
1903	11	3	25	26	38	48	56	54	42	33	18	12	3
1904	3	2	20	28	43	50	57	52	36	28	25	6	2
1905	−2	4	14	29	41	47	60	52	41	33	20	18	−2
1906	11	7	18	27	33	53	56	62	50	31	30	13	7
1907	10	3	22	23	39	48	52	55	43	30	24	19	3
1908	11	6	25	29	39	52	57	52	41	34	19	18	6

TABLE 5.—*Lowest temperature—Washington, D. C.*—Con.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1909	13	17	26	26	36	51	53	53	42	31	29	8	8
1910	11	8	26	37	39	45	57	58	48	31	23	8	8
1911	15	21	14	26	37	56	56	54	46	38	22	22	14
1912	−13	7	18	31	41	45	60	53	42	36	25	19	−13
1913	24	13	17	32	37	45	58	54	40	35	28	24	13
1914	7	−1	15	28	41	51	56	58	41	33	20	2	−1
1915	18	18	23	32	42	49	58	54	43	34	25	21	18
1916	8	6	14	32	46	49	60	56	41	35	24	13	6
1917	14	2	23	28	42	50	62	54	40	26	20	−3	−3
1918	1	−2	23	31	42	51	53	53	42	34	25	24	−2
1919	11	21	29	24	47	50	56	55	46	40	28	8	8
1920	9	9	17	31	38	54	54	56	45	38	19	22	9
1921	11	21	26	31	44	50	62	53	55	36	29	12	11
1922	11	9	23	33	41	55	58	53	46	33	28	17	9
1923	19	11	18	15	37	57	54	51	44	38	28	22	11
1924	6	17	26	28	40	50	58	53	43	34	23	14	6
1925	3	18	11	32	38	52	54	52	46	30	26	13	3
1926	7	15	17	29	39	48	57	60	50	32	24	10	7
1927	8	28	21	33	42	50	56	54	44	40	27	16	8
1928	7	17	23	29	41	50	58	57	41	32	23	20	7
1929	8	17	15	38	42	46	55	54	44	36	11	15	8
1930	6	7	21	34	45	45	56	55	52	31	14	15	6
1931	16	21	26	35	40	52	64	56	49	37	30	24	16
1932	25	22	14	33	44	49	60	58	46	36	18	14	14
1933	20	14	20	33	47	47	52	60	52	31	17	8	8
1934	8	−6	16	34	47	61	62	49	52	35	27	17	−6
1935	−2	6	25	30	44	56	61	54	41	35	24	4	−2
1936	0	3	26	30	43	54	62	59	47	27	19	14	0
1937	29	20	19	34	40	56	58	62	45	31	23	17	17
1938	18	21	20	33	44	45	60	60	48	38	14	20	14
1939	17	17	23	31	40	59	58	64	51	35	30	21	17
1940	7	16	19	28	43	51	55	57	42	32	28	16	7
1941	21	19	15	37	41	54	63	55	49	35	28	24	15
1942	7	12	30	35	48	58	64	51	38	31	25	4	4
1943	15	6	11	31	37	60	56	59	43	40	28	13	6
1944	16	17	21	30	48	50	60	53	53	33	27	16	16
1945	11	16	32	35	35	46	55	54	52	35	26	13	11

TABLE 6.—*Average temperature* (° *F.*)

Month	Average			Monthly and annual extreme averages											
				Mean Maximum				Mean Minimum				Mean or Average			
	Mean daily maximum	Mean daily minimum	Mean daily average	Highest	Year	Lowest	Year	Highest	Year	Lowest	Year	Highest (warmest)	Year	Lowest (coldest)	Year
Number of years (through 1945)	75	75	75	74	74	74	74	74	74	74	74	75	75	75	75
January	42.1	26.7	34.4	54.2	1932	29.8	1918	39.4	1932	16.5	1893	46.8	1932	23.7	1918
February	43.8	27.4	35.5	52.9	1925	33.5	1934	35.7	1890	15.6	1934	43.4	1890	24.6	1934
March	52.7	34.6	43.6	67.6	1945	43.1	1885	44.9	1945	26.6	1885	56.2	1945	34.5	1885
April	63.7	43.8	53.8	71.5	1915	55.9	1874	49.9	1878	38.3	1874	60.6	1941	47.6	1874
May	74.8	54.3	64.5	82.8	1911	68.4	1882	60.8	1944	48.7	1925	71.6	1944	59.2	1907
June	82.6	63.2	72.3	88.8	1925	75.1	1907	70.5	1943	56.7	1907	79.2	1943	65.9	1907
July	86.6	67.8	77.1	91.9	1872	80.6	1891	72.7	1872	63.3	1891	81.1	1872	72.0	1891
August	84.2	66.0	75.0	89.7	[1] 1,900	78.7	1927	71.0	1872	61.2	1927	79.6	1900	70.0	1927
September	77.9	59.4	68.7	88.2	1881	72.1	1888	68.2	1881	54.8	[2] 1879	77.0	1881	62.3	1871
October	67.1	47.6	57.2	74.1	1941	59.3	1925	54.7	1941	40.8	[3] 1895	64.4	1941	50.7	1876
November	54.7	37.5	46.0	62.9	1931	47.7	1873	45.2	1931	31.2	1903	54.0	1931	40.2	1880
December	44.4	29.3	36.7	53.1	1923	34.4	1917	36.9	1923	19.7	1876	45.7	1889	26.5	1876
Year	64.6	46.5	55.8	67.4	1921	60.9	1875	49.3	1931	43.0	1904	58.2	1931	52.2	1875 1904

Other dates:
[1] 1943.
[2] 1917.
[3] 1907.

TABLE 7.—*Standard deviations of monthly averages—temperature* (° F.)

[Period of record, 1871–1945]

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Average	34.4	35.5	43.6	53.8	64.5	72.9	77.1	75.0	68.7	57.2	46.0	36.8
Standard deviation	4.70	4.45	4.46	2.91	2.61	2.34	1.91	1.97	3.01	2.83	2.71	3.88

TABLE 8.—*Temperature range* (°F.)

Month	Monthly and annual						Daily		
	Average	Greatest	Year	Least	Year	Absolute greatest [1]	Average	Greatest	Date
Number of years (through 1945)	74	75	75	75	75	75	75	75	75
January	54	71	1912	34	1941	91	15	45	17, 1885
February	54	77	1930	36	1941	99	16	46	8, 1933
March	55	71	(2)	34	1931	85	18	50	22, 1907
April	55	70	1923	39	1871	80	20	45	18, 1937
May	50	59	(2)	39	1887	64	20	43	5, 1930
June	44	53	(2)	28	1871	59	19	38	1, 1930
July	39	50	1930	31	(2)	54	19	38	17, 1902
August	40	53	1918	32	(5)	58	18	33	29, 1904
September	47	55	(2)	35	1934	68	18	38	30, 1897
October	50	64	1879	37	1882	70	20	42	[2] 31, 1909
November	50	72	1929	35	1872	72	17	42	12, 1911
December	51	67	1880	39	(2)	87	15	39	8, 1927
Year	93	118	1881	79	1915	121	18	50	Mar.22, 1907

[1] Difference between extreme highest and extreme lowest.
[2] Also Oct. 19, 1901.
Italics in parenthesis indicate total number of cases.

TABLE 9.—*Heating degree days*

[Base 65°]

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1889–90	0	0	84	390	247	602	658	602	733	341	92	2	3,751
1890–91	0	12	42	280	512	956	858	662	820	316	152	34	4,644
1891–92	7	8	12	356	632	678	1,034	812	846	424	100	0	4,909
1892–93	0	0	30	306	638	988	1,252	842	741	406	146	6	5,355
1893–94	0	0	76	272	644	1,188	846	834	515	360	38	34	4,807
1894–95	0	0	22	233	632	857	1,033	1,034	718	353	179	2	5,063
1895–96	4	0	33	400	562	812	982	820	822	335	48	4	4,822
1896–97	0	2	44	340	432	909	1,052	798	590	374	122	28	4,691
1897–98	0	0	70	236	572	834	878	842	500	433	103	0	4,468
1898–99	0	0	18	280	628	912	980	1,054	707	344	96	3	5,022
1899–1900	0	0	76	214	591	893	924	876	812	326	92	10	4,814
1900–1901	0	0	11	156	476	884	948	986	618	434	95	10	4,618
1901–02	0	0	66	296	733	938	1,029	984	569	393	88	10	5,106
1902–03	0	0	54	235	411	947	978	774	464	340	105	27	4,335
1903–04	0	4	79	276	700	1,018	1,162	1,062	706	462	86	18	5,573
1904–05	0	4	53	354	658	1,056	1,092	1,080	621	340	86	17	5,361
1905–06	0	1	37	278	618	853	774	868	850	296	112	12	4,699
1906–07	0	0	6	264	518	868	860	976	526	506	198	94	4,816
1907–08	0	1	31	406	614	834	952	992	551	286	149	6	4,822
1908–09	0	18	38	226	570	870	900	618	710	342	118	8	4,418
1909–10	0	0	52	368	432	1,030	970	850	444	234	150	50	4,580
1910–11	0	0	14	204	708	1,070	829	784	744	420	74	5	4,852
1911–12	0	8	30	246	666	747	1,242	986	746	288	73	21	5,053
1912–13	0	4	33	208	544	776	662	796	503	306	76	26	3,934
1913–14	0	3	68	204	516	764	818	978	792	358	76	0	4,577
1914–15	1	3	92	182	588	1,000	908	733	814	238	122	30	4,711
1915–16	0	8	60	220	566	924	779	895	840	351	52	8	4,703
1916–17	0	0	66	294	560	914	931	902	668	344	206	8	4,893
1917–18	0	0	90	404	668	1,151	1,280	790	515	358	37	6	5,299
1918–19	0	0	86	174	561	726	833	779	575	338	93	4	4,169
1919–20	0	0	24	147	548	1,006	1,126	937	604	382	186	14	4,974
1920–21	2	0	22	148	572	797	882	728	328	199	146	3	3,827
1921–22	0	1	2	249	526	840	1,025	737	611	324	22	4	4,341
1922–23	0	0	26	226	513	848	876	907	610	354	98	4	4,462
1923–24	0	2	36	282	597	620	928	892	693	393	164	22	4,629
1924–25	0	1	85	240	569	884	995	614	576	284	179	0	4,427
1925–26	0	1	32	410	622	879	968	798	773	406	84	39	5,003
1926–27	1	4	36	280	596	968	960	642	544	412	99	38	4,580
1927–28	0	12	31	190	420	804	902	794	650	406	120	8	4,337
1928–29	0	2	109	216	476	800	934	838	468	262	115	20	4,240
1929–30	0	0	48	293	533	824	911	650	621	361	59	1	4,301
1930–31	0	0	4	294	552	908	868	718	734	325	100	10	4,513
1931–32	0	6	20	178	340	642	568	642	773	374	110	6	3,659
1932–33	0	0	26	231	608	788	693	746	684	286	73	25	4,160
1933–34	4	0	10	276	600	820	806	1,132	738	336	70	0	4,792
1934–35	0	5	6	277	463	858	982	829	460	412	142	0	4,434
1935–36	0	0	40	224	450	1,021	1,065	1,028	456	405	54	12	4,755
1936–37	0	0	26	202	608	780	657	796	710	356	74	0	4,209
1937–38	0	0	79	312	551	867	907	676	480	272	119	6	4,269
1938–39	0	0	43	216	471	826	845	635	588	368	108	2	4,102
1939–40	0	0	14	254	569	772	1,243	810	754	425	96	6	4,943
1940–41	0	4	64	300	506	688	938	872	780	202	90	8	4,452
1941–42	0	0	9	144	438	715	936	861	545	229	23	1	3,901
1942–43	0	2	59	153	504	937	894	732	610	414	73	0	4,378
1943–44	0	1	64	278	551	885	855	778	688	342	15	4	4,461
1944–45	0	0	24	280	526	947	1,062	743	329	197	149	30	4,287
Average	0	2	43	255	552	869	932	835	630	343	100	13	4,574

TABLE 10.—*Frequency of heating degree days at Washington, D. C.*

[Base 65° F.]

[Period of record, 48 years, 1898–99 through 1945–46]

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Annual
70													
69													
68													
67								1					1
66								1					1
65							1						1
64													
63								1					1
62						1		1					2
61						1							1
60													
59								1					1
58						1							1
57							1	3					4
56							1						1
55						1	2	1					4
54							3	1					4
53						1	5	3					9
52						4	7	9					20
51						1	3	3					7
50						5	3	10					18
49						5	9	5	1				20
48						6	13	9					28
47					1	2	19	10					32
46						14	17	8	1				40
45						10	15	12	1				38
44					1	10	23	27	3				64
43						16	28	17	3				64
42						21	30	23	6				80
41					1	19	27	18	7				72
40					4	22	29	22	6				83
39					3	37	32	33	9				114
38					6	32	43	36	9	1			127
37					4	43	42	48	12				149
36					6	37	44	48	11				146
35					8	37	65	49	18				177
34					9	53	58	31	13				164
33					16	53	67	51	34				221
32					22	59	54	40	33	1			209
31					10	60	48	64	34	2			218
30				1	21	62	60	57	36	6			243
29				1	38	83	65	65	57	6			315
28					29	68	57	65	37	10			266
27				4	40	77	67	67	54	15			324
26					53	65	62	35	63	13			291
25				6	68	75	46	61	42	22			320
24				5	62	79	53	42	67	13			321
23				12	74	53	59	65	54	38			355
22				12	57	46	35	47	50	28			275
21				24	69	54	44	42	87	39			359
20				28	70	31	30	23	52	43	1		278
19				28	82	40	31	29	62	38	1		311
18				34	53	26	25	25	59	49	2		273
17			1	32	67	29	40	30	60	52	8		319
16			1	38	65	26	17	16	39	68	9		279
15			3	56	47	21	19	13	50	53	12		274
14			2	47	33	18	15	15	45	68	22	1	266
13			6	55	49	19	8	17	44	70	23	1	292
12			8	62	42	12	9	10	37	59	23	2	264
11			10	64	48	14	13	7	34	65	33	3	291
10			12	79	31	10	5	10	19	62	41	1	270
9			14	72	32	10	9	8	30	67	34	7	283
8			27	73	36	8	4	5	29	45	45	3	275
7			22	66	31	5	10	4	29	47	56	6	276
6		1	44	63	31	4	4	3	14	54	54	13	285
5		2	39	56	18		1	2	23	44	90	13	288
4		3	40	62	20	1	4	2	14	31	53	17	247
3	1	9	54	61	19	2	2	1	13	42	80	24	308
2		7	34	54	17		1		14	43	50	33	253
1	3	17	65	79	10			1	13	38	79	44	349
0	1,484	1,449	1,058	314	37	0	3	2	60	208	772	1,272	6,659
Total days	1,488	1,488	1,440	1,488	1,440	1,488	1,488	1,355	1,488	1,440	1,488	1,440	17,531

TABLE 11.—*Maximum heating degree days recorded on each day of the year—Washington, D. C.*

[Base 65° F.]

[Period of record, 1897–98 to 1945–46]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	2	6	19	26	42	56	52	41	38	18	14
2	0	0	3	18	26	42	52	48	45	30	17	14
3	3	0	5	18	28	41	56	54	44	29	18	12
4	0	2	3	16	27	40	54	52	43	28	18	9
5	0	0	6	16	29	42	54	59	42	31	19	12
6	0	0	8	22	28	42	54	59	49	29	19	7
7	0	0	6	20	29	38	46	57	43	30	17	11
8	0	1	6	19	26	41	53	59	41	26	19	7
9	0	0	6	21	28	46	47	64	44	30	16	10
10	0	0	10	24	28	48	53	67	42	28	18	8
11	0	1	14	24	32	48	53	66	39	30	17	12
12	0	3	8	23	31	44	52	58	44	30	16	9
13	0	0	8	21	38	40	65	58	41	30	15	10
14	0	0	10	21	34	50	62	53	39	28	14	10
15	1	0	8	22	38	50	49	53	40	29	15	6
16	0	0	8	20	40	48	57	52	44	30	15	6
17	0	0	7	19	35	46	51	50	46	26	13	6
18	0	2	8	20	37	52	57	50	42	26	12	4
19	0	0	12	25	36	50	52	55	36	27	8	1
20	0	2	10	28	35	52	50	52	40	27	13	2
21	0	2	12	24	34	50	48	47	41	23	14	4
22	0	2	17	23	33	46	48	42	36	23	14	2
23	0	4	16	27	35	46	57	44	42	23	12	5
24	0	5	13	23	36	46	52	53	40	23	11	8
25	0	4	13	22	38	42	53	52	39	25	16	1
26	1	6	15	24	39	53	54	46	35	20	12	2
27	0	5	12	28	41	50	50	52	32	23	11	2
28	0	5	13	25	44	45	54	57	33	27	12	2
29	0	5	15	28	40	56	48	34	36	19	11	3
30	1	4	16	28	48	62	53	-----	32	20	10	2
31	1	4	-----	30	-----	58	54	-----	31	-----	10	-----

TABLE 12.—*Minimum heating degree days recorded on each day of the year—Washington, D. C.*

[Base 65° F.]

[Period of record, 1897–98 to 1945–46]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0	0	0	0	8	10	13	5	0	0	0
2	0	0	0	0	0	10	8	15	10	0	0	0
3	0	0	0	0	0	8	17	12	2	0	0	0
4	0	0	0	0	0	9	7	9	0	0	0	0
5	0	0	0	0	0	3	12	4	3	0	0	0
6	0	0	0	0	0	4	5	9	0	0	0	0
7	0	0	0	0	0	8	3	10	0	0	0	0
8	0	0	0	0	0	6	6	12	0	0	0	0
9	0	0	0	0	0	7	0	14	4	0	0	0
10	0	0	0	0	4	9	11	7	5	0	0	0
11	0	0	0	0	2	7	12	6	0	0	0	0
12	0	0	0	0	0	8	3	6	3	0	0	0
13	0	0	0	0	0	6	0	10	1	0	0	0
14	0	0	0	0	2	3	4	8	0	0	0	0
15	0	0	0	0	2	10	0	4	3	0	0	0
16	0	0	0	0	0	14	9	8	0	0	0	0
17	0	0	0	0	0	12	7	0	2	0	0	0
18	0	0	0	0	0	8	10	5	0	0	0	0
19	0	0	0	0	1	6	9	10	0	9	0	0
20	0	0	0	0	0	7	10	0	0	0	0	0
21	0	0	0	0	0	6	12	8	0	0	0	0
22	0	0	0	0	0	10	4	5	0	0	0	0
23	0	0	0	0	3	5	8	4	0	0	0	0
24	0	0	0	0	2	3	13	8	0	0	0	0
25	0	0	0	0	5	8	8	0	0	0	0	0
26	0	0	0	0	4	9	10	1	0	0	0	0
27	0	0	0	0	0	11	3	10	0	0	0	0
28	0	0	0	0	5	7	7	2	0	0	0	0
29	0	0	0	0	4	9	10	15	0	0	0	0
30	0	0	0	0	0	10	4	-----	0	0	0	0
31	0	0	-----	0	-----	12	10	-----	0	-----	0	-----

TABLE 13.—*Cooling degree days—Washington, D. C.*

[Base 75° F.]

Season	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1889	0	0	0	0	2	24	67	20	4	0	0	0	117
1890	0	0	0	0	00	57	78	52	10	0	0	0	197
1891	0	0	0	0	2	34	17	57	8	0	0	0	118
1892	0	0	0	0	0	68	94	62	0	0	0	0	224
1893	0	0	0	0	2	39	91	49	2	0	0	0	183
1894	0	0	0	0	0	87	131	43	40	0	0	0	301
1895	0	0	0	0	20	60	45	107	60	0	0	0	292
1896	0	0	0	9	18	23	93	114	10	0	0	0	267
1897	0	0	0	0	0	19	73	18	30	0	0	0	140
1898	0	0	0	0	5	55	158	94	54	8	0	0	374
1899	0	0	0	0	4	72	74	64	18	0	0	0	232
1900	0	0	0	0	3	36	142	167	83	0	0	0	431
1901	0	0	0	0	0	56	164	68	9	0	0	0	297
1902	0	0	0	2	4	32	98	27	7	0	0	0	170
1903	0	0	0	0	4	1	85	30	16	0	0	0	136
1904	0	0	0	0	6	25	54	20	7	0	0	0	112
1905	0	0	0	0	2	40	76	47	10	0	0	0	175
1906	0	0	0	0	2	31	52	76	55	0	0	0	216
1907	0	0	0	0	0	18	72	28	13	0	0	0	131
1908	0	0	0	0	14	42	114	62	0	0	0	0	232
1909	0	0	0	1	0	66	64	36	0	0	0	0	167
1910	0	0	0	0	0	33	116	28	23	4	0	0	204
1911	0	0	0	0	48	42	140	104	17	0	0	0	351
1912	0	0	0	0	3	14	80	52	34	0	0	0	183
1913	0	0	0	0	0	58	114	43	32	0	0	0	247
1914	0	0	0	0	14	62	92	87	20	0	0	0	275
1915	0	0	0	5	2	26	73	64	70	0	0	0	240
1916	0	0	0	0	3	6	106	62	14	0	0	0	191
1917	0	0	0	0	0	20	72	66	4	0	0	0	162
1918	0	0	0	0	18	21	65	127	2	0	0	0	233
1919	0	0	0	0	7	29	92	37	27	4	0	0	196
1920	0	0	0	0	0	38	62	68	11	0	0	0	179
1921	0	0	0	0	0	69	136	40	48	0	0	0	293
1922	0	0	0	3	0	46	88	30	24	0	0	0	191
1923	0	0	0	0	0	97	64	58	8	0	0	0	227
1924	0	0	0	0	0	46	56	65	10	0	0	0	177
1925	0	0	0	3	4	115	98	35	52	0	0	0	307
1926	0	0	0	0	0	12	106	110	24	5	0	0	257
1927	0	0	0	1	2	20	86	8	20	8	0	0	145
1928	0	0	0	0	0	14	113	108	12	2	0	0	249
1929	0	0	0	4	9	46	119	64	38	0	0	0	280
1930	0	0	0	0	14	60	187	120	107	0	0	0	488
1931	0	0	0	0	5	50	151	90	83	2	0	0	381
1932	0	0	0	0	8	48	108	104	44	0	0	0	312
1933	0	0	0	0	13	97	99	78	28	0	0	0	315
1934	0	0	0	0	12	95	184	54	6	0	0	0	351
1935	0	0	0	0	2	49	146	104	0	0	0	0	301
1936	0	0	0	0	6	38	124	120	34	0	0	0	322
1937	0	0	0	0	3	44	102	115	25	0	0	0	289
1938	0	0	0	0	0	40	118	127	9	0	0	0	294
1939	0	0	0	0	32	63	86	130	26	6	0	0	343
1940	0	0	0	0	4	62	147	44	6	0	0	0	263
1941	0	0	0	6	34	60	104	82	49	36	0	0	371
1942	0	0	0	0	15	46	128	74	48	0	0	0	311
1943	0	0	0	0	7	162	139	156	30	0	0	0	494
1944	0	0	0	0	16	76	138	102	32	0	0	0	364
1945	0	0	0	0	3	100	88	63	52	0	0	0	304

TABLE 14.—*Frequency of cooling degree days at Washington, D. C*

[Base 75° F.]

[Period of record, 48 years, 1898–1945]

Season	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
20								1					1
19							1						1
18													
17							3	1					4
16						1	3	1					5
15						1	1	3					13
14						1	8	4					26
13						1	14	10	1				36
12						4	18	11	3				75
11						10	36	25	4				122
10						24	61	27	10				138
9					2	23	52	45	14	2			211
8					2	40	81	66	20	2			260
7					5	49	110	60	36				307
6				1	11	61	125	69	38	2			316
5					11	73	108	93	31				394
4				2	23	81	132	101	51	4			343
3				3	16	69	92	112	46	5			386
2				4	37	83	103	97	57	5			
1													
0	1,488	1,355	1,488	1,430	1,381	920	541	765	1,129	1,468	1,440	1,488	14,893
Total days	1,488	1,355	1,488	1,440	1,488	1,440	1,488	1,488	1,440	1,488	1,440	1,488	17,531

TABLE 15.—*Maximum cooling degree days recorded on each day of the year—Washington, D. C.*

[Base 75° F.]

[Period of record, 1898–1945]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	4	8	15	13	11	5	0	0
2	0	0	0	0	1	7	13	11	11	3	0	0
3	0	0	0	0	1	10	15	12	9	3	0	0
4	0	0	0	0	0	11	11	13	7	7	0	0
5	0	0	0	0	3	11	12	15	6	8	0	0
6	0	0	0	0	1	11	12	17	9	7	0	0
7	0	0	0	3	4	11	12	13	9	8	0	0
8	0	0	0	1	3	13	11	13	12	0	0	0
9	0	0	0	1	3	12	13	15	8	2	0	0
10	0	0	0	3	1	7	15	13	10	3	0	0
11	0	0	0	0	3	11	11	13	11	1	0	0
12	0	0	0	0	6	9	11	9	9	0	0	0
13	0	0	0	0	3	8	9	11	8	0	0	0
14	0	0	0	0	3	7	11	13	9	0	0	0
15	0	0	0	0	1	9	11	9	9	0	0	0
16	0	0	0	0	3	9	10	11	7	1	0	0
17	0	0	0	0	1	9	13	10	7	1	0	0
18	0	0	0	0	4	9	13	8	5	0	0	0
19	0	0	0	1	7	8	13	10	7	0	0	0
20	0	0	0	5	7	11	16	11	5	0	0	0
21	0	0	0	0	4	11	15	11	7	0	0	0
22	0	0	0	0	5	8	12	9	10	0	0	0
23	0	0	0	2	7	9	10	9	5	0	0	0
24	0	0	0	3	4	11	10	9	6	0	0	0
25	0	0	0	0	1	10	11	9	9	0	0	0
26	0	0	0	1	5	11	14	9	8	0	0	0
27	0	0	0	3	8	11	15	8	5	0	0	0
28	0	0	0	0	8	9	13	9	4	0	0	0
29	0	0	0	0	5	14	12	8	1	0	0	0
30	0	-----	0	0	5	10	11	9	2	0	0	0
31	0	-----	0	-----	7	-----	12	13	-----	0	-----	0

TABLE 16.—*Average daily maximum temperature*

[Period of record: 50 years, 1896–1945]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43	42	48	59	70	80	86	86	82	73	61	50
2	43	42	49	60	71	80	86	86	82	73	61	49
3	43	42	49	60	71	80	86	85	82	73	60	48
4	43	42	50	61	72	80	86	85	82	72	60	48
5	43	42	50	61	72	80	86	85	82	72	60	47
6	43	42	50	61	72	80	86	85	82	72	59	47
7	43	42	51	62	73	80	86	85	81	71	59	46
8	43	42	51	62	73	80	86	85	81	71	58	46
9	43	42	52	62	73	81	87	85	81	70	58	45
10	43	42	52	62	73	81	87	85	80	70	58	45
11	43	42	52	63	73	81	87	85	80	69	57	45
12	43	42	53	63	74	82	87	85	80	69	56	44
13	43	42	53	63	74	82	87	85	80	69	56	44
14	43	43	54	64	75	82	87	85	80	68	56	44
15	43	43	54	64	75	82	87	85	79	68	56	44
16	43	43	54	64	75	82	88	85	79	68	55	44
17	43	43	54	65	76	83	88	85	78	67	55	43
18	43	44	55	65	76	83	88	85	78	67	54	43
19	43	44	55	66	76	83	88	84	78	67	54	43
20	42	44	56	66	77	83	88	84	78	66	54	43
21	42	45	56	66	77	84	87	84	78	66	53	43
22	42	45	56	66	77	84	87	84	77	66	52	43
23	42	46	57	67	77	84	87	84	77	65	52	43
24	42	46	57	67	78	84	87	84	76	64	52	43
25	42	47	57	68	78	84	87	83	76	64	52	43
26	42	47	58	68	78	85	86	83	76	64	52	43
27	42	47	58	68	79	85	86	83	76	63	52	42
28	42	48	59	68	79	85	86	83	75	63	51	42
29	42	-----	59	69	79	86	86	83	74	62	50	42
30	42	-----	59	69	79	86	86	83	74	62	50	42
31	42	-----	59	-----	80	-----	86	83	-----	62	-----	43

TABLE 17.—*Absolute highest temperatures ever recorded on each day of year*

[Period of record 1871–1945]

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	65	67	67	83	96	97	102	98	98	93	79	70
2	71	62	71	84	89	97	101	96	98	89	83	65
3	64	65	79	83	90	99	101	100	95	92	78	68
4	66	68	80	81	93	99	100	102	94	91	79	73
5	64	70	79	86	94	100	101	102	97	96	79	71
6	63	69	77	92	91	97	98	106	95	93	74	73
7	76	64	76	94	95	97	98	104	104	95	77	69
8	69	68	77	93	92	96	98	101	100	88	78	68
9	76	67	72	87	93	102	104	102	98	90	77	67
10	63	65	75	89	93	94	105	98	96	92	76	67
11	65	76	77	91	94	101	99	101	97	90	74	68
12	76	67	75	81	93	95	99	99	96	85	77	71
13	75	70	74	87	95	95	98	101	94	88	80	71
14	76	68	74	88	92	94	97	100	94	84	76	70
15	77	69	75	89	94	93	98	96	97	85	77	70
16	68	73	87	88	93	96	102	95	95	89	76	64
17	74	74	88	92	92	95	99	95	92	86	77	64
18	67	72	80	93	96	97	103	95	91	85	80	72
19	69	74	87	92	96	94	102	97	96	88	77	74
20	64	76	83	94	95	99	106	100	94	79	79	66
21	67	73	89	86	95	98	104	100	96	81	79	68
22	76	77	90	89	96	96	103	97	98	84	75	72
23	71	78	93	93	97	98	98	98	98	85	74	71
24	64	70	85	94	92	98	96	95	92	80	73	69
25	71	84	84	93	94	98	100	96	95	80	69	68
26	71	74	87	94	96	97	103	96	96	82	72	72
27	71	70	86	95	95	97	100	94	92	82	75	65
28	69	73	85	87	97	96	99	92	91	87	70	70
29	69	70	92	89	95	101	98	95	91	82	73	64
30	72	-----	86	92	95	98	97	95	89	79	75	68
31	71	-----	84	-----	95	-----	99	101	-----	80	-----	67

TABLE 18.—*Average daily minimum temperature*

[Period of record: 50 years, 1896–1945]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	28	26	29	40	49	59	66	68	63	54	42	34
2	28	26	30	40	49	59	66	68	63	53	42	33
3	28	26	30	40	50	60	67	68	63	52	42	33
4	28	26	31	40	50	60	67	68	63	52	42	32
5	28	26	32	40	51	61	68	68	63	52	41	32
6	28	26	32	41	51	61	68	68	62	52	41	32
7	28	27	33	41	52	61	68	68	62	51	40	31
8	28	27	33	42	52	61	68	68	62	51	40	30
9	28	27	34	42	52	61	68	68	62	50	40	30
10	28	27	34	42	52	62	68	67	62	50	40	30
11	28	27	34	42	53	62	68	67	61	50	39	30
12	28	27	35	43	53	62	68	67	60	49	39	29
13	28	27	35	43	54	62	68	66	60	59	39	29
14	28	27	36	43	54	63	68	66	60	48	38	29
15	28	27	36	44	54	63	68	66	60	48	38	29
16	27	27	36	44	54	63	68	66	60	48	38	29
17	27	28	36	45	54	64	68	66	59	48	37	28
18	27	28	37	45	55	64	68	65	59	48	37	28
19	27	28	37	46	55	64	68	65	59	47	37	28
20	27	28	37	46	56	64	68	65	58	47	36	28
21	27	28	38	46	56	65	68	65	58	46	36	28
22	27	28	38	46	56	65	68	65	58	46	36	28
23	27	28	38	46	57	65	68	65	58	46	36	28
24	27	28	38	47	57	65	68	65	57	45	35	28
25	27	28	38	47	58	65	68	64	57	44	35	28
26	26	28	39	47	58	65	68	64	56	44	35	28
27	26	29	39	47	58	66	68	64	56	43	34	28
28	26	29	39	48	59	66	68	64	56	43	34	28
29	26	-----	39	48	59	66	68	64	56	42	34	28
30	26	-----	39	49	59	66	68	64	55	42	34	28
31	26	-----	39	-----	59	-----	68	64	-----	42	-----	28

TABLE 19.—*Absolute lowest temperatures ever recorded on each day of year*

[Period of record 1871–1945]

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	−14	6	13	15	34	45	54	54	50	36	27	1
2	−1	2	13	23	37	43	55	55	50	33	28	15
3	−3	0	11	27	36	45	53	56	48	35	23	17
4	−3	2	4	27	40	46	52	54	49	35	26	15
5	−3	−2	6	24	39	48	53	54	50	37	20	14
6	2	1	10	26	37	46	57	53	47	35	27	11
7	5	3	13	29	40	47	56	58	46	34	27	10
8	0	0	14	29	39	49	54	54	53	36	27	8
9	5	−7	16	28	36	45	55	58	48	34	27	4
10	−3	−8	14	29	37	46	54	55	44	30	27	4
11	6	−15	18	26	33	45	54	56	40	33	26	12
12	3	4	11	24	37	50	53	55	41	31	24	14
13	−8	2	14	26	39	51	56	55	44	31	22	13
14	−13	4	13	30	41	49	55	55	46	32	19	6
15	4	−6	19	28	40	47	56	56	43	32	21	6
16	2	5	14	29	38	50	56	54	44	30	19	10
17	4	5	13	26	40	50	56	51	44	33	17	10
18	−6	3	13	25	42	51	55	54	45	34	21	10
19	3	4	12	22	44	51	56	53	44	30	18	6
20	8	8	12	28	43	54	53	53	41	32	20	5
21	2	7	10	31	41	51	56	53	44	31	18	4
22	1	13	17	30	41	51	53	51	39	29	12	3
23	0	11	16	33	45	51	56	52	36	33	12	13
24	6	1	17	34	41	46	59	49	40	29	13	6
25	3	−1	19	32	42	53	58	54	41	31	21	5
26	5	13	25	34	42	57	54	51	38	28	19	4
27	6	8	20	38	42	57	55	51	40	31	14	2
28	−2	−1	21	33	44	54	56	50	42	27	15	10
29	2	9	18	30	41	54	58	50	40	30	14	2
30	−6	-----	21	34	44	50	56	50	38	26	11	−7
31	−2	-----	21	-----	44	-----	52	49	-----	26	-----	−13

TABLE 20.—*Daily temperature extremes (° F.)*

Month	Average		Absolute											
			Maximum				Minimum				Mean			
	Extreme maximum	Extreme minimum	Highest	Date	Lowest	Date	Highest	Date	Lowest	Date	Highest	Date	Lowest	Date
Number of years (through 1945).	75	75	75	75	74	74	74	74	75	75	57	57	57	57.
January	63	9	77	15, 1932	8	13, 1912	58	4, 1874	−14	1, 1881	68	13, 1932	0	13, 1912.
February	65	11	84	25, 1930	4	10, 1899	59	20, 1939	−15	11, 1899	68	25, 1930	−2	10, 1899.
March	75	19	93	23, 1907	20	4, 1883	66	25, 1913	4	4, 1873	74	23, 1907	16	6, 1901.
April	85	30	95	27, 1915	33	18, 1875	69	19, 1896	15	1, 1923	80	19, 1896 [3]	26	1, 1923.
May	91	41	97	28, 1941	46	5, 1917	73	28, 1939	33	11, 1906	83	27, 1941 [4]	44	5, 1917.
June	95	51	102	9, 1874	52	6, 1894	78	29, 1874	43	2, 1897	89	29, 1934	50	2, 1907.
July	97	58	106	20, 1930	62	8, 1891	81	27, 1930	52	31, 1895	91	20, 1930	58	8, 1891.
August	95	55	106	6, 1918	62	30, 1911	79	1, 1917	49	31, 1934	92	6, 1918	59	26, 1908.
September	92	45	104	7, 1881	54	24, 1887	75	5, 1880 [1]	36	23, 1904	87	8, 1939	48	30, 1899.
October	83	33	96	5, 1941	40	23, 1889	74	4, 1898 [5]	26	31, 1917 [2]	83	5, 1941 [6]	35	31, 1917.
November	73	23	83	2, 1929	24	30, 1929	65	18, 1928	11	30, 1929	74	2, 1929	18	30, 1929.
December	64	13	74	19, 1924	9	9, 1880	58	14, 1901	−13	31, 1880	62	5, 1916	3	30, 1917.
Year	98	5	106	July 20, 1930	4	Feb. 10, 1899	81	July 27, 1930	−15	Feb. 11, 1899	92	Aug. 6, 1918	−2	Feb. 10, 1899.

Other dates:
[1] 9, 1884; 11, 1900; 7, 1913; 2, 1930; 1, 4, 1932.
[2] 30, 1873; 31, 1893.
[3] 20, 1941.
[4] 28, 1941.
[5] 5, 1898.
[6] 7, 1941.

TABLE 21.—*Average frequencies of daily maximum temperatures (° F.) of specified values*

[Period of 74 years, 1872–1945]

Month	0°–4°	5°–9°	10°–14°	15°–19°	20°–24°	25°–29°	30°–34°	35°–39°	40°–44°	45°–49°	50°–54°	55°–59°	60°–64°	65°–69°	70°–74°	75°–79°	80°–84°	85°–89°	90°–94°	95°–99°	100°–104°	105° and over
January		(1)	0.1	0.4	0.9	2.5	3.8	5.5	5.7	4.4	3.3	2.1	1.4	0.6	0.2	0.1						
February	(1)		.2	.2	.5	1.6	2.8	4.7	5.8	4.3	3.2	2.3	1.3	.8	.4	.1	(1)					
March					.1	.3	1.4	2.3	4.5	5.0	4.8	4.3	2.9	2.6	1.5	.7	0.4	0.2	(3)			
April							(1)	.2	.9	2.3	3.5	4.2	5.3	4.3	3.7	2.6	1.9	.8	0.3	(1)		
May										(3)	.5	1.3	2.9	4.4	5.8	5.9	5.0	3.5	1.5	0.2		
June											(3)	.1	.5	1.2	3.1	4.8	7.2	7.2	4.7	1.1	0.1	
July													(1)	.1	.9	3.0	7.2	9.1	7.5	2.9	.3	(2)
August													.1	.5	1.8	4.8	8.2	8.8	5.1	1.5	.2	(1)
September											(1)	.3	1.4	2.8	5.5	6.6	6.5	4.1	2.3	.5	(2)	
October									.1	.6	2.2	3.8	5.9	6.0	5.6	3.9	2.0	.7	.2	(2)		
November					(3)	.1	.5	1.4	3.0	4.6	5.7	4.5	4.4	3.1	1.9	.8	(3)					
December		(2)	.1	.2	.4	1.5	2.9	5.2	6.1	5.4	4.0	2.4	1.8	.8	.2							
Year	(1)	(3)	.4	.8	1.9	6.0	11.4	19.3	26.1	26.6	27.2	25.3	27.9	27.2	30.6	33.3	38.4	34.4	21.6	6.2	.6	(3)

NOTE.—Italics in parentheses indicate total number of cases used when average less than one-tenth. Figures are in days.

TABLE 22.—*Average frequencies of daily minimum temperatures (° F.) of specified values*

[Period of 74 years, 1872–1945]

Month	Below −10°	−6°–−10°	−1°–−5°	0°–4°	5°–9°	10°–14°	15°–19°	20°–24°	25°–29°	30°–34°	35°–39°	40°–44°	45°–49°	50°–54°	55°–59°	60°–64°	65°–69°	70°–74°	75°–79°	80°–84°
January	(2)	(3)	0.1	0.3	1.1	2.0	3.3	4.9	6.2	6.8	3.8	1.6	0.5	0.2	0.1	(1)				
February	(1)	0.1	.1	.3	.9	1.5	2.5	4.4	5.7	6.7	3.8	1.5	.4	.3	.1	(2)				
March				(1)	(1)	.4	.9	2.1	4.7	7.7	6.9	4.7	1.8	1.2	.5	0.1	(1)			
April							(1)	.1	.7	2.9	5.4	7.7	6.3	3.8	2.2	.8	0.1			
May										(2)	.5	2.7	5.3	7.4	7.0	5.6	2.3	0.2	(1)	
June												(1)	.5	2.4	5.4	7.7	9.0	4.6	0.4	
July														.2	1.9	5.7	9.6	11.5	2.0	0.1
August													(2)	1.0	3.2	7.4	10.5	7.9	1.0	
September											.1	1.0	2.5	4.6	5.9	6.9	5.9	3.0	.1	
October								.2	.1	1.6	4.0	6.1	6.7	5.9	3.9	2.0	.6	.1		
November						.1	.2	1.1	3.3	7.3	6.9	5.0	3.3	1.7	.8	.3	(3)			
December	(1)	(1)	(1)	.1	.2	1.3	2.4	4.4	6.4	7.9	4.5	2.5	.9	.3	(2)					
Year	.1	.1	.2	.7	2.2	5.3	9.3	17.0	27.1	40.9	35.9	32.8	28.2	29.0	31.0	36.5	38.1	27.3	3.5	.1

NOTE.—Italics in parentheses indicate total number of cases used when average less than one-tenth. Figures are in days.

TABLE 23.—*Average cumulative frequencies of daily maximum temperatures (° F.) of specified values*

[Period of 74 years, 1872–1945]

Month	Under 20°	32° or below	Under 40°	Under 50°	Under 60°	Under 70°	70° or above	80° or above	90° or above	95° or above	100° or above
January	0.5	5.8	13.2	23.3	28.7	30.7	0.3				
February	.4	4.1	10.0	20.1	25.6	27.7	.5	(1)			
March		1.2	4.1	13.6	22.7	28.2	2.8	0.6	(3)		
April			.2	3.4	11.1	20.7	9.3	3.0	0.3	(1)	
May				(3)	1.8	9.1	21.9	10.2	1.7	0.2	
June					.1	1.8	28.2	20.3	5.9	1.2	0.1
July						.1	30.9	27.0	10.7	3.2	.3
August						.6	30.4	23.8	6.8	1.7	.2
September					.3	4.5	25.5	13.4	2.8	.5	(2)
October				.7	6.7	18.6	12.4	2.9	.2	(2)	
November		.4	2.0	9.6	19.8	27.3	2.7	(3)			
December	.3	3.6	10.3	21.8	28.2	30.8	.2				
Year	1.2	15.1	39.8	92.5	145.0	200.1	165.1	101.2	28.4	6.8	0.6

NOTE.—Italics in parentheses indicate total number of cases used when average is less than one-tenth. Figures are in days.

TABLE 24.—*Average cumulative frequencies of daily minimum temperatures (° F.) of specified values*

[Period of 74 years, 1872–1945]

Month	Under 0°	Under 10°	Under 20°	32° or less	Under 40°	Under 50°	Under 60°	60° or above	70° or above	80° or above
January	0.2	1.6	6.9	22.3	28.6	30.7	31.0	(1)		
February	.1	1.3	5.3	19.8	26.0	27.9	28.3	(2)		
March		(2)	1.3	12.5	22.7	29.2	30.9	0.1		
April			(1)	2.3	9.1	23.1	29.1	.9		
May					.5	8.5	22.9	8.1	0.2	
June						.5	8.3	21.7	5.0	
July							2.1	28.9	13.6	0.1
August						(2)	4.2	26.8	8.9	
September					.1	3.6	14.1	15.9	3.1	
October				.7	5.7	18.5	28.3	2.7	.1	
November			.3	8.8	18.9	27.2	29.7	.3		
December	(3)	.4	4.2	20.0	27.3	30.7	31.0			
Year	.4	3.3	18.0	86.4	138.9	199.9	259.9	105.4	30.9	.1

NOTE.—Italics in parentheses indicate total number of cases used when average is less than one-tenth. Figures are in days.

TABLE 25.—*Greatest consecutive number of days maximum temperature (° F.)*

[Period of 74 years, 1872–1945]

Month	Did not exceed at any time—					
	10°	Period	20°	Period	32°	Period
July	0		0		0	
August	0		0		0	
September	0		0		0	
October	0		0		0	
November	0		0		3	22–24, 1880.[1]
December	1	30, 1880	3	25–27, 1872[1]	11	21–31, 1935.
January	1	3, 1879[1]	7	Dec. 29, 1917–Jan. 4, 1918.	12	Jan. 23–Feb. 3, 1936.
February	2	6–7, 1895[1]	5	5–9, 1895[1]	12	3–14, 1895.
March	0		1	4, 1873[1]	5	19–23, 1885.
April	0		0		0	
May	0		0		0	
June	0		0		0	
Year	2	Feb. 6–7, 1895[1]	7	Dec. 29, 1917–Jan. 4, 1918.	12	Jan. 23–Feb. 3, 1936.[1]

[1] Also other dates, earlier.

TABLE 26.—*Greatest consecutive number of days minimum temperature (° F.)*

[Period of 74 years, 1872–1945]

Month	Did not fall below at any time—					
	70°	Period	75°	Period	80°	Period
January	0		0		0	
February	0		0		0	
March	0		0		0	
April	0		0		0	
May	3	26–28, 1880	1	13, 1881	0	
June	10	20–29, 1943	6	23–28, 1943	0	
July	21	1–21, 1876	6	8–13, 1876	2	9–10, 1876.
August	17	7–23, 1872	5	6–10, 1896	0	
September	7	4–10, 1881	1	5, 1880[1]	0	
October	4	4–7, 1941	0		0	
November	0		0		0	
December	0		0		0	
Year	21	July 1–21, 1876	6	June 23–28, 1943	2	July 9–10, 1876.

[1] Also other dates, earlier.

TABLE 27.—*Greatest consecutive number of days temperature (° F.)*

[Period of 74 years, 1872–1945]

Month	Rose to—					
	90° or above	Period	95° or above	Period	100° or above	Period
January	0		0		0	
February	0		0		0	
March	2	22–23, 1907	0		0	
April	3	6–8, 1929[1]	1	27, 1915	0	
May	6	18–23, 1911[1]	3	18–21, 1911	0	
June	10	19–28, 1943	5	2–6, 1925	1	9, 1874.[1]
July	18	June 27–July 14, 1872.	6	2–7, 1911	4	19–22, 1930.
August	14	6–19, 1900	7	6–12, 1900	3	3–5, 1930.
September	7	4–10, 1884	4	5–8, 1881	1	8, 1939.[1]
October	4	4–7, 1941	1	5, 1941[1]	0	
November	0		0		0	
December	0		0		0	
Year	18	June 27–July 14, 1872.	7	Aug. 6–12, 1900	4	July 19–22, 1930.

[1] Also other dates, earlier.

TABLE 28.—*Greatest consecutive number of days temperature (°F.)*

[Period 74 years, 1872–1945]

Month	Dropped to—							
	0° or below	Period	10° or below	Period	20° or below	Period	32° or below	Period
July	0		0		0		0	
August	0		0		0		0	
September	0		0		0		0	
October	0		0		0		3	Oct. 30–Nov. 1, 1873.
November	0		0		3	22–24, 1880	16	15–30, 1880.
December	3	Dec. 30, 1880–Jan. 1, 1881	4	Dec. 29, 1880–Jan. 1, 1881	11	21–31, 1892	28	1–28, 1910.
January	2	13–14, 1886	6	13–18, 1893	20	3–22, 1893	37	Jan. 1–Feb. 6, 1918.
February	3	9–11, 1899	5	5–9, 1895	13	3–15, 1895	38	Feb. 23–Mar. 1, 1901.
March	0		2	5–6, 1873	8	17–24, 1885	13	4–16, 1888.
April	0		0		1	1, 1923	6	2–7, 1881.
May	0		0		0		0	
June	0		0		0		0	
Year	3	Feb. 9–11, 1899	6	Jan. 13–18, 1893	20	Jan. 3–22, 1893	38	Jan. 23–Mar. 1, 1901.

TABLE 29.—*Normal daily mean temperatures—49 years*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	34.1	33.6	38.0	48.0	58.8	68.5	75.6	77.0	72.1	63.2	50.8	39.9
2	34.0	33.7	38.3	48.4	59.2	68.8	75.7	76.9	71.8	62.8	50.4	39.6
3	33.9	33.8	38.6	48.8	59.5	69.1	75.8	76.8	71.6	62.5	50.0	39.4
4	33.8	33.9	38.9	49.2	59.8	69.4	76.0	76.7	71.4	62.1	49.6	39.1
5	33.7	34.0	39.2	49.5	60.1	69.7	76.1	76.6	71.1	61.8	49.2	38.8
6	33.6	34.0	39.4	49.9	60.5	70.0	76.2	76.6	70.8	61.4	48.8	38.6
7	33.6	34.1	39.7	50.2	60.8	70.2	76.4	76.5	70.6	61.0	48.4	38.4
8	33.6	34.2	40.0	50.6	61.2	70.5	76.5	76.4	70.4	60.6	48.0	38.1
9	33.5	34.4	40.3	51.0	61.5	70.8	76.6	76.2	70.1	60.2	47.6	37.8
10	33.4	34.5	40.6	51.4	61.8	71.0	76.7	76.1	69.8	59.8	47.2	37.6
11	33.4	34.6	40.9	51.8	62.1	71.2	76.8	76.0	69.6	59.4	46.8	37.4
12	33.3	34.8	41.2	52.1	62.4	71.5	76.9	75.8	69.3	59.0	46.4	37.2
13	33.3	34.9	41.5	52.4	62.8	71.8	77.0	75.7	69.0	58.6	46.0	37.0
14	33.2	35.0	41.8	52.8	63.1	72.0	77.0	75.6	68.7	58.2	45.6	36.8
15	33.2	35.2	42.1	53.2	63.4	72.3	77.0	75.4	68.4	57.8	45.2	36.6
16	33.2	35.4	42.4	53.6	63.7	72.6	77.1	75.2	68.1	57.4	44.9	36.4
17	33.2	35.5	42.8	53.9	64.0	72.8	77.2	75.1	67.8	57.0	44.6	36.2
18	33.2	35.7	43.1	54.2	64.4	73.0	77.2	75.0	67.5	56.6	44.2	36.0
19	33.2	35.8	43.4	54.6	64.7	73.2	77.2	74.8	67.2	56.2	43.8	35.8
20	33.2	36.0	43.8	55.0	65.0	73.4	77.2	74.6	66.9	55.8	43.4	35.6
21	33.2	36.2	44.2	55.3	65.3	73.6	77.2	74.4	66.6	55.4	43.1	35.5
22	33.2	36.5	44.5	55.7	65.6	73.8	77.3	74.2	66.2	55.0	42.8	35.3
23	33.2	36.7	44.8	56.0	65.9	74.1	77.3	74.0	65.9	54.6	42.4	35.2
24	33.2	36.9	45.2	56.4	66.2	74.3	77.3	73.8	65.6	54.2	42.1	35.0
25	33.2	37.1	45.6	56.7	66.5	74.4	77.2	73.6	65.2	53.8	41.8	34.9
26	33.3	37.4	45.9	57.0	66.8	74.6	77.2	73.4	64.9	53.4	41.5	34.8
27	33.3	37.6	46.2	57.4	67.1	74.8	77.2	73.2	64.6	52.9	41.2	34.6
28	33.4	37.8	46.6	57.8	67.4	75.0	77.2	73.0	64.2	52.5	40.8	34.5
29	33.4	-----	47.0	58.1	67.6	75.2	77.1	72.8	63.9	52.1	40.5	34.4
30	33.4	-----	47.4	58.4	67.9	75.4	77.1	72.6	63.6	51.6	40.2	34.3
31	33.5	-----	47.7	-----	68.2	-----	77.0	72.3	-----	51.2	-----	34.2
Means	33.4	35.3	42.6	53.3	63.7	72.2	76.8	75.0	68.1	57.4	45.2	36.6

TABLE 30.—*Mean daily temperature—smoothed*

[50 years record 1896–1945]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	35	34	39	49	60	69	76	77	73	64	52	42
2	35	34	39	50	60	70	76	77	72	63	52	41
3	35	34	40	50	60	70	77	77	72	62	51	41
4	35	34	40	50	61	70	77	77	72	62	51	40
5	35	34	41	51	61	70	77	77	72	62	50	40
6	35	34	41	51	62	70	77	77	72	62	50	39
7	35	34	42	51	62	70	77	76	71	61	49	39
8	35	34	42	52	62	71	77	76	71	61	49	38
9	35	34	43	52	62	71	77	76	71	60	49	38
10	35	34	43	52	63	71	77	76	71	60	49	37
11	35	35	43	53	63	72	77	76	70	60	48	37
12	35	35	44	53	63	72	77	76	70	59	48	37
13	35	35	44	53	64	72	78	76	70	59	48	37
14	35	35	44	54	65	72	78	76	70	58	47	36
15	35	35	45	54	65	73	78	76	70	58	47	36
16	35	35	45	54	65	73	78	76	70	58	47	36
17	35	36	46	55	65	73	78	75	69	58	46	36
18	35	36	46	55	66	73	78	75	68	57	46	36
19	35	36	46	56	66	74	78	75	68	57	45	36
20	35	36	47	56	66	74	78	75	68	56	45	36
21	35	36	47	56	66	74	78	74	68	56	45	36
22	35	37	47	56	67	74	77	74	68	56	44	35
23	35	37	47	56	67	75	77	74	67	55	44	35
24	35	37	48	57	67	75	77	74	67	54	43	35
25	35	37	48	58	68	75	77	74	67	54	43	35
26	35	38	48	58	68	75	77	74	66	54	43	35
27	35	38	48	58	68	75	77	73	66	54	43	35
28	35	38	49	58	69	76	77	73	66	53	43	35
29	34	-----	49	58	69	76	77	73	65	52	42	35
30	34	-----	49	59	69	76	77	73	65	52	42	35
31	34	-----	49	-----	69	-----	77	73	-----	52	-----	35
Month	35.0	35.4	44.8	54.2	64.8	72.7	77.2	75.2	69.2	57.7	46.7	36.9

TABLE 31.—*Average hourly temperature (1890–1942)*

	A. M.												P. M.												
	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mid-night	Mean
Jan	32.7	32.2	32.0	31.5	31.0	30.8	30.6	30.7	31.8	33.6	35.5	37.2	38.4	39.5	40.1	40.0	39.2	38.0	36.8	36.0	34.9	34.3	33.6	33.0	34.7
Feb	32.7	32.1	31.6	31.2	30.7	30.4	30.3	30.7	32.1	34.0	36.1	37.9	39.2	40.4	41.2	41.3	40.7	39.5	38.1	37.1	35.9	35.1	34.3	33.7	35.3
March	40.6	40.0	39.4	38.8	38.2	37.8	37.8	39.1	41.3	43.3	45.4	47.3	48.9	50.1	50.9	51.0	50.3	49.2	47.5	46.2	44.6	43.5	42.5	41.7	44.0
April	49.4	48.5	47.7	47.0	46.3	45.9	47.1	49.4	52.2	54.5	56.5	58.5	60.0	61.1	61.9	62.0	61.5	60.2	58.3	56.7	54.6	53.1	51.8	50.8	53.9
May	58.9	58.1	57.2	56.5	55.9	55.9	58.0	60.6	63.5	65.9	68.0	69.6	71.0	72.1	72.7	72.6	72.0	70.7	68.5	66.4	64.1	62.5	61.2	60.2	64.3
June	67.0	66.2	65.4	64.8	64.2	64.8	66.9	69.3	72.1	74.4	76.3	77.7	79.0	79.9	80.3	80.1	79.4	78.2	76.2	74.1	71.7	70.3	69.1	68.1	72.2
July	71.3	70.6	69.9	69.2	68.7	68.9	70.9	73.4	76.3	78.7	80.6	82.0	83.2	84.0	84.3	84.0	83.1	81.8	79.8	77.7	75.5	74.2	73.1	72.2	76.4
Aug	69.7	69.1	68.4	67.9	67.3	67.2	68.6	71.1	74.1	76.5	78.5	79.9	81.2	82.2	82.5	82.2	81.3	79.9	77.5	75.5	73.4	72.2	71.2	70.3	74.5
Sep	63.9	63.3	62.6	62.1	61.6	61.2	62.0	64.5	67.8	70.6	72.8	74.5	75.9	76.8	77.3	76.9	75.9	73.9	71.0	69.1	67.2	66.1	65.1	64.3	68.6
Oct	52.6	52.0	51.3	50.8	50.3	50.0	50.2	52.2	55.5	58.6	61.1	63.0	64.4	65.5	65.9	65.5	64.2	61.7	59.1	57.5	55.9	54.9	54.0	53.1	57.1
Nov	43.0	42.5	41.9	41.5	41.1	40.7	40.5	41.5	43.8	46.5	49.0	59.8	52.3	53.2	53.6	53.1	51.8	50.0	48.3	47.2	45.8	45.0	44.2	43.4	46.3
Dec	34.7	34.2	33.8	33.4	33.1	32.8	32.7	33.0	34.2	36.2	38.3	39.9	41.2	42.2	42.6	42.3	41.3	40.0	38.7	37.9	36.9	36.2	35.6	35.0	36.9

TABLE 32.—*Earliest date of specified minimum temperature or less in autumn and winter*

Year	40° or less	36° or less	32° or less	28° or less	24° or less
1872	Oct. 12	Oct. 12	Nov. 10	Nov. 16	Nov. 22
1873	Oct. 13	Oct. 28	Oct. 30	Oct. 30	Nov. 14
1874	Oct. 6	Oct. 31	Nov. 2	Nov. 14	Nov. 22
1875	Sept. 24	Oct. 13	Oct. 14	Nov. 6	Nov. 18
1876	Oct. 3	Oct. 12	Oct. 12	Nov. 30	Dec. 1
1877	Oct. 7	Nov. 4	Nov. 4	Nov. 7	Nov. 30
1878	Oct. 21	Nov. 1	do	Nov. 9	Dec. 17
1879	Sept. 26	Oct. 25	Oct. 26	Oct. 26	Nov. 5
1880	Oct. 1	Oct. 19	Oct. 19	Nov. 16	Nov. 19
1881	Oct. 6	Oct. 6	Nov. 21	Nov. 21	Nov. 25
1882	Nov. 3	Nov. 3	Nov. 6	Nov. 19	Nov. 29
1883	Nov. 1	do	Nov. 13	Nov. 15	Nov. 15
1884	Oct. 15	Oct. 24	Oct. 26	Nov. 24	Nov. 25
1885	Oct. 10	Oct. 23	Nov. 1	Dec. 5	Dec. 6
1886	Oct. 4	Oct. 17	Nov. 8	Nov. 9	Nov. 27
1887	Sept. 26	Oct. 16	Oct. 16	Nov. 20	Nov. 29
1888	Sept. 30	Oct. 4	Nov. 18	Nov. 21	Nov. 22
1889	Oct. 3	Oct. 9	Nov. 6	Nov. 16	Dec. 1
1890	Oct. 22	Oct. 22	Oct. 31	Nov. 28	Nov. 29
1891	Oct. 12	Oct. 17	Oct. 29	Nov. 18	Nov. 18
1892	Oct. 3	Oct. 6	Oct. 31	Nov. 6	Nov. 24
1893	Oct. 17	Oct. 17	do	Oct. 31	Nov. 25
1894	Oct. 12	Oct. 16	Nov. 12	Nov. 12	Nov. 20
1895	Oct. 2	Oct. 10	Oct. 10	Nov. 21	Nov. 29
1896	Oct. 8	Oct. 9	Oct. 25	Nov. 23	Dec. 1
1897	Oct. 5	Oct. 31	Nov. 13	Nov. 14	Dec. 19
1898	Oct. 17	Oct. 24	Oct. 28	Nov. 25	Nov. 26
1899	Oct. 1	Oct. 2	Oct. 22	Dec. 6	Dec. 7
1900	Oct. 17	Oct. 20	Nov. 9	Nov. 14	Dec. 10
1901	Oct. 7	Oct. 18	Nov. 4	Nov. 7	Nov. 20
1902	Oct. 15	Oct. 30	Oct. 30	Nov. 29	Dec. 6
1903	Oct. 18	Oct. 27	Nov. 7	Nov. 7	Nov. 18
1904	Sept. 22	Sept. 23	Oct. 28	Oct. 31	Dec. 10
1905	Oct. 8	Oct. 13	Nov. 2	Nov. 11	Nov. 14
1906	Oct. 11	Oct. 11	Oct. 12	Dec. 3	Dec. 4
1907	Oct. 10	Oct. 20	Oct. 22	Nov. 14	Nov. 15
1908	Oct. 3	Oct. 13	Nov. 1	Nov. 5	Nov. 16
1909	Oct. 13	do	Oct. 20	Dec. 1	Dec. 9
1910	Oct. 24	Oct. 29	Oct. 30	Nov. 20	Nov. 21
1911	Oct. 25	Nov. 2	Nov. 2	Nov. 12	Nov. 13
1912	Oct. 16	Oct. 28	Nov. 3	Nov. 4	Dec. 9
1913	Sept. 23	Oct. 22	Nov. 1	Nov. 11	Dec. 10
1914	Oct. 27	Oct. 28	Nov. 7	Nov. 10	Nov. 18
1915	Oct. 10	Oct. 10	Nov. 16	Nov. 17	Dec. 5
1916	do	Oct. 11	Nov. 15	Nov. 15	Nov. 16
1917	Sept. 11	Oct. 7	Oct. 31	Oct. 31	Nov. 27
1918	Oct. 9	Oct. 23	Nov. 3	Nov. 12	Dec. 27
1919	Oct. 13	Nov. 3	Nov. 10	Nov. 16	Dec. 3
1920	Oct. 3	Nov. 4	Nov. 12	Nov. 12	Nov. 13
1921	Oct. 9	Oct. 14	Nov. 10	Dec. 15	Dec. 16
1922	Oct. 19	Oct. 19	Nov. 22	Nov. 29	Dec. 11
1923	Oct. 9	Nov. 2	Nov. 2	Nov. 2	Dec. 15
1924	Oct. 2	Oct. 22	Nov. 16	Nov. 17	Nov. 19
1925	Oct. 10	Oct. 11	Oct. 28	Nov. 24	Dec. 19
1926	Oct. 9	Oct. 22	do	Nov. 11	Nov. 12
1927	Oct. 16	Nov. 6	Nov. 7	Nov. 20	Dec. 8
1928	Oct. 26	Oct. 27	Oct. 30	Nov. 25	Nov. 26
1929	Oct. 9	Oct. 11	Nov. 10	Nov. 23	Nov. 29
1930	Oct. 19	Oct. 20	Oct. 21	Nov. 7	Nov. 27
1931	Nov. 1	Nov. 5	Nov. 7	Dec. 7	Dec. 8
1932	Oct. 14	Oct. 31	Nov. 13	Nov. 14	Nov. 26
1933	do	Oct. 26	Oct. 26	Nov. 11	Nov. 15
1934	Oct. 13	Oct. 13	Nov. 3	Nov. 15	Dec. 8
1935	Oct. 6	Oct. 7	Nov. 23	Nov. 24	Nov. 24
1936	Oct. 26	Oct. 26	Oct. 27	Oct. 28	Nov. 19
1937	Oct. 9	Oct. 15	Oct. 25	Nov. 21	Nov. 24
1938	Oct. 8	Nov. 1	Nov. 24	Nov. 24	Do.
1939	Oct. 15	Oct. 16	Nov. 4	Dec. 12	Dec. 24
1940	Oct. 19	Oct. 19	Oct. 21	Nov. 26	Dec. 3
1941	Oct. 17	Oct. 29	Nov. 11	Nov. 13	Dec. 30
1942	Sept. 29	Oct. 27	Oct. 28	Nov. 14	Dec. 2
1943	Oct. 11	Nov. 10	Nov. 14	Nov. 17	Dec. 14
1944	Oct. 15	Oct. 16	Nov. 13	Nov. 26	Dec. 3
1945	Oct. 4	Oct. 15	Nov. 5	Nov. 23	Dec. 11
1946	Oct. 15	Nov. 13	Nov. 16		

TABLE 33.—*Latest date of specified minimum temperature or less in winter and spring*

Year	24° or less	28°	32°	36°	40°
1872	Mar. 22	Mar. 25	Apr. 17	Apr. 23	Apr. 23
1873	Mar. 6	Mar. 28	Mar. 28	Apr. 26	Apr. 27
1874	Apr. 12	Apr. 13	Apr. 13	Apr. 30	May 4
1875	Apr. 19	Apr. 19	Apr. 22	Apr. 29	Do.
1876	Mar. 20	Mar. 23	Apr. 10	May 1	May 2
1877	do	Mar. 20	Apr. 15	Apr. 15	May 7
1878	Mar. 25	Mar. 26	Mar. 26	Mar. 30	May 13
1879	Mar. 4	Apr. 4	Apr. 8	May 3	May 3
1880	Mar. 25	Apr. 12	Apr. 12	Apr. 13	May 1
1881	Apr. 5	Apr. 6	Apr. 7	Apr. 21	Apr. 21
1882	Mar. 25	Apr. 12	Apr. 12	Apr. 25	May 3
1883	Mar. 24	Apr. 1	Apr. 25	Apr. 30	Apr. 30
1884	Mar. 5	Mar. 10	Apr. 9	Apr. 14	Apr. 14
1885	Mar. 24	Mar. 30	Apr. 14	Apr. 19	May 12
1886	Mar. 3	Mar. 7	Mar. 24	Apr. 9	Apr. 9
1887	Mar. 30	Apr. 6	Apr. 20	Apr. 20	Apr. 20
1888	Mar. 23	Mar. 24	Apr. 13	Apr. 25	May 3
1889	Feb. 26	Feb. 26	Apr. 6	Apr. 14	May 2
1890	Mar. 16	Apr. 2	do	Apr. 21	Apr. 22
1891	Mar. 17	Mar. 17	Apr. 9	Apr. 13	May 6
1892	Mar. 22	Mar. 22	Apr. 12	Apr. 16	Apr. 27
1893	Mar. 29	Mar. 30	Mar. 30	Apr. 16	May 8
1894	Mar. 28	Mar. 28	Apr. 9	Apr. 12	Apr. 16
1895	Mar. 5	Mar. 23	Mar. 29	Apr. 12	May 17
1896	Mar. 25	Apr. 9	Apr. 9	Apr. 9	Apr. 11
1897	Feb. 28	Mar. 27	Apr. 20	Apr. 21	Apr. 21
1898	do	Apr. 4	Apr. 7	May 9	May 9
1899	Mar. 7	do	Apr. 11	Apr. 11	Apr. 22
1900	Mar. 18	Mar. 22	Apr. 10	Apr. 15	May 10
1901	Mar. 7	Mar. 17	Mar. 18	Apr. 1	Apr. 29
1902	Mar. 19	Mar. 19	Apr. 4	Apr. 14	Apr. 28
1903	Feb. 26	Apr. 5	Apr. 5	Apr. 6	May 2
1904	Mar. 5	Apr. 20	Apr. 20	Apr. 20	Apr. 23
1905	do	Mar. 16	Apr. 19	Apr. 19	Do.
1906	Mar. 25	Apr. 3	Apr. 3	May 11	May 11
1907	Apr. 2	Apr. 2	Apr. 7	Apr. 22	May 22
1908	Feb. 28	Mar. 21	Apr. 5	Apr. 17	May 1
1909	Feb. 27	Apr. 11	Apr. 12	May 3	May 3
1910	Feb. 26	Mar. 16	Mar. 18	Mar. 19	May 16
1911	Mar. 22	Apr. 2	Apr. 10	Apr. 23	May 6
1912	Mar. 10	Mar. 26	Apr. 4	Apr. 9	Apr. 24
1913	Mar. 8	Mar. 18	Apr. 8	Apr. 21	May 12
1914	Mar. 22	Apr. 6	Apr. 10	Apr. 10	Apr. 14
1915	Mar. 30	Mar. 31	Apr. 3	Apr. 15	Apr. 16
1916	Mar. 20	Mar. 24	Apr. 9	Apr. 11	Do.
1917	Mar. 19	Apr. 9	Apr. 14	Apr. 15	Apr. 17
1918	Mar. 11	Mar. 16	Apr. 12	Apr. 13	Apr. 15
1919	Apr. 2	Apr. 2	Apr. 2	Apr. 26	Apr. 27
1920	Mar. 8	Mar. 15	Apr. 10	Apr. 14	May 16
1921	Feb. 25	Mar. 30	Apr. 11	Apr. 11	Apr. 19
1922	Mar. 1	Mar. 23	Mar. 23	Apr. 25	Apr. 29
1923	Apr. 1	Apr. 2	Apr. 15	Apr. 15	May 11
1924	Feb. 24	Apr. 1	Apr. 3	Apr. 3	May 5
1925	Mar. 3	Mar. 16	Apr. 21	Apr. 21	May 8
1926	Mar. 14	Mar. 17	Apr. 20	Apr. 20	May 5
1927	Mar. 5	Mar. 5	Mar. 25	Apr. 25	Apr. 25
1928	Mar. 6	Mar. 6	Apr. 18	Apr 28	Apr. 29
1929	Mar. 10	Mar. 10	Mar. 10	Mar. 18	Apr. 30
1930	Mar. 22	Mar. 23	Mar. 23	Apr. 24	Apr. 26
1931	Feb. 15	Mar. 11	Mar. 21	Apr. 30	May 1
1932	Mar. 16	Mar. 16	Mar. 16	Apr. 17	Apr. 27
1933	Mar. 11	Mar. 12	Mar. 30	Apr. 23	Apr. 24
1934	Mar. 24	Mar. 25	Mar. 29	Apr. 28	Apr. 29
1935	Feb. 28	Mar. 9	Apr. 16	Apr. 16	Apr. 18
1936	Feb. 23	Mar. 2	Apr. 8	Apr. 8	Apr. 24
1937	Mar. 10	Mar. 27	Mar. 28	Apr. 12	May 1
1938	Mar. 4	Mar. 11	Mar. 11	Apr. 11	Apr. 24
1939	Mar. 19	Mar. 19	Apr. 13	Apr. 14	May 15
1940	Mar. 25	Apr. 13	Apr. 14	Apr. 25	Apr. 25
1941	Mar. 19	Mar. 30	Mar. 31	Mar. 31	Apr. 9
1942	Feb. 22	Feb. 25	Mar. 30	Apr. 1	Apr. 14
1943	Mar. 9	Mar. 9	Apr. 11	Apr. 14	May 2
1944	Mar. 19	Mar. 21	Apr. 6	Apr. 6	Apr. 13
1945	Feb. 20	Feb. 20	Mar. 5	do	May 1
1946	Feb. 16	Feb. 25	Mar. 12	Apr. 11	Apr. 28

TABLE 34.—*First date in autumn for the occurrence of a minimum temperature equal to or below certain selected values*

[Period of record, 1872–1946]

[° Fahrenheit]

	40°	36°	32°	28°	24°
Earliest	Sept. 11	Sept. 23	Oct. 10	Oct. 26	Nov. 5
Most likely	{Oct. 7 Oct. 17	Oct. 11 Oct. 24	Oct. 28 Nov. 10	Nov. 11 Nov. 23	Nov. 17 Dec. 3
Latest	Nov. 3	Nov. 13	Dec. 3	Dec. 7	Dec. 30
Average	Oct. 10	Oct. 21	Nov. 4	Nov. 17	Nov. 29

Frequency distribution

Class interval	Number of times the latest date has occurred during a given class interval				
Sept. 11–15	1				
Sept. 16–20					
Sept. 21–25	3	1			
Sept. 26–30	4				
Oct. 1–5	13	2			
Oct. 6–10	19	7	1		
Oct. 11–15	15	14	3		
Oct. 16–20	10	15	3		
Oct. 21–25	4	9	6		
Oct. 26–30	3	11	14	3	
Oct. 31–Nov. 4	3	12	17	5	
Nov. 5–9		2	9	9	1
Nov. 10–14		2	13	16	5
Nov. 15–19			5	13	12
Nov. 20–24			4	14	10
Nov. 25–29				7	14
Nov. 30–Dec. 4				3	9
Dec. 5–9				3	9
Dec. 10–14				1	6
Dec. 15–19					5
Dec. 20–24					1
Dec. 25–29					1
Dec. 30–Jan. 3					1

TABLE 35.—*Latest date in spring for the occurrence of a minimum temperature equal to or below certain selected values*

[Period of record, 1872–1946]

[° Fahrenheit]

	24°	28°	32°	36°	40°
Earliest	Feb. 15	Feb. 20	Mar. 5	Mar. 18	Apr. 9
Most likely	{Mar. 7 Mar. 25	Mar. 16 Apr. 2	Apr. 3 Apr. 14	Apr. 11 Apr. 21	Apr. 23 May 4
Latest	Apr. 19	Apr. 20	Apr. 25	May 11	May 22
Average	Mar. 14	Mar. 24	Apr. 6	Apr. 17	Apr. 29

Frequency distribution

Class interval	Number of times the latest date has occurred during a given class interval				
Feb. 14–18	2				
Feb. 19–23	4	1			
Feb. 24–28	9	3			
Mar. 1–5	10	2	1		
Mar. 6–10	10	6	1		
Mar. 11–15	3	4	2		
Mar. 16–20	12	12	3	2	
Mar. 21–25	15	12	5		
Mar. 26–30	4	10	8	1	
Mar. 31–Apr. 4	3	12	7	4	
Apr. 5–9	1	6	16	7	2
Apr. 10–14	1	5	19	18	5
Apr. 15–19	1	1	6	12	7
Apr. 20–24		1	6	14	12
Apr. 25–29			1	10	13
Apr. 30–May 4				5	16
May 5–9				1	9
May 10–14				1	6
May 15–19					4
May 20–24					1

TABLE 36.—*Average seasonal temperature*

Year	Winter, Dec.–Feb.[1]	Spring, Mar.–May	Summer, June–Aug.	Autumn, Sept.–Nov.
1871	34.2	56.7	74.7	54.2
1872	32.5	52.9	78.5	55.7
1873	32.0	52.8	76.6	54.6
1874	39.3	51.8	76.4	56.9
1875	32.5	50.2	73.9	53.1
1876	38.1	51.8	77.2	53.7
1877	31.8	51.9	76.0	57.2
1878	38.4	56.7	74.8	57.1
1879	31.9	53.5	75.1	57.3
1880	41.3	55.9	75.3	54.3
1881	29.8	52.5	74.9	62.5
1882	38.4	51.4	74.6	57.6
1883	33.7	50.7	74.4	56.4
1884	35.7	52.5	73.6	58.7
1885	31.9	50.0	74.1	55.4
1886	32.8	53.2	72.3	57.7
1887	34.2	52.7	75.3	55.1
1888	34.0	51.0	74.1	54.9
1889	35.9	54.1	73.0	54.8
1890	44.3	52.9	74.5	57.4
1891	37.7	51.8	72.7	56.2
1892	37.3	51.0	76.1	55.1
1893	31.0	52.2	74.7	55.4
1894	37.1	55.9	75.2	57.8
1895	31.7	52.7	74.9	57.0
1896	36.3	54.6	74.6	57.5
1897	34.4	53.8	73.3	57.4
1898	36.6	54.7	76.4	57.6
1899	32.1	53.5	75.2	56.5
1900	35.0	52.5	76.8	61.5
1901	33.6	52.7	76.1	54.5
1902	32.1	55.0	73.8	58.6
1903	35.1	56.1	71.6	55.2
1904	29.4	52.3	72.6	54.9
1905	29.0	54.7	73.9	56.5
1906	37.2	52.5	74.8	59.2
1907	34.8	52.1	71.4	55.3
1908	34.4	56.4	74.3	56.9
1909	38.7	53.6	73.7	56.8
1910	33.4	56.8	73.7	57.5
1911	35.2	54.1	76.1	56.8
1912	32.3	53.9	73.2	58.9
1913	40.1	56.3	74.9	58.0
1914	36.4	53.3	75.4	57.2
1915	35.7	53.6	73.6	58.6
1916	36.4	52.7	74.2	56.5
1917	34.4	52.4	75.0	52.9
1918	29.5	57.1	74.3	57.0
1919	39.0	54.9	74.9	59.8
1920	31.3	52.7	73.8	58.6
1921	38.3	59.0	75.4	59.6
1922	36.2	55.9	74.7	59.1
1923	35.7	54.1	75.2	56.9
1924	38.1	51.5	73.7	55.9
1925	37.4	54.6	75.7	56.4
1926	35.8	52.1	74.1	57.1
1927	36.6	54.5	71.7	60.5
1928	37.5	53.0	75.4	58.1
1929	36.4	57.4	74.6	57.8
1930	38.6	55.2	77.4	59.6
1931	37.4	53.5	76.2	63.1
1932	44.6	52.3	76.1	57.7
1933	40.2	55.3	75.6	57.8
1934	34.1	53.9	77.4	58.8
1935	35.3	54.6	76.5	58.5
1936	30.8	56.6	76.4	58.7
1937	40.1	53.8	76.7	55.9
1938	37.9	56.8	76.6	58.7
1939	39.5	55.9	76.8	58.5
1940	34.0	52.0	75.2	56.9
1941	37.1	55.7	75.6	62.5
1942	37.0	58.5	76.1	59.7
1943	36.6	54.6	78.9	56.9
1944	37.3	56.1	76.7	58.1
1945	34.5	59.5	75.6	59.8

[1] December of preceding year.

TABLE 37.—*Average annual temperature for each year ending with the close of each month*

(° *F.*)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1872	54.7	54.5	53.4	53.3	53.6	53.8	54.3	54.5	55.0	54.9	54.9	54.7
1873	54.7	54.8	55.3	55.0	54.7	54.7	54.6	54.2	54.1	54.1	54.0	54.8
1874	55.6	55.8	56.0	55.5	55.6	55.8	55.7	55.5	55.7	55.8	56.0	56.0
1875	55.0	54.3	53.9	54.0	54.0	53.6	53.4	53.3	52.9	52.7	52.4	52.2
1876	53.1	53.8	53.8	54.2	54.4	54.7	55.0	55.0	54.8	55.1	55.1	54.3
1877	53.3	53.6	53.7	53.9	53.7	53.4	53.2	53.3	53.4	54.1	54.2	55.5
1878	55.8	55.9	56.6	57.0	57.0	56.7	56.9	56.8	56.9	56.8	56.7	56.0
1879	55.7	55.1	54.6	54.0	54.3	54.6	54.5	54.4	54.0	54.4	54.4	55.1
1880	56.0	56.8	56.7	57.0	57.4	57.5	57.3	57.4	57.7	57.1	56.7	55.7
1881	54.5	53.8	53.7	53.2	53.0	52.7	52.7	52.3	53.6	54.2	54.9	55.9
1882	56.4	57.0	57.3	57.4	56.8	57.0	56.9	56.7	56.0	55.9	55.4	54.9
1883	54.6	54.3	53.8	53.8	54.1	54.2	54.2	54.1	53.8	53.4	53.8	54.0
1884	54.0	54.3	54.6	54.7	54.8	54.6	54.3	54.6	55.1	55.3	55.1	55.0
1885	55.3	54.1	53.5	53.7	53.5	53.4	53.7	53.7	53.1	52.8	52.8	53.0

TABLE 37.—*Average annual temperature for each year ending with the close of each month*—Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1886	52.6	53.0	53.7	53.9	53.9	53.8	53.4	53.4	53.7	53.9	54.0	53.4
1887	53.8	54.3	54.0	53.7	54.1	54.3	54.9	54.9	54.6	54.3	54.2	54.8
1888	54.5	54.2	54.1	54.2	53.8	53.9	53.3	53.6	53.5	53.3	53.5	53.5
1889	54.3	54.0	54.4	54.6	54.8	54.6	54.8	54.4	54.5	54.6	54.4	55.1
1890	55.5	56.5	56.3	56.3	56.2	56.6	56.5	56.6	56.8	57.1	57.2	56.3
1891	55.8	55.6	55.3	55.5	55.3	55.0	54.8	54.9	55.0	54.9	54.6	55.3
1892	54.9	54.4	54.4	54.0	54.2	54.7	55.0	55.1	54.8	54.9	54.8	54.0
1893	53.4	53.2	53.5	53.7	53.6	53.2	53.3	53.2	53.2	53.3	53.2	53.7
1894	54.8	54.8	54.6	55.3	55.8	55.8	55.9	55.9	56.3	56.4	56.4	56.3
1895	55.9	55.1	54.6	54.6	54.3	54.4	54.0	54.2	54.3	53.9	54.0	54.1
1896	54.3	55.2	54.9	55.1	55.7	55.4	55.7	55.6	55.2	55.3	55.7	55.4
1897	55.2	55.2	55.9	55.6	55.0	54.9	54.9	54.9	54.8	55.0	54.7	54.9
1898	55.3	55.2	55.4	55.3	55.4	55.8	56.0	56.2	56.5	56.4	56.3	56.1
1899	55.8	55.2	54.7	54.9	54.9	55.0	54.8	54.6	54.1	54.2	54.3	54.4
1900	54.6	55.0	54.8	54.8	54.8	54.6	54.8	55.2	55.9	56.1	56.4	56.4
1901	56.4	56.0	56.6	56.3	56.1	56.1	56.2	55.9	55.4	54.9	54.2	54.1
1902	53.9	53.9	54.0	54.1	54.4	54.3	54.1	53.9	53.8	54.0	54.9	54.8
1903	54.9	55.6	55.9	56.0	55.9	55.4	55.4	55.3	55.3	55.3	55.3	54.3
1904	53.8	53.0	52.4	52.0	52.1	52.4	52.3	52.3	52.3	52.1	52.2	52.1
1905	52.3	52.1	52.4	52.8	52.8	52.9	53.0	53.1	53.2	53.4	53.5	54.0
1906	54.9	55.6	55.0	55.0	55.0	55.1	55.0	55.2	55.6	55.6	55.9	55.9
1907	55.6	55.3	56.2	55.7	55.2	54.7	54.7	54.3	54.0	53.7	53.3	53.4
1908	53.2	53.2	53.1	53.8	54.3	54.8	55.0	55.0	54.8	55.3	55.4	55.4
1909	55.6	56.6	56.1	55.9	55.9	56.0	55.7	55.7	55.7	55.2	55.7	55.2
1910	55.0	54.3	55.1	55.4	55.1	54.9	55.0	55.1	55.5	56.1	53.4	55.2
1911	56.4	55.8	55.0	54.4	55.1	55.4	55.4	55.7	55.7	55.4	55.5	56.4
1912	55.3	54.8	54.8	55.1	54.8	54.6	54.3	54.0	54.0	54.2	54.6	54.4
1913	56.0	56.4	57.1	57.1	57.1	57.3	57.4	57.5	57.2	57.2	57.3	57.3
1914	56.9	56.3	55.6	55.4	55.6	55.7	55.6	55.8	55.6	55.8	55.6	54.9
1915	54.7	55.3	55.3	55.8	55.4	55.1	55.2	55.0	55.4	55.2	55.3	55.6
1916	55.9	55.5	55.4	55.0	55.3	55.2	55.3	55.4	55.1	54.9	54.9	55.0
1917	54.6	54.4	54.9	55.0	54.3	54.6	54.5	54.6	54.3	54.0	53.7	53.0
1918	52.1	52.4	52.9	52.8	53.6	53.4	53.2	53.4	53.4	54.1	54.4	55.6
1919	56.8	56.8	56.7	56.7	56.3	56.6	56.8	56.4	56.9	57.1	57.1	56.3
1920	55.6	55.2	55.1	55.0	54.7	54.4	54.3	54.4	54.3	54.1	54.1	54.7
1921	55.3	55.9	56.7	58.2	57.4	57.6	58.0	57.8	58.3	58.0	58.0	58.0
1922	57.6	57.6	56.7	56.4	56.8	56.8	56.6	56.6	56.2	56.4	56.4	56.4
1923	56.8	56.3	56.3	56.1	55.9	56.0	55.9	56.0	56.0	55.7	55.4	56.1
1924	56.0	56.0	55.9	55.7	55.4	55.0	55.0	55.0	54.6	54.7	54.8	54.0
1925	53.9	54.6	54.9	55.3	55.4	55.9	56.0	55.9	56.6	56.1	56.0	56.0
1926	56.1	55.6	55.0	54.7	55.0	54.2	54.2	54.6	54.2	54.7	54.8	54.4
1927	54.5	54.8	55.6	55.6	55.6	55.5	55.5	55.0	55.0	55.3	55.8	56.2
1928	56.4	56.0	55.8	55.7	55.7	55.9	56.0	56.6	56.1	56.1	56.0	56.0
1929	55.9	55.7	56.2	56.7	56.8	56.9	56.8	56.6	57.0	56.7	56.5	56.4
1930	56.5	57.1	56.7	56.3	56.5	56.8	57.0	57.2	57.7	57.8	57.7	57.4
1931	57.6	57.3	57.0	57.1	57.0	56.8	56.8	56.7	56.5	56.9	57.5	58.2
1932	59.0	59.4	59.2	59.1	59.0	59.0	58.7	58.4	58.7	58.4	57.7	57.2
1933	56.9	56.6	56.8	57.0	57.3	57.4	57.3	57.1	57.3	57.1	57.2	57.1
1934	56.8	55.7	55.5	55.3	55.3	55.3	55.9	55.6	55.7	55.6	56.0	55.9
1935	55.4	56.3	57.0	56.9	56.5	56.2	56.0	56.3	56.0	56.1	56.2	55.8
1936	55.6	55.1	55.1	55.1	55.6	55.6	55.5	55.6	55.9	56.0	56.4	56.2
1937	57.3	57.9	57.2	57.3	57.2	57.4	57.3	57.3	56.8	56.4	56.6	56.3
1938	55.7	56.0	56.7	57.0	56.8	56.6	56.7	56.8	56.9	57.2	57.4	57.6
1939	57.8	57.9	57.6	57.2	57.7	57.9	57.7	57.7	58.0	58.0	57.7	57.8
1940	56.7	56.3	55.8	55.6	55.3	55.2	55.3	54.9	54.6	54.3	54.5	54.8
1941	55.6	55.3	55.2	56.0	56.2	56.1	56.1	56.3	56.8	57.6	57.7	57.7
1942	57.7	57.7	58.3	58.1	58.3	58.4	58.6	58.5	58.3	58.0	58.0	57.2
1943	57.3	57.7	57.5	56.9	56.7	57.1	57.1	57.4	57.2	56.9	56.7	56.9
1944	57.0	56.9	56.7	56.9	57.3	56.9	57.0	56.8	57.0	57.0	57.0	56.9
1945	56.3	56.3	57.4	57.9	57.2	57.1	57.0	56.9	57.1	57.2	57.3	57.2

TABLE 38.—*Average monthly temperature for central Maryland*

[Between Chesapeake Bay and Blue Ridge Mountains]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1891	35.9	39.2	38.7	54.7	61.2	71.3	71.4	73.1	69.1	52.9	42.4	42.0
1892	30.8	36.1	36.3	50.8	63.1	75.3	75.9	75.3	65.5	54.2	43.0	32.4
1893	23.3	33.7	40.0	52.8	61.3	72.4	76.7	74.2	65.6	55.8	42.5	37.0
1894	36.5	33.6	46.4	51.6	65.0	72.7	77.0	72.8	70.2	56.4	42.9	36.4
1895	30.2	25.3	40.8	52.9	62.4	74.2	72.5	76.6	71.5	51.7	46.3	37.9
1896	32.4	35.0	37.2	56.4	68.0	70.7	76.4	75.1	67.1	53.5	50.8	34.7
1897	30.1	35.1	44.6	52.6	61.7	69.1	76.2	72.7	67.7	57.6	45.5	37.2
1898	35.7	33.8	47.9	50.3	63.4	72.6	77.6	76.0	70.1	57.1	43.1	34.4
1899	32.5	26.2	41.0	53.2	63.8	73.8	76.1	74.5	65.5	57.3	44.8	35.4
1900	33.7	32.1	37.5	52.9	63.6	71.7	78.0	78.7	69.8	61.1	48.2	34.8
1901	32.9	27.8	43.1	49.8	61.9	71.6	79.3	75.4	67.0	55.3	39.7	32.9
1902	30.3	27.9	45.5	52.6	64.3	70.9	76.7	72.3	66.5	57.5	51.3	33.4
1903	31.8	36.0	49.4	50.7	61.5	67.3	75.3	71.1	66.6	56.7	41.4	31.0
1904	26.4	27.4	41.2	50.6	64.6	71.1	74.2	72.3	67.1	53.9	42.7	28.3
1905	29.0	25.5	44.4	53.0	65.3	71.1	76.8	73.3	67.5	54.5	43.8	36.9
1906	38.9	33.2	37.0	54.9	63.9	72.5	74.8	76.0	71.2	55.8	45.5	35.5
1907	35.2	27.4	46.1	47.6	58.3	65.1	74.6	71.6	68.6	51.2	44.0	37.1
1908	33.4	29.3	45.9	54.8	64.0	71.2	77.1	72.2	66.2	57.8	44.5	35.7
1909	34.7	41.7	40.6	53.1	62.6	72.1	73.5	72.0	65.5	52.0	50.0	31.0
1910	31.9	32.0	49.4	56.7	60.5	68.3	76.3	72.7	69.9	59.1	40.5	28.3
1911	36.9	35.6	40.2	49.6	68.6	71.8	77.6	75.0	69.6	56.5	42.5	39.9
1912	23.8	29.7	39.7	54.8	64.7	70.0	74.8	72.1	69.3	58.3	46.7	38.6
1913	42.0	34.6	47.4	54.6	63.3	71.6	76.3	73.0	67.1	58.1	46.9	39.2
1914	36.3	28.4	38.5	52.2	66.0	72.9	75.0	75.2	65.0	59.8	44.8	31.9

TABLE 38.—*Average monthly temperature for central Maryland*—Con.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1915	34.1	37.3	37.4	57.8	61.3	69.0	75.0	73.1	69.7	57.9	45.1	33.2
1916	37.6	32.3	36.4	52.0	65.2	67.7	76.3	74.4	65.7	55.7	45.2	33.4
1917	33.3	31.8	41.6	53.1	57.9	71.0	75.3	74.3	62.9	51.1	41.7	26.7
1918	21.9	33.7	45.9	51.8	68.1	69.5	72.9	76.5	63.6	59.2	45.2	40.1
1919	35.9	35.5	45.8	51.8	63.2	72.3	75.9	72.3	68.4	62.7	45.9	30.7
1920	27.8	31.5	43.3	51.6	59.0	70.3	73.7	73.9	68.0	60.3	44.4	37.6
1921	35.5	37.8	54.2	58.6	66.4	73.1	78.4	71.7	73.1	56.0	46.6	36.0
1922	30.2	37.1	44.3	54.4	65.3	73.5	75.2	72.2	69.1	58.5	46.5	35.9
1923	34.6	30.8	43.6	51.9	61.6	74.2	74.7	73.1	68.7	55.2	44.0	43.4
1924	33.7	32.5	41.6	50.4	59.4	69.8	73.7	73.7	63.8	56.4	44.9	35.1
1925	30.6	40.5	45.0	55.3	59.4	76.2	75.1	72.1	71.8	51.2	43.1	35.5
1926	32.4	34.3	38.6	50.7	62.8	67.9	75.4	75.2	68.0	56.0	43.7	31.8
1927	32.5	40.0	45.4	50.2	61.9	67.1	74.5	68.9	68.1	58.8	50.0	37.3
1928	34.5	35.7	42.0	50.3	61.2	69.3	76.2	75.7	63.5	57.9	47.6	37.3
1929	33.0	32.9	48.3	56.0	62.4	70.9	74.8	72.1	68.8	54.0	46.7	36.7
1930	33.9	39.6	43.2	51.1	65.6	73.0	78.4	75.2	73.9	54.9	45.0	33.8
1931	34.8	37.1	39.9	52.0	60.3	71.5	78.0	74.1	72.8	59.7	52.0	42.8
1932	44.7	40.7	38.7	50.9	62.6	71.4	75.6	75.6	68.6	56.8	43.3	37.7
1933	41.0	36.4	40.9	53.2	65.3	73.2	74.6	74.5	70.4	55.2	43.1	36.2
1934	37.3	22.3	39.1	53.2	64.6	74.9	79.1	72.3	68.9	54.9	48.0	35.3
1935	30.9	33.2	47.9	50.3	59.8	71.1	77.4	74.9	65.4	56.5	49.0	30.2
1936	28.4	26.5	47.4	50.3	65.4	71.1	76.4	76.2	69.6	58.1	43.4	38.0
1937	42.0	35.4	40.0	51.9	64.0	73.4	75.6	76.0	64.7	54.1	44.9	34.9
1938	33.7	38.8	47.0	55.3	61.9	70.8	76.7	76.8	65.4	56.9	48.3	36.4
1939	35.1	39.6	44.3	51.8	65.6	73.5	74.4	76.9	69.0	57.1	43.8	38.0
1940	23.0	34.7	38.5	48.6	62.8	72.2	75.6	71.8	64.9	53.4	45.9	40.1
1941	32.0	32.0	37.6	57.7	64.9	70.8	75.7	73.5	70.5	62.4	48.2	39.6
1942	32.8	32.4	45.3	56.6	66.9	72.4	76.3	73.0	68.4	58.1	47.2	32.4
1943	33.8	36.6	43.1	49.1	65.2	77.0	76.0	76.7	66.2	54.6	44.3	33.4
1944	35.2	35.7	40.5	51.2	68.9	72.8	76.7	74.7	68.5	54.9	45.4	32.3
1945	28.5	35.4	53.6	56.5	60.7	71.8	74.5	72.9	71.0	55.7	47.8	30.9

TABLE 39.—*Average monthly temperature for northern Virginia*

[North of James River and between Chesapeake Bay and Blue Ridge Mountains]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1891	38.8	44.0	40.5	57.8	62.4	72.9	73.0	75.2	72.6	56.3	46.3	43.9
1892	34.5	39.5	41.4	54.0	65.9	76.1	76.0	76.9	66.8	56.2	44.8	36.4
1893	26.3	38.5	44.6	57.2	64.2	73.0	77.5	75.1	67.0	56.9	45.6	41.1
1894	40.3	38.8	50.8	54.9	67.5	73.4	77.9	73.9	71.7	58.5	45.4	39.8
1895	33.8	27.8	44.2	55.3	63.0	75.3	74.0	77.6	73.5	53.2	48.1	39.2
1896	35.9	38.6	41.2	58.2	68.7	71.9	77.0	76.5	67.9	54.9	51.7	36.9
1897	32.4	38.9	47.3	54.1	63.2	72.9	78.0	75.3	70.4	58.6	47.6	39.7
1898	38.9	36.6	49.6	52.0	65.8	73.9	78.2	77.6	71.6	58.9	45.3	37.3
1899	35.2	30.4	44.9	55.7	65.8	75.1	77.5	76.3	67.4	58.7	47.4	38.0
1900	37.0	35.4	42.1	55.3	65.9	73.7	79.9	81.3	74.8	62.8	51.1	38.1
1901	37.3	32.2	47.1	51.6	64.4	73.6	80.1	76.5	68.4	57.2	41.7	36.0
1902	33.8	31.5	48.0	53.5	67.1	73.1	78.2	73.6	67.4	60.1	53.2	37.3
1903	35.3	39.8	52.1	54.9	65.4	68.3	77.3	73.8	68.1	57.7	43.9	41.5
1904	30.5	31.1	45.7	52.4	65.5	72.9	75.8	73.9	69.2	56.0	44.8	33.8
1905	32.7	28.7	47.7	55.8	67.1	72.9	76.7	74.3	69.6	58.3	46.2	38.7
1906	41.7	36.9	40.2	56.8	65.6	73.8	75.4	77.1	72.5	56.6	48.0	39.2
1907	40.2	32.5	50.5	49.2	61.2	66.4	76.4	73.3	70.2	54.1	45.5	39.5
1908	35.8	32.5	49.7	57.9	65.7	71.3	77.3	73.2	68.1	58.4	47.4	39.2
1909	39.3	45.0	43.9	55.5	64.4	73.8	74.5	73.1	66.0	54.2	51.5	32.9
1910	35.9	36.4	52.6	58.1	62.7	69.6	76.7	73.8	71.8	61.0	41.7	31.9
1911	40.8	39.9	43.1	51.5	69.6	73.7	78.0	76.7	71.5	58.5	44.5	41.9
1912	27.3	32.4	42.6	57.6	65.7	70.9	75.9	74.1	71.4	59.8	47.9	40.5
1913	44.8	37.9	50.6	56.4	65.2	72.7	77.0	74.1	67.9	58.8	48.4	40.9
1914	39.7	32.2	40.8	54.6	66.2	73.2	75.2	76.0	66.5	60.4	45.8	37.8
1915	36.1	40.2	38.7	58.8	63.3	70.1	75.5	73.7	70.6	59.5	46.9	35.4
1916	41.5	36.5	40.4	53.9	67.1	69.4	76.1	75.0	66.7	57.4	47.3	36.2
1917	37.2	35.5	44.5	55.2	59.7	72.1	75.8	74.4	64.0	52.5	42.8	28.3
1918	24.7	38.0	49.6	53.4	69.2	69.9	72.9	76.5	63.6	60.5	46.0	41.6
1919	38.0	37.4	47.1	54.6	64.6	72.6	76.2	73.4	69.7	65.1	47.5	33.5
1920	32.3	33.8	46.0	53.4	59.1	71.1	74.0	74.2	69.2	61.3	46.3	39.6
1921	38.0	40.6	56.3	59.9	62.3	73.6	78.8	73.6	74.9	58.5	50.1	39.0
1922	32.9	39.9	46.6	56.8	66.0	74.2	75.9	72.9	70.0	60.1	47.6	39.6
1923	37.9	34.2	46.4	54.1	63.3	75.0	75.0	73.6	69.2	56.2	45.3	45.6
1924	36.0	34.9	43.2	52.0	61.2	71.5	73.5	74.8	64.7	57.5	47.2	38.2
1925	34.0	44.2	47.4	57.3	59.9	76.6	76.8	72.6	73.0	53.4	45.1	37.4
1926	35.0	38.9	40.8	52.4	64.0	69.5	76.5	76.8	69.6	58.3	44.6	35.6
1927	35.6	43.4	48.0	52.0	64.4	67.9	75.0	69.9	69.3	60.2	51.8	39.3
1928	37.5	38.7	45.3	52.9	62.8	70.8	76.9	76.5	64.7	58.9	48.7	38.7
1929	35.9	35.5	50.4	58.3	64.0	70.9	74.6	73.0	69.3	56.1	48.3	39.8
1930	37.2	42.9	44.8	53.9	67.2	73.3	79.0	75.3	75.0	55.6	46.4	35.2
1931	37.8	39.9	41.0	53.8	64.2	72.9	79.0	74.9	73.5	61.1	54.3	45.8
1932	47.5	44.7	42.1	53.5	63.6	73.4	77.2	77.2	70.3	58.6	45.7	41.0
1933	44.2	39.9	44.4	55.5	68.0	74.4	75.5	75.8	73.2	57.2	45.8	41.2
1934	40.4	27.1	42.2	54.8	66.1	76.9	79.6	74.3	70.8	57.1	49.6	38.0
1935	34.7	36.7	50.8	52.1	62.0	72.9	78.0	75.6	67.2	58.0	50.6	31.8
1936	31.1	31.0	51.0	52.7	66.7	72.9	78.1	77.9	71.7	60.4	46.0	39.7
1937	45.1	37.8	42.8	54.4	65.5	75.2	76.5	77.3	65.9	55.5	46.3	37.8
1938	36.4	42.6	51.1	58.1	64.3	71.9	77.2	77.9	68.1	58.0	50.3	38.6
1939	39.3	43.3	47.5	54.6	66.7	75.8	75.5	77.2	71.3	59.0	45.1	40.1
1940	24.8	36.9	42.2	51.6	64.8	74.2	76.1	73.6	66.3	55.8	47.7	42.6
1941	35.0	34.1	40.4	59.2	67.0	72.3	77.6	75.3	72.2	64.8	49.8	41.9
1942	34.7	34.8	47.5	58.7	67.8	74.1	78.4	74.4	70.0	59.7	49.1	35.3
1943	37.9	39.8	45.6	52.4	67.2	78.2	77.4	77.7	67.3	56.4	46.9	37.4
1944	37.8	38.9	43.5	54.3	70.8	75.4	77.6	75.1	70.0	57.0	46.8	34.5
1945	32.2	39.9	56.3	59.2	62.4	73.5	75.6	74.1	72.6	57.4	49.3	32.6

TABLE 40.—*Earliest date of specified minimum temperature or less in autumn and winter for College Park, Md.*

Year	40° or less	36° or less	32° or less	28° or less	24° or less
1917	Sept. 11	Sept. 11	Oct. 7	Oct. 7	Oct. 21
1918	Sept. 22	Sept. 22	Oct. 8	Oct. 23	Nov. 3
1919	Sept. 27	Oct. 13	Nov. 3	Nov. 7	Nov. 10
1920	Sept. 20	Oct. 2	Oct. 30	Oct. 30	Nov. 13
1921	Oct. 2	Oct. 6	Oct. 9	Oct. 13	Nov. 11
1922	Sept. 26	Oct. 13	Oct. 13	Oct. 21	Oct. 31
1923	Sept. 16	Sept. 17	Oct. 8	Oct. 9	Nov. 2
1924	Sept. 7	Sept. 11	Oct. 10	Oct. 21	Oct. 23
1925	Sept. 26	Sept. 26	Oct. 11	Oct. 28	Nov. 10
1926	Oct. 8	Oct. 8	Oct. 22	Oct. 22	Oct. 27
1927	Sept. 22	Sept. 24	Oct. 16	Nov. 7	Nov. 14
1928	Sept. 25	Sept. 25	Oct. 26	Oct. 27	Oct. 30
1929	Sept. 20	Oct. 5	Oct. 9	Oct. 11	Nov. 10
1930	Sept. 28	Oct. 2	Oct. 5	Oct. 19	Oct. 19
1931	Oct. 10	Oct. 13	Oct. 13	Oct. 20	Nov. 7
1932	Sept. 26	Oct. 8	Oct. 15	Oct. 31	Nov. 14
1933	Oct. 10	Oct. 11	Oct. 15	Oct. 26	Oct. 26
1934	Oct. 2	Oct. 13	Oct. 14	Oct. 20	Nov. 3
1935	Sept. 24	Sept. 30	Oct. 5	Oct. 9	Dec. 5
1936	Sept. 26	Oct. 25	Oct. 27	Oct. 27	Oct. 28
1937	Sept. 18	Oct. 9	Oct. 15	Oct. 15	Nov. 5
1938	Sept. 26	Oct. 2	Oct. 8	Nov. 10	Nov. 25
1939	Oct. 13	Oct. 15	Oct. 15	Oct. 16	Nov. 15
1940	Sept. 12	Sept. 26	Oct. 19	Oct. 21	Nov. 19
1941	Sept. 13	Oct. 12	Oct. 17	Oct. 26	Nov. 13
1942	Sept. 22	Sept. 29	Sept. 30	Oct. 28	Nov. 15
1943	Sept. 19	Sept. 26	Oct. 6	Nov. 5	Nov. 15
1944	Oct. 11	Oct. 11	Oct. 16	Oct. 16	Nov. 13
1945	Oct. 4	Oct. 4	Oct. 4	Nov. 5	Nov. 5

TABLE 41.—*Latest date of specified minimum temperature or less in winter and spring for College Park, Md.*

Year	24° or less	28° or less	32° or less	36° or less	40° or less
1917	Mar. 21	Apr. 15	Apr. 17	May 26	May 26
1918	Apr. 6	Apr. 6	Apr. 15	May 2	May 9
1919	Apr. 3	Apr. 27	Apr. 27	Apr. 27	May 13
1920	Mar. 22	Apr. 15	May 16	May 17	May 17
1921	Mar. 30	Apr. 12	Apr. 12	Apr. 20	Do.
1922	Mar. 23	Apr. 29	May 2	May 2	May 2
1923	Apr. 2	Apr. 10	May 11	May 25	May 26
1924	Apr. 3	Apr. 4	May 5	May 23	May 23
1925	Apr. 7	Apr. 9	May 8	May 27	May 27
1926	Apr. 16	Apr. 20	May 5	May 24	May 30
1927	Apr. 12	Apr. 25	Apr. 25	May 2	May 28
1928	Apr. 18	Apr. 18	May 14	May 14	May 15
1929	Mar. 11	Mar. 29	Apr. 30	June 4	June 4
1930	Apr. 1	Apr. 24	Apr. 27	June 1	June 1
1931	Mar. 21	Apr. 30	May 5	May 5	May 6
1932	Mar. 25	Apr. 17	Apr. 20	May 3	June 8
1933	Mar. 30	Apr. 24	Apr. 27	Apr. 28	June 15
1934	Mar. 29	Apr. 26	Apr. 28	Apr. 29	May 18
1935	Mar. 10	Mar. 27	Apr. 17	Apr. 26	May 26
1936	Mar. 14	Apr. 23	Apr. 25	May 29	May 29
1937	Mar. 10	Apr. 13	May 1	May 4	May 20
1938	Mar. 11	Apr. 11	Apr. 24	May 13	June 1
1939	Mar. 23	Apr. 14	May 4	May 15	May 17
1940	Mar. 26	Apr. 15	Apr. 29	May 12	May 12
1941	Mar. 31	Mar. 31	May 13	May 14	May 19
1942	Mar. 2	Apr. 14	Apr. 22	Apr. 23	Apr. 24
1943	Apr. 16	Apr. 16	May 2	May 5	May 5
1944	Mar. 22	Apr. 5	Apr. 14	Apr. 30	May 8
1945	Feb. 20	Apr. 7	May 2	May 7	June 6

TABLE 42.—*First date in autumn for the occurrence of a minimum temperature equal to or below certain selected values for College Park, Md.*

[Period of record, 1917–45]

[° Fahrenheit]

	40°	36°	32°	28°	24°
Earliest	Sept. 7	Sept. 11	Sept. 30	Oct. 7	Oct. 19
Most likely	Sept. 20 Oct. 2	Oct. 2 Oct. 13	Oct. 8 Oct. 16	Oct. 16 Oct. 28	Nov. 5 Nov. 15
Latest	Oct. 13	Oct. 25	Nov. 3	Nov. 10	Dec. 5
Average	Sept. 25	Oct. 3	Oct. 14	Oct. 23	Nov. 7

Frequency distribution

Class interval	Number of times the first date has occurred during a given class interval				
Sept. 6–10	1				
Sept. 11–15	3	2			
Sept. 16–20	5	1			
Sept. 21–25	5	3			
Sept. 26–30	7	5	1		
Oct. 1–5	3	5	3		
Oct. 6–10	3	4	8	3	
Oct. 11–15	2	8	8	3	
Oct. 16–20			4	5	1
Oct. 21–25		1	1	5	2
Oct. 26–30			3	7	4
Oct. 31					
Nov. 4			1	1	4
Nov. 5–9				4	3
Nov. 10–14				1	9
Nov. 15–19					4
Nov. 20–24					
Nov. 25–29					1
Nov. 30					
Dec. 4					
Dec. 5–9					1
Dec. 10–14					
Dec. 15–19					
Dec. 20–24					
Dec. 25–29					
Dec. 30					
Jan. 3					

TABLE 43.—*Latest date in spring for the occurrence of a minimum temperature equal to or below certain selected values for College Park, Md.*

[Period of record, 1917–45]

[° Fahrenheit]

	24°	28°	32°	36°	40°
Earliest	Feb. 20	Mar. 27	Apr. 12	Apr. 20	Apr. 24
Most likely	Mar. 20 Apr. 3	Apr. 7 Apr. 18	Apr. 25 May 5	Apr. 30 May 15	May 17 June 1
Latest	Apr. 18	Apr. 30	May 16	June 4	June 15
Average	Mar. 26	Apr. 15	Apr. 29	May 10	May 21

Frequency distribution

Class interval	Number of times the latest date has occurred during given class interval				
Feb. 14–18					
Feb. 19–23	1				
Feb. 24–28					
Mar. 1–5	1				
Mar. 6–10	2				
Mar. 11–15	3				
Mar. 16–20					
Mar. 21–25	7				
Mar. 26–30	4	2			
Mar. 31–Apr. 4	5	2			
Apr. 5–9	2	4			
Apr. 10–14	1	6	2		
Apr. 15–19	3	6	3		
Apr. 20–24		4	3	2	1
Apr. 25–29		4	7	4	
Apr. 30–May 4		1	6	6	1
May 5–9			4	2	4
May 10–14			3	4	2
May 15–19			1	2	6
May 20–24				2	2
May 25–29				4	6
May 30–June 3				1	3
June 4–8				2	3
June 9–13					
June 13–17					1

TABLE 44.—*Monthly heating degree days at Cheltenham, Maryland*

[Base 65° F.]

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
1900–1901											114	15	
1901–02	0	0	64	280	736	1,003	1,045	1,007	565	388	117	25	5,230
1902–03	0	8	78	252	422	980	998	780	454	347	104	19	4,442
1903–04	0	8	94	288	716	1,063	1,188	1,099	735	456	104	24	5,775
1904–05	0	2	58	378	688	1,084	1,120	1,112	636	350	100	29	5,557
1905–06	0	6	48	283	644	890	796	888	868	318	132	10	4,883
1906–07	0	0	12	304	578	910	892	1,018	575	540	232	96	5,157
1907–08	0	1	42	426	609	856	960	1,004	566	304	161	9	4,938
1908–09	0	24	39	214	562	856	856	526	696	312	114	5	4,202
1909–10	1	0	121	390	424	1,020	955	820	425	214	145	50	4,565
1910–11	0	0	20	193	724	1,069	796	752	698	450	74	3	4,779
1911–12	0	4	16	230	644	749	1,250	995	736	276	96	21	5,017
1912–13	0	8	40	211	524	796	655	776	510	286	86	30	3,922
1913–14	0	0	70	214	526	780	812	975	768	363	86	11	4,605
1914–15	2	4	100	190	566	998	926	739	830	254	130	34	4,773
1915–16	0	6	69	214	564	956	750	874	828	362	59	18	4,700
1916–17	0	2	78	298	536	939	902	858	664	396	226	12	4,911
1917–18	0	0	74	388		1,146	1,307	794	520	352	36	15	
1918–19	3	3	86	163	586	746	841	782	537	341	94	6	4,188
1919–20	0	0	26	114	546	1,037	1,101	944	629	369	194	15	4,975
1920–21	4	0	29	158	601	841	870	708	374	206	142	8	3,941
1921–22	0	5	2	246	494	864	1,030	729	572	320	34	0	4,296
1922–23	0	3	26	238	535	839	884	902	572	430	128	2	4,559
1923–24	0	6	36	277	616	613	904	904	648	406	155	30	4,595
1924–25	0	2	93	256	550	866	1,002	582	558	276	196	2	4,383
1925–26	0	6	26	410	622	882	970	798	766	376	104	44	5,004
1926–27	0	3	36	290	638	992	949	644	581	424	120	52	4,729
1927–28	2	22	52	220	415	830	890	804	666	416	158	10	4,485
1928–29	0	0	104	304	500	826	927	838	462	254	128	25	4,368
1929–30	2	2	46	311	516	815	894	656	626	373	71	8	4,320
1930–31	0	1	12	322	572	946	888	738	761	358	124	18	4,740
1931–32	0	8	26	196	370	644	582	646	758	396	126	9	3,761
1932–33	0	0	40	234	613	801	694	742	702	328	84	32	4,270
1933–34	6	0	8	276	603	811	802	1,136	712	346	146	0	4,846
1934–35	0	11	16	282	466	870	1,000	888	438	420	176	0	4,567
1935–36	0	2	50	280	484	1,082	1,122	1,102	522	460	96	14	5,214
1936–37	0	0	34	245	677	838	700	856	781	391	110	0	4,632
1937–38	0	0	98	375	629	930	998	758	557	316	148	18	4,827
1938–39	0	0	54	292	528	901	936	714	673	414	147	2	4,661
1939–40	0	0	88	280	670	852	1,356	883	798	480	131	14	5,552
1940–41	2	8	94	360	571	790	1,017	933	860	262	128	16	5,041
1941–42	0	2	30	185	518	800	1,014	904	605	281	46	3	4,388
1942–43	0	12	76	222	557	1,025	954	816	705	476	96	2	4,941
1943–44	4	2	94	342	622	941	922	855	764	413	28	9	4,996
1944–45	0	8	47	351	602	1,011	1,115	834	380	272	194	48	4,862
1945–46	2	3	11	278	512	1,060	930	786	420	346	115	23	4,486
Total	28	182	2,363	12,260	25,076	40,548	42,500	37,899	28,501	16,118	5,535	834	211,844
Number of years	45	45	45	45	44	45	45	45	45	45	46	46	
Means	1	4	53	272	570	901	944	842	633	358	120	18	4,716

TABLE 45.—*Monthly and seasonal heating degree days for Takoma Park, Md.*

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
1898–99										323	98	4	
1899–1900	0	0	56	194	563		949	884	818	322	87	15	
1900–1901	0	0	14	189	516		989	1,036	669	450	164	24	
1901–1902	0	0	78	306	788	1,027	1,099	1,078	605	426	96	10	5,513
1902–1903	0	0	53	252	439	999	1,064	846	506	386	94	28	4,667
1903–1904	3	6	75	291	729	1,101	1,254	1,132	773	492	100	26	5,982
1904–1905	0	4	60	387	708	1,098	1,157	1,138	635	365	98	16	5,666
1905–1906	0	2	44	290	652	912	830	940	842	282	102	13	4,909
1906–1907	0	0	18	302	580	983	948	1,075	594	561	227	115	5,403
1907–1908	0	4	43	458	640	872	1,008	1,042	593	340	158	14	5,172
1908–1909	0	27	54	264	619	947	961	654	781	396	148	21	4,871
1909–1910	4	0	88	440	458	1,055	1,060	930	493	284	198	84	5,094
1910–1911	0	0	26	264	777	1,150	931	864	828	496	80	15	5,431
1911–1912	0	11	43	288	704	781	1,290	1,059	798	334	90	31	5,429
1912–1913	0	10	45	263	572	859	732	855	570	322	97	30	4,355
1913–1914	0	4	73	234	541	803	886	1,034	818	379	87	2	4,861
1914–1915	2	8	106	202	611	1,032	960	783	828	257	146	42	4,977
1915–1916	0	14	73	257	594	958	865	952	888	379	72	20	5,072
1916–1917	0	2	73	315	582	951	961	964	720	367	238	8	5,181
1917–1918	0	0	112	442	696	1,201	1,328	880	594	386	44	22	5,705
1918–1919	2	3	103	217	590	765	896	826	621	391	146	5	4,565
1919–1920	0	1	38	202	610	1,072	1,170	996	654	410	206	14	5,373
1920–1921	4	0	30	170	616	848	926	760	416	222	163	8	4,163
1921–1922	0	8	7	294	572	892	1,088	808	657	348	42	6	4,722
1922–1923	0	0	34	252	522	901	940	941	672	382	116	7	4,767
1923–1924	0	6	40	321	633	681	994	926	707	409	189	38	4,944
1924–1925	0	4	116	262	605	948	1,054	672	633	304	201	1	4,800
1925–1926	0	6	42	445	666	914	1,016	902	810	444	104	51	5,400
1926–1927	2	6	54	321	652	1,024	1,015	688	593	448	138	58	4,999
1927–1928	0	21	42	213	909	841	920	835	690	427	138	13	5,049
1928–1929	0	2	134	258	511	820	978	874	488	278	108	25	4,476
1929–1930	2		58	330	548	856	956	682	662	381	76	4	
1930–1931	0		6	318	590	951	908	754	754	366	123	16	
1931–1932	0	8	28	203									

TABLE 45.—*Monthly and seasonal heating degree days for Takoma Park, Md.*—Continued

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
1932–1933		0	28	225	601	796	680	747	690	290	76	28	
1933–1934	4	0	14	274	618	836	810	1,143	736	336	83	0	4,854
1934–1935	0	8	16	272	464	874	1,018	837	480	406	168	0	4,543
1935–1936	0	0	40	220	426	1,032	1,064	1,058	465	408	58	14	4,785
1936–1937	0	0	30	185	600	800	678	779	677	342	74	0	4,165
1937–1938	0	0	72	307	536	880	925	678	492	265	114	10	4,279
1989–1939	0	0	54	222	438	860	869	660	561	367	111	0	4,142
1933–1940	0	0	16	252	578	796	1,261	835	760	445	88	7	5,038
1940–1941	1	7	69	307	529	716	970	877	794	224	91	14	4,599
1941–1942	0	0	18	174	451	741	956	873	570	236	36	2	4,057
1942–1943	0	8	72	202	489	974	934	740	579	424	64	2	4,506
1943–1944	0	3	83	291	565	884	873	803	697	358	20	7	4,584
1944–1945	0	4	34	288	542	976	1,071	760	322	226	155	34	4,412
1945–1946	0	0	16	264	526	1,018	890	733	380	286	99	23	4,235
Number of years	46	45	47	47	46	44	46	46	46	47	47	47	
Sums	24	187	2,428	12,927	27,156	40,424	45,132	40,333	29,931	16,970	5,411	927	222,052
Means	0	4	51	273	590	919	981	877	651	361	115	20	4,842

TABLE 46.—*Monthly heating degree days at Quantico, Va.*

[Base 65° F.]

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Season
1896–97	0	4	48	365	464	984	1,084	814	584	450	183	26	5,006
1897–98	0	0		250		1,002	990		480				
1898–99		0	6	261	661	1,031	1,056		744	312	150	0	
1899–1900		0	112	290	654	958	1,050	952	749	438	189		
1900–01		12			480	958			596	419	72	0	
1901–02	0		48	196	720	900	995	958		346	81	6	
1902–03	0	0							461	314	14	18	
1903–04	0	0	28	153	646	978	1,208	1,138	650	383	80		
1904–05								1,038	566	298	64	14	
1905–06	0	0	24	244	650	824			794	276	92	6	
1906–07			2	284	578	872	868	951	530	484	127	84	
1907–08	0	0	44	418	673	908	1,013	996	544	226		16	
1908–09	0	23	108	276	629	892	901	622	713	328			
1909–10	0	0	68	391	424	1,022	990	886	449	232	96	34	4,592
1910–11	1	4			766	1,026	820	732	665	476	71	0	
1911–12	0	2	11	257	673	803	1,222	1,004	706	250	87	26	5,041
1912–13	0	2	40	262	584	850	707	856	542	292	76	22	4,233
1913–14	0	2	88	153	568	861	860			357	80	7	
1914–15	1	3		174	614	993	941	745	849	274	56		
1915–16			52	176	534	935	740	814	706	316	26	5	
1916–17	0	0	41	259	541	945	923	839	636	307	182		
1917–18													
1918–19				232	685	764	962	838	466	337	74	0	
1919–20	0	0	31	100									
1920–21							810	663	264	153	108	0	
1921–22	0								616	322	28	0	
1922–23	0	7	24	212	521	810	846	876	565	310	97	2	4,270
1923–24	0	4	22	232	586	604	910	872	618	371	116	28	4,363
1924–25	0	0	70	223	583	898	1,012	645	612	292	192	0	4,527
1925–26	0	0	22	381	636	880	1,004	802	778	410	100	34	5,047
1926–27	1	0	34	263	632	944	963	647	582	412	104	50	4,632
1927–28	0	24	44	213	437	848	929	808	678	412	152	8	4,553
1928–29	0	2	116	252	500	876	952	894	512	291	129	34	4,558
1929–30	0	2	49	346	572	852	915	712	689	394	74	8	4,613
1930–31	0	2	14	354	594	974	916	700	756	342	104	18	4,774
1931–32	0	6	20	168	342	636	550	630	728	380	121	10	3,591
1932–33	0	0	39	242	616	806	709	723	658	316	84	27	4,220
1933–34	4	0	12	298	612	822	832	1,096	751	374	88	0	4,889
1934–35	0	6	4	287	504	859	1,006	857	486	434	168	0	4,611
1935–36	0	3	66	266	477	1,034	1.071	1,056	454	401	76	14	4,918
1936–37	0	0	24	206	604	822	656	802	700	322	85	0	4,221
1937–38	0	0	76	312	566	857	918	675	476	272	122	9	4,283
1938–39	0	0	46	246	483	859		653	608	350	111	0	
1939–40	0	0	2	256	698	791	1,274	836	756	448	39	8	5,108
1940–41	2	5	78	311	516	739	969	880	768	233	38	10	4,549
1941–42	0	1	16	113	487	768	979	864	588	230	4	0	4,050
1942–43	0	11	62	178	521	971	902	752	639	418	73	0	4,527
1943–44	0	0	82	300	588	914	885	818	708	348	18	5	4,666
1944–45	0	0	86	208	556	926	1,049	760	358	106	222	18	4,289
1945–46	0	0	6	198	518	1,030	898	720	401				
Total	9	125	1,765	10,806	24,693	29,026	39,285	33,924	28,179	15,456	4,253	547	198,068
Number of Years	41	42	40	43	43	44	42	41	46	46	44	41	
Means	0	3	44	251	574	887	935	827	613	336	97	13	4,580

PRECIPITATION

TABLE 47.—*Soil temperature data*

[Arlington Farms, Va., Jan. 13, 1924, to Jan. 10, 1925

[Degrees Fahrenheit]

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Mean air temperature	32	34	42	52	60	71	76	74	64	55	43	33	53
Mean soil at 1-inch depth	34	35	42	51	60	72	77	75	64	56	45	36	54
Mean soil at 6-inch depth	34	35	40	49	58	69	74	74	64	57	46	36	53
Mean soil at 18-inch depth	38	38	41	49	56	65	72	72	65	58	49	41	54
Mean soil at 72-inch depth	49	46	45	49	54	61	67	69	66	61	56	52	56
[Hopkin's Farm, University of Maryland, Apr. 18, 1941, to Apr. 19, 1944 (broken record)]													
Mean soil at 6-inch depth	34	35	42	52	62	71	75	73	69	60	49	41	55
Highest soil at 6-inch depth	54	49	59	77	84	88	91	90	87	83	63	60	91
Lowest soil at 6-inch depth	30	32	32	33	50	62	65	63	52	45	36	30	30
Mean soil at 18-inch depth	39	37	43	52	61	69	73	74	71	63	53	42	56
Highest soil at 18-inch depth	42	39	46	59	68	77	77	78	75	74	60	52	78
Lowest soil at 18-inch depth	37	35	39	39	55	61	67	70	64	55	47	39	35

TABLE 48.—*Monthly and annual total precipitation*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1871	1.46	2.70	5.92	0.91	3.45	4.78	6.10	1.69	2.70	2.11	5.02	1.32	38.16
1872	.35	.93	3.23	1.77	1.43	2.78	.82	6.92	3.92	4.83	2.75	2.49	32.22
1873	3.73	4.69	3.03	3.19	5.22	1.63	4.30	6.83	3.48	5.62	3.02	.97	45.71
1874	1.95	1.84	2.06	5.65	2.82	3.47	2.34	1.51	7.84	.29	2.08	2.59	34.44
1875	1.86	2.65	3.96	2.29	1.01	2.06	3.05	12.93	1.98	1.86	3.95	3.51	41.11
1876	1.68	3.50	5.52	2.43	3.02	4.59	5.12	4.17	10.81	2.99	2.83	1.30	47.96
1877	3.73	1.16	3.58	4.87	2.26	5.92	6.50	2.74	4.93	6.50	7.18	3.22	52.59
1878	4.77	2.54	4.31	3.32	5.27	6.33	8.37	8.89	2.46	5.86	3.03	4.94	60.09
1879	3.13	1.87	1.74	2.39	1.58	3.29	3.36	7.36	1.56	.79	1.10	4.66	32.83
1880	2.51	1.71	5.60	3.81	3.37	3.52	2.25	3.83	3.42	2.31	2.48	4.02	38.83
1881	5.14	4.01	6.61	2.08	1.86	5.71	1.67	1.07	2.19	3.29	2.45	6.12	42.20
1882	7.09	5.09	3.75	2.55	5.00	2.33	4.46	4.44	7.84	.53	1.33	2.38	46.79
1883	3.15	5.08	3.27	4.09	2.50	8.55	4.73	3.30	4.33	2.63	1.19	2.89	45.71
1884	5.59	6.84	7.24	1.86	3.09	6.95	7.39	1.01	.14	1.73	3.42	4.70	49.96
1885	4.46	4.63	1.53	1.71	2.85	3.30	3.03	6.49	2.15	8.69	3.33	2.67	44.84
1886	5.01	4.32	6.41	2.71	10.60	6.75	10.63	2.43	1.79	1.20	2.88	3.44	58.17
1887	2.39	3.42	3.83	3.24	2.50	2.99	3.29	2.34	3.12	1.82	1.83	4.31	35.08
1888	2.99	3.19	4.53	1.89	4.77	3.53	4.47	3.35	6.82	3.27	2.97	3.27	45.05
1889	4.05	2.47	4.20	9.13	10.69	5.01	8.13	3.07	3.88	4.48	6.03	.19	61.33
1890	1.54	4.20	3.65	2.81	4.73	2.02	3.24	5.50	4.22	5.15	.79	3.74	41.59
1891	6.14	4.49	8.84	2.94	3.72	4.61	8.40	4.18	3.12	2.24	1.47	2.80	52.95
1892	5.84	3.64	5.70	4.52	4.07	2.59	5.04	.85	3.55	.34	3.38	2.82	42.34
1893	1.85	4.25	1.83	3.21	5.41	1.81	1.44	2.32	3.91	4.11	4.30	2.27	36.71
1894	2.14	4.64	.98	3.34	4.03	1.24	2.14	2.00	1.53	3.14	1.52	4.15	30.85
1895	4.42	1.10	2.59	6.26	3.09	4.34	4.50	1.26	1.11	1.94	1.26	2.38	34.25
1896	2.27	5.31	5.16	1.07	2.26	2.39	3.69	2.65	3.18	.34	2.54	.30	31.16
1897	1.98	6.47	2.66	3.02	6.97	2.60	5.78	3.35	1.54	3.55	3.31	3.35	44.58
1898	3.54	1.64	2.52	2.36	3.60	1.33	2.86	8.76	.89	3.54	3.12	3.56	37.72
1899	4.12	6.17	4.94	1.54	2.53	2.46	6.06	3.77	6.14	2.80	1.81	1.68	44.02
1900	1.92	5.26	3.07	1.74	4.02	10.94	1.25	2.28	4.61	1.44	2.15	2.52	41.20
1901	2.92	.62	2.64	6.34	2.81	4.66	5.17	4.12	1.61	.97	2.33	7.56	41.75
1902	3.61	4.72	3.78	2.22	3.35	3.70	2.54	1.85	5.30	6.76	3.46	5.29	46.58
1903	4.26	5.32	5.73	4.29	2.75	3.60	5.17	4.52	.74	4.48	.80	1.89	43.55
1904	2.62	1.65	3.02	2.98	2.64	5.49	6.25	2.97	5.34	2.35	2.20	3.33	40.84
1905	3.59	2.55	3.31	2.69	3.22	4.52	9.95	9.75	2.34	2.30	1.03	5.39	50.64
1906	3.11	2.14	4.62	3.03	1.80	5.89	6.80	14.36	.60	5.71	1.63	3.23	52.92
1907	2.54	2.31	2.79	3.61	5.03	4.86	1.55	4.34	7.15	2.12	4.16	4.20	44.66
1908	3.45	3.98	2.45	1.60	6.10	1.73	3.29	5.14	4.65	1.71	.60	3.63	38.33
1909	2.84	3.11	4.76	2.69	3.77	3.82	1.80	2.27	3.42	.79	.89	3.39	33.55
1910	4.39	2.20	.57	5.89	3.43	4.77	3.73	1.26	2.15	5.74	2.28	2.64	39.05
1911	2.92	1.92	2.31	2.85	.87	4.55	4.47	7.27	2.03	4.07	3.85	3.34	40.45
1912	2.84	2.70	6.14	2.33	4.84	4.36	7.21	1.50	5.86	.65	1.54	4.12	44.09
1913	2.85	1.37	4.67	5.86	4.56	1.81	3.24	5.42	2.41	3.37	2.20	2.29	40.05
1914	4.60	3.05	2.27	3.20	1.72	6.20	2.32	6.00	.66	1.65	2.06	4.49	38.22
1915	6.34	3.60	1.07	.90	2.18	6.58	3.21	7.00	1.39	3.72	.93	2.80	39.72
1916	1.57	2.84	2.80	2.96	2.30	7.53	4.97	2.83	2.57	1.76	2.11	4.03	38.27
1917	2.57	1.97	5.12	2.16	1.84	6.25	9.41	.77	1.34	4.81	.53	1.47	38.24
1918	4.29	.83	5.04	6.58	2.35	2.06	3.79	1.88	2.79	.86	1.48	4.65	36.60
1919	3.47	2.01	4.02	3.72	5.27	3.44	6.80	3.41	1.77	3.64	2.32	3.32	43.19
1920	2.30	3.47	2.39	4.69	1.42	4.80	5.71	4.70	2.87	.40	4.51	3.15	40.41
1921	2.30	2.29	2.76	2.93	5.82	3.45	4.79	1.10	3.29	1.35	4.15	1.95	36.18
1922	5.56	2.86	4.74	1.05	4.27	4.10	9.59	3.08	6.27	1.41	.55	3.48	46.96
1923	4.24	2.19	4.47	3.94	1.50	2.80	4.92	2.19	3.15	1.36	2.04	2.80	35.60
1924	3.21	3.05	6.17	5.39	6.73	3.89	2.76	5.07	7.86	.44	1.47	2.98	49.02
1925	4.44	.98	1.60	2.44	1.67	1.53	3.82	3.89	3.05	4.86	3.53	1.07	32.88
1926	3.60	4.17	2.07	.79	2.22	1.66	4.20	5.50	6.80	4.23	5.29	3.02	43.55
1927	1.20	3.34	1.27	4.96	2.21	4.01	1.82	3.84	1.19	5.33	2.65	3.51	35.33
1928	2.63	2.69	2.17	4.49	4.00	2.66	2.17	14.41	4.29	.67	2.01	1.21	43.40
1929	2.16	3.19	2.64	6.10	2.29	7.41	1.29	1.30	4.32	4.81	1.70	2.20	39.41
1930	2.85	1.64	2.26	3.12	1.81	3.19	2.30	.62	.76	.28	.79	2.04	21.66

TABLE 48.—*Monthly and annual total precipitation*—Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1931	1.56	1.36	3.50	2.87	4.84	2.12	4.23	5.92	2.79	1.28	1.01	2.03	33.51
1932	4.82	2.46	6.45	2.12	5.07	2.84	2.43	1.36	4.24	7.40	6.43	3.93	49.55
1933	3.25	2.63	3.24	4.67	6.26	3.88	6.71	9.91	2.62	2.56	.95	2.43	49.11
1934	1.97	3.22	4.18	2.27	3.85	2.87	2.88	5.21	17.45	.75	3.58	2.91	51.14
1935	5.27	2.37	3.39	3.95	3.54	3.43	2.25	2.40	8.08	2.76	4.03	2.06	43.53
1936	5.87	3.83	4.47	1.98	5.32	2.29	4.07	3.61	1.98	1.70	.76	5.23	41.11
1937	7.83	3.33	1.50	6.85	4.02	5.23	3.67	6.70	1.76	8.81	3.88	.71	54.29
1938	2.64	2.37	2.23	1.67	3.51	2.26	5.06	4.64	4.27	1.15	2.60	2.69	35.09
1939	3.41	5.71	2.89	3.78	.41	4.55	2.01	3.22	6.90	4.06	1.40	2.20	40.54
1940	2.12	2.77	3.42	6.19	3.10	.86	5.73	5.00	1.34	2.15	5.26	2.27	40.21
1941	3.04	.92	2.57	2.73	1.58	4.38	5.67	1.92	.53	1.08	.81	3.94	29.17
1942	2.47	2.03	5.96	.54	3.93	5.35	5.40	9.49	2.60	8.33	2.10	3.83	52.03
1943	2.87	2.02	4.31	3.30	4.04	2.43	1.46	.74	2.88	4.29	4.23	1.54	34.11
1944	2.96	2.48	5.44	3.08	1.02	2.78	2.44	6.49	5.77	3.22	3.29	3.33	42.30
1945	2.89	2.94	.84	3.26	3.44	5.13	9.99	1.37	4.56	1.46	4.62	5.29	45.79

TABLE 49.—*Precipitation—Greatest in 24 hours*

[Inches]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1871	0.80	1.20	1.72	0.28	1.10	1.60	1.60	0.42	2.16	1.08	1.90	0.34	2.16
1872	.12	.25	.82	.49	.59	1.16	.29	2.17	2.49	3.12	.96	1.30	3.12
1873	1.21	1.85	1.10	1.13	1.65	.65	2.32	1.25	1.52	2.86	1.01	.18	2.86
1874	.80	.60	.54	1.38	1.12	1.05	1.01	.92	5.66	.27	.91	.86	5.66
1875	.61	1.24	1.32	.48	.48	.44	1.40	2.84	1.23	.80	.90	1.21	2.84
1876	.71	1.04	1.60	1.57	.88	2.03	4.12	.99	3.26	2.16	1.39	.62	4.12
1877	.75	.78	1.07	1.75	.92	2.17	2.34	.93	1.29	3.98	2.83	1.81	3.98
1878	1.18	1.26	2.60	1.16	.81	1.87	5.80	2.15	1.30	3.31	1.53	2.23	5.80
1879	1.87	.73	.52	1.57	.63	1.76	2.09	1.41	.59	.44	.41	1.89	2.09
1880	.72	.56	1.32	2.14	1.23	2.31	1.40	1.89	1.53	.65	.68	1.07	2.31
1881	1.17	1.09	2.79	.69	.95	2.59	.42	.71	1.33	1.07	.93	1.68	2.79
1882	1.10	1.41	.87	.92	1.11	1.21	2.01	1.48	1.85	.28	.66	1.08	2.01
1883	.65	1.27	1.53	1.58	.99	1.76	1.00	1.34	1.98	.77	.35	1.08	1.98
1884	2.21	1.19	1.77	.68	.95	2.63	2.05	.34	.10	.70	1.52	1.47	2.63
1885	1.18	2.07	.81	.52	1.52	1.41	1.55	1.92	1.12	2.87	1.18	1.14	2.87
1886	2.28	1.28	1.82	1.40	3.50	4.16	3.34	1.25	.67	.92	.91	.83	4.16
1887	.98	.69	1.54	1.04	.76	1.58	1.16	1.41	.88	1.14	.76	.92	1.58
1888	.85	1.13	1.65	.80	.74	1.41	2.98	.91	1.63	1.02	1.08	2.70	2.98
1889	1.26	.83	1.45	3.21	2.98	1.12	3.18	1.17	1.55	1.73	1.57	.05	3.21
1890	.38	1.69	.72	.70	1.03	.76	1.07	1.76	1.53	3.39	.51	1.73	3.39
1891	1.58	1.10	1.83	1.77	1.22	1.63	2.31	1.59	1.67	1.13	.43	.97	2.31
1892	1.22	1.61	1.06	.90	2.04	.95	1.46	.64	1.53	.33	1.29	1.76	2.04
1893	.90	1.48	.50	.79	2.73	.68	.45	1.33	1.00	2.17	2.39	.75	2.73
1894	1.06	1.56	.32	1.42	1.32	.87	.84	.86	1.11	1.78	.64	1.58	1.78
1895	1.35	.54	.83	1.98	.96	1.85	1.49	.32	.50	1.30	.57	1.10	1.98
1896	1.94	2.29	1.34	.51	.87	.86	.99	1.91	1.17	.16	.91	.18	2.29
1897	1.04	2.19	.86	1.34	2.81	1.25	1.31	1.95	1.28	1.08	1.38	1.15	2.81
1898	1.02	.71	.65	.54	1.24	.80	1.24	4.96	.69	1.04	.96	1.04	4.96
1899	1.31	1.57	1.33	.94	.76	.81	2.23	1.33	2.71	2.03	.63	.78	2.71
1900	.94	1.28	1.42	.80	3.15	3.48	.54	.92	2.95	.44	.75	1.73	3.48
1901	1.60	.47	.95	2.38	.87	1.55	2.05	1.61	.59	.59	2.05	2.63	2.63
1902	1.43	1.50	1.40	1.60	.82	1.38	.96	1.03	2.50	2.47	1.30	1.21	2.50
1903	1.86	1.70	2.09	1.30	.68	.94	3.11	1.07	.48	1.41	.36	1.19	3.11
1904	.54	.88	.97	.92	.86	1.57	2.21	1.83	5.00	2.02	1.79	.79	5.00
1905	1.43	.68	1.46	1.54	1.33	1.22	4.22	3.92	1.32	1.10	.60	2.03	4.22
1906	1.26	1.20	1.37	1.68	.50	.91	2.40	2.58	.21	3.17	.90	.96	3.17
1907	.60	1.26	.90	1.23	1.20	2.27	.89	1.04	3.07	.64	1.64	1.30	3.07
1908	1.33	.84	.69	.51	3.06	1.00	1.52	2.86	3.02	.95	.55	1.15	3.06
1909	1.16	.81	2.80	1.48	1.80	.94	.61	1.42	2.18	.38	.53	2.43	2.80
1910	1.01	.83	.38	2.79	.68	.98	1.53	.48	1.14	3.67	1.17	1.19	3.67
1911	.79	.72	.69	.82	.69	2.11	2.56	2.15	1.09	1.93	.95	.89	2.56
1912	1.04	1.21	1.64	.63	1.59	.91	2.93	.58	1.75	.36	1.04	1.12	2.93
1913	.67	.81	1.47	3.18	2.49	.75	2.02	1.77	1.05	.93	.97	1.31	3.18
1914	2.07	1.14	.64	.87	.74	2.95	.77	3.12	.39	1.22	1.65	1.02	3.12
1915	2.98	1.46	1.00	.44	.70	3.09	1.25	2.34	.61	2.27	.55	.84	3.09
1916	.58	1.09	1.10	.71	.78	2.21	1.92	1.46	1.17	1.29	1.14	1.23	2.21
1917	.79	.57	1.24	.81	.74	2.69	3.27	.52	.59	1.50	.26	.73	3.27
1918	1.49	.34	2.16	1.82	1.12	.43	1.52	.36	1.19	.46	.78	1.48	2.16
1919	1.53	.42	1.81	1.93	1.40	1.48	2.51	1.02	.77	1.46	.67	1.53	2.51
1920	.62	1.55	.90	.96	.78	1.92	2.88	1.79	1.39	.38	2.38	1.45	2.88
1921	1.30	1.65	.95	1.38	2.10	1.92	1.85	.43	1.03	1.37	1.05	.43	2.10
1922	2.47	.87	.98	.48	1.77	1.42	3.37	1.25	5.16	1.10	.35	1.46	5.16
1923	1.34	.92	1.82	1.40	.68	.84	1.63	.91	1.17	.73	.72	1.07	1.82
1924	1.10	1.86	2.17	2.10	1.51	1.46	2.05	2.42	4.53	.44	.94	.82	4.53
1925	1.38	.25	.49	.51	.62	.82	1.54	.89	1.57	1.32	1.76	.61	1.76
1926	1.08	1.05	.54	.32	1.89	.54	1.62	1.75	2.56	2.13	2.02	.91	2.56
1927	.39	1.74	.54	2.01	.94	1.25	.64	2.52	.72	1.92	2.04	1.38	2.52
1928	1.13	.95	.95	1.68	1.19	.65	1.24	7.31	1.58	.48	.74	1.03	7.31
1929	.59	1.16	.98	2.39	.42	1.82	.56	.85	1.14	2.20	.83	.75	2.39
1930	.94	.77	1.16	2.17	.73	1.65	.87	.37	.52	.19	.23	1.04	2.17
1931	.86	.71	1.21	.97	2.52	.74	1.26	1.40	1.68	.56	.41	1.05	2.52
1932	1.31	1.61	2.25	1.37	2.19	1.88	.70	.48	1.64	3.68	1.84	1.66	3.68
1933	1.75	.58	1.00	1.41	1.21	1.15	2.76	6.40	.70	1.13	.64	1.16	6.40
1934	.99	1.27	1.02	1.06	1.31	.99	2.01	1.40	4.25	.52	1.49	1.35	4.25
1935	2.05	1.12	1.42	2.00	1.06	.97	.69	1.03	4.49	1.74	1.15	.76	4.49
1936	2.49	1.45	1.48	.66	2.44	.80	2.46	2.71	1.49	1.00	.39	1.48	2.71
1937	1.77	1.07	.75	2.93	1.13	1.48	.80	1.96	1.24	2.93	2.95	.30	2.95
1938	.82	1.25	.56	.56	.80	1.31	1.13	2.24	1.65	.49	.87	.88	2.24
1939	1.89	1.23	.83	1.09	.19	2.04	.45	2.83	4.49	2.02	1.19	.75	4.49
1940	1.04	1.06	1.71	2.30	1.39	.67	2.60	2.21	.93	1.00	1.40	.91	2.60
1941	.96	.44	1.57	1.13	.57	1.18	1.81	1.15	.25	.52	.56	2.21	2.21
1942	.84	1.25	1.82	.48	2.08	3.40	1.74	6.05	1.69	3.02	.59	1.29	6.05
1943	1.48	.94	1.50	1.72	1.44	.55	.81	.52	1.73	2.88	3.20	1.33	3.20
1944	1.72	.58	1.45	.78	.64	2.01	1.05	6.15	2.57	1.21	1.83	1.10	6.15
1945	1.02	.72	.19	.91	.80	2.41	2.40	.54	2.50	.49	1.75	1.52	2.50

TABLE 50.—*Averages, standard deviations, and medians of monthly precipitation*

[Period of record, 1871–1945]

[Precipitation (inches)]

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Average	3.37	3.05	3.68	3.30	3.55	3.94	4.45	4.29	3.67	2.97	2.55	3.02
Standard deviation	1.44	1.41	1.67	1.64	1.87	1.86	2.33	3.04	2.69	2.10	1.46	1.34
Median	3.04	2.77	3.42	2.98	3.37	3.60	4.20	3.61	3.12	2.35	2.28	2.98

TABLE 51.—*Average number of days precipitation (1871–1945)*

Month	Trace or more	0.01 inch or more	0.10 inch or more	0.50 inch or more	1.00 inch or more	2.00 inches or more
January	16	11	7	2	[1] 1	(4)
February	14	10	6	2	[1] 1	(2)
March	16	12	7	3	[1] 1	(3)
April	15	11	6	2	[1] 1	(11)
May	16	12	7	2	[1] 1	(9)
June	15	11	7	3	1	(18)
July	16	11	7	3	1	(25)
August	15	11	7	3	1	(22)
September	12	8	5	2	1	(19)
October	11	8	5	2	[1] 1	(16)
November	13	9	5	2	[1] 1	(4)
December	14	10	6	2	[1] 1	(5)
Year	173	124	75	28	11	2

[1] Less than 1 day but more than once every 2 years for this month.

Figures in parentheses indicate total number of days for the period of record.

TABLE 52.—*Number of days with precipitation (trace or more)*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1881	15	12	15	17	12	16	11	9	8	11	15	15
1882	20	12	17	11	21	13	17	17	14	14	11	8
1883	21	14	12	18	9	16	12	9	12	15	12	17
1884	16	19	21	10	15	12	14	11	4	8	10	15
1885	12	17	11	12	17	13	14	12	9	12	17	8
1886	16	11	11	15	20	18	15	12	9	9	12	16
1887	10	17	18	17	12	13	14	17	12	14	9	14
1888	15	15	19	10	20	11	13	16	19	17	14	7
1889	12	13	17	20	19	19	17	13	17	12	18	12
1890	17	16	19	12	19	15	15	19	14	21	12	17
1891	15	19	19	13	16	14	18	19	8	11	11	13
1892	14	16	17	18	17	15	13	11	10	9	17	12
1893	16	16	14	19	17	14	15	13	12	11	15	13
1894	16	16	14	16	17	9	11	16	13	13	11	16
1895	20	9	18	14	19	15	18	12	12	7	15	14
1896	8	15	17	16	20	17	19	11	16	11	16	9
1897	15	17	16	12	16	17	22	13	5	14	18	16
1898	17	9	22	19	22	7	16	14	8	13	17	10
1899	15	19	17	8	20	12	15	17	10	9	8	11
1900	13	14	16	10	12	16	13	12	11	12	12	8
1901	14	4	17	16	17	12	17	15	15	9	10	13
1902	13	13	15	17	16	14	17	12	13	7	10	17
1903	15	13	15	15	12	19	14	19	9	13	10	10
1904	16	15	18	18	11	17	22	15	12	6	11	17
1905	15	16	14	19	18	18	18	18	7	9	13	12
1906	17	10	21	14	15	21	20	21	13	22	9	21
1907	22	12	18	14	20	17	15	17	17	9	16	12
1908	14	13	18	15	19	11	18	14	8	10	5	16
1909	18	14	16	17	14	16	12	13	9	10	11	9
1910	16	13	10	18	20	18	11	14	8	10	13	15
1911	17	16	19	15	9	17	12	19	13	16	15	14
1912	20	15	20	15	11	18	14	13	14	7	7	17
1913	18	11	18	15	14	12	17	13	15	14	9	8
1914	12	13	16	13	10	13	16	10	7	11	7	18
1915	17	12	8	13	17	16	19	21	11	14	10	13
1916	17	15	16	18	18	16	14	10	11	12	11	16
1917	18	13	17	19	16	15	21	13	14	16	7	14
1918	17	13	14	18	17	15	19	16	10	6	7	14
1919	14	12	16	13	17	13	13	14	8	15	15	17
1920	14	18	12	20	13	18	14	21	11	4	15	11
1921	15	15	14	17	17	14	12	10	16	6	18	17
1922	13	15	17	14	17	16	19	18	5	8	9	19
1923	19	17	14	12	12	11	16	16	17	11	16	17
1924	9	14	15	13	19	19	13	13	16	5	11	16
1925	15	12	13	13	12	15	17	12	15	17	12	14
1926	13	16	17	14	12	16	17	18	15	14	9	19
1927	17	19	16	18	22	15	19	16	8	10	13	16
1928	10	12	12	16	20	23	14	16	14	10	15	7
1929	17	11	17	18	20	19	12	10	12	12	18	11
1930	19	10	11	14	15	10	13	15	12	10	17	9
1931	11	12	19	13	17	14	20	24	11	14	12	1
1932	21	14	14	12	15	14	13	7	10	15	13	16
1933	15	15	17	17	22	16	13	17	15	10	14	17
1934	17	14	20	16	17	13	15	16	18	8	16	15
1935	17	14	17	20	19	18	15	17	13	12	22	21
1936	21	13	23	20	8	13	18	16	13	12	11	18
1937	22	17	15	22	15	20	17	17	11	17	15	11
1938	15	14	18	12	20	21	20	10	17	7	14	15
1939	18	15	17	20	9	17	15	15	11	13	11	15
1940	11	14	17	19	21	21	15	22	10	14	14	18
1941	15	8	13	9	12	14	19	11	6	14	6	13
1942	14	9	18	7	13	15	16	16	12	13	15	19
1943	18	13	15	19	25	12	18	8	14	12	10	9
1944	13	17	15	21	13	12	13	11	16	12	16	15
1945	20	12	19	15	14	14	20	13	19	9	19	17

TABLE 53.—*Average daily, monthly, and annual precipitation—1896–1945*

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.12	0.11	0.10	0.12	0.10	0.09	0.15	0.12	0.14	0.13	0.09	0.09
2	.12	.11	.11	.12	.11	.09	.15	.12	.15	.12	.09	.09
3	.12	.11	.11	.12	.11	.09	.16	.12	.15	.12	.09	.10
4	.12	.11	.11	.12	.12	.09	.16	.12	.15	.11	.09	.10
5	.11	.11	.12	.12	.12	.10	.16	.13	.15	.10	.09	.11
6	.11	.11	.12	.13	.13	.10	.15	.13	.13	.10	.08	.11
7	.11	.11	.12	.13	.13	.10	.15	.13	.13	.10	.08	.11
8	.11	.11	.12	.13	.13	.11	.15	.13	.13	.09	.08	.11
9	.11	.10	.12	.13	.13	.12	.15	.13	.12	.09	.08	.11
10	.11	.10	.12	.13	.13	.12	.15	.13	.12	.08	.08	.10
11	.10	.10	.12	.13	.13	.12	.14	.14	.11	.08	.08	.10
12	.10	.10	.12	.12	.13	.13	.14	.14	.12	.08	.08	.10
13	.09	.10	.12	.12	.12	.13	.14	.14	.11	.07	.08	.10
14	.09	.10	.12	.12	.12	.14	.14	.14	.12	.07	.08	.10
15	.09	.10	.12	.12	.12	.14	.14	.15	.12	.08	.08	.10
16	.09	.10	.12	.11	.11	.14	.14	.15	.12	.08	.09	.10
17	.10	.10	.12	.11	.10	.14	.14	.16	.11	.09	.09	.10
18	.10	.10	.11	.10	.10	.15	.14	.16	.10	.09	.09	.09
19	.10	.10	.11	.10	.10	.15	.14	.16	.10	.10	.09	.09
20	.11	.10	.10	.10	.10	.15	.14	.16	.10	.10	.08	.09
21	.11	.10	.10	.09	.10	.15	.14	.16	.11	.10	.08	.09
22	.11	.10	.10	.09	.09	.16	.14	.16	.11	.10	.08	.09
23	.11	.10	.10	.09	.09	.16	.13	.16	.11	.10	.08	.09
24	.11	.10	.10	.09	.09	.16	.13	.16	.11	.10	.08	.09
25	.11	.10	.10	.09	.09	.15	.13	.15	.11	.09	.07	.10
26	.11	.10	.10	.09	.09	.15	.13	.15	.11	.09	.07	.10
27	.11	.10	.10	.09	.09	.15	.13	.15	.11	.09	.07	.10
28	.11	.10	.10	.09	.09	.15	.13	.15	.13	.09	.07	.10
29	.11	-----	.11	.10	.10	.14	.12	.14	.13	.09	.08	.11
30	.11	-----	.11	.10	.10	.14	.13	.14	.13	.09	.09	.11
31	.11	-----	.12	-----	.09	-----	.13	.14	-----	.09	-----	.11
Month	3.32	2.88	3.45	3.30	3.36	3.91	4.37	4.42	3.64	2.91	2.46	3.09

Annual, 41.11.

Daily values smoothed.

TABLE 54.—*Greatest precipitation ever recorded on each day of the year*

[Period of record, 1871–1945]

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.29	0.82	0.82	0.95	0.99	2.20	2.05	1.77	1.14	2.27	1.79	1.07
2	1.34	2.11	1.06	.69	.37	3.48	2.88	6.14	5.76	1.63	.99	1.34
3	1.87	1.10	1.75	2.28	2.41	1.55	1.72	1.02	1.53	1.92	.75	1.83
4	2.28	1.61	1.24	.71	1.77	.81	2.00	1.32	4.49	3.98	1.01	1.73
5	1.26	.80	1.27	1.32	1.10	1.41	3.68	2.15	4.45	2.53	1.00	1.21
6	1.35	2.29	1.52	2.23	1.27	1.61	.69	1.46	1.45	2.47	.95	1.47
7	1.33	1.01	1.32	.93	2.35	1.57	.92	1.85	3.78	1.12	1.04	.85
8	2.21	1.26	.93	2.13	2.14	2.84	1.60	4.03	.75	1.47	2.95	.93
9	1.87	1.92	2.79	1.53	1.13	1.10	.75	2.71	1.48	.99	1.40	1.05
10	.81	.83	1.72	1.57	.77	2.27	2.98	1.64	1.25	1.70	.70	2.23
11	1.72	1.24	1.65	1.93	1.48	2.08	1.79	5.97	1.85	1.10	.43	1.07
12	2.77	1.15	2.60	1.99	2.11	1.25	2.93	4.92	4.02	1.08	1.76	1.19
13	1.01	1.48	1.45	.83	2.81	2.04	3.37	1.73	2.51	1.82	1.76	2.43
14	1.28	.98	1.66	1.62	1.33	2.69	2.93	2.52	2.48	1.51	1.30	1.89
15	1.18	1.20	1.28	1.05	.75	2.28	1.82	1.15	2.52	2.59	1.90	1.38
16	1.00	1.85	1.09	2.09	1.32	1.33	.81	1.97	4.15	1.09	2.17	1.19
17	.55	.83	.74	2.74	1.05	2.22	1.95	2.39	3.26	2.52	2.04	2.43
18	.88	.68	.85	1.40	1.38	1.87	2.47	1.67	1.42	1.18	.90	.67
19	1.41	1.67	1.77	1.75	3.15	2.01	1.51	2.07	1.23	2.73	1.36	1.30
20	1.77	1.45	1.10	1.71	1.97	.75	.77	1.79	1.43	2.97	1.39	1.19
21	1.41	1.44	2.15	1.58	1.32	2.17	2.56	2.12	1.92	2.02	.43	1.38
22	1.43	1.20	1.83	1.47	1.00	4.16	2.40	.82	.95	1.54	1.02	1.68
23	1.57	1.19	1.41	1.38	2.34	1.18	2.60	6.39	2.40	3.31	1.52	1.30
24	1.34	.89	1.45	.97	1.97	1.66	2.20	2.58	1.98	2.01	2.83	.97
25	1.38	1.19	1.60	1.50	.93	1.60	3.27	3.92	2.49	3.12	1.21	1.52
26	1.25	1.21	1.07	3.21	1.11	3.12	3.25	1.75	2.25	2.49	1.04	1.31
27	.76	.56	1.81	1.53	1.50	2.59	2.32	1.55	1.31	1.75	1.82	1.16
28	2.26	1.13	1.34	1.40	.64	2.95	1.58	3.09	1.69	1.53	1.66	1.38
29	1.02	1.61	1.64	2.05	.61	.94	2.34	2.84	2.68	2.69	.91	2.57
30	.97	-----	1.30	.51	1.42	1.65	4.25	1.14	2.76	1.02	1.15	1.81
31	1.18	-----	1.82	-----	2.25	-----	3.18	1.98	-----	1.30	-----	.83

TABLE 55.—*Number of hours with precipitation*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1889	-----	-----	-----	168	153	87	133	46	154	104	180	43	1,090
1890	105	136	155	93	113	36	92	83	79	143	52	131	1,218
1891	140	159	208	56	93	84	98	76	43	79	67	57	1,160
1892	162	136	163	138	84	63	51	34	79	24	104	88	1,126
1893	107	122	101	113	102	57	47	58	99	81	86	84	1,057
1894	115	142	56	117	92	43	88	46	90	70	70	120	1,049
1895	170	64	106	155	120	57	100	35	40	41	112	84	1,084
1896	58	126	118	77	113	102	76	44	64	45	122	33	978
1897	94	133	106	82	95	74	101	35	24	110	132	127	1,113
1898	136	74	133	138	126	18	61	69	31	104	118	114	1,122
1899	131	145	128	48	106	52	74	77	70	82	52	48	1,013
1900	95	119	99	68	71	93	37	52	69	65	81	56	905
1901	94	28	93	157	122	74	74	85	74	30	43	117	991
1902	106	138	115	88	53	42	59	33	93	77	91	143	1,038
1903	110	117	129	139	51	101	50	128	28	74	49	71	1,047

TABLE 55.—*Number of hours with precipitation*—Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1904	103	117	139	113	54	104	100	68	42	20	62	149	1,071
1905	152	115	119	108	93	85	104	99	41	76	80	101	1,173
1906	121	61	204	76	61	103	75	159	58	205	65	147	1,335
1907	148	81	116	112	136	136	48	93	118	66	136	102	1,292
1908	79	104	118	69	133	54	74	73	58	49	26	104	941
1909	149	108	121	107	113	113	58	69	50	45	51	86	1,070
1910	143	92	37	138	121	146	46	77	30	87	80	99	1,096
1911	141	108	97	147	24	87	41	121	56	104	100	128	1,154
1912	129	92	211	99	111	89	72	45	119	53	42	134	1,196
1913	122	71	113	133	96	52	52	65	56	120	93	89	1,062
1914	106	105	128	111	46	60	64	63	37	64	42	196	1,022
1915	157	114	58	62	125	82	67	122	50	124	53	84	1,098
1916	131	134	132	108	102	99	86	39	55	43	68	107	1,104
1917	101	90	178	93	98	65	114	52	67	105	54	110	1,127
1918	131	50	100	169	74	85	75	55	68	37	42	124	1,010
1919	110	103	122	83	127	67	120	74	44	122	118	141	1,231
1920	132	167	111	147	78	99	52	135	59	14	137	72	1,203
1921	101	108	100	104	168	41	46	52	52	49	115	97	1,033
1922	102	108	167	64	101	83	79	66	27	52	37	119	1,005
1923	130	110	129	93	63	61	77	91	79	52	134	146	1,165
1924	65	122	138	100	176	86	57	71	131	18	49	93	1,106
1925	177	56	91	97	56	73	62	83	50	117	81	123	1,066
1926	124	135	109	74	65	77	105	157	116	85	76	140	1,263
1927	90	116	52	159	107	82	79	95	30	96	79	122	1,107
1928	81	96	71	112	95	134	64	105	126	37	83	45	1,049
1929	118	90	111	133	108	76	43	39	65	101	124	92	1,100
1930	128	65	72	89	69	53	35	48	33	34	99	68	793
1931	57	90	150	104	115	58	87	142	53	59	67	73	1,055
1932	154	67	128	95	111	82	52	45	39	124	122	135	1,154
1933	81	98	129	109	129	67	76	112	99	50	51	95	1,096
1934	134	108	170	96	108	50	44	77	143	40	111	94	1,175
1935	149	111	142	148	111	88	60	91	114	67	152	160	1,393
1936	146	116	139	116	42	94	73	63	69	72	50	164	1,144
1937	239	114	96	167	73	113	74	127	69	160	85	80	1,397
1938	104	93	171	121	138	95	131	40	133	63	87	92	1,268
1939	124	136	107	159	35	107	103	69	54	116	66	84	1,160
1940	104	138	120	195	150	86	75	190	39	117	127	121	1,462
1941	127	85	109	66	77	110	100	63	24	65	46	76	948
1942	80	60	136	49	65	80	102	116	75	160	106	143	1,172
1943	177	88	142	107	156	48	75	31	103	103	57	59	1,146
1944	105	117	163	91	55	62	60	67	144	114	109	139	1,223
1945	157	118	91	129	118	63	165	83	114	65	161	199	1,463

TABLE 56.—*Total precipitation for 12-month period ending with close of each month*

[Inches]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1872	37.05	35.28	32.59	33.45	31.43	29.43	24.15	29.38	30.60	33.32	31.05	32.22
1873	35.60	39.36	39.16	40.58	44.37	43.22	46.70	46.61	46.17	46.96	47.23	45.71
1874	43.93	41.08	40.11	42.57	40.17	42.01	40.05	34.73	39.09	33.76	32.82	34.44
1875	34.35	35.16	37.06	33.70	31.89	30.48	31.19	42.61	36.75	38.32	40.19	41.11
1876	40.93	41.78	43.34	43.48	45.49	48.02	50.09	41.33	50.16	51.29	50.17	47.96
1877	50.01	47.67	45.73	48.17	47.41	48.74	50.12	48.69	42.81	46.32	50.67	52.59
1878	53.63	55.01	55.74	54.19	57.20	57.61	59.48	65.63	63.16	62.52	58.37	60.09
1879	58.45	57.78	55.21	54.28	50.59	47.55	42.54	41.01	40.11	35.04	33.11	32.83
1880	32.21	32.05	35.91	37.33	39.12	39.35	38.24	34.71	36.57	38.09	39.47	38.83
1881	41.46	43.76	44.77	43.04	41.53	43.72	43.14	40.38	39.15	40.13	40.10	42.20
1882	44.15	45.23	42.37	42.84	45.98	42.60	45.39	48.76	54.41	51.65	50.53	46.79
1883	42.85	42.84	42.36	43.90	41.40	47.62	47.89	46.75	43.24	45.34	45.20	45.71
1884	48.15	49.91	53.88	51.65	52.24	50.64	53.30	51.01	46.82	45.92	48.15	49.96
1885	48.83	46.62	40.91	40.76	40.52	36.87	32.51	37.99	40.00	46.96	46.87	44.84
1886	45.39	45.08	49.96	50.96	58.71	62.16	69.76	65.70	65.34	57.85	57.40	58.17
1887	55.55	54.65	52.07	52.60	44.50	40.74	33.40	33.31	34.64	35.26	34.21	35.08
1888	35.68	35.45	36.15	34.80	37.07	37.61	38.79	39.80	43.50	44.95	46.09	45.05
1889	46.11	45.39	45.06	52.30	58.22	59.70	63.36	63.08	60.14	61.35	64.41	61.33
1890	58.82	60.55	60.00	53.68	47.72	44.73	39.84	42.27	42.61	43.28	38.04	41.59
1891	46.19	46.48	51.67	51.80	50.79	53.38	58.54	57.22	56.12	53.21	53.89	52.95
1892	52.65	51.80	48.66	50.24	50.59	48.57	45.21	41.88	42.31	40.41	42.32	42.34
1893	38.35	38.96	35.09	33.78	35.12	34.34	30.74	32.21	32.57	36.34	37.26	36.71
1894	37.00	37.39	36.54	36.67	35.29	34.72	35.42	35.10	32.72	31.75	28.97	30.85
1895	33.13	29.59	31.20	34.12	33.18	36.28	38.64	37.90	37.48	36.28	36.02	34.25
1896	32.10	36.31	38.88	33.69	32.86	30.91	30.10	31.49	33.56	31.96	33.24	31.16
1897	30.87	32.03	29.53	31.48	36.19	36.40	38.49	39.19	37.55	40.76	41.53	44.58
1898	46.14	41.31	41.17	40.51	37.14	35.87	32.95	38.36	37.71	37.70	37.51	37.72
1899	38.30	42.83	45.25	44.43	43.36	44.49	47.69	42.70	47.95	47.21	45.90	44.02
1900	41.82	40.91	39.04	39.24	40.73	49.21	44.40	42.91	41.38	40.02	40.36	41.20
1901	42.20	37.56	37.13	41.73	40.52	34.24	38.16	40.00	37.00	36.53	36.71	41.75
1902	42.44	46.54	47.68	43.56	44.10	43.14	40.51	38.24	41.93	47.72	48.85	46.58
1903	47.23	47.83	49.78	51.85	51.25	51.15	53.78	56.45	51.89	49.61	46.95	43.55
1904	41.91	38.24	35.53	34.22	34.11	36.00	37.08	35.53	40.13	38.00	39.40	40.84
1905	41.81	42.71	43.00	42.71	43.29	42.32	46.02	52.80	49.80	49.75	48.58	50.64
1906	50.16	49.75	51.06	51.40	49.98	51.35	48.20	52.81	51.07	54.48	55.08	52.92
1907	52.35	52.52	50.69	51.27	54.50	53.47	48.22	38.20	44.75	41.16	43.69	44.66
1908	45.57	47.24	46.90	44.89	45.96	42.83	44.57	45.37	42.87	42.46	38.90	38.33
1909	37.72	36.85	39.16	40.25	37.92	40.01	38.52	35.65	34.42	33.50	33.79	33.55
1910	35.10	34.19	30.00	33.20	32.86	33.81	35.74	34.73	33.46	38.41	39.80	39.05
1911	37.58	37.30	39.04	36.00	33.44	33.22	33.96	39.97	39.85	38.18	39.75	40.45
1912	40.37	41.15	44.98	44.46	48.43	48.24	50.98	45.21	49.04	45.62	43.31	44.09
1913	44.10	42.77	41.30	44.83	44.55	42.00	38.03	41.95	38.50	41.22	41.88	40.05
1914	41.80	43.48	41.08	38.42	35.58	39.97	39.05	39.63	37.88	36.16	36.02	38.22
1915	39.96	40.51	39.31	37.01	37.47	37.85	38.74	39.74	40.47	42.54	41.41	39.72

TABLE 56.—*Total precipitation for 12-month period ending with close of each month*—Continued

[Inches]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1916	34.95	34.19	35.92	37.98	38.10	39.05	40.81	36.64	37.82	35.86	37.04	38.27
1917	39.27	38.40	40.72	39.92	39.46	38.18	42.62	40.56	39.33	42.38	40.80	38.24
1918	39.96	38.82	38.74	43.16	43.67	39.48	33.86	34.97	36.42	32.47	33.42	36.60
1919	35.78	36.96	35.94	33.08	36.00	37.38	40.39	41.92	40.90	43.68	44.52	43.19
1920	42.02	43.48	41.85	42.82	38.97	40.33	39.24	40.53	41.63	38.39	40.58	40.41
1921	40.41	39.23	39.60	37.84	42.24	40.89	39.97	36.37	36.79	37.74	37.38	36.18
1922	39.44	40.01	41.99	40.11	38.56	39.21	44.01	45.99	48.97	49.03	45.43	46.96
1923	45.64	44.97	44.70	47.59	44.82	43.52	38.85	37.96	34.84	34.79	36.28	35.60
1924	34.57	35.43	37.13	38.58	43.81	44.90	42.74	45.62	50.33	49.41	48.84	49.02
1925	50.25	48.18	43.61	40.66	35.60	33.24	34.30	33.12	28.31	32.73	34.79	32.88
1926	32.04	35.23	35.70	34.05	34.60	34.73	35.11	36.72	40.47	39.84	41.60	43.55
1927	41.15	40.32	39.52	43.69	43.68	46.03	43.65	41.99	36.38	37.48	34.84	35.33
1928	36.76	36.11	37.01	36.54	38.33	36.98	37.33	47.90	51.00	46.34	45.70	43.40
1929	42.93	43.43	43.90	45.51	43.80	48.55	47.67	34.56	34.59	38.73	38.42	39.41
1930	40.10	38.55	38.17	35.19	34.71	30.49	31.50	30.82	27.26	22.73	21.82	21.66
1931	20.37	20.09	21.33	21.08	24.11	23.04	24.97	30.27	32.30	33.30	33.52	33.51
1932	36.77	37.87	40.82	40.07	40.30	41.02	39.22	34.66	36.11	42.23	47.65	49.55
1933	47.98	48.15	44.94	47.49	48.68	49.72	54.00	62.55	60.93	56.09	50.61	49.11
1934	47.83	48.42	49.36	46.96	44.55	43.54	39.71	35.01	49.84	48.03	50.66	51.14
1935	54.44	53.59	52.80	54.48	54.17	54.73	54.10	51.29	41.92	43.93	44.38	43.53
1936	44.13	45.59	46.67	44.70	46.48	45.34	47.16	48.37	42.27	41.21	37.94	41.11
1937	43.07	42.57	39.60	44.47	43.17	46.11	45.71	48.80	48.58	55.69	58.81	54.29
1938	49.10	48.14	48.87	43.69	43.18	40.21	41.60	39.54	42.05	34.39	33.11	35.09
1939	35.86	39.20	39.86	41.97	38.87	41.16	38.11	36.69	39.32	42.23	41.03	40.54
1940	39.25	36.31	36.84	39.25	41.94	38.25	41.97	43.75	38.19	36.28	40.14	40.21
1941	41.13	39.28	38.43	34.97	33.45	36.97	36.91	33.83	33.02	31.95	27.50	29.17
1942	28.60	29.71	33.10	30.91	33.26	34.23	33.96	41.53	43.60	50.85	52.14	52.03
1943	52.43	52.42	50.77	53.53	53.64	50.72	46.78	38.03	38.31	34.27	36.40	34.11
1944	34.20	34.66	35.79	35.57	32.55	32.90	33.88	39.63	42.52	41.45	40.51	42.30
1945	42.23	42.69	38.09	38.27	40.69	43.04	50.59	45.47	44.26	42.50	43.83	45.79

TABLE 57.—*Number of hours with precipitation*

Year	Winter	Spring	Summer	Autumn
1889			266	438
1890	284	361	211	274
1891	430	357	258	189
1892	355	385	148	207
1893	317	316	162	266
1894	341	265	177	230
1895	354	381	192	193
1896	268	308	222	231
1897	260	283	210	266
1898	337	397	148	253
1899	390	282	203	204
1900	262	238	182	215
1901	178	372	233	147
1902	361	256	134	261
1903	370	319	279	151
1904	291	306	272	124
1905	416	320	288	197
1906	283	341	337	328
1907	376	364	277	320
1908	285	320	201	133
1909	361	341	240	146
1910	321	296	269	197
1911	348	268	249	260
1912	349	421	206	214
1913	327	342	169	269
1914	300	285	187	143
1915	467	245	271	227
1916	349	342	224	166
1917	298	369	231	226
1918	291	343	215	147
1919	337	332	261	284
1920	440	336	286	210
1921	281	372	139	216
1922	307	332	228	116
1923	359	285	229	265
1924	333	414	214	198
1925	326	244	218	248
1926	382	248	339	277
1927	346	318	256	205
1928	299	278	303	246
1929	253	352	158	290
1930	285	230	136	166
1931	215	369	287	179
1932	294	334	179	285
1933	314	367	255	200
1934	337	374	171	294
1935	354	401	239	333
1936	422	297	230	191
1937	517	336	314	314
1938	277	430	266	283
1939	352	301	279	236
1940	326	465	351	283
1941	333	252	273	135
1942	216	250	298	341
1943	408	405	154	263
1944	281	309	189	367
1945	414	338	311	340

TABLE 58.—*Seasonal precipitation*

[Inches and hundredths]

Year	Winter, Dec.–Feb.	Spring, Mar.–May	Summer, June–Aug.	Autumn, Sept.–Nov.	Growing season, Apr.–Sept., inclusive
1871	5.32	10.28	12.57	9.83	19.63
1872	2.60	6.43	10.52	11.50	17.64
1873	10.91	11.44	12.76	12.12	24.65
1874	4.76	10.53	7.32	10.21	23.63
1875	7.10	7.26	18.04	7.79	23.32
1876	8.69	10.97	13.88	16.63	30.14
1877	6.19	10.71	15.16	18.61	27.22
1878	10.53	12.90	23.59	11.35	34.64
1879	9.94	5.71	14.01	3.45	19.54
1880	8.88	12.78	9.60	8.21	20.20
1881	13.17	10.55	8.45	7.93	14.58
1882	18.30	11.30	11.23	9.70	26.62
1883	10.61	9.86	16.58	8.15	27.50
1884	15.32	12.19	15.35	5.29	20.44
1885	13.79	6.09	12.82	14.17	19.53
1886	12.00	19.72	19.81	5.87	34.91
1887	9.25	9.57	8.62	6.77	17.48
1888	10.49	11.19	11.35	13.06	24.83
1889	9.79	24.02	16.21	14.39	39.91
1890	5.93	11.19	10.76	10.16	22.52
1891	14.37	15.50	17.19	6.83	26.97
1892	12.28	14.29	8.48	7.27	20.62
1893	8.92	10.45	5.57	12.32	18.10
1894	9.05	8.35	5.38	6.19	14.28
1895	9.67	11.94	10.10	4.31	20.56
1896	9.96	8.49	8.73	6.06	15.24
1897	8.75	12.65	11.73	8.40	23.26
1898	8.53	8.48	12.95	7.55	19.80
1899	13.85	9.01	12.29	10.75	22.50
1900	8.86	8.83	14.47	8.20	24.84
1901	6.06	11.79	13.95	4.91	24.71
1902	15.89	9.35	8.09	15.52	18.96
1903	14.87	12.77	13.29	6.02	21.07
1904	6.16	8.64	14.71	9.89	25.67
1905	9.47	9.22	24.22	5.67	32.47
1906	10.64	9.45	27.05	7.94	32.48
1907	8.08	11.43	10.75	13.43	26.54
1908	11.63	10.15	10.16	6.96	22.51
1909	9.58	11.22	7.89	5.10	17.77
1910	9.98	9.89	9.76	10.17	21.23
1911	7.48	6.03	16.29	9.95	22.04
1912	8.88	13.31	13.07	8.05	26.10
1913	8.34	15.09	10.47	7.98	23.30
1914	9.94	7.19	14.52	4.37	20.10
1915	14.43	4.15	16.79	6.04	21.26
1916	7.21	8.06	15.33	6.44	23.16
1917	8.57	9.12	16.43	6.68	21.77
1918	6.59	13.97	7.73	5.13	19.45
1919	10.13	13.01	13.65	7.73	24.41
1920	9.09	8.50	15.21	7.78	24.19
1921	7.74	11.51	9.34	8.79	21.38
1922	10.37	10.06	16.77	8.23	28.36
1923	9.91	9.91	9.91	6.55	18.50
1924	9.06	18.29	11.72	9.77	31.70
1925	8.40	5.71	9.24	11.44	16.40
1926	8.84	5.08	11.36	16.32	21.17
1927	7.56	8.44	9.67	9.17	18.03
1928	8.83	10.66	19.24	6.97	32.02
1929	6.56	11.03	10.00	10.83	22.71
1930	6.69	7.19	6.11	1.83	11.80
1931	4.96	11.21	12.27	5.08	22.77
1932	9.31	13.64	6.63	18.07	18.06
1933	9.81	14.17	20.50	6.13	34.05
1934	7.62	10.30	10.96	21.78	34.53
1935	10.55	10.88	8.08	14.87	23.65
1936	11.76	11.77	9.97	4.44	19.25
1937	16.39	12.37	15.60	14.45	28.23
1938	5.72	7.41	11.96	8.02	21.41
1939	11.81	7.08	9.78	12.36	20.87
1940	7.09	12.71	11.59	8.75	22.22
1941	6.23	6.88	11.97	2.42	16.81
1942	8.44	10.43	20.24	13.03	27.31
1943	8.72	11.65	4.63	11.40	14.85
1944	6.98	9.54	11.71	12.28	21.58
1945	9.16	7.54	16.49	10.64	27.75

TABLE 59.—*Days with precipitation (T. or more) by seasons*

Years	Winter	Spring	Summer	Autumn
1881		44	36	34
1882	47	49	47	39
1883	43	39	37	39
1884	49	46	37	22
1885	44	40	39	38
1886	35	46	45	30
1887	43	47	44	35
1888	44	49	40	50
1889	32	56	49	47
1890	45	50	49	47
1891	51	48	51	30
1892	43	52	39	36
1893	44	50	42	38
1894	45	47	36	37
1895	45	51	45	34
1896	37	53	47	43
1897	41	44	52	37
1898	42	63	37	38
1899	44	45	44	37
1900	38	38	41	35
1901	26	50	44	34
1902	39	48	43	30
1903	45	42	52	32
1904	41	47	54	29
1905	48	51	54	29
1906	39	50	62	44
1907	55	52	49	42
1908	39	52	43	23
1909	48	47	41	30
1910	38	48	43	31
1911	48	43	48	44
1912	49	46	45	28
1313	46	47	42	38
1994	33	39	39	25
1915	47	38	56	35
1916	45	52	40	34
1917	47	52	49	37
1918	44	49	50	23
1919	40	31	40	38
1920	49	45	53	30
1921	41	48	36	40
1922	45	48	53	22
1923	55	38	43	44
1924	40	47	45	32
1925	32	38	44	44
1926	43	43	51	38
1927	55	56	50	31
1928	38	48	53	39
1929	35	55	41	42
1930	40	40	38	39
1931	32	49	58	37
1932	47	41	34	38
1933	46	56	46	39
1934	48	53	44	42
1935	46	56	50	35
1936	55	51	47	36
1937	57	52	54	43
1938	40	50	51	38
1939	48	46	47	35
1940	40	57	58	38
1941	41	34	44	26
1942	36	38	47	40
1943	50	59	38	36
1944	39	49	36	44
1945	47	48	47	47

TABLE 60.—*Maximum precipitation for selected time intervals*

[Period of record: 12 hours or less, 1897–1945; over 12 hours, 1871–1945]

Month	5 minutes	Date	10 minutes	Date	15 minutes	Date	30 minutes	Date	1 hour	Date	2 hours	Date
January	0.20	24, 1899	0.32	24, 1899	0.41	24, 1899	0.53	24, 1899	0.57	24, 1899	0.88	21, 1902.
February	.34	28, 1903	.45	28, 1903	.48	28, 1903	.51	28, 1903	.62	21, 1937	.79	28, 1939.
March	.40	9, 1921	.50	9, 1921	.52	9, 1921	.65	24, 1905	1.02	24, 1905	1.19	24, 1905.
April	.31	21, 1927	.59	21, 1927	.62	21, 1927	.64	21, 1927	.78	21, 1929	1.15	21, 1927.
May	.53	3, 1936	.94	3, 1936	1.18	3, 1936	1.39	3, 1936	1.57	3, 1936	1.88	3, 1936.
June	.55	25, 1914	.96	27, 1919	1.25	27, 1919	1.77	14, 1917	2.66	8, 1900	3.22	2, 1900.
July	.77	30, 1913	1.21	30, 1913	1.51	30, 1913	2.11	14, 1912	2.79	13, 1922	3.33	5, 1905.
August	.80	11, 1897	1.20	11, 1897	1.47	11, 1897	1.87	11, 1897	2.48	24, 1906	3.25	2, 1944.
September	.56	2, 1926	1.02	12, 1934	1.44	12, 1934	2.43	12, 1934	3.42	12, 1934	3.91	4, 1939.
October	.38	3, 1927	.62	3, 1927	.83	15, 1942	1.42	20, 1910	2.29	20, 1934	2.71	20, 1910.
November	.57	17, 1927	.68	17, 1927	.68	17, 1927	1.02	8, 1943	1.42	8, 1943	2.01	8, 1943.
December	.21	1, 1934	.33	1, 1934	.38	5, 1941	.53	5, 1941	.59	14, 1918	1.06	13, 1909.
Year	.80	Aug. 11, 1897	1.21	July 30, 1913	1.51	July 30, 1913	2.43	Sept. 12, 1934	3.42	Sept. 12, 1934	3.91	Sept. 4, 1939.

Month	3 hours	Date	6 hours	Date	12 hours	Date	24 hours	Date	48 hours	Date	72 hours	Date
January	1.23	21, 1902	1.41	3, 1914	1.64	3, 1914	2.98	12–13, 1915	3.34	12–13, 1915	3.34	12–13, 1915.
February	.96	28, 1939	1.26	16, 1899	1.60	4, 1932	2.29	6, 1896	2.30	6, 1926	2.53	3–6, 1920.
March	1.34	24, 1905 19, 1932	1.76	27–28, 1932	2.05	27–28, 1932	2.80	3–4, 1909	3.12	30–31, 1886	3.83	21–23, 1903.
April	1.52	11, 1919	1.90	11, 1919	2.37	11–12, 1913	3.21	25–26, 1889	4.71	25–26, 1889	5.29	25–27, 1889.
May	2.17	3, 1936	2.94	19, 1900	3.14	19, 1900	3.50	7–8, 1889	3.67	30–31, 1889	4.54	6–8, 1886.
June	3.45	2, 1900	3.48	2, 1900	3.56	1–2, 1900	4.16	22, 1886	4.16	22, 1886	5.82	22–24, 1886.
July	3.47	5, 1905	3.69	5, 1905	4.01	5, 1905	5.80	29–30, 1878	5.93	29–30, 1878	5.93	29–30, 1878.
August	3.90	2, 1944	5.38	11–12, 1928	6.20	11–12, 1928	7.31	11–12, 1928	8.67	11–12, 1928	8.67	11–12, 1928.
September	4.14	2, 1922	5.15	2, 1922	5.16	2, 1922	5.66	15–16, 1874	6.70	4–6, 1935	6.83	3–6, 1935.
October	2.86	20, 1910	3.10	19–20, 1910	3.62	19–20, 1910	3.98	4, 1877	4.10	14–15, 1942	5.47	14–17, 1942.
November	2.54	8, 1943	2.69	8, 1943	3.02	8–9, 1943	3.20	8–9, 1943	3.20	8–9, 1943	3.20	8–9, 1943.
December	1.30	19, 1909	1.63	13, 1909	1.93	13, 1941	2.70	17, 1888	2.93	29–30, 1901	3.03	28–30, 1901.
Year	4.14	Sept. 2, 1922	5.38	Aug. 11–12, 1928	6.20	Aug. 11–12, 1928	7.31	Aug. 11–12, 1928	8.67	Aug. 11–12, 1928	8.67	Aug. 11–12, 1928.

TABLE 61.—*Maximum intensities of rainfall on Sept. 4, 1939*

Location	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	O.	P.
5 minutes	0.38	0.44	0.40	0.43	0.40	0.36	0.40	0.30	0.70	0.30	0.54	0.37	0.32	0.60	0.69
10 minutes	.71	.84	.60	.83	.60	.56	.64	.50	1.02	.50	.55	.65	.60	.90	.92
15 minutes	.98	1.10	.80	1.13	.84	.76	.86	.70	1.20	.74	.69	.77	.80	1.12	1.12
30 minutes	1.61	1.84	1.36	1.76	1.46	1.36	1.32	1.20	1.64	1.32	.76	1.35	1.38	1.64	1.67
60 minutes	2.70	2.58	2.24	2.90	2.28	2.60	2.16	2.14	2.90	2.30	1.30	2.38	1.98	2.32	2.45
120 minutes	3.84	3.48	2.94	4.14	3.45	3.51	3.00	4.00	4.02	3.18	2.07	3.11	2.95	3.98	4.02

A.—24th and M Sts. NW.
B.—District Building, 14th and E Sts. NW.
C.—Georgetown University, 37th and O Sts. NW.
D.—National Zoological Park.
E.—Carnegie Institute of Washington, Terrestial Magnetism Division, 5241 Broad Branch Rd.
F.—New York and New Jersey Ave. NW. (fire station).
G.—Senate Office Building, Constitution and Delaware Aves. NE.
H.—1st and O Sts. SE.
I.—Gallinger Hospital, 19th and C Sts. SE.
J.—National Training School for Boys (Bladensburg Road).
K.—Takoma Park, front of newspaper office, near Seventh Day Adventist center.
L.—Fort Dupont (SE., Pennsylvania Ave., top of hill across Anacostia River).
M.—Home for Aged and Infirm, Blue Plain (extreme south end of District of Columbia)
O.—Dalecarlia Filtration Plant (Conduit Road).
P.—Arlington Farm Evaporation Station (west edge of farm near Arlington Cemetery).

TABLE 62.—*Snowfall*

[Inches and tenths]

Season	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Seasonal
1887–88				4.6	7.2	10.9	0.0	0.0	
1888–89	0.0	1.5	0.0	3.0	3.5	.5	4.0	.0	12.5
1889–90	T	T	.0	T	1.5	5.0	.0	.0	6.5
1890–91	.0	T	13.0	6.1	1.0	17.0	.0	.0	37.1
1891–92	.0	2.5	T	20.5	7.5	11.2	T	.0	41.7
1892–93	T	3.5	5.5	11.3	8.7	2.0	.0	.0	31.0
1893–94	.0	T	3.3	2.0	18.1	T	2.0	.0	25.4
1894–95	.0	.0	2.6	8.7	13.4	.1	.1	.1	25.0
1895–96	.0	T	1.2	.2	.1	7.7	.1	.0	9.3
1896–97	.0	2.5	1.0	6.7	6.0	T	.0	.0	16.2
1897–98	.0	T	2.0	6.0	T	2.0	1.0	.0	11.0
1898–99	.0	4.8	1.6	8.3	35.2	4.5	T	.0	54.4
1899–1900	.0	.0	1.8	2.2	15.9	15.5	.2	.0	35.6
1900–01	.0	.5	.2	8.1	.2	.1	.0	.0	9.1
1901–02	.0	.2	.3	7.1	1.5	4.0	T	0	13.1
1902–03	.0	.0	3.0	2.2	3.0	T	.0	.0	8.2
1903–04	.0	.6	1.3	16.5	1.8	T	T	.0	20.2
1904–05	.0	4.0	13.2	13.5	5.5	4.8	T	T	41.0
1905–06	.0	.1	5.4	2.8	10.1	7.3	.0	.0	25.7

TABLE 62.—*Snowfall*—Continued

[Inches and tenths]

Season	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Seasonal
1906–07	.0	.2	.3	4.5	15.4	6.4	1.4	.0	28.3
1907–08	.0	T	1.9	2.8	13.6	T	T	.0	18.3
1908–09	.0	3.5	11.5	3.7	6.4	10.8	T	.0	35.9
1909–10	.0	1.5	5.2	6.7	3.4	3.2	.0	.0	20.0
1910–11	.0	4.0	12.0	5.5	10.2	8.0	.1	.0	39.8
1911–12	.0	T	T	16.9	.5	4.4	.0	.0	21.8
1912–13	.0	.6	6.5	T	1.6	T	T	.0	8.7
1913–14	.0	.0	T	T	8.3	19.3	.0	.0	27.6
1914–15	.0	.0	3.5	2.0	3.0	2.5	3.5	.0	14.5
1915–16	.0	.0	3.8	5.7	4.3	1.8	2.3	.0	17.9
1916–17	.0	T	8.5	4.8	2.5	1.5	1.5	.0	18.8
1917–18	T	2.5	6.8	22.6	1.5	.0	3.0	.0	36.4
1918–19	.0	.0	T	.5	2.8	T	T	.0	3.3
1919–20	.0	T	4.8	2.7	3.2	1.2	T	.0	11.9
1920–21	.0	T	.2	1.5	3.1	.0	T	.0	4.8
1921–22	.0	T	5.5	31.5	3.0	2.5	.0	.0	42.5
1922–23	.0	T	1.7	3.1	3.9	6.5	.0	T	15.2
1923–24	.0	T	1.7	.5	4.9	9.3	5.0	.0	21.4
1924–25	.0	T	.5	18.0	T	T	.0	.0	18.5
1925–26	2.2	T	T	3.4	11.8	T	T	.0	17.4
1926–27	.0	.0	1.0	.3	1.0	T	T	.0	2.3
1927–28	.0	T	T	10.6	T	.5	T	.0	11.1
1928–29	.0	.2	T	.3	7.0	T	.0	.0	7.5
1929–30	.0	1.1	1.5	14.0	1.5	T	T	.0	18.1
1930–31	.0	T	2.5	T	T	T	T	.0	2.5
1931–32	.0	T	1.0	T	T	4.0	.0	.0	5.0
1932–33	.0	.0	14.5	T	8.3	1.0	.0	.0	23.8
1933–34	.0	.5	3.0	T	18.1	9.1	T	.0	30.7
1934–35	.0	T	3.0	24.4	3.5	.5	T	.0	31.4
1935–36	.0	T	11.0	2.3	18.5	T	T	.0	31.8
1936–37	.0	T	1.5	T	7.7	11.0	T	.0	20.2
1937–38	.0	T	T	1.5	1.4	2.5	T	.0	5.4
1938–39	.0	6.4	T	6.3	.3	T	T	.0	13.0
1939–40	.0	.4	4.4	15.3	4.3	.4	.5	.0	25.3
1940–41	1.5	T	T	3.2	2.0	11.2	.0	.0	17.9
1941–42	.0	.0	.2	3.2	.1	11.5	.0	.0	15.0
1942–43	.0	.0	5.7	2.5	.7	7.8	T	.0	16.7
1943–44	.0	T	.1	4.1	2.1	.5	.2	.0	7.0
1944–45	.0	.0	1.9	3.3	2.6	T	.0	.0	7.8
1945–46	.0	T	9.4	7.3	4.2	T	.0	.0	20.9

TABLE 63.—*Greatest snowfall ever recorded on each day of the year*

[Period of record, 1888–1945]

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0	0	0	0	T	3.0	8.0	4.8	5.5	0	0
2	0	0	0	0	0	1.0	4.5	4.2	2.0	T	0	0
3	0	0	0	0	0	1.0	1.5	3.0	4.0	3.5	0	0
4	0	0	0	0	4.0	4.5	2.0	3.5	9.8	0.2	0	0
5	0	0	0	T	2.5	4.5	1.1	7.5	4.4	0.5	0	0
6	0	0	0	0	T	4.4	9.0	4.3	5.2	4.0	0	0
7	0	0	0	0	0	1.0	5.2	14.4	8.0	.4	0	0
8	0	0	0	0	T	3.0	5.2	1.4	5.8	.5	0	0
9	0	0	0	0	.5	1.0	2.9	5.4	.5	1.5	T	0
10	0	0	0	0	0	7.0	2.0	9.3	5.3	T	T	0
11	0	0	0	0	T	1.0	4.3	4.5	6.0	2.0	0	0
12	0	0	0	0	T	1.6	5.0	7.0	.7	2.0	0	0
13	0	0	0	0	4.0	3.3	5.0	12.0	1.4	.1	0	0
14	0	0	0	0	3.5	1.7	1.0	2.5	4.0	.3	0	0
15	0	0	0	0	.2	4.5	8.5	3.0	8.0	.2	0	0
16	0	0	0	0	T	.8	1.7	5.6	5.2	T	0	0
17	0	0	0	0	T	11.5	5.5	8.5	1.2	T	0	0
18	0	0	0	0	T	3.0	2.0	1.8	2.5	T	0	0
19	0	0	0	0.1	T	5.3	2.0	2.4	2.3	0	0	0
20	0	0	0	1.4	0.1	5.0	3.0	4.0	5.2	0	0	0
21	0	0	0	0	T	.7	.8	7.5	5.3	0	0	0
22	0	0	0	0	.3	8.5	6.0	4.5	3.8	T	0	0
23	0	0	0	T	1.0	3.0	11.0	3.8	2.8	T	0	0
24	0	0	0	0	1.5	6.5	9.5	5.0	1.0	T	0	0
25	0	0	0	0	6.5	4.5	6.0	6.5	1.5	T	0	0
26	0	0	0	0	2.2	10.0	6.1	2.0	3.0	0	0	0
27	0	0	0	0	.5	3.3	5.0	3.5	6.0	0	0	0
28	0	0	0	T	3.0	.5	21.0	1.2	6.0	.5	0	0
29	0	0	0	0	.6	1.3	5.6	1.2	11.5	0	0	0
30	0	0	0	2.2	2.5	.5	11.5	0	T	0	0	0
31	0	0	------	0	------	0	4.5	-----	3.0	-----	0	-----

TABLE 64.—*Snow*

[Period of 64 years, 1882–1945]

Month	Greatest consecutive number of days snowfall							
	Trace or more	Period	0.1 or more	Period	1.0 or more	Period	Trace or more	Period
July	0	----------	0	----------	0	----------	0	
August	0	----------	0	----------	0	----------	0	
September	0	----------	0	----------	0	----------	0	
October	2	19–20, 1940	2	19–20, 1940	1	20, 1940 [1]	2	30–31, 1925.
November	3	22–24, 1929 [1]	2	24–25, 1938 [1]	1	25, 1938 [1]	7	24–30, 1938.
December	5	27–31, 1939 [1]	5	22–26, 1935	3	5–7, 1910	21	5–25, 1910.
January	6	16–21, 1939	4	27–30, 1943 [1]	3	27–29, 1925 [1]	28	4–31, 1893.
February	8	13–20, 1885	4	11–14, 1899 [1]	4	5–8, 1899	28	1–28, 1936.[1]
March	8	9–16, 1937	3	14–16, 1937 [1]	2	7–8, 1941 [1]	12	1–12, 1907.
April	4	12–15, 1940	2	12–13, 1940.[1]	2	11–12, 1918	3	1–3, 1924.
May	1	9, 1923 [1]	0	----------	0	----------	0	
June	0	----------	0	----------	0	----------	0	
Year	8	Mar. 9–16, 1937.[1]	5	Dec. 22–26, 1935.	4	Feb. 5–8, 1899.	41	Jan. 19–Feb. 28, 1936.

[1] Also other dates, earlier.

TABLE 65.—*Snow cover*

[Period of 53 years, 1893–1945]

Month	Greatest consecutive number of days snow cover							
	0.1 or more	Period	1.0 or more	Period	3.0 or more	Period	6.0 or more	Period
July	0	----------	0	----------	0	----------	0	
August	0	----------	0	----------	0	----------	0	
September	0	----------	0	----------	0	----------	0	
October	1	19, 1940 [1]	1	30, 1925	0	----------	0	
November	7	24–30, 1938	4	25–28, 1938	3	25–27, 1938	2	25–26, 1938.
December	19	15–23, 1910	14	5–18, 1910 [1]	10	5–14, 1910	4	17–20, 1932.[1]
January	23	4–26, 1893	21	5–25, 1893	14	9–22, 1893	6	12–17, 1893.
February	26	1–26, 1905	25	1–25, 1905	17	1–17, 1895	14	6–19, 1899.
March	5	11–15, 1896	4	7–10, 1941 [1]	3	7–9, 1941 [1]	1	29, 1942.[1]
April	2	1–2, 1924	1	1, 1923 [1]	1	1, 1924	0	
May	0	----------	0	----------	0	----------	0	
June	0	----------	0	----------	0	----------	0	
Year	37	Jan. 19–Feb. 24, 1936.	27	Jan. 30–Feb. 25, 1905.	16	Feb. 5–20, 1899.	14	Feb. 6–19, 1899.

[1] Also other dates, earlier.

TABLE 66.—*Snowfall—inches, unmelted*

[Period of 58 years, 1888–1945]

Month	Extremes									
	Greatest	Year	Least	Year	Greatest in 24 hours	Date	Greatest any storm	Date	Greatest on ground	Date
July	0	-------	0	-------	0	----------	0	----------	0	
August	0	-------	0	-------	0	----------	0	----------	0	
September	0	-------	0	-------	0	----------	0	----------	0	
October	2.2	1925	0	(53)	2.2	30, 1925	2.2	30, 1925	2.0	30, 1925.
November	6.4	1938	0	(12)	[1] 7.0	24–25, 1938	6.4	24–25, 1928	2.0	13, 1904.
December	14.5	1932	0	(2)	12.0	17–18, 1932	12.0	17, 1932	12.0	17, 1932.
January	31.5	1922	T	(8)	25.0	27–28, 1922	28.0	27–28, 1922	26.0	28, 1922.
February	35.2	1899	T	(5)	14.4	6–7, 1936	20.5	11–13, 1899	34.2	14–15, 1899.
March	19.3	1914	0	(2)	11.5	29–30, 1942	11.5	28–29, 1942	11.5	29, 1942.
April	5.0	1924	0	(21)	5.5	1, 1924	5.0	1, 1924	5.5	1, 1924.
May	.1	1895	0	(56)	T	(2)	T	(2)	T	(2).
June	0	-------	0	-------	0	----------	0	----------	0	
Seasonal	54.4	1898 1899	2.3	1926 1927	25.0	Jan. 27–28, 1922	28.0	Jan. 27–29, 1922	34.2	Feb. 14–15, 1899.

[1] Includes 0.6 inch sleet.

Italics in parentheses indicate total number of cases.

TABLE 67.—*Comparative snowfall data for Washington, D. C.*

[58 years—1888-1945]

Month	Inches			Average number of days					
	Average	Greatest in 24 hours	Year	0.01 inch or more (melted)	Trace or more (unmelted)	1.0 inch or more (unmelted)	3.0 inch or more (unmelted)	6.0 inch or more (unmelted)	12.0 inch or more (unmelted)
January	6.2	25.0	1922	4	7	2	[1] 1	[2] 12	[2] 1
February	5.5	14.4	1936	3	6	2	[1] 1	[2] 12	[2] 2
March	4.0	11.5	1942	2	4	1	[2] 31	[2] 7	0
April	.4	5.5	1924	(24)	1	[2] 8	[2] 3	0	0
May	[3]T	T	(2)	0	2	0	0	0	0
June	0	0	------	0	0	0	0	0	0
July	0	0	------	0	0	0	0	0	0
August	0	0	------	0	0	0	0	0	0
September	0	0	------	0	0	0	0	0	0
October	.1	2.2	1925	(2)	[2] 7	[2] 2	0	0	0
November	.7	7.0	1938	1	2	[2] 12	[2] 5	[2] 1	0
December	3.3	12.0	1932	2	4	1	[2] 23	[2] 5	0
Year	20.2	25.0	1922	12	24	6	2	[2] 37	[2] 3

[1] Less than 1 day, but more than once every 2 years for this month.
[2] Indicates total number of days for the period of record.
[3] In May snow has been recorded twice since 1871.

Figures in parentheses indicate total number of occurrences.

TABLE 68.—*Average monthly precipitation for central Maryland*

[Between Chesapeake Bay and Blue Ridge Mountains]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1891	5.02	4.72	6.85	2.60	4.09	5.01	8.82	4.20	3.17	2.59	2.01	3.44
1892	4.78	2.61	3.61	3.54	4.28	3.52	4.38	1.93	3.40	.40	4.33	2.38
1893	2.03	4.06	2.12	3.67	4.55	2.50	2.49	2.71	2.58	4.27	4.22	2.31
1894	1.90	3.56	1.23	3.37	6.01	2.05	2.36	2.14	3.06	4.10	1.91	3.43
1895	3.94	1.20	2.70	5.64	3.66	4.20	3.29	1.89	2.83	2.06	1.76	2.78
1896	1.86	5.67	4.29	1.18	2.45	3.42	4.44	1.46	3.46	1.09	2.96	.52
1897	1.83	5.03	2.79	2.83	5.78	2.88	7.36	3.69	1.56	3.47	4.64	3.39
1898	3.17	1.53	3.11	2.42	4.35	1.30	3.56	6.93	1.71	4.46	3.91	3.64
1899	3.41	5.32	4.70	1.56	3.36	2.69	3.81	4.38	5.63	2.80	2.04	1.75
1900	2.26	5.06	3.03	2.08	2.46	5.19	2.88	3.20	4.06	2.09	2.37	2.51
1901	2.78	.65	3.51	5.69	3.57	3.02	6.05	5.52	3.18	1.20	2.67	7.16
1902	3.44	4.53	3.92	3.04	1.94	4.52	4.02	2.03	6.31	6.53	3.48	5.99
1903	4.15	4.73	5.32	4.12	2.78	5.54	5.69	5.73	1.64	3.75	.92	2.29
1904	2.60	1.64	3.09	2.52	2.41	5.07	5.71	3.23	4.03	2.72	1.81	3.24
1905	3.76	2.50	3.31	3.12	3.16	4.76	8.15	5.56	2.60	2.73	1.24	5.05
1906	3.10	2.49	4.81	3.68	2.58	5.52	5.23	8.68	.90	5.81	1.72	4.07
1907	2.89	2.28	3.00	3.34	3.93	5.95	3.62	4.40	7.30	2.27	5.21	4.39
1908	3.34	4.35	2.66	1.73	5.52	1.94	5.25	6.04	3.01	2.66	.92	3.10
1909	2.87	3.48	4.09	2.87	3.68	4.97	1.22	2.25	3.70	1.22	1.08	3.83
1910	4.45	2.44	.93	6.36	3.06	5.68	2.44	2.13	1.58	3.23	1.81	2.33
1911	3.46	1.97	2.56	2.97	1.18	4.12	3.03	9.97	2.37	3.38	3.98	3.57
1912	2.54	2.67	6.74	2.53	4.36	4.22	5.43	2.72	6.76	1.44	1.85	4.22
1913	2.93	1.45	4.82	4.94	4.16	1.66	2.75	4.40	2.34	4.06	2.24	2.40
1914	4.06	2.74	2.20	4.06	2.13	3.46	2.54	5.76	1.07	1.60	2.20	4.29
1915	6.48	4.89	1.10	1.25	3.54	5.40	3.20	8.97	2.18	3.86	1.39	3.11
1916	1.68	3.26	3.64	3.04	3.49	6.98	5.55	2.03	3.12	1.94	2.32	4.01
1917	3.06	2.09	5.30	2.38	2.86	4.16	6.98	2.97	2.53	5.48	.60	1.63
1918	4.58	1.00	4.06	6.07	3.81	2.19	3.00	2.96	3.68	1.12	1.74	4.59
1919	3.62	2.57	4.16	3.52	5.45	3.47	7.60	4.86	2.54	3.07	3.34	2.93
1920	2.32	3.86	2.91	4.83	2.06	5.56	5.17	6.83	3.43	.60	3.77	4.58
1921	2.13	2.70	2.21	3.10	6.02	2.36	4.66	3.35	2.75	1.03	4.66	2.23
1922	4.28	2.85	4.81	2.54	3.62	5.12	6.16	3.14	2.74	1.99	.57	3.43
1923	3.98	2.61	4.14	2.78	2.09	2.73	4.61	2.89	3.68	2.31	2.24	3.60
1924	4.09	3.60	5.02	5.20	6.58	4.91	2.00	4.61	6.64	.41	1.63	2.33
1925	4.66	1.27	2.05	2.44	1.82	2.21	5.29	2.43	2.00	5.22	3.08	1.64
1926	2.99	3.97	2.03	1.80	2.15	2.38	4.30	5.80	5.32	3.50	5.42	2.90
1927	1.43	3.49	1.59	5.29	2.87	3.30	3.22	4.04	1.44	6.23	2.57	3.49
1928	2.74	2.95	2.71	5.72	2.75	5.96	3.97	10.60	4.24	.86	1.71	1.36
1929	2.93	3.47	3.06	6.20	2.96	5.74	1.63	2.44	3.94	5.72	2.40	2.39
1930	2.85	2.03	2.34	2.93	2.06	3.26	1.13	.61	1.18	.55	1.16	2.52
1931	1.78	1.54	4.31	2.93	4.23	3.68	4.74	7.36	2.09	1.54	.92	2.26
1932	5.42	2.29	5.90	2.23	5.51	3.21	2.72	2.76	2.47	7.03	6.03	3.33
1933	3.22	2.97	4.38	6.05	5.19	2.98	5.40	11.52	3.20	2.33	1.12	2.68
1934	2.38	2.88	4.51	2.70	4.76	3.34	2.38	5.12	12.01	1.00	3.59	3.96
1935	4.72	2.67	3.05	4.03	3.50	4.34	4.19	2.45	7.72	2.90	4.59	2.29
1936	5.80	3.53	5.26	2.60	2.78	2.67	4.12	4.24	1.75	3.03	.88	6.09
1937	7.40	3.54	1.74	7.09	3.30	5.37	4.48	6.59	1.47	8.06	4.29	1.01
1938	2.33	2.53	2.53	1.71	4.18	3.47	6.56	2.78	5.89	1.96	2.68	2.90
1939	3.67	5.51	3.58	4.92	.96	5.00	3.23	4.11	3.26	5.01	1.17	2.13
1940	2.38	3.14	3.92	6.41	4.34	1.46	3.52	5.26	3.63	2.45	5.41	2.70
1941	3.07	1.27	2.27	3.08	2.20	4.93	4.92	2.68	.52	1.46	1.56	3.67
1942	2.35	2.29	6.28	.83	4.16	4.49	5.23	8.05	3.20	7.67	2.33	3.75
1943	2.82	1.93	3.83	3.02	4.93	2.52	2.22	1.03	1.91	5.61	3.66	1.48
1944	3.36	2.29	5.56	3.66	1.92	3.08	2.41	4.14	5.29	3.54	3.39	3.54
1945	3.44	2.83	1.37	3.79	4.07	4.41	11.28	3.51	5.27	1.32	4.26	5.35

TABLE 69.—*Average monthly precipitation for northern Virginia*

[North of James River and between Chesapeake Bay and Blue Ridge Mountains]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1891	5.02	4.82	8.43	2.39	3.92	3.72	7.15	4.89	2.86	2.59	1.81	2.53
1892	5.08	2.81	4.28	4.59	2.68	3.92	3.33	3.53	3.71	.50	3.68	1.99
1893	2.22	4.55	2.01	2.99	5.91	3.16	5.76	3.91	5.60	5.62	3.86	2.14
1894	2.35	4.37	1.29	2.84	4.65	1.84	3.56	3.92	4.47	3.76	1.69	2.62
1895	4.90	1.54	3.27	6.24	5.18	3.49	4.27	1.69	.75	1.97	2.25	2.42
1896	2.29	4.20	3.52	1.51	3.91	4.77	6.59	2.36	4.25	.52	2.87	.68
1897	2.18	5.21	3.17	2.43	3.90	3.36	4.43	2.28	.81	5.07	2.72	3.03
1898	2.42	.99	3.67	3.97	5.20	2.50	4.86	5.47	2.48	5.61	2.48	3.44
1899	3.75	5.42	5.62	1.64	2.81	2.84	4.05	4.25	4.05	3.31	1.40	1.86
1900	2.69	4.00	3.08	2.75	2.44	4.92	3.19	1.85	3.39	2.80	2.87	2.66
1901	2.57	.54	2.89	5.81	5.58	3.71	6.05	7.80	3.56	1.10	1.66	6.12
1902	2.81	4.61	2.60	2.81	2.93	3.66	3.91	2.63	4.15	5.72	3.67	4.28
1903	3.78	4.58	5.80	4.01	2.73	6.81	3.89	5.17	1.63	4.28	1.44	2.02
1904	2.57	2.30	3.28	2.36	2.99	5.15	5.59	3.44	3.45	1.78	2.22	3.77
1905	2.80	3.34	2.40	2.59	4.09	4.67	7.30	5.41	3.12	2.24	.65	5.39
1906	3.28	2.51	5.39	2.40	2.82	4.93	5.94	11.77	1.39	7.40	1.88	2.82
1907	1.81	2.39	2.63	4.40	4.42	5.15	2.96	4.96	5.34	1.89	4.92	3.96
1908	3.92	4.11	3.24	1.92	4.84	4.60	5.99	7.01	3.01	2.84	1.18	3.58
1909	2.50	3.23	3.65	3.24	3.72	6.77	1.32	3.95	2.60	1.18	.90	2.84
1910	3.67	2.58	1.78	5.57	3.15	6.04	5.43	3.50	1.36	4.76	1.58	2.44
1911	3.66	2.09	2.66	3.48	.73	4.38	2.66	7.41	1.97	3.62	3.97	3.61
1912	2.39	2.98	6.84	2.32	5.27	3.32	3.30	2.04	6.19	1.08	2.38	3.21
1913	2.84	1.46	4.60	3.89	5.48	3.01	3.77	3.65	3.09	3.90	2.06	2.26
1914	3.81	2.67	2.84	2.71	1.59	3.63	3.41	2.79	1.35	2.47	2.54	4.77
1915	5.87	3.86	.96	1.37	2.94	5.72	3.64	7.18	1.78	4.17	1.19	2.70
1916	1.47	3.26	2.40	2.84	4.17	8.07	4.93	2.91	2.70	2.09	1.72	3.29
1917	2.48	1.94	5.67	3.07	3.10	4.83	6.41	3.72	3.11	4.77	.63	1.50
1918	4.90	.56	3.39	7.08	2.68	3.80	2.85	5.19	3.86	.96	1.57	4.44
1919	3.63	2.42	3.98	3.14	5.83	4.03	7.51	2.53	1.36	2.83	2.54	2.23
1920	2.24	5.14	3.24	3.79	1.47	5.80	4.78	7.77	3.55	.64	5.49	3.00
1921	3.02	2.63	2.14	3.20	5.51	2.22	3.73	2.22	2.31	1.32	3.16	2.67
1922	4.20	3.65	5.33	1.82	3.87	5.61	6.70	4.89	1.48	2.82	.55	3.72
1923	3.58	2.32	4.82	3.74	1.62	2.64	6.02	5.39	4.10	1.54	2.18	2.54
1924	3.63	2.90	4.71	4.00	8.16	5.08	2.93	4.43	7.13	1.28	1.84	2.56
1925	4.80	1.38	1.96	2.53	2.10	2.78	3.23	3.07	1.35	4.38	2.58	2.85
1926	3.51	4.14	2.19	1.82	2.68	2.15	4.16	6.91	3.62	3.07	4.76	3.81
1927	1.08	3.03	1.60	5.00	2.27	3.15	4.25	4.21	1.87	5.37	2.75	3.85
1928	2.12	2.52	2.32	5.10	2.41	5.08	2.29	10.48	5.71	.74	1.36	1.71
1929	2.28	4.10	3.28	5.02	3.94	4.76	2.93	2.04	2.36	6.89	2.36	2.01
1930	2.94	1.69	1.74	2.80	2.10	3.70	1.62	.99	1.12	.81	1.24	2.53
1931	1.70	1.73	3.70	2.98	5.01	3.15	5.16	6.66	3.12	1.44	.64	2.15
1932	4.92	2.05	5.38	2.37	4.74	2.89	3.16	1.45	1.80	7.04	5.04	3.66
1933	3.78	2.57	2.55	5.10	5.37	2.16	5.68	8.66	1.90	1.79	1.03	2.47
1934	1.72	3.56	4.23	2.40	5.07	3.36	4.86	4.33	9.34	.83	3.83	2.32
1935	4.56	2.17	3.08	4.13	3.61	3.48	3.87	4.21	8.48	2.13	3.84	2.28
1936	6.49	3.87	4.70	2.67	1.54	3.27	3.50	3.39	2.30	2.63	.92	4.88
1937	8.02	3.22	1.61	7.66	3.43	5.73	4.96	6.92	3.03	7.13	3.48	.90
1938	2.76	2.06	2.78	1.93	3.92	5.69	7.47	2.76	4.23	1.57	3.34	3.35
1939	3.05	4.93	3.28	3.26	1.21	4.42	5.29	5.24	1.58	3.77	2.60	1.70
1940	3.78	2.53	2.48	4.66	3.74	3.25	5.32	7.01	1.76	2.26	4.91	2.66
1941	2.52	1.00	2.00	2.52	1.22	4.01	6.46	2.63	.80	.98	.93	3.81
1942	2.82	1.64	4.86	.65	4.41	4.99	4.56	9.23	3.90	8.50	1.59	3.67
1943	2.61	1.64	3.45	2.84	4.52	3.80	3.02	1.14	2.48	2.96	2.82	2.03
1944	2.73	3.88	5.42	3.29	1.93	1.94	3.80	4.08	8.53	3.25	2.61	2.78
1945	2.56	2.82	1.20	3.52	4.47	3.40	11.14	3.35	7.65	1.09	3.49	5.25

SKY COVER AND SUNSHINE

TABLE 70.—*Number of days clear*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1871	5	8	9	8	12	12	12	10	15	17	7	13	128
1872	8	3	4	13	13	7	7	11	11	8	6	6	97
1873	6	6	12	6	6	7	7	6	6	16	8	6	92
1874	6	5	8	5	11	5	15	13	15	13	7	7	110
1875	5	7	8	9	12	6	4	5	13	12	9	6	96
1876	7	10	7	11	9	10	9	7	5	10	3	19	97
1877	9	10	8	9	10	6	11	14	9	9	9	11	115
1878	7	4	10	5	10	10	11	5	10	13	11	7	103
1879	8	6	5	10	10	12	8	8	18	14	11	4	114
1880	4	9	9	10	20	8	5	4	10	12	7	9	107
1881	4	7	3	6	12	6	10	13	10	11	10	8	100
1882	6	9	6	7	7	5	8	12	9	10	7	8	94
1883	3	5	6	6	9	8	11	13	10	4	12	9	96
1884	5	4	8	8	10	9	8	8	17	11	16	5	109
1885	6	8	7	11	5	13	13	9	11	10	6	9	108
1886	5	8	11	8	9	6	7	13	5	19	11	9	111
1887	11	5	6	10	10	10	8	7	8	10	13	5	103
1888	5	9	11	13	4	13	17	18	10	11	9	16	136
1889	15	7	12	10	12	9	10	13	8	8	6	10	120
1890	4	8	7	13	4	10	13	8	8	9	13	10	107
1891	10	8	12	17	12	18	9	8	20	16	12	13	155
1892	11	7	12	12	12	8	16	18	15	17	9	13	150
1893	12	9	11	7	11	11	17	17	13	15	13	14	150
1894	15	11	15	15	14	19	15	11	14	17	19	14	179
1895	7	14	12	11	9	16	14	18	18	25	14	11	169
1896	9	12	16	15	8	9	9	20	14	15	9	12	148
1897	15	9	11	16	17	9	13	14	19	12	12	12	159
1898	14	12	10	11	8	15	11	10	18	15	11	15	150
1899	15	10	7	17	14	16	12	8	19	18	14	21	171
1900	18	10	8	16	17	11	18	22	15	13	11	15	174
1901	10	13	7	12	10	18	12	11	11	19	11	14	148
1902	11	12	11	7	13	14	11	11	13	18	13	10	144
1903	10	11	8	12	17	5	19	8	16	16	13	17	152
1904	16	10	13	15	17	12	9	10	10	21	10	8	151
1905	8	8	8	8	7	9	8	8	19	15	12	14	124
1906	8	18	6	14	17	10	11	5	12	9	16	6	132
1907	6	16	11	7	14	15	12	11	11	18	9	12	142
1908	10	11	8	14	7	15	6	11	15	17	11	9	134
1909	7	8	8	8	14	10	15	13	8	18	17	14	140
1910	7	11	17	13	13	14	19	10	16	20	9	13	162
1911	10	11	12	12	23	10	14	10	8	12	8	9	139
1912	5	11	10	9	16	13	19	10	10	24	13	12	152
1913	11	15	13	15	11	14	13	12	9	9	13	9	144
1914	8	11	8	10	14	11	7	10	15	13	15	8	130
1915	10	10	12	11	7	11	6	8	15	17	9	9	125
1916	7	7	10	9	10	9	6	14	16	17	16	13	134
1917	11	12	11	12	8	10	6	15	10	17	14	10	136
1918	9	12	14	7	7	12	12	13	14	8	13	8	129
1919	12	11	13	7	10	11	10	12	12	5	11	7	121
1920	9	6	14	9	13	7	8	5	12	18	7	3	111
1921	8	6	8	10	9	13	14	13	11	18	5	11	126
1922	7	3	8	8	11	8	7	10	12	14	13	5	106
1923	5	8	14	14	15	17	10	10	12	13	10	9	137
1924	12	8	10	10	8	5	13	13	8	22	6	6	121
1925	13	12	13	11	12	11	7	12	9	4	11	9	124
1926	9	7	7	10	14	5	13	9	4	9	9	7	103
1927	8	6	8	10	4	10	8	4	14	20	7	11	110
1928	16	8	10	11	9	5	13	7	8	15	5	16	123
1929	10	13	14	9	10	10	14	13	10	12	8	9	132
1930	10	12	15	10	14	13	14	10	11	17	10	9	145
1931	11	12	5	13	7	12	10	9	18	16	7	6	126
1932	7	8	12	13	14	13	17	16	13	12	12	7	144
1933	10	13	11	13	4	14	14	12	12	18	11	9	141
1934	9	11	11	11	12	13	11	8	7	16	10	8	127
1935	10	7	8	10	8	11	6	4	13	13	6	7	103
1936	8	8	5	7	17	11	9	11	13	12	9	11	121
1937	2	7	11	7	11	7	8	11	16	6	12	10	108
1938	5	6	9	11	6	7	6	12	6	18	15	11	112
1939	7	10	12	10	11	9	7	10	11	10	14	6	117
1940	14	9	7	5	4	5	14	5	17	11	9	6	106
1941	11	12	11	14	14	13	9	18	17	12	15	9	155
1942	15	13	8	11	9	8	9	5	11	14	8	6	117
1943	7	8	10	8	1	8	8	14	12	11	10	13	110
1944	5	8	11	4	9	6	9	15	10	14	6	8	105
1945	8	7	10	9	8	6	3	11	6	17	10	6	101

TABLE 71.—*Number of days partly cloudy*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1871	13	13	13	14	10	13	15	16	11	7	14	12	151
1872	14	15	17	11	13	19	19	13	11	15	14	12	173
1873	11	11	9	15	10	16	17	13	15	8	16	11	152
1874	14	13	16	11	10	20	7	11	5	14	17	11	149
1875	13	15	12	13	15	20	12	9	12	13	14	16	164
1876	15	10	9	9	14	14	16	16	10	13	12	13	151
1877	3	7	4	7	15	13	6	8	6	6	5	8	88
1878	8	9	12	14	10	11	13	14	9	11	10	14	135
1879	14	11	18	7	14	12	14	12	7	10	14	11	144
1880	13	12	6	12	5	17	17	17	12	9	8	13	141
1881	11	13	16	14	13	13	16	17	14	16	9	12	164
1882	11	11	14	12	11	20	17	10	13	11	18	19	167
1883	13	14	19	17	14	16	16	14	11	12	8	13	167
1884	13	13	10	13	13	11	15	17	10	15	6	11	147
1885	17	10	19	14	14	13	16	16	12	14	12	19	176
1886	17	16	12	11	10	17	18	12	20	6	11	10	160
1887	14	14	14	12	13	12	15	17	14	11	14	15	165
1888	18	9	11	15	10	13	4	4	5	7	6	8	110
1889	7	10	9	12	11	14	10	13	10	8	8	12	124
1890	16	5	12	10	14	17	10	15	11	6	4	9	129
1891	10	7	1	7	6	5	17	10	7	6	7	7	90
1892	5	9	7	7	11	19	9	10	7	12	9	7	112
1893	10	7	8	13	13	11	11	9	7	8	6	9	112
1894	1	7	10	7	4	9	12	14	7	3	5	8	87
1895	8	9	10	8	13	9	7	12	11	4	6	7	104
1896	11	9	5	8	9	13	8	6	9	6	8	8	100
1897	3	2	9	8	5	10	9	11	8	8	8	9	90
1898	5	8	6	8	16	13	14	16	9	6	10	4	115
1899	3	7	9	8	9	8	14	16	6	4	9	5	98
1900	4	7	9	5	5	10	8	4	9	4	9	5	79
1901	8	9	11	2	5	6	12	11	14	6	8	4	96
1902	6	4	14	17	14	11	17	16	14	7	4	8	132
1903	5	6	11	6	7	10	9	9	9	6	11	5	94
1904	4	7	3	6	12	10	15	11	15	6	11	6	106
1905	9	7	11	13	14	15	14	16	8	10	5	7	129
1906	15	3	11	11	7	15	16	14	9	6	7	7	121
1907	8	5	10	15	6	7	13	11	9	9	8	8	109
1908	12	8	10	11	17	12	17	6	8	6	12	7	126
1909	8	12	10	13	9	12	14	13	12	7	7	10	127
1910	6	10	9	9	14	6	8	11	7	3	10	2	95
1911	5	5	9	6	5	10	13	11	11	7	11	3	96
1912	9	6	9	6	6	4	7	14	5	0	8	7	81
1913	6	4	6	4	8	8	13	13	9	9	6	9	95
1914	12	8	10	11	11	13	12	13	9	6	5	6	116
1915	7	4	12	13	12	12	15	17	10	3	15	12	132
1916	9	7	9	9	11	11	11	9	8	8	4	9	105
1917	4	4	10	11	14	15	14	10	11	6	9	5	113
1918	7	7	12	10	18	9	9	12	8	13	8	7	120
1919	10	8	5	11	7	9	7	12	12	9	7	10	107
1920	6	9	5	9	5	10	13	11	12	8	5	9	102
1921	8	9	14	3	6	13	8	9	12	8	9	4	103
1922	7	12	8	10	9	13	14	13	10	11	5	9	121
1923	8	7	7	8	10	8	12	11	9	10	8	8	106
1924	9	10	12	11	9	16	11	11	7	5	10	8	119
1925	2	7	6	10	12	13	16	14	11	9	6	7	113
1926	10	7	14	11	12	11	7	10	13	10	8	6	119
1927	3	11	8	6	13	13	13	11	10	5	13	6	112
1928	5	10	11	7	13	14	10	11	8	8	13	5	115
1929	7	6	5	10	8	12	12	12	12	10	5	9	108
1930	5	5	9	11	12	13	13	15	15	5	3	7	113
1931	9	4	12	7	13	12	13	9	6	10	11	9	115
1932	6	8	10	10	10	10	8	12	14	4	9	7	108
1933	7	6	5	11	13	11	7	9	10	5	7	8	99
1934	9	5	5	8	11	13	14	11	7	6	7	9	105
1935	5	9	11	7	10	14	18	16	6	9	5	9	119
1936	10	5	10	10	13	6	12	10	5	7	12	5	105
1937	5	10	12	12	14	14	17	10	6	13	11	9	133
1938	12	6	8	7	11	13	11	12	9	8	8	6	111
1939	9	2	7	7	12	8	15	11	11	10	7	12	111
1940	7	5	12	11	12	16	9	9	7	10	10	12	120
1941	5	8	11	9	11	6	10	9	8	11	10	11	109
1942	6	7	10	14	15	10	14	15	13	5	14	7	130
1943	11	10	8	11	15	15	14	12	10	8	12	10	136
1944	14	9	7	13	16	19	16	9	7	10	13	6	139
1945	6	4	11	8	14	17	11	14	9	8	3	7	112

TABLE 72.—*Number of days cloudy*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1871	13	7	9	8	9	5	4	5	4	7	9	6	86
1872	9	11	10	6	5	4	5	7	8	8	10	13	96
1873	14	11	10	9	15	7	7	12	9	7	6	14	121
1874	11	10	7	14	10	5	9	7	10	4	6	13	106
1875	13	6	11	8	4	4	15	17	5	6	7	9	105
1876	9	9	15	10	8	6	6	8	15	8	15	9	118
1877	19	11	19	14	6	11	14	9	15	16	16	12	162
1878	16	15	9	11	11	9	7	12	11	7	9	10	127
1879	9	11	8	13	7	6	9	11	5	7	5	16	107
1880	14	8	16	8	6	5	9	10	8	10	15	9	118
1881	16	8	12	10	6	11	5	1	6	4	11	11	101
1882	14	8	11	11	13	5	6	9	8	10	5	4	104
1883	15	9	6	7	8	6	4	4	9	15	10	9	102
1884	13	12	13	9	8	10	8	6	3	5	8	15	110
1885	8	10	5	5	12	4	2	6	7	7	12	3	81
1886	9	4	8	11	12	7	6	6	5	6	8	12	94
1887	6	9	11	8	8	8	8	7	8	10	3	11	97
1888	8	11	9	2	17	4	10	9	15	13	15	7	120
1889	9	11	10	8	8	7	11	5	12	15	16	9	121
1890	11	15	12	7	13	3	8	8	11	16	13	12	129
1891	11	13	18	6	13	7	5	13	3	9	11	11	120
1892	15	13	12	11	8	3	6	3	8	2	12	11	104
1893	9	12	12	10	7	8	3	5	10	8	11	8	103
1894	15	10	6	8	13	2	4	6	9	11	6	9	99
1895	16	5	9	11	9	5	10	1	1	2	10	13	92
1896	11	8	10	7	14	8	14	5	7	10	13	11	118
1897	13	17	11	6	9	11	9	6	3	11	10	10	116
1898	12	8	15	11	7	2	6	5	3	10	9	12	100
1899	13	11	15	5	8	6	5	7	5	9	7	5	96
1900	9	11	14	9	9	9	5	5	6	14	10	11	112
1901	13	6	13	16	16	6	7	9	5	6	11	13	121
1902	14	12	6	6	4	5	3	4	3	6	13	13	89
1903	16	11	12	12	7	15	3	14	5	9	6	9	119
1904	11	12	15	9	2	8	7	10	5	4	9	17	109
1905	14	13	12	9	10	6	9	7	3	6	13	10	112
1906	8	7	14	5	7	5	4	12	9	16	7	18	112
1907	17	7	10	8	11	8	6	9	10	4	13	11	114
1908	9	10	13	5	7	3	8	14	7	8	7	15	106
1909	16	8	13	9	8	8	2	5	10	6	6	7	98
1910	18	7	5	8	4	10	4	10	7	8	11	16	108
1911	16	12	10	12	3	10	4	10	11	12	11	19	130
1912	17	12	12	15	9	13	5	7	15	7	9	12	133
1913	14	9	12	11	12	8	5	6	12	13	11	13	126
1914	11	9	13	9	6	6	12	8	6	12	10	17	119
1915	14	14	7	6	12	7	10	6	5	11	6	10	108
1916	15	15	12	12	10	10	14	8	6	6	10	9	127
1917	16	12	10	7	9	5	11	6	9	8	7	16	116
1918	15	9	5	13	6	9	10	6	8	10	9	16	116
1919	9	9	13	12	14	10	14	7	6	17	12	14	137
1920	16	14	12	12	13	13	10	15	6	5	18	19	153
1921	15	13	9	17	16	4	9	9	7	5	16	16	136
1922	17	13	15	12	11	9	10	8	8	6	12	17	138
1923	18	13	10	8	6	5	9	10	9	8	12	14	122
1924	10	11	9	9	14	9	7	7	15	4	14	17	126
1925	16	9	12	9	7	6	8	5	10	18	13	15	128
1926	12	14	10	9	5	14	11	12	13	12	13	18	143
1927	20	11	15	14	14	7	10	16	6	6	10	14	143
1928	10	11	10	12	9	11	8	13	14	8	12	10	128
1929	14	9	12	11	13	8	5	6	8	9	17	13	125
1930	16	11	7	9	5	4	4	6	4	9	17	15	107
1931	11	12	14	10	11	6	8	13	6	5	12	16	124
1932	18	13	9	7	7	7	6	3	3	15	9	17	114
1933	14	9	15	6	14	5	10	10	8	8	12	14	125
1934	13	12	15	11	8	4	6	12	16	9	13	14	133
1935	16	12	12	13	13	5	7	11	11	9	19	15	143
1936	13	16	16	13	1	13	10	10	12	12	9	15	140
1937	24	11	8	11	6	9	6	10	8	12	7	12	124
1938	14	16	14	12	14	10	14	7	15	5	7	14	142
1939	15	16	12	13	8	13	9	10	8	11	9	13	137
1940	10	15	12	14	15	9	8	17	6	10	11	13	140
1941	15	8	9	7	6	11	12	4	5	8	5	11	101
1942	10	8	13	5	7	12	8	11	6	12	8	18	118
1943	13	10	13	11	15	7	9	5	8	12	8	8	119
1944	12	12	13	13	6	5	6	7	13	7	11	17	122
1945	17	17	10	13	9	7	17	6	15	6	17	18	147

TABLE 73.—*Mean monthly cloudiness*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1889							5.5	4.6	5.7	6.3	6.8	5.1
1890	6.2	6.1	6.2	4.6	6.9	4.7	4.7	5.3	6.0	6.3	5.2	5.6
1891	5.6	6.3	6.5	3.6	5.9	3.8	5.2	6.0	3.0	4.4	5.1	4.7
1892	6.0	6.1	5.5	5.4	4.9	4.6	4.4	3.5	4.0	3.0	5.7	5.0
1893	4.9	5.7	5.3	5.8	4.8	5.0	3.5	3.7	5.0	3.8	5.0	4.7
1894	5.7	5.4	4.0	4.4	4.9	3.1	3.5	4.5	4.7	4.6	3.4	4.7
1895	6.4	3.9	5.0	5.6	4.9	3.8	4.5	3.3	2.8	1.6	4.8	5.4
1896	5.4	4.5	4.3	4.1	6.0	5.6	6.0	3.1	4.1	4.6	5.6	4.7
1897	5.0	6.1	5.1	4.0	4.5	5.4	5.0	3.9	2.7	5.2	5.1	4.9
1898	6.0	4.7	5.9	5.5	5.4	3.6	4.7	5.0	3.5	4.4	5.1	4.9
1899	5.1	5.7	6.6	3.6	4.5	3.8	4.4	5.5	3.1	4.1	4.0	3.6
1900	4.4	5.2	6.0	4.5	4.4	5.2	3.4	3.2	4.2	5.4	5.0	4.4
1901	5.7	3.9	6.1	5.8	6.3	3.9	4.5	5.1	4.9	3.1	5.4	5.1
1902	5.5	5.2	4.8	5.5	4.3	4.1	4.8	4.1	4.0	3.8	5.6	6.0
1903	6.1	5.1	6.1	5.3	4.3	6.5	3.4	6.3	3.7	4.6	4.3	4.1
1904	4.7	5.4	5.8	4.4	3.5	4.6	5.2	5.3	4.4	2.8	5.1	6.7
1905	6.3	5.8	5.8	5.4	5.7	5.2	5.9	5.1	3.4	4.4	5.4	4.8
1906	6.5	3.6	6.5	3.9	3.9	4.7	4.5	7.0	5.1	6.5	4.1	7.1
1907	7.1	4.5	5.5	5.4	4.8	4.8	5.0	5.4	5.2	3.4	6.2	5.5
1908	5.4	5.2	5.9	4.4	5.5	3.9	5.8	5.6	4.3	4.1	4.7	5.9
1909	6.7	5.4	5.8	5.5	4.8	5.4	4.2	4.3	5.4	3.8	4.0	4.2
1910	6.6	4.9	3.8	4.6	4.7	5.0	3.6	5.4	3.9	3.8	5.3	5.7
1911	6.0	5.8	5.0	5.6	3.0	5.0	4.1	5.0	5.7	5.5	5.8	6.7
1912	6.8	5.2	5.6	6.0	3.9	5.1	4.1	5.1	5.8	2.9	4.9	5.0
1913	5.3	4.2	5.3	4.7	5.6	4.4	4.2	4.5	5.5	5.6	5.3	5.7
1914	5.8	5.0	6.1	5.5	4.3	5.0	5.9	5.1	4.0	5.4	4.4	7.0
1915	5.8	5.9	4.6	4.4	6.3	5.0	5.5	5.4	3.6	4.5	4.5	5.7
1916	6.5	6.2	5.7	6.1	5.6	5.5	6.5	4.5	3.8	3.9	4.2	4.8
1917	6.0	5.4	5.2	4.8	5.2	4.9	6.2	4.0	5.2	4.3	4.4	6.2
1918	6.2	4.8	4.1	6.1	5.0	5.3	4.7	4.8	4.3	5.2	4.7	6.3
1919	5.0	5.2	5.3	6.0	6.2	5.4	5.5	4.9	4.5	6.8	5.4	6.2
1920	6.3	6.9	4.8	5.8	5.3	5.8	5.4	6.7	4.7	3.5	6.9	7.5
1921	6.4	6.4	5.5	6.2	6.4	4.5	4.9	5.1	4.8	3.6	7.2	6.1
1922	6.7	7.0	6.5	5.8	5.5	5.9	5.5	5.0	4.4	4.1	5.2	7.0
1923	7.1	6.0	4.8	4.4	4.2	3.8	5.5	5.5	5.5	4.3	5.8	6.1
1924	4.9	6.0	5.1	5.2	6.0	6.0	4.4	4.6	6.4	2.7	6.0	6.6
1925	6.1	5.2	5.3	5.1	4.8	4.8	5.5	4.8	5.7	7.1	5.7	6.2
1926	5.6	6.4	5.3	5.5	4.6	6.5	5.0	5.8	6.3	6.1	5.7	6.8
1927	6.8	5.9	5.8	6.0	6.8	5.3	5.7	7.0	4.3	3.7	5.8	5.7
1928	4.6	5.7	5.4	5.7	5.3	6.2	5.1	6.2	6.4	4.6	6.3	4.9
1929	5.7	5.1	5.4	5.8	5.5	5.0	4.5	4.9	4.8	4.9	6.7	6.3
1930	6.7	5.2	4.3	5.5	4.3	4.0	4.3	4.6	4.6	4.4	6.5	6.1
1931	5.5	5.3	6.6	5.0	5.3	4.3	4.8	5.9	3.6	4.1	6.0	6.6
1932	7.0	6.0	5.1	4.5	4.5	4.8	4.2	3.8	4.0	5.8	5.2	6.8
1933	6.0	5.2	6.1	4.7	6.5	4.2	5.0	5.3	5.2	4.1	5.6	6.4
1934	6.3	5.4	6.0	5.4	5.3	4.4	4.6	5.7	6.6	4.5	5.8	6.1
1935	6.2	5.9	6.0	6.2	5.7	4.8	5.4	6.2	5.3	4.7	7.2	6.5
1936	6.0	6.2	7.0	6.3	3.7	5.7	5.5	5.4	5.4	5.1	5.3	6.1
1937	8.5	6.0	5.1	6.0	4.4	5.8	5.4	5.3	3.9	6.2	4.6	5.8
1938	6.7	6.5	6.3	5.7	6.6	6.1	6.3	4.7	6.6	3.4	4.3	6.1
1939	6.5	6.0	5.3	6.0	4.9	5.8	5.8	5.5	5.0	5.2	4.6	6.1
1940	4.9	6.2	6.4	6.9	6.6	6.2	4.9	7.1	4.2	5.0	5.7	6.5
1941	6.0	4.4	5.1	4.3	4.2	5.4	5.9	3.5	3.6	5.0	4.1	5.4
1942	4.9	4.6	5.8	4.1	5.1	5.9	5.3	6.0	4.8	5.1	5.1	6.9
1943	6.6	5.6	5.9	5.8	6.9	5.4	5.6	4.3	4.8	5.5	4.9	5.2
1944	6.3	6.3	5.8	6.8	5.3	7.0	4.9	4.4	6.0	4.3	6.2	6.5
1945	6.6	6.4	5.3	6.0	5.5	5.6	7.1	4.6	6.4	4.0	6.2	6.9

TABLE 74.—*Sky cover*

Month	Average cloudiness							Miscellaneous (frequency or days)						
	Mean [1]	Greatest [1]	Year	Least [1]	Year	7:30 a. m.	7:30 p. m.	Clear [1]	Partly cloudy [1]	Cloudy [1]	Greatest consecutive number			
								Average	Average	Average	Clear	Period	Cloudy	Period
Number of years (through 1945).	62	62	62	62	62	54	54	75	75	75	41	41	41	41.
January	5.9	7.1	(2)	4.4	(2)	6.1	4.8	9	9	13	8	10–17, 1942	10	17–26, 1937.
February	5.5	7.0	1922	3.6	1906	5.8	4.7	9	8	11	6	6–11, 1907	7	16–22, 1931.[2]
March	5.5	7.0	1936	3.8	1910	5.7	4.6	10	10	11	8	18–25, 1910	6	1–6, 1940.[2]
April	5.2	6.9	1940	2.2	1888	5.3	5.1	10	10	10	10	17–26, 1913	10	4–13, 1935.
May	5.2	6.9	(3)	3.0	1911	5.2	5.4	11	11	9	11	13–23, 1911	7	23–29, 1938.[2]
June	5.0	7.0	1944	3.1	1894	5.1	5.4	10	12	8	6	8–13, 1912	7	9–15, 1910.
July	5.0	7.1	1945	3.4	(2)	4.9	5.3	11	12	8	9	2–10, 1912	11	13–23, 1919.
August	5.0	7.1	1940	3.1	1896	5.1	5.0	11	12	8	7	9–15, 1944	11	15–25, 1926.
September	4.7	6.6	(2)	2.7	1897	5.0	3.8	12	10	8	10	21–30, 1905	10	11–20, 1938.
October	4.5	6.8	1919	1.6	1895	4.5	3.6	14	8	9	12	1–12, 1912	9	17–25, 1906.
November	5.3	7.2	(2)	3.4	1894	5.2	4.2	10	9	11	11	2–12, 1917	9	11–19, 1930.
December	5.7	7.5	1920	2.2	1888	5.9	4.6	10	9	12	6	7–12, 1937 [2]	9	3–11, 1914.
Year	5.2	6.0	1944	4.3	1895	5.3	4.7	127	120	118	12	Oct. 1–12, 1912	11	Aug. 15–25, 1926.

Italics in parentheses indicate total number of cases.

[1] Sunrise to sunset.
[2] Also other dates, earlier.

TABLE 75.—*Average seasonal cloudiness*

Year	Winter	Spring	Summer	Autumn
1889				6.3
1890	5.8	5.9	4.9	5.8
1891	5.8	5.3	5.0	4.2
1892	5.6	5.3	4.2	4.2
1893	5.2	5.3	4.1	4.6
1894	5.3	4.4	3.7	4.2
1895	5.0	5.2	3.9	3.1
1896	5.1	4.8	4.9	4.8
1897	5.3	4.5	4.8	4.3
1898	5.2	5.6	4.4	4.3
1899	5.2	4.6	4.6	3.7
1900	4.3	5.0	3.9	4.9
1901	4.7	6.1	4.5	4.5
1902	5.3	4.9	4.3	4.5
1903	5.7	5.2	5.4	4.2
1904	4.7	4.6	5.0	4.1
1905	6.3	5.6	5.4	4.4
1906	5.0	4.8	5.4	5.2
1907	6.2	5.2	5.1	4.9
1908	5.4	5.3	5.1	4.4
1909	6.0	5.4	4.6	4.4
1910	5.2	4.4	4.7	4.3
1911	5.8	4.5	4.7	5.7
1912	6.2	5.2	4.8	4.5
1913	4.8	5.2	4.4	5.5
1914	5.5	5.3	5.3	4.6
1915	6.2	5.1	5.3	4.2
1916	6.1	5.8	5.5	4.0
1917	5.4	5.1	5.0	4.6
1918	5.7	5.1	4.9	4.7
1919	5.5	5.8	5.3	5.9
1920	6.5	5.3	6.0	5.0
1921	6.8	6.0	4.8	5.2
1922	6.6	5.9	5.5	4.6
1923	6.7	4.5	4.9	5.2
1924	5.7	5.4	5.0	5.0
1925	6.0	5.1	5.0	6.2
1926	6.1	5.1	5.8	6.0
1927	6.5	6.2	6.0	4.6
1928	5.3	5.5	5.8	5.8
1929	5.2	5.6	4.8	5.5
1930	6.1	4.7	4.3	5.2
1931	5.6	5.6	5.0	4.6
1932	6.5	4.7	4.3	5.0
1933	6.0	5.8	4.8	5.0
1934	6.0	5.6	4.9	5.6
1935	6.1	6.0	5.5	5.7
1936	6.2	5.7	5.5	5.3
1937	6.9	5.2	5.5	4.9
1938	6.3	6.2	5.7	4.8
1939	6.2	5.4	5.7	4.9
1940	5.7	6.6	6.1	5.0
1941	5.6	4.5	4.9	4.2
1942	5.0	5.0	5.7	5.0
1943	6.4	6.2	5.1	5.1
1944	5.9	6.0	5.4	5.5
1945	6.5	5.6	5.8	5.5

TABLE 76.—*Hourly frequency of sky conditions*

[Period of record, 1934–41]

JANUARY

[These frequencies can be converted to percentage by dividing by 248]

Sky condition	A. M.											Noon	P. M.											Mid-night
	1	2	3	4	5	6	7	8	9	10	11		1	2	3	4	5	6	7	8	9	10	11	
Cloudless	69	75	69	70	68	70	62	41	40	41	41	43	42	43	42	44	50	52	66	73	82	75	81	83
High scattered clouds	14	14	13	10	17	14	19	25	26	24	29	25	20	19	19	20	21	32	30	22	15	22	20	19
High broken clouds	13	14	20	14	14	12	16	34	30	27	17	24	23	24	23	29	23	21	13	9	14	13	11	9
High overcast	22	19	19	24	16	21	20	16	21	21	22	18	22	27	22	21	27	20	22	22	15	16	17	17
High scattered low scattered	---	2	2	1	1	1	---	---	2	3	4	5	5	4	7	5	5	7	2	3	2	1	1	---
High scattered low broken	---	---	---	---	---	---	---	3	1	---	1	2	3	4	2	1	2	3	---	---	---	---	---	---
High broken low scattered	1	---	---	---	1	---	2	1	4	2	6	4	3	2	2	6	6	6	2	1	---	---	1	1
High broken low broken	---	---	1	---	1	1	---	3	---	3	1	1	3	5	4	3	4	4	1	---	---	---	---	---
High overcast low scattered	3	1	1	---	2	1	1	1	1	1	2	4	7	4	2	4	4	---	1	3	3	1	3	1
High overcast low broken	1	1	2	1	2	3	1	3	2	7	4	5	4	3	12	9	5	---	5	2	3	---	---	2
Low scattered	13	8	12	14	14	8	9	12	12	15	13	13	20	22	24	18	12	14	10	11	8	13	8	9
Low scattered low scattered	---	---	---	---	---	1	1	---	1	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Low scattered low broken	---	---	---	---	---	---	---	1	1	---	---	1	---	---	---	---	---	---	---	---	---	---	---	1
Low broken low scattered	1	---	1	1	1	---	1	1	2	---	2	---	1	1	2	---	---	---	---	1	---	---	---	1
Low broken	12	12	15	20	8	12	11	6	3	2	13	10	9	10	10	7	7	6	8	11	13	12	15	11
Low broken low broken	---	1	3	2	---	---	---	---	---	---	2	---	1	---	1	---	2	1	---	---	---	---	2	2
Low overcast low scattered	5	7	7	5	7	7	7	7	8	9	15	---	9	5	3	3	8	7	4	8	5	3	6	5
Low overcast low broken	8	6	11	5	5	7	7	6	17	19	13	17	21	15	14	21	19	15	10	9	12	11	10	9
Low overcast	82	87	71	81	90	90	87	87	77	73	63	63	51	59	57	54	52	59	71	73	75	80	72	76
Sky obscured	4	1	1	---	1	---	4	1	---	---	---	---	4	1	2	1	1	1	3	---	1	1	1	1

FEBRUARY

[These frequencies can be converted to percentage by dividing by 226]

Cloudless	83	92	83	75	76	77	61	48	51	46	46	48	49	52	53	53	52	47	59	71	74	81	80	81
High scattered clouds	16	9	11	20	16	15	22	22	23	23	21	23	20	19	21	21	24	30	24	27	23	17	12	15
High broken clouds	9	8	15	14	19	16	15	20	19	18	23	14	18	18	22	22	24	26	18	16	15	12	15	18
High overcast	19	19	20	17	15	17	20	26	24	20	23	28	29	30	23	25	25	20	20	20	21	19	21	17
High scattered low scattered	---	---	---	1	---	1	2	2	---	1	3	7	3	5	4	---	4	3	3	---	3	---	---	---
High scattered low broken	---	---	---	---	1	---	---	---	2	1	---	1	1	1	3	3	3	1	---	1	---	---	---	---
High broken low scattered	---	---	---	1	2	---	1	4	3	6	3	4	1	5	4	8	3	3	2	2	1	1	---	---
High broken low broken	---	---	1	---	---	---	---	2	2	3	3	2	2	2	4	2	6	2	2	1	---	---	---	---
High overcast low scattered	---	1	1	---	---	4	3	3	6	7	4	3	5	3	5	4	8	3	3	3	1	1	---	1
High overcast low broken	1	---	3	1	2	2	5	2	4	3	6	10	9	4	4	8	2	7	7	3	1	1	2	1
Low scattered	10	11	12	11	7	7	9	9	8	14	15	13	22	16	13	12	11	12	11	10	9	11	12	9
Low scattered low scattered	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Low scattered low broken	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Low broken low scattered	2	---	1	---	1	---	---	2	1	1	2	3	1	---	---	---	2	---	1	---	---	---	---	1
Low broken	14	12	15	13	12	16	18	12	10	5	12	6	5	12	8	7	5	5	4	6	9	10	15	10
Low broken low broken	---	---	---	---	---	---	---	---	---	1	---	---	2	---	1	1	1	---	---	---	1	---	---	---
Low overcast low scattered	7	4	9	5	2	4	1	4	4	5	6	6	4	7	11	5	---	9	9	8	9	7	5	1
Low overcast low broken	11	10	4	7	10	4	10	11	16	18	12	13	10	13	8	9	9	9	10	7	13	6	6	5
Low overcast	54	60	51	61	63	63	59	59	53	53	47	45	45	39	42	45	41	49	53	51	46	60	58	67
Sky obscured	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---

MARCH

[These frequencies can be converted to percentage by dividing by 248]

Cloudless	82	85	83	78	80	71	46	52	54	47	47	48	45	44	43	45	48	53	53	72	78	78	92	87
High scattered clouds	18	18	10	11	15	19	36	26	22	24	26	25	27	28	25	19	26	24	28	27	19	16	12	18
High broken clouds	15	16	14	15	9	11	16	25	22	27	27	28	24	29	25	25	24	21	23	15	14	18	14	14
High overcast	28	18	21	21	15	13	17	11	13	17	20	14	16	12	15	18	20	23	14	20	21	24	25	25
High scattered low scattered	---	1	---	---	---	1	1	2	5	8	3	5	8	8	4	7	4	8	8	1	3	---	---	2
High scattered low broken	---	---	---	---	---	---	1	1	---	---	1	2	2	---	2	2	---	2	1	---	---	---	---	---
High broken low scattered	---	---	---	---	---	1	6	9	12	9	6	7	7	5	8	6	4	7	4	3	1	1	2	---
High broken low broken	1	---	---	---	---	---	1	3	1	1	4	3	1	4	6	5	2	2	5	3	---	---	---	1
High overcast low scattered	1	---	2	2	1	4	3	4	4	7	8	6	5	5	8	6	4	3	5	---	1	1	1	1
High overcast low broken	1	2	---	2	1	2	7	4	9	6	4	8	13	13	10	15	10	12	14	3	5	2	1	---
Low scattered	11	11	15	13	14	19	13	10	12	14	17	13	18	14	22	26	21	18	16	20	18	21	15	14
Low scattered low scattered	---	---	---	---	---	---	---	---	---	---	1	---	---	1	---	---	1	---	---	1	---	---	---	---
Low scattered low broken	---	---	---	---	---	---	---	---	---	---	---	---	1	---	1	---	---	---	---	---	---	---	---	---
Low broken low scattered	---	1	---	---	1	1	1	1	---	2	2	2	2	3	2	1	1	1	1	---	1	1	---	2
Low broken	12	14	14	12	22	20	17	12	11	12	8	13	8	14	10	6	12	7	10	15	12	9	11	12
Low broken low broken	---	---	---	---	---	---	3	---	---	---	1	1	1	1	2	1	2	---	---	---	---	---	---	---
Low overcast low scattered	6	3	7	3	4	9	4	5	9	7	11	10	8	7	5	8	8	5	4	6	6	4	7	9
Low overcast low broken	12	11	8	11	8	9	15	14	15	15	14	14	23	19	22	20	19	19	20	14	10	12	11	8
Low overcast	60	68	74	80	78	67	56	67	58	50	47	48	39	41	38	38	42	43	42	48	58	59	56	54
Sky obscured	1	---	---	---	---	1	5	2	1	2	---	1	---	---	---	---	---	---	---	---	1	1	1	1

APRIL

[These frequencies can be converted to percentage by dividing by 240]

Cloudless	83	80	84	82	78	49	51	64	54	47	42	33	37	37	37	39	32	33	35	51	69	74	79	84
High scattered clouds	22	22	24	23	24	33	25	19	26	29	25	28	16	20	22	23	26	27	27	34	33	25	25	22
High broken clouds	15	19	19	13	15	18	22	21	26	31	25	22	27	14	16	17	24	25	34	26	18	16	16	14
High overcast	18	10	8	12	16	15	18	17	12	12	10	15	13	12	11	9	13	17	18	16	21	17	13	15
High scattered low scattered	2	1	2	3	1	4	3	2	5	4	5	6	9	6	5	7	5	8	6	6	1	3	---	---
High scattered low broken	1	---	---	---	---	1	---	1	1	3	3	2	5	3	3	4	2	2	1	---	1	---	---	1
High broken low scattered	1	2	---	2	2	3	9	2	2	2	6	6	4	13	12	11	5	4	8	1	2	1	1	1
High broken low broken	1	---	---	1	---	2	3	4	4	3	2	3	3	8	3	3	3	6	7	3	1	---	---	1
High overcast low scattered	---	1	1	---	---	3	2	9	5	3	9	6	6	7	9	14	15	9	5	2	6	7	5	2
High overcast low broken	1	3	2	1	2	4	6	3	4	5	5	10	13	13	12	12	4	11	8	7	1	2	4	3
Low scattered	15	19	17	13	14	14	17	14	16	25	23	23	23	20	21	19	31	25	18	13	10	13	14	12
Low scattered low scattered	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---
Low scattered low broken	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---
Low broken low scattered	---	---	---	1	---	---	1	2	---	---	1	1	1	1	1	4	1	---	1	---	---	1	---	1
Low broken	8	10	13	16	15	20	12	10	11	7	20	24	16	21	16	16	11	10	6	8	9	11	10	12
Low broken low broken	---	---	---	1	---	1	---	---	1	1	---	---	---	---	1	1	1	---	---	---	---	---	1	---
Low overcast low scattered	5	4	5	8	8	6	2	5	5	10	8	9	10	9	10	7	9	10	10	7	11	6	11	7
Low overcast low broken	12	17	20	13	17	20	16	16	20	21	21	19	21	21	29	28	17	16	17	17	11	9	7	15
Low overcast	56	50	45	50	48	47	53	51	48	37	35	33	35	35	32	25	41	37	39	49	46	55	54	50
Sky obscured	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 76.—*Hourly frequency of sky conditions*—Continued

MAY

[These frequencies can be converted to percentage by dividing by 248]

Sky condition	A. M.											Noon	P. M.											Midnight
	1	2	3	4	5	6	7	8	9	10	11		1	2	3	4	5	6	7	8	9	10	11	
Cloudless	80	99	95	90	73	48	59	64	58	52	49	51	42	44	40	42	36	43	48	45	58	71	81	86
High scattered clouds	37	28	26	33	39	42	40	29	41	45	39	32	32	34	33	28	34	36	34	54	49	48	43	37
High broken clouds	24	19	21	13	22	36	39	47	39	37	32	29	27	12	17	16	19	30	43	37	35	30	18	22
High overcast	16	16	13	17	11	16	16	17	11	15	17	11	10	9	5	12	18	15	23	15	13	12	18	18
High scattered low scattered	1			3	4	6	2		4	14	7	16	18	15	16	13	13	14	9	7	4	1	3	1
High scattered low broken					1		1	3	1		3	4	4	6	5	4	2		2					2
High broken low scattered		1	3	1	3	5	5	5	7	4	12	11	15	20	21	19	13	17	8	10	7	6	4	1
High broken low broken			1	2	1	4	6	4	5	2	4	1	1	3	4	7	3	7	4	2		1		1
High overcast low scattered	4	2	2	3	3	5	3	1	3	3	6	9	11	11	8	12	14	10	15	7	10	4	4	3
High overcast low broken	4	3	1	1	6	6	3	6	9	7	5	8	7	10	10	7	4	8	9	12	3	11	3	4
Low scattered	17	10	13	17	16	15	6	10	11	10	16	19	28	30	37	35	35	18	11	7	11	9	11	9
Low scattered low scattered										1	1	1						1						
Low scattered low broken	1							1								1								
Low broken low scattered		2			1	5	2	2	1	3	3		1	4	3		1	2	1	1		1		1
Low broken	20	17	17	14	12	8	10	6	7	7	11	15	16	14	14	15	13	8	4	7	8	9	8	17
Low broken low broken	1	1			1	1	1	1		1	1			1	2						1		1	
Low overcast low scattered	3	4	7	7	7	9	5	9	12	8	7	8	4	5	6	9	6	6	4	4	6	6	12	9
Low overcast low broken	9	3	8	9	8	8	12	7	11	13	13	18	16	12	13	15	17	15	14	5	10	7	6	7
Low overcast	30	43	40	38	40	34	38	36	28	26	21	15	16	18	14	13	20	18	19	35	33	32	36	30
Sky obscured																								

JUNE

[These frequencies can be converted to percentage by dividing by 238]

Cloudless	67	84	75	71	37	30	32	43	41	36	34	29	22	17	11	11	20	29	30	24	32	47	63	63
High scattered clouds	46	35	43	36	56	47	50	46	48	48	34	25	21	18	21	22	26	31	43	49	49	50	41	38
High broken clouds	25	23	22	29	28	38	39	43	45	41	27	18	11	10	15	12	18	34	42	44	45	31	29	28
High overcast	22	17	18	12	9	22	20	13	11	8	9	9	6	10	8	6	10	12	18	18	16	23	20	25
High scattered low scattered	1	3	2	1	6	4	5	5	6	12	18	15	32	34	32	22	21	18	9	10	7	6	2	6
High scattered low broken					1		4		2	1	3	10	5	9	3	4		1	2	2	1	2	1	
High broken low scattered	2		1	2	7	13	7	7	11	13	18	21	26	21	23	28	26	20	14	17	10	5	4	2
High broken low broken	1			3	3	9	6	8	6	5	3	7	4	8	7	7	6	7	8	8	3	2	2	2
High overcast low scattered	8	5	2	2	4	6	9	8	9	13	15	13	12	12	10	17	17	15	19	13	12	13	9	7
High overcast low broken	1	2	3	4	2	3	4	5	7	6	8	11	12	6	10	6	11	11	9	11	10	4	4	5
Low scattered	11	14	12	13	16	7	11	5	7	11	18	30	35	44	44	50	40	21	7	8	10	13	15	10
Low scattered low scattered										1	1								1					
Low scattered low broken															1									
Low broken low scattered	1	4	7	4	2		1	2	3	2	2	1				2	4	1				1	1	
Low broken	14	11	10	14	10	5	4	2	5	3	10	14	22	17	17	15	10	7	4		6	7	13	15
Low broken low broken			2	1		2			1	1	1	2		2	1		1	1		1				1
Low overcast low scattered	3	5	7	5	4	5	6	7	5	4	6	5	5	4	7	8	9	9	8	12	7	11	7	8
Low overcast low broken	9	6	6	9	11	9	12	12	10	18	18	17	18	16	14	13	10	11	13	8	12	4	9	6
Low overcast	27	29	28	32	41	38	28	28	21	15	13	11	6	10	14	15	9	9	11	13	18	18	18	22
Sky obscured																								

JULY

[These frequencies can be converted to percentage by dividing by 248]

Cloudless	58	68	69	80	39	27	34	43	45	38	32	22	24	26	19	20	21	29	23	21	22	33	50	55
High scattered clouds	32	45	40	36	58	46	47	52	47	44	37	30	15	7	7	9	21	26	40	48	54	57	43	39
High broken clouds	26	21	24	23	27	43	47	37	42	38	29	27	14	8	13	14	13	31	38	44	44	35	27	23
High overcast	19	24	14	15	14	20	19	15	11	12	12	10	7	7	5	5	8	13	21	24	28	20	27	26
High scattered low scattered	9		1		4	10	5	4	6	13	13	17	34	32	26	36	37	23	26	19	12	10	11	11
High scattered low broken	4	1	3		3	3	2	2	2	4	1	2	5	6	7	6	5	3	3	5	2	2	1	3
High broken low scattered	9	6	8	5	5	12	13	12	10	13	21	27	34	40	40	34	30	32	20	20	14	16	9	7
High broken low broken	4	1	1	4	3	7	6	3	6	7	9	12	7	7	15	13	13	7	4	6	3	5	4	4
High overcast low scattered	14	10	7	8	5	11	4	4	10	8	14	15	14	11	12	13	12	12	16	16	13	14	12	17
High overcast low broken	6	9	5	7	10	4	5	7	10	15	10	9	12	14	10	13	12	10	9	12	12	13	8	5
Low scattered	22	18	13	11	15	9	9	10	13	13	25	33	35	42	46	47	49	30	18	7	10	14	15	19
Low scattered low scattered											1	1	1		2	1	2	1					1	
Low scattered low broken						1																		
Low broken low scattered	2	1	1	4	3	5	3	2		3	4	1	1	2	1	5	2					2		2
Low broken	11	11	16	11	12	4	10	9	9	7	9	18	17	19	22	10	3	7	6	4	5	4	11	9
Low broken low broken		1		1	3	3		1	1	2	1		1		1									
Low overcast low scattered	5	8	3	9	3	5	7	5	5	3	7	3	5	3	3	6	6	5	7	5	4	5	6	5
Low overcast low broken	7	6	17	12	15	7	5	8	10	11	7	9	13	15	13	10	9	10	10	10	11	5	6	6
Low overcast	18	18	26	21	29	30	31	34	21	17	16	12	9	9	6	6	5	9	7	7	14	15	15	17
Sky obscured				1		1	1																	

AUGUST

[These frequencies can be converted to percentage by dividing by 248]

Cloudless	74	79	86	80	71	36	44	51	53	44	40	30	25	19	22	21	30	44	41	42	60	61	75	77
High scattered clouds	43	42	35	36	36	55	38	39	38	41	34	32	28	21	20	25	23	24	34	40	46	48	34	39
High broken clouds	27	17	24	23	28	40	45	30	31	25	31	26	17	19	20	17	18	29	34	25	23	26	20	32
High overcast	10	18	12	12	10	10	16	14	19	21	15	11	13	9	10	9	17	16	17	26	21	18	17	13
High scattered low scattered	2	2	3		4	9	7	4	5	9	15	15	27	29	32	30	22	19	14	12	10	5	7	4
High scattered low broken					2	3	6	4	3	3	2	7	8	3	6	2	1		3	4	2	2	1	
High broken low scattered	6	4	7	6	6	6	11	10	8	12	8	19	17	24	23	25	28	20	24	14	8	2	5	6
High broken low broken	2	3	1	2		6	6	7	4	5	4	6	4	3	5	7	3	6	8	7	2	1	4	
High overcast low scattered	4	4	5	3	5	7	6	5	5	7	9	13	19	11	13	14	14	14	12	9	10	10	7	7
High overcast low broken	2	1	3	2		4	3	4	7	10	12	4	4	6	6	6	6	9	7	11	8	8	4	1
Low scattered	17	19	11	17	17	8	6	14	7	18	20	29	33	50	42	40	29	21	15	17	14	16	18	16
Low scattered low scattered	1				1						2		1		1	1	1	1			1			
Low scattered low broken											2				1	1					1			
Low broken low scattered	2	4	2	4	4	2	1	3		1			1	3	2	3	4	7	2	2	2	1	3	1
Low broken	15	12	14	16	11	7	8	12	18	7	11	13	11	14	12	14	15	8	5	5	11	19	14	10
Low broken low broken	1		2	1	4	2				3		3	1	2	3	2	3	1	1	1	1	1		
Low overcast low scattered	6	5	7	11	9	8	3	7	2	4	4	9	4	5	2	6	9	4	8	6	14	4	5	5
Low overcast low broken	17	11	10	9	9	11	15	13	18	18	24	16	18	15	11	12	15	12	8	13	10	6	11	13
Low overcast	19	27	26	26	31	31	33	31	30	20	15	15	17	15	17	13	10	13	15	14	13	20	23	24
Sky obscured						3																		

TABLE 76.—*Hourly frequency of sky conditions*—Continued

SEPTEMBER

[These frequencies can be converted to percentage by dividing by 240]

Sky condition	A. M.											Noon	P. M.											Mid-night
	1	2	3	4	5	6	7	8	9	10	11		1	2	3	4	5	6	7	8	9	10	11	
Cloudless	88	99	87	90	93	60	55	71	65	61	51	45	44	40	39	41	56	67	61	70	80	82	90	91
High scattered clouds	38	23	27	25	13	33	32	26	37	38	28	27	26	21	23	26	24	37	50	51	45	43	42	35
High broken clouds	16	20	20	10	11	11	15	17	21	24	26	19	15	16	18	22	25	28	28	21	23	22	17	19
High overcast	14	11	11	12	8	10	11	11	11	9	8	6	6	6	5	3	10	9	10	12	14	11	12	13
High scattered low scattered	4	1	1	1	3	3	5	6	6	3	9	22	14	26	20	22	19	19	12	8	5	7	5	4
High scattered low broken						1	1	1			1	1	2	1	6	5	5	1		1	3	3	1	1
High broken low scattered	2	1	2	1		9	7	6	7	12	10	10	21	15	13	17	14	14	10	8	3	2	3	1
High broken low broken	1				1	4	8	2	3	3	4	5	1	3	5	4	4	2	4	4			1	2
High overcast low scattered	4		4	4	3	3	1	3	3	4	5	4	5	6	6	6	3	5	6	5	2	5	2	2
High overcast low broken	2	4	2	2	2	3	5	4	4	4	6	7	5	5	10	8	8	10	8	4	4	6	3	3
Low scattered	11	13	12	15	16	17	14	5	6	12	27	28	34	31	35	36	29	10	10	12	12	13	10	15
Low scattered low-scattered			1			1								1		1	2							
Low scattered low broken								1		1														
Low broken low scattered	2	2	1	1				1	2	2	2	1	3	1	1	3	1				1		1	8
Low broken	8	6	15	15	11	8	8	11	10	10	8	12	12	21	19	10	5	4	6	8	10	9	13	1
Low broken low broken	1	1	1	1	1	2	3	1	2		3	4	1		1		2	1						6
Low overcast low scattered	5	9	9	6	8	6	6	5	5	5	6	9	7	11	8	4	7	7	5	8	8	5	5	1
Low overcast low broken	8	11	6	4	8	12	11	12	18	15	17	19	24	18	14	14	10	9	9	5	9	7	7	9
Low overcast	36	39	41	51	58	53	53	54	40	37	29	21	20	18	17	18	16	17	21	22	21	25	28	29
Sky obscured				2	4	4	4	3																

OCTOBER

[These frequencies can be converted to percentage by dividing by 248]

Cloudless	115	125	121	115	119	102	65	74	72	79	70	66	61	62	67	70	69	69	92	103	108	111	114	110
High scattered clouds	18	14	14	20	14	30	47	37	39	28	29	34	35	29	30	30	37	45	33	39	31	26	22	22
High broken clouds	18	18	15	9	8	13	22	21	20	28	25	22	28	28	25	28	27	22	22	17	14	16	16	16
High overcast	9	6	7	10	11	9	13	19	16	8	12	9	9	5	7	9	10	8	7	6	9	12	9	13
High scattered low scattered	3	2	2	1	2	2	3	3	6	5	5	2	4	10	9	7	6	4	5	1	21	2	3	2
High scattered low broken			2	2				3		2	1		1	2	2	1	1	3	1	1	2		2	
High broken low scattered	1	3	2	3	2	2	1	6	4	4	12	17	10	10	9	12	8	10	6			1	1	1
High broken low broken		1	2	2			5	5	4	5	4	2	5	5	2	2	4	3	4	2	3	1	4	
High overcast low scattered	2	3	1	2	1	1	3	4	6	7	7	6	8	5	6	3	4	3	2	4	2	4		
High overcast low broken	4	2		2	2	1	5	5	10	11	5	6	6	8	8	9	9	11	8	4		3		5
Low scattered	9	3	8	11	15	11	8	10	7	14	23	17	19	29	28	23	19	17	12	14	17	9	12	17
Low scattered low scattered	1												3	1										
Low scattered low broken						1																		
Low broken low scattered	2	2	1	1	2	3	1	1	4	1			1		1	1		1			1	2		1
Low broken	13	13	17	16	9	10	17	6	10	9	10	17	16	12	11	13	10	7	7	9	10	11	13	8
Low broken low broken							1	1		1	1	1		1		2							1	
Low overcast low scattered	5	7	10	5	8	12	8	4	3	7		6	10	7	9	6	9	9	14	10	11	8	9	7
Low overcast low broken	14	11	7	9	12	9	11	12	19	17	17	22	20	20	19	14	22	19	14	17	14	13	13	11
Low overcast	33	37	36	37	41	39	35	34	27	22	20	21	12	14	15	18	13	17	21	21	23	27	28	33
Sky obscured	1	1	3	3	2	3	3	3	1															

NOVEMBER

[These frequencies can be converted to percentage by dividing by 240]

Cloudless	89	89	84	85	97	97	75	62	60	62	61	56	55	57	60	57	59	66	81	89	96	96	97	95
High scattered clouds	20	23	18	25	15	19	29	30	33	34	31	35	34	30	26	31	42	42	32	25	17	22	15	15
High broken clouds	14	12	16	13	15	9	15	27	27	21	27	24	21	23	32	27	23	19	17	19	17	14	14	15
High overcast	19	18	20	19	14	13	15	15	12	10	8	7	11	14	12	10	12	14	15	13	16	14	18	17
High scattered low scattered	2	1	1		1	1	1	4	5	5	8	4	5	7	7	3	5	3	1					
High scattered low broken				1				2	1	3	1	3	3	3	1	3								1
High broken low scattered	1					1	1	3	4	10	9	13	4	7	4	6	3	5	3		1		1	1
High broken low broken	1					1		3	6	6	4	1	7	3	6	8	8	1	1	1		1	1	2
High overcast low scattered	1	1	1	2	2	5	4	6	4	1	6	5	5	2	4	1	1	3	3	1	4	4	3	
High overcast low broken	2	3	4	3	3	2	5	3	9	7	3	10	9	7	7	12	4	5	5	4	1	3	4	3
Low scattered	13	12	17	8	14	7	9	9	8	10	12	18	22	20	17	21	13	12	15	13	10	7	10	1 2
Low scattered low scattered				1						2						1						1		
Low scattered low broken			1											1	1									
Low broken low scattered	1	1	2			3	3	1	1	4	1	2		1	3	3	3			2	2	1		2
Low broken	17	17	17	22	13	14	17	10	10	10	15	14	15	15	13	12	13	12	9	14	11	15	11	16
Low broken low broken					1	1		2	1		2	1	3	2	1	1	1		1		1			
Low overcast low scattered	6	6	7	6	6	7	2	2	4	4	8	5	5	7	7	6	8	5	9	4	9	7	9	9
Low overcast low broken	10	6	6	8	9	7	8	5	10	12	14	12	15	17	13	17	21	21	13	18	16	12	10	12
Low overcast	44	50	46	46	49	49	53	53	44	38	30	29	26	24	26	21	24	32	37	39	39	42	46	40
Sky obscured		1		1	1	4	3	3	1			1												

DECEMBER

[These frequencies can be converted to percentage by dividing by 248]

Cloudless	81	83	81	87	86	82	64	42	43	45	41	37	30	37	33	42	44	49	68	77	74	70	75	80
High scattered clouds	23	20	22	18	11	11	20	34	30	35	36	36	35	24	27	26	29	36	32	28	28	27	21	21
High broken clouds	13	13	8	11	8	18	24	25	29	28	24	31	33	34	34	34	38	26	13	13	18	20	23	13
High overcast	27	31	34	33	33	16	15	22	20	23	24	20	21	20	19	19	21	21	25	22	20	27	22	29
High scattered low scattered	1				2	1		1	3	4	5	5	6	5	7	2	6	2	2		3	3	1	1
High scattered low broken									2	1	3	1	2	2	3	1	1	1	1				2	1
High broken low scattered		1	1		3	3	2	2	3	5	5	8	6	5	8	6	5	4		2	3	3	1	
High broken low broken	1			2		1	2	5	4	5	3	3	3	1	3	7	7	3	2	2	3	1	3	3
High overcast low scattered	1	1	2	1	2			4	6	5	2	4	5	5	4	4	2	3	5	5	2	3	3	3
High overcast low broken	2	2	2	5	7	5	5	3	5	3	2	1	2	7	5	8	7	3	4	1	3	1	2	2
Low scattered	7	8	14	9	13	13	16	11	11	7	15	15	21	21	17	15	11	19	15	12	11	6	9	10
Low scattered low scattered								1	1	2	2			1	2		2							
Low scattered low broken								1								1								
Low broken low scattered	1					1	2	1	1	2	1	6	4	2	3	1		1			1	1		2
Low broken	12	16	8	7	8	14	18	20	10	11	15	13	12	14	17	13	11	8	9	5	3	9	15	15
Low broken low broken				1				1	2	2			1	1	1	1	1				2	1	1	1
Low overcast low scattered	5	6	6	5	5	6	3	2	1	3	5	7	8	10	8	13	6	5	9	4		6	5	4
Low overcast low broken	8	7	8	5	5	8	10	12	15	12	14	11	14	17	16	12	8	11	8	5	12	9	11	6
Low overcast	65	59	62	63	62	66	65	60	62	55	51	50	45	42	41	43	49	56	55	72	67	60	53	56
Sky obscured	1	1		1	3	3	2	1													1	1		1

TABLE 77.—*Percentage of possible sunshine*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1894	44	51	63	57	58	74	74	65	59	57	65	55	60
1895	39	68	59	52	62	80	71	78	77	79	46	44	63
1896	46	48	57	55	45	51	52	74	60	57	47	61	54
1897	54	44	58	67	60	58	62	78	79	51	55	50	61
1898	47	59	42	55	56	71	58	60	77	56	56	55	58
1899	51	48	43	77	62	74	64	57	75	61	57	71	62
1900	58	52	46	59	58	55	78	79	68	49	47	55	59
1901	48	69	41	45	44	74	60	63	66	77	51	56	58
1902	48	52	63	57	65	69	67	76	58	66	46	49	60
1903	46	54	44	53	64	39	72	42	71	55	62	63	55
1904	51	47	44	60	76	61	58	49	56	74	53	34	55
1905	35	44	48	56	50	52	53	52	67	60	48	53	52
1906	39	64	37	62	66	52	54	39	50	37	62	28	49
1907	27	59	55	59	52	52	67	53	55	76	47	53	55
1908	57	58	50	66	56	77	61	50	54	60	61	44	58
1909	40	50	51	56	63	55	66	62	48	62	67	68	57
1910	43	64	71	63	64	56	69	52	62	67	51	48	59
1911	39	43	58	48	80	57	64	58	45	51	48	35	52
1912	35	49	48	41	64	51	64	49	44	75	58	52	52
1913	47	59	48	55	49	58	76	70	58	52	56	59	57
1914	60	61	60	67	77	70	63	69	76	56	68	37	64
1915	51	57	76	74	54	67	64	58	78	63	71	52	64
1916	44	46	54	53	62	60	55	72	71	73	62	58	59
1917	46	55	59	60	61	70	56	78	63	64	63	44	60
1918	46	60	72	53	69	63	64	63	61	52	65	45	59
1919	67	67	66	54	55	67	61	71	71	41	54	46	60
1920	42	40	62	54	58	65	66	54	70	79	39	35	55
1921	49	51	71	53	51	77	64	62	66	77	41	43	59
1922	40	39	45	60	65	57	58	61	67	68	58	38	55
1923	38	49	65	72	74	74	59	57	55	62	48	50	59
1924	60	52	62	63	55	58	71	74	45	80	48	40	59
1925	47	56	59	65	70	74	60	64	48	36	47	41	56
1926	51	42	53	60	68	46	63	56	44	47	52	37	52
1927	42	56	58	56	51	63	54	40	65	71	56	48	55
1928	65	58	60	55	62	53	66	49	43	61	48	58	56
1929	58	60	58	55	59	67	70	67	63	56	40	41	58
1930	37	61	72	58	70	76	75	70	71	66	41	44	62
1931	51	52	46	57	60	71	69	55	73	70	46	36	57
1932	35	46	54	63	65	64	77	76	73	50	55	37	58
1933	43	54	45	65	50	72	62	57	55	67	48	41	55
1934	41	48	45	57	60	71	69	53	42	61	47	47	53
1935	45	45	48	48	58	67	65	57	55	61	31	36	51
1936	50	49	46	50	83	60	60	63	58	53	53	53	56
1937	29	52	64	57	68	50	53	56	71	56	61	43	56
1938	37	44	51	53	47	59	56	75	39	73	64	41	54
1939	43	43	50	47	69	55	55	56	56	56	61	43	53
1940	54	51	50	46	51	56	61	33	74	59	51	43	53
1941	47	68	61	71	77	59	57	74	78	60	76	48	65
1942	51	61	59	70	69	57	64	56	66	47	48	24	57
1943	41	61	62	60	57	72	63	67	63	53	61	53	60
1944	56	46	56	47	65	63	68	70	47	64	44	36	56
1945	37	44	64	61	63	68	50	70	48	62	44	35	54

TABLE 78.—*Sunshine*

[Period of 52 years, 1894–1945]

Month	Average number of hours	Possible number of hours	Average percentage of possible	Greatest			Least		
				Number of hours	Percentage of possible	Year	Number of hours	Percentage of possible	Year
January	139.9	303.6	46	202.6	67	1919	81.9	27	1907
February	160.6	300.8	53	207.1	69	1901	126.0	40	1920
March	205.3	371.0	55	283.1	76	1915	138.6	37	1906
April	230.5	396.9	58	307.0	77	1899	204.4	52	1895
May	273.0	443.6	62	367.0	83	1936	197.1	44	1901
June	280.0	445.8	63	356.4	80	1895	221.6	50	1937
July	286.2	452.5	63	351.6	78	1900	224.4	50	1945
August	259.7	423.4	61	334.7	79	1900	139.7	33	1940
September	228.7	373.3	61	296.0	79	1897	144.3	39	1938
October	210.6	346.5	61	275.9	80	1924	123.2	36	1925
November	160.6	302.0	53	229.8	76	1941	92.6	31	1935
December	135.8	294.1	46	208.8	71	1899	82.1	28	1906
Year	2,570.9	4,453.5	57.7	2,902.8	65	1941	2,214.6	49	1914

TABLE 79.—*Greatest continuous number of days sunshine*

[Period of 41 years, 1905–45]

Month	None	Year	10 percent or less	Year	90 percent or more	Year	100 percent	Year
January	8	1907	8	1922 [1]	5	1914	4	1940.[1]
February	4	1923 [1]	7	1911	5	1915	4	1915.
March	4	1917	4	1938 [1]	6	1918 [1]	6	1918.
April	4	1918	7	1913	5	1921 [1]	5	1921.
May	3	1932 [1]	4	1940 [1]	6	1919 [1]	5	1936.
June	3	1936 [1]	4	1941 [1]	5	1931	5	1931.
July	1	1945 [1]	2	1943 [1]	6	1910	4	1919.
August	5	1940	7	1940	5	1941 [1]	5	1924.
September	5	1933 [1]	6	1912	7	1931 [1]	7	1931.
October	6	1906	7	1906	6	1931 [1]	6	1931.[1]
November	7	1930	9	1930	8	1917	6	1917.
December	7	1942	8	1914	5	1936	5	1936.
Year	8	Jan. 1907	9	Nov. 1930	8	Nov. 1917	7	Sept. 1931.

[1] Also other dates.

TABLE 80.—*Total hours of sunshine by seasons*

Year	Winter	Spring	Summer	Autumn
1894		718.3	938.9	615.0
1895	481.8	697.9	1,007.0	702.0
1896	421.0	631.8	775.1	562.7
1897	474.4	746.0	870.5	637.6
1898	467.6	625.1	833.3	648.4
1899	460.0	744.7	861.6	664.2
1900	541.3	663.8	930.4	564.7
1901	514.5	528.8	870.7	667.0
1902	468.2	751.4	931.9	585.7
1903	445.1	658.0	678.2	642.1
1904	487.0	738.0	742.1	623.9
1905	338.7	626.7	692.2	603.2
1906	467.4	678.4	642.8	509.6
1907	340.1	668.0	761.1	610.7
1908	506.9	714.2	832.5	591.9
1909	401.9	689.9	805.4	593.0
1910	523.7	795.8	785.3	614.9
1911	389.1	761.0	787.9	489.5
1912	360.5	626.8	725.3	599.8
1913	474.0	614.8	902.9	575.6
1914	539.4	834.9	886.9	682.0
1915	431.8	817.1	835.7	721.4
1916	431.0	687.0	824.3	704.0
1917	474.1	775.2	899.3	646.5
1918	449.6	784.6	833.6	601.7
1919	537.5	702.9	877.0	572.3
1920	386.1	702.8	815.8	654.6
1921	403.7	702.7	896.9	637.3
1922	367.2	690.3	773.1	661.8
1923	374.7	854.2	840.5	565.6
1924	489.8	726.6	891.1	589.6
1925	426.6	788.4	870.2	445.1
1926	403.5	734.2	728.9	483.9
1927	404.0	662.2	693.7	657.9
1928	520.2	716.8	742.5	518.6
1929	526.7	694.6	900.8	548.6
1930	414.5	811.1	974.5	615.6
1931	441.5	665.2	863.9	655.8
1932	352.8	737.4	954.5	608.2
1933	400.8	649.7	838.5	582.5
1934	389.8	660.2	856.0	480.2
1935	410.6	622.5	832.7	507.6
1936	409.0	734.1	804.4	561.7
1937	400.6	765.5	695.9	641.7
1938	371.2	609.2	839.0	588.5
1939	382.2	677.3	730.8	586.3
1940	450.9	595.5	665.0	633.2
1941	473.5	853.0	835.4	726.1
1942	478.7	792.3	778.2	555.7
1943	379.2	723.6	884.9	621.9
1944	469.2	681.2	885.4	529.9
1945	349.0	759.0	827.5	526.2

TABLE 81.—*Average hourly totals of solar and sky radiation received on a horizontal surface*

[Period of record, 1927–44]

[Elevation of pyrheliometer, 414 feet m. s. l.]

Week beginning	Gram-calories per square centimeter for hour ending—(apparent solar time)																	Horizontal sums
	A. M.							Noon	P. M.									
	5	6	7	8	9	10	11		1	2	3	4	5	6	7	8		
Jan. 1				1.4	7.6	17.3	22.6	26.6	26.8	23.2	17.0	8.5	1.8					152.8
Jan. 8				1.5	7.9	16.6	22.7	26.9	26.4	23.4	16.9	8.7	1.7					152.7
Jan. 15				1.8	8.0	15.6	20.6	25.3	26.4	23.6	17.4	9.1	2.6					150.4
Jan. 22				2.2	9.2	17.4	23.7	27.3	28.8	26.1	19.6	11.1	2.8					168.2
Jan. 29				3.3	11.9	23.7	29.7	34.2	33.5	28.5	23.4	13.6	4.0					205.8
Feb. 5			0.2	3.8	12.7	22.9	29.7	34.3	34.9	30.6	24.4	14.3	4.6	0.3				212.7
Feb. 12			.3	4.9	14.7	24.7	31.6	35.5	36.0	31.6	25.5	15.8	6.4	.5				227.5
Feb. 19			.7	7.2	18.8	30.0	38.0	42.6	42.5	36.9	28.5	18.2	7.8	.7				271.9
Feb. 26			1.1	8.7	19.3	29.9	37.1	40.8	39.9	36.4	29.0	19.9	9.5	1.2				272.8
Mar. 5			1.8	11.2	23.0	33.0	40.9	45.4	45.5	41.3	32.9	23.0	14.5	2.0				314.5
Mar. 12			2.4	11.9	23.2	33.2	40.5	42.9	42.5	39.0	32.6	23.2	12.3	2.2				305.9
Mar. 19		0.1	3.2	13.5	23.7	33.2	41.5	45.1	45.7	42.0	35.3	25.3	17.2	3.8	0.1			329.7
Mar. 26		.2	4.4	15.5	27.3	36.7	43.2	46.5	44.2	42.4	34.9	25.5	15.1	5.0	.3			341.2
Apr. 2		.3	5.7	16.7	27.9	38.1	43.8	46.9	47.8	44.4	36.7	27.9	16.4	6.1	.5			359.2
Apr. 9		.7	7.4	19.2	31.6	42.0	48.3	51.6	51.5	45.7	37.8	29.1	17.7	7.1	.7			390.4
Apr. 16		1.1	8.3	19.2	30.4	42.2	50.0	50.1	49.4	45.2	39.7	30.4	20.3	8.5	1.2			396.0
Apr. 23		1.4	10.1	23.2	36.2	45.8	53.7	58.8	57.5	52.6	46.1	36.7	24.1	11.0	2.0			459.2
Apr. 30		2.4	12.1	25.3	38.2	50.0	58.7	61.4	61.4	57.9	49.8	37.3	25.5	12.8	2.9			495.7
May 7		2.6	10.6	22.7	34.0	45.0	52.7	58.6	58.7	56.1	48.2	36.8	24.8	12.6	2.9			466.3
May 14	0.1	3.3	12.0	25.2	37.3	47.7	54.2	58.0	56.9	53.3	47.6	36.6	25.4	12.9	3.7	0.1		474.3
May 21	.1	3.7	13.3	25.7	37.7	49.1	56.2	59.7	60.7	56.4	48.8	37.7	25.6	13.9	4.0	.2		492.8
May 28	.2	4.6	14.6	28.0	40.4	50.4	58.9	61.3	60.2	56.1	49.8	39.5	26.6	15.2	5.2	.3		511.3
June 4	.4	5.2	15.6	28.9	40.9	51.5	58.3	61.4	61.8	59.2	51.1	40.6	27.7	15.4	5.3	.5		523.8
June 11	.4	4.8	14.4	28.4	39.3	50.0	57.0	60.0	61.4	58.8	49.8	41.6	26.2	14.6	5.1	.5		512.3
June 18	.4	5.0	15.9	28.5	40.6	50.5	56.7	59.4	60.1	57.1	49.9	40.6	29.7	16.4	5.8	.6		517.2
June 25	.5	5.6	16.2	30.0	42.3	54.0	61.5	65.6	65.4	60.0	52.7	41.5	28.9	16.0	5.7	.6		546.5
July 2	.4	5.2	16.4	30.3	42.2	51.6	59.2	62.7	62.5	59.1	51.6	40.2	28.9	16.7	5.9	.5		533.4
July 9	.3	4.9	14.3	26.2	38.9	49.4	57.1	62.6	62.4	59.6	50.4	39.4	27.1	14.6	5.0	.6		512.8
July 16	.2	4.9	14.6	27.2	38.6	50.0	56.7	59.4	60.4	55.3	49.0	38.2	24.8	13.7	4.4	.2		497.6
July 23	.1	3.3	13.8	25.8	38.4	50.2	56.7	61.4	62.6	57.0	51.1	39.3	28.7	14.0	3.6	.2		506.2
July 30	.1	3.2	12.7	25.6	38.9	49.4	58.2	62.5	63.9	58.1	49.3	38.6	25.3	14.0	3.2	.1		503.1
Aug. 6		2.1	10.9	23.3	35.5	45.6	53.7	56.5	57.1	54.2	46.9	36.2	24.4	12.2	2.3			460.9
Aug. 13		1.9	10.2	22.6	34.3	45.4	53.6	57.3	57.9	55.7	45.9	34.4	21.4	9.8	1.7			452.1
Aug. 20		1.5	8.8	21.0	32.9	43.4	50.9	55.6	56.2	51.3	45.0	35.0	23.2	9.1	1.4			435.3
Aug. 27		.8	7.5	19.4	31.8	42.9	49.7	54.2	53.9	50.9	42.8	30.7	19.2	7.4	.8			412.0
Sept. 3		.5	6.1	17.2	29.4	41.7	47.4	53.0	52.3	48.0	40.2	30.6	18.3	8.4	.7			393.8
Sept. 10		.3	5.2	16.0	35.3	40.5	46.8	50.8	51.9	46.4	40.3	30.1	18.0	5.9	.3			387.8
Sept. 17		.2	4.2	16.5	28.7	39.5	47.0	50.7	51.1	47.5	39.8	28.7	16.0	4.4	.2			374.5
Sept. 24			3.2	13.3	25.1	35.8	42.5	49.0	49.7	45.6	38.2	26.8	14.2	3.6				347.0
Oct. 1			2.1	11.8	25.0	34.8	41.4	46.8	47.5	43.2	32.3	23.4	11.4	2.2				321.9
Oct. 8			1.5	10.2	22.4	34.0	42.4	46.5	46.0	42.6	34.5	23.1	10.5	1.4				315.1
Oct. 15			1.0	8.8	21.0	31.6	39.0	43.5	42.6	38.6	30.0	19.0	8.0	.9				284.0
Oct. 22			.7	6.4	16.4	28.1	35.5	39.3	38.7	34.9	27.6	17.1	6.5	.7				251.9
Oct. 29			.4	5.1	15.3	25.8	33.2	35.3	37.6	33.4	25.1	17.0	5.6	.3				234.1
Nov. 5			.2	3.9	13.2	22.7	30.9	34.4	34.2	29.5	22.9	13.3	4.1	.3				209.6
Nov. 12			.1	2.9	11.1	20.1	28.7	32.9	32.3	27.7	21.0	11.8	3.4	.1				192.1
Nov. 19				2.2	10.0	19.2	26.1	29.8	30.1	25.4	20.2	10.4	2.6					176.0
Nov. 26				1.8	8.9	18.2	24.9	27.9	27.9	24.3	16.9	9.8	2.1					162.7
Dec. 3				1.5	8.2	17.1	25.0	30.4	28.8	25.3	17.8	9.3	1.8					165.2
Dec. 10				1.3	7.0	14.1	20.1	23.2	23.1	19.9	14.6	7.6	1.3					132.2
Dec. 17				1.3	7.3	16.0	22.5	25.8	25.8	21.8	15.3	8.1	1.5					145.4
Dec. 24 [1]				1.2	7.2	14.8	20.6	23.3	24.0	20.9	15.3	7.8	1.6					136.7

[1] 8-day mean.

TABLE 82.—*Time of sunrise and sunset at Washington, D. C., for all years*

[75th meridian (eastern standard) time]

Date	January		February		March		April		May		June		July		August		September		October		November		December	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
1	7:27	4:56	7:15	5:29	6:41	6:00	5:54	6:31	5:11	7:00	4:45	7:27	4:46	7:38	5:08	7:20	5:36	6:39	6:04	5:51	6:34	5:08	7:08	4:46
2	7:27	4:57	7:14	5:30	6:39	6:02	5:52	6:32	5:09	7:01	4:44	7:28	4:46	7:37	5:09	7:19	5:38	6:37	6:04	5:50	6:35	5:07	7:09	4:46
3	7:27	4:58	7:13	5:31	6:37	6:03	5:51	6:33	5:08	7:02	4:43	7:29	4:47	7:37	5:09	7:18	5:38	6:36	6:06	5:48	6:37	5:06	7:10	4:46
4	7:28	4:59	7:12	5:32	6:36	6:04	5:49	6:34	5:07	7:03	4:43	7:30	4:47	7:37	5:10	7:17	5:39	6:34	6:06	5:47	6:39	5:04	7:11	4:46
5	7:28	5:00	7:10	5:34	6:35	6:05	5:48	6:35	5:06	7:04	4:43	7:30	4:48	7:37	5:12	7:15	5:40	6:33	6:08	5:45	6:40	5:03	7:11	4:46
6	7:28	5:01	7:10	5:35	6:33	6:06	5:45	6:36	5:05	7:05	4:43	7:31	4:48	7:37	5:13	7:14	5:41	6:31	6:09	5:43	6:41	5:02	7:12	4:46
7	7:27	5:02	7:09	5:36	6:32	6:07	5:44	6:37	5:04	7:06	4:42	7:31	4:49	7:36	5:14	7:13	5:42	6:30	6:09	5:42	6:42	5:01	7:12	4:46
8	7:26	5:03	7:08	5:37	6:30	6:08	5:42	6:38	5:03	7:07	4:42	7:32	4:50	7:36	5:15	7:12	5:42	6:28	6:11	5:40	6:43	5:00	7:13	4:46
9	7:26	5:04	7:07	5:38	6:29	6:09	5:41	6:39	5:01	7:08	4:42	7:33	4:50	7:36	5:15	7:11	5:44	6:26	6:12	5:39	6:44	4:59	7:14	4:46
10	7:26	5:05	7:06	5:39	6:27	6:10	5:39	6:40	5:01	7:09	4:42	7:33	4:51	7:35	5:16	7:10	5:44	6:25	6:13	5:37	6:45	4:59	7:16	4:46
11	7:26	5:06	7:04	5:41	6:26	6:11	5:38	6:41	5:00	7:10	4:42	7:34	4:51	7:35	5:18	7:08	5:46	6:23	6:13	5:36	6:46	4:58	7:17	4:46
12	7:26	5:07	7:03	5:42	6:24	6:12	5:36	6:42	4:59	7:11	4:42	7:34	4:52	7:35	5:18	7:07	5:46	6:22	6:14	5:34	6:47	4:57	7:18	4:46
13	7:26	5:08	7:02	5:43	6:23	6:13	5:35	6:43	4:58	7:12	4:42	7:35	4:53	7:34	5:19	7:06	5:48	6:20	6:15	5:33	6:48	4:56	7:18	4:46
14	7:25	5:09	7:01	5:44	6:21	6:14	5:34	6:44	4:56	7:13	4:42	7:35	4:53	7:34	5:20	7:05	5:48	6:19	6:16	5:31	6:49	4:55	7:19	4:46
15	7:25	5:10	7:00	5:45	6:20	6:15	5:32	6:45	4:55	7:14	4:42	7:36	4:54	7:33	5:22	7:03	5:48	6:17	6:17	5:30	6:51	4:54	7:20	4:47
16	7:25	5:11	6:59	5:46	6:18	6:16	5:31	6:46	4:54	7:15	4:42	7:36	4:55	7:33	5:22	7:02	5:50	6:15	6:18	5:29	6:52	4:54	7:20	4:47
17	7:24	5:12	6:58	5:47	6:17	6:17	5:29	6:47	4:54	7:15	4:42	7:36	4:56	7:32	5:22	7:01	5:50	6:14	6:19	5:27	6:53	4:53	7:21	4:47
18	7:24	5:13	6:56	5:49	6:15	6:18	5:28	6:48	4:53	7:16	4:42	7:36	4:57	7:31	5:24	6:59	5:52	6:12	6:20	5:26	6:54	4:52	7:22	4:48
19	7:24	5:14	6:55	5:50	6:14	6:19	5:26	6:49	4:53	7:17	4:42	7:36	4:57	7:31	5:24	6:58	5:53	6:10	6:21	5:24	6:55	4:52	7:22	4:48
20	7:24	5:15	6:53	5:51	6:12	6:20	5:24	6:50	4:51	7:18	4:42	7:37	4:58	7:30	5:25	6:57	5:54	6:09	6:22	5:23	6:56	4:51	7:23	4:48
21	7:23	5:16	6:52	5:52	6:11	6:21	5:23	6:51	4:50	7:19	4:42	7:37	5:00	7:29	5:27	6:55	5:55	6:07	6:23	5:22	6:58	4:50	7:23	4:49
22	7:23	5:17	6:51	5:53	6:09	6:22	5:22	6:52	4:49	7:20	4:42	7:37	5:00	7:29	5:27	6:54	5:55	6:06	6:24	5:20	6:58	4:50	7:23	4:49
23	7:21	5:19	6:49	5:54	6:08	6:23	5:20	6:53	4:49	7:21	4:43	7:37	5:00	7:28	5:29	6:52	5:56	6:04	6:25	5:19	7:00	4:49	7:24	4:50
24	7:21	5:20	6:48	5:55	6:05	6:24	5:19	6:54	4:48	7:22	4:43	7:37	5:02	7:27	5:30	6:51	5:57	6:02	6:26	5:18	7:00	4:49	7:24	4:51
25	7:20	5:21	6:47	5:56	6:03	6:25	5:18	6:55	4:48	7:22	4:43	7:37	5:03	7:26	5:30	6:49	5:58	6:01	6:28	5:16	7:02	4:48	7:25	4:51
26	7:19	5:22	6:45	5:57	6:02	6:26	5:16	6:56	4:47	7:23	4:44	7:38	5:04	7:25	5:31	6:48	5:59	5:59	6:28	5:15	7:02	4:48	7:25	4:52
27	7:19	5:23	6:44	5:58	6:00	6:27	5:15	6:57	4:46	7:24	4:44	7:38	5:04	7:24	5:32	6:46	6:00	5:58	6:29	5:14	7:04	4:47	7:26	4:52
28	7:19	5:24	6:43	5:59	5:59	6:28	5:14	6:58	4:46	7:25	4:44	7:38	5:04	7:24	5:33	6:45	6:01	5:56	6:31	5:12	7:05	4:47	7:26	4:53
29	7:18	5:25	[1]6:41	6:00	5:57	6:29	5:13	6:59	4:46	7:25	4:45	7:38	5:05	7:23	5:33	6:44	6:03	5:56	6:32	5:11	7:05	4:47	7:26	4:54
30	7:16	5:27	------	------	5:56	6:30	5:11	7:00	4:45	7:26	4:45	7:38	5:06	7:22	5:35	6:42	6:02	5:53	6:33	5:10	7:07	4:46	7:26	4:55
31	7:16	5:28	------	------	5:54	6:31	------	------	4:45	7:27	------	------	5:07	7:21	5:36	6:40	------	------	6:33	5:09	------	------	7:27	4:55

[1] Leap year.

NOTE.—Times given are for a level horizon. Actual times of *sunrise* and *sunset* are the times when the *upper edge* of the sun is on the horizon.

WIND

TABLE 83.—*Number of hours wind blew from each direction*

JANUARY

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	91	108	31	27	70	111	81	216	9
1893	67	67	47	42	113	30	102	245	31
1894	96	77	42	35	179	58	41	156	60
1895	128	61	19	42	159	72	106	147	10
1896	92	96	26	82	83	42	97	205	21
1897	129	78	59	34	99	28	32	267	18
1898	119	58	57	46	117	49	83	204	11
1899	131	91	31	24	212	45	51	139	20
1900	29	114	35	59	144	35	75	201	52
1901	67	98	29	43	151	16	49	268	23
1902	62	101	62	62	113	20	60	229	35
1903	46	51	35	17	169	50	103	261	12
1904	116	121	35	57	103	41	65	193	13
1905	149	34	51	84	90	78	82	173	3
1906	119	85	23	46	198	49	48	175	1
1907	103	111	70	39	199	38	20	147	17
1908	47	68	9	57	168	105	63	222	5
1909	114	115	20	75	108	67	48	185	12
1910	91	49	39	78	144	73	54	208	8
1911	75	56	12	55	225	67	72	175	7
1912	226	59	33	20	145	29	37	192	3
1913	85	41	35	40	298	72	39	123	11
1914	92	98	56	30	172	51	15	228	2
1915	124	70	52	71	110	43	49	204	21
1916	93	42	40	43	189	102	40	183	12
1917	74	30	42	102	129	103	52	204	8
1918	141	66	48	45	32	88	122	198	4
1919	88	48	14	23	157	105	60	235	14
1920	163	99	46	28	103	51	37	216	1
1921	182	46	44	19	139	75	71	166	2
1922	206	83	35	32	71	121	61	128	7
1923	128	45	62	66	96	91	40	214	2
1924	116	20	83	21	162	101	26	206	9
1925	156	120	24	11	135	83	45	159	11
1926	86	51	64	25	144	106	56	203	9
1927	112	54	30	32	160	82	32	231	11
1928	55	9	46	32	175	99	50	250	28
1929	106	35	53	11	146	102	42	246	3
1930	148	41	63	17	191	73	43	156	12
1931	72	25	50	15	123	91	62	271	35
1932	61	42	49	61	137	115	33	226	20
1933	95	50	50	5	164	126	49	184	21
1934	71	96	58	13	102	108	54	219	23
1935	158	32	80	28	97	122	38	182	7
1936	65	41	49	37	89	94	26	339	4
1937	121	136	98	21	105	127	16	119	1
1938	99	53	35	29	163	110	30	218	7
1939	93	52	64	45	129	82	40	233	6
1940	83	44	54	26	39	87	55	350	6
1941	101	99	75	27	49	68	26	293	6
1942	78	71	29	64	115	126	27	228	6
1943	118	152	45	66	108	82	32	136	5
1944	117	55	32	13	152	73	108	171	23
1945	211	45	66	11	89	57	63	199	3

FEBRUARY

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	90	213	25	6	56	90	57	154	5
1893	80	81	26	42	109	85	51	184	14
1894	106	126	44	44	99	30	42	173	8
1895	104	12	2	11	80	45	143	250	25
1896	80	72	39	55	100	64	95	189	2
1897	193	95	77	32	77	47	23	112	16
1898	101	51	36	20	133	24	61	214	32
1899	101	76	25	46	101	40	59	211	13
1900	55	52	61	69	109	30	103	177	16
1901	80	20	37	30	66	21	93	315	10
1902	91	39	31	54	28	14	93	308	14
1903	40	34	59	58	157	38	117	159	10
1904	89	68	28	53	123	21	38	259	17
1905	81	58	35	11	104	30	65	285	3
1906	142	72	50	58	71	10	8	260	1
1907	152	67	17	67	94	34	20	213	8
1908	53	52	29	56	69	56	47	334	0
1909	41	40	47	85	125	77	87	163	7
1910	69	59	18	57	135	62	88	182	2
1911	49	115	34	54	72	63	88	195	2
1912	151	60	47	14	120	40	75	182	7
1913	165	7	15	18	229	29	31	168	10
1914	172	94	23	24	109	39	46	157	8
1915	155	56	60	40	95	26	24	213	3
1916	157	85	20	33	115	53	27	204	2
1917	71	29	24	79	112	89	36	227	5
1918	76	22	25	122	121	119	39	144	4
1919	111	22	34	48	108	30	65	254	0
1920	128	84	43	38	64	59	47	229	4
1921	144	68	29	22	138	69	73	128	1
1922	135	54	56	48	102	102	48	125	2
1923	139	67	19	38	89	69	44	204	3
1924	127	58	78	12	72	48	34	262	5
1925	118	28	52	51	206	55	30	122	10
1926	79	38	56	19	109	87	30	252	2
1927	78	66	65	27	105	79	55	185	12
1928	73	36	71	42	119	92	37	223	3
1929	134	49	58	11	125	56	46	176	17
1930	69	20	61	33	160	87	34	176	32
1931	100	58	64	16	107	74	23	224	6
1932	85	46	35	36	137	127	25	200	5
1933	53	24	38	14	177	69	47	248	2
1934	100	78	25	10	128	92	16	220	3
1935	67	78	50	14	102	92	41	217	11

TABLE 83. *Number of hours wind blew from each direction*—Continued

FEBRUARY—Continued

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1936	112	73	79	22	91	76	27	214	2
1937	84	20	42	32	96	109	24	258	7
1938	111	59	66	37	134	101	26	134	4
1939	64	58	77	36	184	81	25	145	2
1940	127	73	71	33	91	52	20	223	6
1941	67	42	32	41	60	49	11	364	6
1942	40	62	52	20	48	28	12	403	6
1943	40	17	26	59	167	78	113	163	9
1944	77	81	72	24	145	60	71	160	6
1945	145	30	56	8	118	63	65	178	9

MARCH

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	118	105	22	19	55	65	46	306	8
1893	74	149	38	51	93	68	74	178	19
1894	78	48	46	81	150	63	52	185	41
1895	117	71	28	55	150	46	66	206	5
1896	74	72	28	46	113	22	79	291	19
1897	106	83	99	41	197	35	34	142	7
1898	150	86	125	94	172	10	11	79	17
1899	64	83	84	105	126	41	81	158	2
1900	117	100	54	40	105	28	62	232	6
1901	48	76	67	86	142	33	61	222	9
1902	52	53	35	82	131	31	60	280	20
1903	50	87	115	135	185	11	29	116	16
1904	143	109	85	89	77	19	26	192	4
1905	80	113	82	123	160	40	25	118	3
1906	108	153	59	53	91	41	28	209	2
1907	87	74	54	42	199	42	28	202	16
1908	85	48	53	72	206	59	54	167	0
1909	75	44	44	36	99	59	114	270	3
1910	67	96	71	103	140	45	71	147	4
1911	64	79	23	68	143	65	121	179	2
1912	213	93	78	21	154	29	14	135	7
1913	78	42	38	65	267	68	7	168	11
1914	106	63	33	52	168	50	39	224	9
1915	102	41	14	18	34	47	64	421	3
1916	132	90	94	53	88	47	17	216	7
1917	83	68	11	119	94	86	64	214	5
1918	98	78	24	86	89	134	49	182	4
1919	180	56	75	49	98	67	26	193	0
1920	49	16	27	92	162	112	69	209	8
1921	163	18	21	53	211	174	44	57	3
1922	149	88	64	70	84	99	27	159	4
1923	138	33	20	59	140	134	49	170	1
1924	171	48	57	24	72	61	29	279	3
1925	192	12	29	16	215	63	8	196	13
1926	116	36	46	8	125	88	42	275	8
1927	109	50	106	41	156	63	19	190	10
1928	98	54	82	35	100	59	65	248	
1929	38	11	29	22	239	151	43	210	1
1930	53	20	36	34	166	144	37	242	12
1931	156	73	74	60	28	28	23	296	6
1932	83	37	42	16	96	88	26	349	7
1933	49	38	62	3	131	48	61	321	31
1934	113	105	53	23	186	104	26	122	12
1935	61	70	51	41	188	184	22	125	2
1936	74	50	88	94	136	124	29	144	5
1937	64	53	43	29	85	88	38	343	1
1938	54	90	63	37	152	139	29	180	0
1939	104	61	57	68	118	121	23	191	1
1940	56	70	96	41	69	42	13	356	1
1941	64	68	37	32	76	83	27	355	2
1942	40	90	59	91	95	69	80	215	5
1943	102	33	25	61	190	82	61	186	4
1944	92	84	61	35	157	36	77	197	5
1945	106	15	22	19	247	116	83	110	26

APRIL

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	63	104	43	45	137	48	54	214	12
1893	51	113	58	57	148	103	53	122	15
1894	83	42	26	84	159	53	36	230	7
1895	84	146	29	98	132	22	75	128	6
1896	67	79	66	93	122	42	49	163	39
1897	109	42	62	66	188	53	24	155	21
1898	142	99	33	24	80	32	94	205	11
1899	55	61	63	124	167	19	72	144	15
1900	109	82	45	54	110	25	31	246	18
1901	94	126	81	93	46	14	30	221	15
1902	36	61	33	114	122	38	125	174	17
1903	98	125	41	41	119	32	48	195	21
1904	37	115	24	63	98	30	90	254	9
1905	97	55	37	80	139	46	35	226	5
1906	47	68	39	62	80	61	61	291	11
1907	90	73	51	32	127	22	56	264	5
1908	53	29	16	107	183	86	60	186	0
1909	77	66	32	114	125	49	81	174	2
1910	59	61	66	95	172	64	58	139	6
1911	77	95	51	88	175	38	65	125	6
1912	62	104	45	48	214	79	25	141	2
1913	94	96	41	68	117	27	33	236	8
1914	78	56	47	52	178	39	38	232	0
1915	127	53	40	57	123	72	43	187	18
1916	97	87	28	43	82	49	65	255	14
1917	96	51	27	105	102	71	53	206	9
1918	154	105	59	119	41	76	29	126	11

TABLE 83. *Number of hours wind blew from each direction*—Continued

APRIL—Continued

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1919	114	24	60	63	148	82	51	173	5
1920	76	30	62	55	106	101	75	214	1
1921	111	30	57	66	168	104	51	128	5
1922	136	68	30	83	74	131	46	151	1
1923	134	53	22	31	140	133	73	130	4
1924	49	44	68	55	164	67	47	213	13
1925	134	104	56	30	140	94	37	123	2
1926	86	49	62	22	103	97	47	249	5
1927	134	61	108	49	93	95	20	156	4
1928	93	67	63	14	133	95	87	168	0
1929	64	64	76	23	157	100	60	155	21
1930	57	83	87	42	136	56	27	224	8
1931	78	61	36	57	139	109	29	184	27
1932	74	79	40	41	110	87	33	234	22
1933	81	41	128	2	233	24	65	129	17
1934	77	35	47	63	185	99	32	164	18
1935	85	106	53	40	60	85	42	241	8
1936	47	32	30	76	151	102	17	263	2
1937	73	56	113	81	71	111	27	188	0
1938	65	74	69	64	144	95	27	172	10
1939	32	44	82	48	122	103	29	255	5
1940	90	91	56	93	104	63	12	201	10
1941	63	84	54	116	115	98	18	156	16
1942	46	75	44	96	96	81	84	182	16
1943	62	57	19	63	148	61	79	217	14
1944	72	82	66	37	151	68	70	160	14
1945	71	44	126	47	149	73	63	125	22

MAY

1892	54	57	50	40	233	73	76	154	7
1893	60	90	46	30	219	70	85	118	26
1894	36	108	49	93	196	53	55	139	15
1895	77	88	39	111	159	39	100	112	19
1896	43	95	66	66	166	71	97	122	18
1897	168	36	22	51	173	70	44	166	14
1898	163	103	59	60	201	45	31	69	13
1899	42	65	63	95	231	46	57	125	20
1900	43	90	65	85	153	80	53	154	21
1901	45	132	103	122	124	27	27	143	21
1902	55	65	83	81	216	63	55	117	9
1903	42	111	91	158	175	43	22	94	8
1904	25	60	74	165	172	18	40	167	23
1905	65	72	79	71	216	45	36	157	3
1906	79	62	36	94	192	68	23	185	5
1907	92	110	58	71	184	49	26	154	0
1908	76	112	74	75	110	107	93	90	7
1909	81	67	48	79	144	83	89	147	6
1910	75	35	50	50	137	54	149	191	3
1911	89	117	49	95	142	58	62	121	11
1912	86	55	68	50	225	51	81	120	8
1913	169	55	56	35	119	92	41	170	7
1914	102	34	25	48	146	98	54	220	17
1915	128	68	57	68	107	90	50	167	9
1916	110	67	37	65	124	97	53	178	13
1917	59	50	50	77	54	90	91	270	3
1918	58	44	54	137	112	185	32	113	9
1919	75	78	74	91	110	119	61	120	16
1920	149	111	53	63	161	72	36	94	5
1921	99	132	57	66	131	65	43	139	12
1922	89	52	61	106	104	168	72	86	6
1923	114	63	41	71	128	125	82	106	14
1924	75	16	109	31	173	96	61	177	6
1925	127	28	18	28	168	147	78	134	16
1926	133	39	42	31	136	115	51	192	5
1927	62	36	88	74	150	111	51	168	4
1928	137	71	49	27	164	52	50	151	43
1929	96	51	32	34	215	144	47	99	26
1930	46	26	37	36	133	137	48	254	27
1931	50	61	58	113	159	118	24	114	47
1932	76	78	76	50	142	131	22	154	15
1933	103	57	76	10	220	58	51	125	44
1934	101	136	67	33	142	116	39	94	16
1935	82	75	51	44	100	135	37	211	9
1936	52	32	28	62	145	163	39	220	3
1937	53	34	33	61	160	142	27	223	11
1938	77	72	90	59	108	78	40	211	9
1939	63	59	39	66	131	203	41	128	14
1940	67	105	128	72	84	100	17	161	10
1941	34	41	22	44	53	161	46	327	16
1942	31	38	34	195	136	72	92	137	9
1943	45	54	84	85	186	78	62	142	8
1944	30	58	78	42	328	80	72	37	19
1945	77	19	16	31	179	133	109	161	19

JUNE

1892	39	48	30	52	307	142	45	38	19
1893	74	105	108	99	71	83	54	102	24
1894	64	57	33	44	126	151	90	110	45
1895	131	133	68	40	79	51	92	94	32
1896	97	66	48	65	182	78	73	98	13
1897	161	48	46	33	154	44	50	162	22
1898	87	67	85	73	134	76	78	104	16
1899	125	59	19	88	163	58	57	133	18
1900	83	101	15	74	208	94	57	83	5
1901	32	94	30	132	190	69	44	109	20
1902	31	24	20	106	188	63	62	217	9
1903	30	93	88	124	145	44	69	103	24
1904	95	133	28	90	159	65	42	92	16

TABLE 83.—*Number of hours wind blew from each direction*—Continued

JUNE—Continued

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1905	73	92	71	79	210	36	55	99	5
1906	62	101	69	47	166	117	82	72	4
1907	83	131	84	86	100	38	58	132	8
1908	79	74	44	65	138	114	56	144	6
1909	86	82	51	67	111	140	100	81	2
1910	91	44	57	71	139	47	142	125	4
1911	56	128	41	43	83	82	139	141	7
1912	157	75	67	31	131	45	98	107	9
1913	162	65	91	6	146	8	120	115	7
1914	122	33	31	36	195	112	53	137	1
1915	146	94	21	71	156	63	29	134	6
1916	117	49	75	92	110	93	50	129	5
1917	63	13	14	99	173	168	46	137	7
1918	92	74	43	121	79	129	33	139	10
1919	108	54	111	89	169	112	38	21	18
1920	113	56	40	20	85	144	75	167	20
1921	87	7	44	54	108	129	107	110	4
1922	69	60	22	97	91	145	97	135	4
1923	115	32	31	26	88	142	73	207	6
1924	106	56	108	23	164	95	52	112	4
1925	78	15	28	37	132	187	59	173	11
1926	106	52	54	39	133	135	32	164	5
1927	129	29	58	57	145	126	42	123	11
1928	44	46	68	45	196	155	18	132	16
1929	93	71	22	30	151	147	43	136	27
1930	34	32	28	56	171	189	55	139	16
1931	127	33	35	55	88	122	15	193	52
1932	29	53	83	34	142	185	45	141	8
1933	91	54	30	21	122	135	63	175	29
1934	23	35	25	47	158	237	40	141	14
1935	72	40	24	24	128	208	43	165	16
1936	116	59	56	42	126	170	36	102	13
1937	93	38	72	42	111	201	25	124	14
1938	99	64	24	37	128	211	31	116	10
1939	66	62	77	37	151	162	27	136	2
1940	30	30	39	45	111	229	43	177	16
1941	53	54	50	73	89	202	35	132	32
1942	46	73	70	122	101	74	84	141	9
1943	35	43	32	28	199	196	109	66	12
1944	80	39	40	26	184	111	87	134	19
1945	86	8	45	17	137	136	98	150	43

JULY

1892	58	49	45	71	202	83	58	121	57
1893	97	70	44	40	198	87	74	108	26
1894	43	61	39	54	261	106	65	86	29
1895	102	21	8	41	165	94	106	174	33
1896	80	28	14	49	231	143	72	89	38
1897	59	48	70	59	225	76	89	101	17
1898	115	90	62	59	215	85	48	58	12
1899	29	56	18	103	253	69	75	116	25
1900	28	26	11	89	242	83	62	194	9
1901	64	101	38	55	206	111	69	85	15
1902	35	48	70	92	254	44	43	134	24
1903	121	24	12	49	138	98	94	160	48
1904	87	87	59	83	151	44	49	174	10
1905	59	22	53	83	276	57	73	121	0
1906	67	128	68	86	184	103	40	66	2
1907	77	44	26	67	100	121	88	212	9
1908	86	112	56	64	104	162	40	119	1
1909	90	24	29	93	91	117	143	147	10
1910	106	34	26	45	164	69	214	79	7
1911	76	45	30	97	177	113	71	130	5
1912	80	28	17	36	302	95	43	133	10
1913	124	12	62	0	182	1	193	161	9
1914	134	42	39	65	155	125	54	119	11
1915	105	54	19	67	140	118	80	151	10
1916	89	69	25	140	161	156	22	72	10
1917	109	36	61	114	114	198	42	64	6
1918	135	25	12	85	96	145	78	160	8
1919	124	21	35	68	175	140	67	96	18
1920	122	30	18	36	165	162	69	120	22
1921	113	81	43	42	93	198	80	84	10
1922	123	94	32	81	119	168	54	65	8
1923	120	44	107	75	138	81	47	124	8
1924	104	9	34	37	180	122	59	191	8
1925	94	35	55	43	144	121	47	203	2
1926	91	58	87	65	133	138	33	129	10
1927	83	19	64	44	168	190	63	94	19
1928	54	7	22	11	186	163	65	177	59
1929	82	55	46	14	174	169	41	114	49
1930	116	27	19	34	131	203	64	135	15
1931	62	34	36	64	96	195	25	174	58
1932	49	40	39	20	75	211	67	238	5
1933	59	73	87	37	148	140	49	119	32
1934	47	61	54	63	140	221	28	116	14
1935	58	56	51	74	203	190	31	78	3
1936	81	54	42	24	118	226	38	150	11
1937	64	44	24	46	111	206	34	207	8
1938	59	42	24	31	188	288	32	69	11
1939	71	29	68	54	140	159	37	174	12
1940	57	66	15	51	70	224	41	197	23
1941	28	108	40	67	124	206	25	119	27
1942	78	70	27	36	109	151	134	105	34
1943	82	45	39	23	230	122	103	76	24
1944	50	45	52	36	308	150	46	36	21
1945	74	13	97	19	243	127	64	66	41

TABLE 83.—*Number of hours wind blew from each direction*—Continued

AUGUST

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	97	97	117	57	118	46	44	127	41
1893	99	71	18	110	169	37	48	128	64
1894	121	126	50	60	205	44	36	52	50
1895	47	36	38	101	198	94	107	92	31
1896	168	73	26	37	124	78	98	128	12
1897	130	78	34	44	168	61	94	99	36
1898	90	64	25	42	269	124	44	65	21
1899	86	194	74	74	101	26	35	111	43
1900	115	67	21	59	100	44	90	228	20
1901	81	77	77	101	243	62	12	67	24
1902	95	37	104	69	146	58	63	135	37
1903	102	184	51	114	89	55	27	95	27
1904	165	80	42	45	162	72	65	93	20
1905	116	92	90	65	225	26	38	88	4
1906	49	134	61	99	167	90	41	95	8
1907	137	95	24	43	97	107	49	182	10
1908	130	114	45	61	125	119	56	91	3
1909	148	55	93	67	89	79	95	117	1
1910	111	161	51	112	152	25	66	62	4
1911	100	95	105	107	117	67	62	81	10
1912	138	17	10	51	165	115	87	140	21
1913	146	67	124	26	190	32	89	59	11
1914	96	81	24	54	215	102	36	113	23
1915	123	75	52	57	100	94	63	168	12
1916	139	72	37	61	97	147	53	129	9
1917	115	45	31	92	143	143	34	129	12
1918	110	66	82	86	88	149	56	93	14
1919	139	31	16	60	123	118	72	176	9
1920	161	91	88	38	124	152	38	49	3
1921	146	54	42	89	120	104	56	121	12
1922	152	80	52	34	50	215	53	94	14
1923	113	85	70	25	115	177	25	109	25
1924	140	54	70	31	146	138	40	117	8
1925	154	62	51	36	126	81	60	149	25
1926	73	89	110	40	91	121	31	172	17
1927	166	61	77	53	108	97	46	105	31
1928	108	33	34	11	161	142	59	122	74
1929	158	52	25	43	138	96	39	141	52
1930	115	42	45	69	115	128	45	147	38
1931	113	97	32	32	116	174	39	114	27
1932	104	20	23	14	233	121	55	139	35
1933	103	105	51	34	151	112	38	79	71
1934	88	51	59	42	135	180	27	127	35
1935	91	68	115	80	101	120	23	131	15
1936	59	59	64	50	136	219	19	113	25
1937	66	91	48	49	175	218	21	69	7
1938	76	13	8	18	132	232	65	182	18
1939	95	57	27	40	149	189	28	153	6
1940	75	139	167	86	93	81	13	74	16
1941	94	47	9	30	93	185	31	233	22
1942	73	77	43	76	150	123	86	78	38
1943	131	33	25	13	229	114	72	109	18
1944	60	61	26	23	249	134	68	96	27
1945	99	54	48	11	191	119	70	95	57

SEPTEMBER

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	50	81	161	90	102	42	43	101	50
1893	110	84	93	26	83	96	63	113	52
1894	64	156	67	88	125	94	34	57	35
1895	136	64	43	92	160	64	60	80	21
1896	103	57	54	63	188	72	40	122	21
1897	144	132	41	42	136	57	47	95	26
1898	81	81	85	38	155	99	88	75	18
1899	106	28	29	144	170	46	46	133	18
1900	61	74	57	132	149	52	33	147	15
1901	107	154	55	33	136	59	30	106	40
1902	66	123	72	93	125	34	41	135	31
1903	151	65	24	72	167	22	25	155	39
1904	87	162	59	54	202	23	7	95	31
1905	70	72	34	121	167	27	18	199	12
1906	105	154	47	46	115	79	54	104	16
1907	100	76	25	55	135	104	39	177	9
1908	134	102	53	64	96	78	45	134	14
1909	145	54	62	72	144	59	54	125	5
1910	109	66	37	109	162	98	22	109	8
1911	161	65	68	59	148	63	63	84	9
1912	144	112	74	41	166	49	30	92	12
1913	118	120	95	38	144	51	28	110	16
1914	214	93	36	15	100	70	46	117	29
1915	137	49	25	55	157	77	44	154	22
1916	131	35	30	69	153	93	41	151	17
1917	217	118	35	42	42	112	43	97	14
1918	179	20	20	65	130	89	61	145	11
1919	156	37	35	40	123	80	48	190	11
1920	132	50	51	60	85	73	83	169	17
1921	128	51	48	85	122	141	57	81	7
1922	144	115	64	82	102	92	49	55	17
1923	163	39	68	69	134	100	33	79	35
1924	122	56	120	55	113	90	22	134	8
1925	182	84	45	27	176	95	36	65	10
1926	143	90	95	85	136	83	13	63	12
1927	113	35	56	43	140	111	55	116	51
1928	107	83	44	16	102	117	57	117	77
1929	107	97	61	47	141	127	26	43	71
1930	62	35	29	48	153	150	40	106	97
1931	81	28	17	39	81	257	44	153	20
1932	137	54	35	19	223	70	27	127	28
1933	55	92	35	9	146	74	59	156	94
1934	82	68	104	81	111	86	24	117	47
1935	74	79	46	13	155	121	33	144	55
1936	80	87	68	84	142	135	19	79	26
1937	132	65	27	34	90	142	50	150	30

TABLE 83.—*Number of hours wind blew from each direction*—Continued

SEPTEMBER—Continued

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1938	82	117	79	46	110	124	39	112	11
1939	76	47	56	54	205	133	29	108	12
1940	140	79	25	30	63	102	52	194	35
1941	86	80	44	81	84	181	38	110	16
1942	96	51	40	42	124	106	102	130	29
1943	158	94	37	17	154	72	47	121	20
1944	75	86	112	19	107	94	113	94	20
1945	114	64	112	31	152	107	58	50	32

OCTOBER

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	66	36	12	35	111	69	85	248	82
1893	118	137	32	44	105	62	51	141	54
1894	128	75	44	53	118	52	76	164	34
1895	119	64	7	37	155	45	82	228	7
1896	150	89	18	35	153	26	53	202	18
1897	174	213	29	27	162	36	33	37	33
1898	66	87	96	72	123	36	73	168	23
1899	105	131	91	41	155	15	19	111	76
1900	70	146	73	88	109	33	51	141	33
1901	55	79	52	126	114	39	36	192	51
1902	75	110	42	29	162	24	64	194	44
1903	86	43	31	56	156	67	52	226	27
1904	129	61	44	147	53	46	102	118	44
1905	74	108	31	85	157	89	43	147	10
1906	140	220	35	39	97	29	31	149	4
1907	83	29	4	65	121	85	36	309	12
1908	155	145	38	45	33	69	56	183	20
1909	75	23	48	33	92	72	155	227	19
1910	86	54	16	59	149	95	74	198	13
1911	230	82	27	28	162	56	40	101	18
1912	138	47	20	42	158	90	72	161	16
1913	88	88	71	60	67	51	30	281	82
1914	94	88	71	57	119	78	87	95	61
1915	105	35	45	65	173	46	42	210	23
1916	163	76	30	56	122	78	51	150	18
1917	142	50	44	96	82	86	73	161	0
1918	109	32	14	64	258	87	38	120	42
1919	148	133	82	75	103	104	35	53	11
1920	158	33	17	20	86	106	120	179	25
1921	71	48	30	82	85	130	89	196	13
1922	162	44	16	48	103	161	79	112	19
1923	201	64	56	15	83	97	52	157	19
1924	193	33	49	15	59	78	91	200	26
1925	99	50	51	48	90	108	60	215	23
1926	73	27	58	43	138	120	56	209	21
1927	121	48	22	54	154	91	72	148	34
1928	43	28	21	30	240	121	61	173	27
1929	57	99	40	42	107	133	80	171	15
1930	127	75	46	38	61	62	44	197	94
1931	48	27	5	24	99	237	83	174	47
1932	70	53	95	33	179	65	40	176	33
1933	132	78	23	16	125	92	46	131	101
1934	111	57	53	6	83	141	64	201	28
1935	104	34	23	37	148	142	37	169	50
1936	48	50	65	67	153	129	38	177	17
1937	75	44	87	56	150	102	53	167	10
1938	134	75	33	30	115	116	71	133	37
1939	143	24	25	33	121	149	30	167	52
1940	113	113	53	44	97	114	32	150	28
1941	39	46	21	51	104	199	35	223	26
1942	59	180	32	79	163	52	98	53	28
1943	131	89	27	18	97	102	109	129	42
1944	191	78	37	4	111	41	121	124	37
1945	94	12	23	2	191	110	77	158	77

NOVEMBER

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	77	38	36	25	161	36	67	256	24
1893	126	104	20	28	146	54	62	152	28
1894	56	22	14	67	210	53	114	179	5
1895	167	106	21	36	128	30	61	145	26
1896	142	50	34	48	238	72	15	89	32
1897	53	56	28	24	209	47	71	214	18
1898	45	37	18	74	148	32	89	242	35
1899	72	87	21	21	154	54	45	212	54
1900	82	65	8	32	175	50	93	207	8
1901	57	42	24	13	97	26	121	316	22
1902	119	120	55	68	157	34	32	111	24
1903	87	22	18	54	114	52	74	267	32
1904	72	59	27	88	42	39	211	140	42
1905	98	55	12	20	128	118	44	239	6
1906	119	42	3	22	130	37	65	289	13
1907	112	45	42	62	59	84	71	236	9
1908	90	27	30	66	98	120	84	195	10
1909	84	43	57	43	170	51	84	170	18
1910	26	10	9	46	80	68	194	284	3
1911	111	26	32	12	174	52	56	244	13
1912	58	5	13	37	221	69	76	228	13
1913	93	56	32	43	159	68	65	169	35
1914	75	71	38	43	149	90	79	164	11
1915	98	14	18	65	108	107	52	234	24
1916	66	33	25	74	166	116	52	180	8
1917	127	31	13	54	35	89	83	273	15
1918	81	16	38	40	84	94	103	247	17
1919	122	43	32	38	142	80	63	193	7
1920	140	107	45	39	70	56	76	178	9
1921	145	79	38	43	109	134	54	115	3
1922	113	28	22	41	110	109	89	192	16
1923	158	54	83	15	90	83	39	192	6
1924	115	51	37	19	137	121	48	186	6

TABLE 83.—*Number of hours wind blew from each direction*—Continued

NOVEMBER—Continued

Year	North	North-east	East	South-east	South	South-west	West	North-west	Calm
1925	122	47	78	31	125	54	38	212	13
1926	43	23	76	61	157	70	53	232	5
1927	70	11	25	35	277	88	36	170	8
1928	46	4	31	17	184	145	65	215	13
1929	96	68	44	11	154	102	41	196	8
1930	41	64	71	37	155	101	26	194	31
1931	37	33	59	37	203	146	31	144	30
1932	157	48	69	6	143	35	41	199	22
1933	51	58	20	12	147	130	51	239	12
1934	90	10	115	10	124	104	41	195	31
1935	168	74	33	32	112	78	23	177	23
1936	57	32	15	18	122	185	32	257	2
1937	39	42	28	20	147	124	52	258	10
1938	63	28	44	59	168	135	55	145	23
1939	118	100	11	15	74	103	40	246	13
1940	59	70	44	61	123	73	29	251	10
1941	35	24	19	54	102	187	32	237	30
1942	62	53	20	54	172	79	86	176	18
1943	41	53	29	23	160	46	92	244	32
1944	154	22	79	15	110	16	75	218	31
1945	142	30	33	22	170	93	90	126	14

DECEMBER

1892	156	16	35	3	112	52	75	247	48
1893	90	48	6	26	187	93	54	177	63
1894	124	82	12	26	151	30	113	178	28
1895	131	52	49	84	137	70	64	129	28
1896	162	78	21	20	189	61	38	150	25
1897	135	77	34	28	186	60	56	150	18
1898	53	78	17	36	167	64	140	148	41
1899	35	23	54	76	162	45	104	210	35
1900	77	14	1	64	128	77	125	227	31
1901	81	57	31	94	117	25	33	271	35
1902	80	79	38	27	156	35	80	240	9
1903	63	43	22	15	162	69	73	270	27
1904	101	89	13	79	113	57	126	160	6
1905	89	58	37	24	141	102	69	216	8
1906	105	110	29	14	125	79	20	248	14
1907	61	50	19	56	99	120	55	269	15
1908	53	70	31	51	150	97	89	199	4
1909	54	20	54	37	55	51	146	318	9
1910	46	27	14	73	123	72	119	260	10
1911	163	42	43	25	202	35	50	161	23
1912	127	37	20	34	241	74	62	136	13
1913	139	65	23	19	115	64	59	251	9
1914	170	150	29	30	57	47	46	202	13
1915	83	45	21	58	133	44	61	295	4
1916	82	40	37	79	93	91	91	220	11
1917	245	65	35	30	51	82	99	129	8
1918	123	59	56	44	116	84	65	168	29
1919	149	38	24	33	128	116	49	202	5
1920	130	43	43	35	74	86	112	216	5
1921	168	50	21	47	129	84	61	181	3
1922	199	87	75	60	114	72	47	82	8
1923	98	27	64	31	170	133	46	151	24
1924	105	27	62	13	162	84	45	245	1
1925	119	45	21	17	95	99	52	294	2
1926	171	52	67	37	142	70	28	170	7
1927	106	36	33	29	159	83	29	267	2
1928	130	28	55	8	150	96	53	181	43
1929	78	72	59	19	190	107	47	154	18
1930	108	52	39	10	100	72	42	299	22
1931	64	36	57	20	128	125	35	242	37
1932	123	42	36	6	190	114	56	145	32
1933	65	50	55	33	135	132	25	229	20
1934	98	12	51	5	111	107	59	284	17
1935	40	70	25	12	69	128	33	361	6
1936	123	112	50	17	81	126	46	180	9
1937	148	44	41	28	126	100	45	208	4
1938	107	50	79	24	107	102	36	235	4
1939	54	20	17	17	158	118	42	310	8
1940	84	80	82	30	88	151	29	179	21
1941	49	48	72	63	91	83	26	301	11
1942	62	112	13	40	114	82	161	154	6
1943	73	32	21	7	146	110	111	224	20
1944	125	52	75	12	115	93	101	150	21
1945	149	51	35	2	119	63	104	212	9

TABLE 84.—*Number of hours wind blew from each direction*—

FOR THE SPRING SEASON

Year	North	North-east	East	South-east	South	South-west	West	North-west	Calm
1892	235	266	155	104	425	186	176	674	27
1893	185	352	142	138	460	241	212	418	60
1894	197	198	121	258	505	169	143	554	63
1895	278	305	96	264	441	107	241	446	30
1896	184	246	160	205	401	135	225	576	76
1897	383	161	183	158	558	158	102	463	42
1898	455	288	217	178	453	87	136	353	41
1899	161	209	210	324	524	106	210	427	37
1900	269	272	164	179	368	133	146	632	45
1901	187	334	251	301	312	74	118	586	45
1902	143	179	151	277	469	132	240	571	46

TABLE 84.—*Number of hours wind blew from each direction*—Continued

FOR THE SPRING SEASON—Continued

Year	North	North-east	East	South-east	South	South-west	West	North-west	Calm
1903	190	323	247	334	479	86	99	405	45
1904	205	284	183	317	347	67	156	613	36
1905	242	240	198	274	515	131	96	501	11
1906	234	283	134	209	363	170	112	685	18
1907	269	257	163	145	510	113	110	620	21
1908	214	189	143	254	499	252	207	443	7
1909	233	177	124	229	368	191	284	591	11
1910	201	192	187	248	449	163	278	477	13
1911	230	291	123	251	460	161	248	425	19
1912	361	252	191	119	593	159	120	396	17
1913	341	193	135	168	503	187	81	574	26
1914	286	153	105	152	492	187	131	676	26
1915	357	162	111	143	264	209	157	775	30
1916	339	244	159	161	294	193	135	649	34
1917	238	169	88	301	250	247	208	690	17
1918	310	227	137	342	242	395	110	421	24
1919	369	158	209	203	356	268	138	486	21
1920	274	157	142	210	429	285	180	517	14
1921	373	180	135	185	510	343	138	324	20
1922	374	208	155	259	262	398	145	396	11
1923	386	149	83	161	408	392	204	406	19
1924	295	108	234	110	409	224	137	669	22
1925	453	144	103	74	523	304	123	453	31
1926	335	124	150	61	364	300	140	716	18
1927	305	147	302	164	399	269	90	514	18
1928	328	192	194	76	397	206	202	567	46
1929	198	126	137	79	611	395	150	464	48
1930	156	129	160	112	435	337	112	720	47
1931	284	195	168	230	326	255	76	594	80
1932	233	194	158	107	348	306	81	737	44
1933	233	136	266	15	584	130	177	575	92
1934	291	276	167	119	513	319	97	380	46
1935	228	251	155	125	348	404	101	577	19
1936	173	114	146	232	432	389	85	627	10
1937	190	143	189	171	316	341	92	754	12
1938	196	236	222	160	404	312	96	563	19
1939	199	164	178	182	371	427	93	574	20
1940	213	266	280	206	257	205	42	718	21
1941	161	193	113	192	244	342	91	838	34
1942	117	203	137	382	327	222	256	534	30
1943	209	144	128	209	524	221	202	545	26
1944	194	224	205	114	636	184	219	394	38
1945	254	78	164	97	575	322	255	396	67

FOR THE SUMMER SEASON

1892	194	194	192	180	627	271	147	286	117
1893	270	246	170	249	438	207	176	338	114
1894	228	244	122	158	592	301	191	248	124
1895	280	190	114	182	442	239	305	360	96
1896	345	167	88	151	537	299	243	315	63
1897	350	174	150	136	547	181	233	362	75
1898	292	221	172	174	618	285	170	227	49
1899	240	309	111	265	517	153	167	360	86
1900	226	194	47	222	550	221	209	505	34
1901	177	272	145	288	639	242	125	261	59
1902	161	109	194	267	588	165	168	486	70
1903	253	301	151	287	372	197	190	358	99
1904	347	300	129	218	472	181	156	359	46
1905	248	206	214	227	711	119	166	308	9
1906	178	363	198	232	517	310	163	233	14
1907	297	270	134	196	297	266	195	526	27
1908	295	300	145	190	367	395	152	354	10
1909	324	161	173	227	291	336	338	345	13
1910	308	239	134	228	455	141	422	266	15
1911	232	268	176	247	377	262	272	352	22
1912	375	120	94	118	598	255	228	380	40
1913	432	144	277	32	518	41	402	335	27
1914	352	156	94	155	565	339	143	369	35
1915	374	223	92	195	396	275	172	453	28
1916	345	190	137	293	368	396	125	330	24
1917	287	94	106	305	430	509	122	330	25
1918	337	165	137	292	263	423	167	392	32
1919	371	106	162	217	467	370	177	293	45
1920	396	177	146	94	374	458	182	336	45
1921	346	212	129	185	321	431	243	315	26
1922	344	234	106	212	260	528	204	294	26
1923	348	161	208	126	341	400	145	440	39
1924	350	119	212	91	490	355	151	420	20
1925	326	112	134	116	402	389	166	525	38
1926	270	199	251	144	357	394	96	465	32
1927	378	109	199	154	421	413	151	322	61
1928	206	86	124	67	543	460	142	431	149
1929	333	178	93	87	463	412	123	391	128
1930	265	101	92	159	417	520	164	421	69
1931	302	164	103	151	300	491	79	481	137
1932	182	113	145	68	450	517	167	518	48
1933	253	232	168	92	421	387	150	373	132
1934	158	147	138	152	433	638	95	384	63
1935	221	164	190	178	432	518	97	374	34
1936	256	172	162	116	380	615	93	365	49
1937	223	173	144	137	397	625	80	400	29
1938	234	119	56	86	448	731	128	367	39
1939	232	148	172	131	440	510	92	463	20
1940	162	235	221	182	274	534	97	448	55
1941	175	209	99	170	306	593	91	484	81
1942	197	220	140	234	360	348	304	324	81
1943	248	121	96	64	658	432	284	251	54
1944	190	145	118	85	741	395	201	266	67
1945	259	75	190	47	571	382	232	311	141

TABLE 84.—*Number of hours wind blew from each direction*—Con.

FOR THE AUTUMN SEASON

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892	193	155	209	150	374	147	195	605	156
1893	354	325	145	98	334	212	176	406	134
1894	248	253	125	208	453	199	224	400	74
1895	422	234	71	165	443	139	203	453	54
1896	395	196	106	146	579	170	108	413	71
1897	371	401	98	93	507	140	151	346	77
1898	192	205	199	184	426	167	250	485	76
1899	283	246	141	206	479	115	110	456	148
1900	213	285	138	252	433	135	177	495	56
1901	221	275	131	172	347	124	187	614	113
1902	260	353	169	190	444	92	137	440	99
1903	324	130	73	182	437	141	151	648	98
1904	288	282	130	289	297	108	320	353	117
1905	242	235	77	226	452	234	105	585	28
1906	364	416	85	107	342	145	150	542	33
1907	295	150	71	182	315	273	146	722	30
1908	379	274	121	175	227	267	185	512	44
1909	304	120	167	148	406	182	293	522	42
1910	221	130	62	214	391	261	290	591	24
1911	502	173	127	99	484	171	159	429	40
1912	340	164	107	120	545	208	178	481	41
1913	299	264	198	141	370	170	123	560	59
1914	383	252	145	115	368	238	212	376	86
1915	340	98	88	185	438	230	138	598	69
1916	360	144	85	199	441	287	144	481	43
1917	486	199	92	192	159	287	199	531	39
1918	369	68	72	169	472	270	202	512	50
1919	426	213	149	153	368	264	146	436	29
1920	430	190	113	119	241	235	279	526	51
1921	344	178	116	210	316	405	200	392	23
1922	419	187	102	171	315	362	217	359	52
1923	522	157	207	99	307	280	124	428	60
1924	430	140	206	89	309	289	161	520	40
1925	403	181	174	106	391	257	134	492	46
1926	259	140	229	189	430	273	122	504	38
1927	304	94	103	132	571	290	163	434	93
1928	196	115	96	63	526	383	183	505	117
1929	260	264	145	100	402	362	147	410	94
1930	230	174	146	123	369	313	110	497	222
1931	166	88	81	100	383	640	158	471	97
1932	364	155	199	58	545	170	108	502	83
1933	238	228	78	37	418	296	156	526	207
1934	283	135	272	97	318	331	129	513	106
1935	346	187	102	82	415	341	93	490	128
1936	185	169	148	169	417	449	89	513	45
1937	246	151	142	110	387	368	155	575	50
1938	279	220	156	135	393	375	165	390	71
1939	337	171	92	102	400	385	99	521	77
1940	312	262	122	135	283	289	113	595	73
1941	160	150	84	186	290	567	105	570	72
1942	217	284	92	175	459	237	286	359	75
1943	330	236	93	58	411	220	248	494	94
1944	420	186	228	38	328	151	309	436	88
1945	350	106	168	55	513	310	225	334	123

FOR THE WINTER SEASON

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1892									
1893	303	164	108	87	334	167	228	676	93
1894	292	251	92	105	465	181	137	506	131
1895	356	155	33	79	390	147	362	575	63
1896	303	220	114	221	320	176	256	523	51
1897	484	251	157	86	365	136	93	529	59
1898	355	186	127	94	436	133	200	568	61
1899	285	245	73	106	480	149	250	498	74
1900	119	189	150	204	415	110	282	588	103
1901	224	132	67	137	345	114	267	810	64
1902	234	197	124	210	258	59	186	808	84
1903	166	164	132	102	482	123	300	660	31
1904	268	232	85	125	388	131	176	722	57
1905	331	181	99	174	307	165	273	618	12
1906	350	215	110	128	410	161	125	651	10
1907	360	288	116	120	418	151	60	608	39
1908	161	170	57	169	336	281	165	825	20
1909	208	225	98	211	383	241	224	547	23
1910	214	128	111	172	334	186	288	708	19
1911	170	198	60	182	420	202	279	630	19

TABLE 84.—*Number of hours wind blew from each direction*—Con.

FOR THE WINTER SEASON—Continued

Year	North	Northeast	East	Southeast	South	Southwest	West	Northwest	Calm
1912	540	161	123	59	467	104	162	535	33
1913	377	85	70	92	768	175	132	427	34
1914	403	257	102	73	396	154	120	636	19
1915	449	276	141	141	262	116	119	619	37
1916	333	172	81	134	437	199	128	682	18
1917	227	99	103	260	334	283	179	651	24
1918	462	153	108	197	204	289	260	471	16
1919	322	129	104	115	381	219	190	657	43
1920	440	221	113	99	295	226	133	647	10
1921	456	157	116	76	351	230	256	510	8
1922	509	187	112	127	302	307	170	434	12
1923	466	199	156	164	299	232	131	500	13
1924	341	105	225	64	404	282	106	619	38
1925	379	175	138	75	503	222	120	526	22
1926	284	134	141	61	348	292	138	749	13
1927	361	172	162	96	407	231	115	586	30
1928	234	81	150	103	453	274	116	740	33
1929	370	112	166	30	421	254	141	603	63
1930	295	133	183	69	541	267	124	486	62
1931	280	135	153	41	330	237	127	794	63
1932	210	124	141	117	402	367	93	668	62
1933	271	116	124	25	531	309	152	577	55
1934	236	224	138	56	365	332	95	668	46
1935	323	122	181	47	310	321	138	683	35
1936	217	184	153	71	249	298	86	914	12
1937	328	268	190	70	282	362	86	557	17
1938	358	156	142	94	423	311	101	560	15
1939	264	160	220	105	420	265	101	613	12
1940	264	137	142	76	288	257	117	883	20
1941	252	221	189	98	197	268	66	836	33
1942	167	181	154	147	254	237	65	932	23
1943	220	281	84	165	389	242	306	453	20
1944	267	168	125	44	443	243	290	555	49
1945	481	127	197	31	322	213	229	527	33

TABLE 85.—*Surface wind rose data*

[Period of record—1892–1945]

From—	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
North	15	15	13	12	11	12	11	15	16	15	13	14
Northeast	9	8	9	10	9	8	6	10	11	10	7	7
East	6	6	8	7	8	7	6	7	8	5	5	5
Southeast	5	6	7	9	9	8	8	8	8	7	5	5
South	18	16	18	18	21	20	23	19	19	17	19	18
Southwest	10	9	10	10	12	17	18	15	12	12	11	11
West	7	8	6	7	8	8	9	7	6	8	9	9
Northwest	28	31	28	26	20	18	17	16	16	22	28	29
Calm	2	1	1	1	2	2	2	3	4	4	3	2

NOTE.—Figures show percent of time the wind blew from the indicated direction.

TABLE 86.—*Average wind velocity by directions*

[Period of record—1932–45]

From—	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
North	7.5	7.8	8.4	8.4	6.9	6.6	5.6	6.0	6.5	7.1	8.0	7.5
Northeast	8.2	8.0	8.5	8.6	7.9	7.3	6.8	7.6	7.6	8.5	8.2	8.3
East	6.8	7.2	7.5	8.2	7.3	7.0	6.5	7.0	6.5	6.5	6.6	6.6
Southeast	6.0	6.5	7.5	7.4	7.4	6.6	6.6	6.4	5.8	6.1	6.3	5.7
South	5.3	5.7	6.3	6.4	6.1	5.7	5.8	5.6	5.2	5.1	5.5	5.1
Southwest	5.2	5.5	6.6	6.1	5.2	5.2	4.9	4.7	4.5	4.5	5.3	4.8
West	5.2	7.1	7.5	6.6	5.3	5.5	5.2	4.5	4.5	4.9	5.4	6.8
Northwest	10.6	12.0	11.7	11.1	9.1	8.0	7.1	6.7	7.2	8.8	10.4	10.1

TABLE 87.—*Average frequencies of days with specified maximum velocities*

[Period of 41 years, 1905–45]

Month	5 m.p.h. or less	Under 10 m.p.h.	10 m.p.h. or more	15 m.p.h. or more	20 m.p.h. or more	25 m.p.h. or more	30 m.p.h. or more	35 m.p.h. or more	40 m.p.h. or more	50 m.p.h. or more	1–5 m.p.h.	6–10 m.p.h.	11–15 m.p.h.	16–20 m.p.h.	21–25 m.p.h.	26–30 m.p.h.	31–35 m.p.h.	36–40 m.p.h.	41–45 m.p.h.	46–50 m.p.h.	51–55 m.p.h.
January	0.1	5.5	25.5	14.8	7.7	3.4	1.3	0.2	(1)	0.0	0.1	7.0	11.3	5.5	4.2	1.9	0.8	0.2	(1)	0.0	0.0
February	(3)	3.4	24.8	14.7	7.8	3.5	1.0	.2	(1)	.0	(3)	4.8	10.7	5.5	4.7	1.9	.4	(1)	.0	(1)	.0
March	.1	2.3	28.7	18.3	9.6	4.3	1.6	.3	.1	.0	.1	3.0	11.9	7.1	5.4	2.4	.8	.2	(3)	(1)	.0
April	.0	.9	29.1	17.6	7.9	2.9	.8	.1	.0	.0	.0	1.8	13.9	7.3	4.8	1.6	.5	(2)	.0	.0	.0
May	(2)	2.2	28.8	12.9	4.4	1.0	.2	.0	.0	.0	(2)	3.9	16.9	6.4	2.9	.8	(2)	.0	.0	.0	.0
June	(1)	3.6	26.4	10.2	3.4	1.1	.5	.1	(1)	.0	(1)	6.1	16.1	4.7	2.1	.6	.3	(3)	(1)	.0	.0
July	.0	4.9	26.1	8.7	3.1	1.1	.4	.2	(1)	(1)	.0	8.5	16.4	3.8	1.7	.3	.2	.1	.0	.0	(1)
August	(2)	6.1	24.9	6.9	1.7	.7	.3	(3)	(1)	(1)	(2)	9.8	16.5	3.0	1.1	.4	.1	(1)	.0	.0	(1)
September	.1	8.0	22.0	6.8	1.6	.5	.1	(2)	.0	.0	.1	11.3	13.8	3.3	1.1	.3	.1	(1)	.0	.0	.0
October	(1)	7.3	23.7	10.0	3.6	.9	.2	(1)	.0	.0	(1)	9.8	13.6	4.7	2.4	.4	.1	.0	.0	.0	.0
November	(2)	5.2	24.8	14.2	7.3	2.2	.5	(2)	.0	.0	(2)	7.3	10.4	6.0	4.7	1.2	.3	(1)	(1)	.0	.0
December	.1	5.8	25.2	14.5	7.2	2.9	.8	.1	.0	.0	.1	7.8	10.7	6.1	4.1	1.6	.5	(3)	.0	(1)	.0
Year	.7	55.2	310.0	149.6	65.3	24.5	7.7	1.4	.3	(2)	.7	81.1	162.2	63.4	39.2	13.4	4.1	.8	.2	(3)	(2)

NOTE.—Maximum velocity is the fastest movement for 5 minutes; extreme velocity is the fastest mile; they are the same for velocities of 12 miles per hour or less.

Figures are in days.
Italics in parentheses indicate total number of cases or times recorded.

TABLE 88.—*Average frequencies of days with specified extreme velocities*

[Period of 41 years, 1905–45]

Month	5 m.p.h. or less	Under 10 m.p.h.	10 m.p.h. or more	15 m.p.h. or more	20 m.p.h. or more	25 m.p.h. or more	30 m.p.h. or more	35 m.p.h. or more	40 m.p.h. or more	50 m.p.h. or more	1–5 m.p.h.	6–10 m.p.h.	11–15 m.p.h.	16–20 m.p.h.	21–25 m.p.h.	26–30 m.p.h.	31–35 m.p.h.	36–40 m.p.h.	41–45 m.p.h.	46–50 m.p.h.	51–55 m.p.h.
January	0.1	5.5	25.5	15.4	8.9	4.5	2.1	0.8	0.2	0.0	0.1	7.0	10.3	5.5	5.0	1.8	1.2	0.3	0.1	(1)	0.0
February	(3)	3.4	24.8	15.6	9.0	4.1	1.8	.5	.2	.0	(3)	4.8	9.6	5.8	4.7	1.9	.9	.2	(3)	(2)	.0
March	.1	2.3	28.7	19.3	11.0	5.8	2.3	.7	.2	(1)	.1	3.0	10.7	7.4	5.6	2.5	1.3	.3	.1	(3)	(1)
April	.0	.9	29.1	19.0	9.4	4.7	1.5	.4	.1	.0	.0	1.8	11.5	8.0	5.2	2.4	.8	.2	(1)	(1)	.0
May	(2)	2.2	28.8	14.5	5.4	1.9	.4	(1)	.0	.0	(2)	3.9	15.0	7.2	3.4	1.1	.3	.0	.0	.0	.0
June	(1)	3.6	26.4	12.3	4.8	2.1	.9	.3	.1	.0	(1)	6.1	14.3	5.5	2.6	.7	.6	.2	.0	(2)	.0
July	.0	4.9	26.1	9.6	3.2	1.4	.6	.2	.1	(1)	.0	8.5	14.6	4.8	2.1	.5	.3	.1	(3)	(1)	(1)
August	(2)	6.1	24.9	8.0	2.1	1.0	.5	.2	.1	(1)	(2)	9.8	15.1	4.3	1.1	.4	.3	.1	(1)	.0	(1)
September	.1	8.0	22.0	7.9	2.1	.9	.2	(1)	(1)	.0	.1	11.3	12.8	4.1	1.1	.5	.1	.0	(1)	.0	.0
October	(1)	7.3	23.7	10.5	4.6	1.4	.5	(2)	(1)	.0	(1)	9.8	12.5	4.9	3.0	.6	.2	(2)	.0	.0	.0
November	(2)	5.2	24.8	14.9	8.1	3.2	1.0	.1	.0	.0	(2)	7.3	9.1	6.1	5.5	1.4	.5	.1	(1)	.0	.0
December	.1	5.8	25.2	14.9	8.3	4.2	1.5	.3	(2)	.0	.1	7.8	9.6	6.1	4.5	2.0	.8	.2	.0	.0	.0
Year	.7	55.2	310.0	161.9	76.9	35.2	13.2	3.6	1.1	(3)	.7	81.1	145.1	69.7	43.8	15.8	7.3	1.8	.4	.3	(3)

NOTE.—Maximum velocity is the fastest movement for 5 minutes extreme velocity is the fastest mile; they are the same for velocities of 12 miles per hour or less.

Figures are in days.
Italics in parentheses indicate total number of cases or times recorded.

TABLE 89.—*High wind speeds*

Month	Average velocity					Maximum [1]			Extreme [2]			Gust	
	Mean	Greatest	Year	Least	Year	Velocity	Direction	Date	Velocity	Direction	Date	Velocity	Date
Number of years (through 1945)	14	14	14	14	14	74	74	74	74	74	74	40	40.
January	7.5	8.5	1945	6.7	1944	43	nw.	19, 1943	47	nw.	23, 1936	69	23, 1936.
February	8.4	10.7	1942	7.1	1936	47	nw.	2, 1876	47	nw.	2, 1876	60	12, 1909.
March	8.6	10.5	1932	7.1	1945	47	nw.	2, 1914	56	nw.	2, 1914	65	1 and 2, 1914.
April	8.2	10.0	1943	6.7	1941	37	nw.	20, 1924	50	nw.	20, 1924	58	14, 1916.
May	6.9	7.8	1945	6.2	1939	43	sw.	28, 1896	46	sw.	28, 1896	56	22, 1937.
June	6.2	7.1	1944	5.2	1941	41	nw.	16, 1912	46	nw.	16, 1912	67	16, 1912.
July	5.8	6.7	1932	5.0	1938	53	ne.	30, 1913	54	ne.	30, 1913	77	7, 1911.
August	5.7	6.2	1933	5.2	1938	42	n.	5, 1878	45	n.	5, 1878	59	15, 1934.
September	5.8	6.4	1932	5.1	1935	51	se.	29, 1896	62	se.	29, 1896	57	2, 1924.
October	6.2	7.1	1943	5.5	1933	41	nw.	4, 1877	45	nw.	4, 1877	52	17, 1930.
November	7.4	7.8	1945	5.8	1941	43	sw.	23, 1891	46	sw.	23, 1891	53	17, 1927.
December	7.3	8.6	1935	6.1	1932	39	nw.	9, 1876	39	w.	9, 1876	55	2, 1942.
Year	7.0	7.4	1942	6.5	1938	53	ne.	July 30, 1913	62	se.	Sept. 29, 1896	77	July 7, 1911.

[1] Maximum velocity is the fastest movement for 5 minutes.

[2] Extreme velocity is the fastest mile.

TABLE 90.—*Highest wind gust for each month of record*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1907								39	37	45	45	46	
1908	50	45	46	53	42	38	42	33	35	38	39	41	53
1909	47	60	55	44	39	36	33	33	33	37	45	48	60
1910	44	51	43	47	46	34	39	30	37	42	44	44	51
1911	47	39	58	48	39	59	77	55	29	29	40	48	77
1912	59	51	36	46	41	67	34	38	40	37	40	45	67
1913	56	40	48	48	31	43	70	42	27	38	36	49	70
1914	54	43	65	39	38	46	34	37	24	36	43	33	65
1915	56	44	38	40	32	42	60	50	37	40	45	46	60
1916	42	53	46	58	35	31	27	57	30	31	37	54	58
1917	40	52	46	46	34	45	38	22	34	47	31	42	52
1918	41	55	50	46	46	41	32	45	27	33	42	52	55
1919	37	36	55	50	28	29	31	26	35	35	40	49	55
1920	49	49	51	45	43	41	41	22	27	33	44	45	51
1921	41	39	55	35	32	27	38	30	36	37	37	37	55
1922	43	39	47	38	33	57	56	29	22	34	40	33	57
1923	42	47	45	40	37	46	36	40	20	30	42	40	46
1924	52	39	44	53	37	51	28	24	57	25	35	43	52
1925	40	53	47	52	33	36	31	39	33	49	43	43	53
1926	40	42	38	38	38	40	51	53	39	42	50	40	53
1927	43	59	40	46	43	34	33	36	21	40	53	50	53
1928	40	38	46	32	30	23	34	29	33	27	33	37	46
1929	37	27	45	33	40	44	36	35	41	42	42	42	45
1930	41	42	53	50	40	36	36	30	38	52	44	52	52
1931	43	42	39	46	38	43	49	46	49	34	35	49	49
1932	43	50	57	41	29	25	40	34	32	38	43	40	57
1933	49	56	54	37	47	49	44	51	28	40	42	43	56
1934	47	46	57	39	47	50	43	59	32	40	45	41	59
1935	49	35	38	56	36	37	30	26	34	34	34	39	56
1936	69	37	50	54	47	40	38	44	42	48	41	33	69
1937	29	42	48	45	56	49	36	36	26	36	39	41	56
1938	45	48	49	56	39	37	38	27	47	35	43	42	56
1939	56	45	47	41	27	54	35	27	40	41	31	50	56
1940	43	47	45	40	33	37	30	27	38	30	38	47	47
1941	37	52	43	37	46	35	47	30	33	32	31	47	52
1942	39	45	52	46	31	47	55	23	38	32	43	55	55
1943	62	42	38	51	38	52	28	25	26	40	37	47	62
1944	52	54	37	45	31	40	34	30	55	46	48	51	55
1945	45	34	43	44	43	43	32	32	34	28	33	29	45

TABLE 91.—*Wind gust frequency table*

[Average frequency of days with gusts of specified speeds]

[Period of record, 1907–45, broken]

Month	5–9 m. p. h.	10–14 m. p. h.	15–19 m. p. h.	20–24 m. p. h.	25–29 m. p. h.	30–34 m. p. h.	35–39 m. p. h.	40–44 m. p. h.	45–49 m. p. h.	50–54 m. p. h.	55–59 m. p. h.	60–64 m. p. h.	65–69 m. p. h.	70–74 m. p. h.	75–79 m. p. h.
January	3.7	6.3	5.4	5.1	3.7	2.7	1.7	1.2	0.5	*(9)*	*(6)*	*(1)*	*(1)*		
February	2.1	4.8	5.5	4.9	3.8	2.9	2.3	1.0	.6	*(10)*	*(2)*	*(1)*			
March	1.0	4.4	5.8	6.3	4.8	3.8	2.4	1.2	.7	*(13)*	*(7)*		*(2)*		
April	.6	4.7	7.0	6.3	4.7	3.1	1.8	.9	.5	*(11)*	*(3)*				
May	1.8	7.3	8.8	6.3	3.4	1.9	.9	*(13)*	*(6)*		*(1)*				
June	2.9	8.8	8.6	4.1	2.4	1.4	.8	.5	*(9)*	*(5)*	*(2)*		*(1)*		
July	3.7	9.9	8.9	4.2	1.8	1.2	.6	*(10)*	*(3)*	*(2)*	*(2)*	*(2)*		*(1)*	*(1)*
August	4.2	11.0	8.9	3.9	1.3	.8	*(14)*	*(8)*	*(3)*	*(3)*	*(2)*				
September	4.8	10.3	7.9	3.5	1.7	.6	*(15)*	*(6)*	*(2)*		*(2)*				
October	4.4	9.1	6.8	4.9	3.0	1.4	.7	*(15)*	*(6)*	*(1)*					
November	3.9	6.6	6.0	4.2	4.0	2.9	1.6	.8	*(5)*	*(2)*					
December	3.6	6.8	5.7	5.2	3.5	2.7	1.7	.9	.5	*(6)*	*(1)*				
Year	36.7	90.0	85.3	58.9	38.1	25.4	14.5	6.5	2.8	*(62)*	*(28)*	*(4)*	*(4)*	*(1)*	*(1)*

Figures are in days. Italics in parentheses indicate total number of cases

TABLE 92.—*Average hourly wind movement*

[1932–42]

Month	A. M.											Noon	P. M.											
	1	2	3	4	5	6	7	8	9	10	11		1	2	3	4	5	6	7	8	9	10	11	Mid-night
January	6.7	6.6	6.7	6.9	6.8	6.9	7.0	7.0	7.3	8.1	8.7	9.2	9.4	9.5	9.3	9.2	8.4	7.7	7.3	7.2	7.2	7.1	7.0	6.8
February	7.5	7.4	7.4	7.2	6.9	6.9	7.0	7.4	8.1	9.2	9.6	9.8	10.2	10.2	10.2	10.1	9.7	8.7	8.1	8.2	8.0	8.0	7.9	7.6
March	7.1	7.0	7.2	7.0	6.9	6.9	7.0	7.6	8.7	9.8	10.1	10.4	10.8	11.0	11.3	11.2	10.8	9.9	8.9	8.4	8.0	7.9	7.8	7.4
April	6.7	6.5	6.3	6.2	6.2	6.2	6.5	7.3	8.6	9.3	9.6	9.8	10.0	10.3	10.3	10.2	10.0	9.3	8.4	7.7	7.4	7.2	7.0	6.9
May	5.4	5.2	5.1	5.1	5.1	5.0	5.6	6.6	7.5	8.0	8.4	8.6	8.8	8.9	9.0	8.9	8.6	8.0	7.0	6.3	6.1	5.8	5.6	5.6
June	4.6	4.4	4.4	4.5	4.4	4.5	5.2	6.0	6.5	7.0	7.7	7.8	8.1	8.2	8.3	8.2	7.9	7.2	6.3	5.7	5.4	5.0	5.0	4.6
July	4.3	4.3	4.2	4.1	4.1	4.0	4.6	5.4	6.1	6.6	7.0	7.3	7.6	7.7	7.7	7.8	7.5	7.0	6.1	5.5	4.8	4.7	4.5	4.4
August	4.2	4.1	4.2	4.3	4.2	4.1	4.5	5.3	6.2	6.9	7.2	7.4	7.7	7.8	7.8	7.9	7.5	6.9	5.9	5.2	4.7	4.5	4.4	4.3
September	4.3	4.3	4.3	4.3	4.3	4.3	4.4	4.9	6.1	6.8	7.2	7.5	7.8	7.9	7.9	7.6	7.1	6.2	5.4	4.9	4.8	4.6	4.5	4.4
October	4.9	4.8	4.7	4.9	4.8	4.8	5.5	6.5	7.4	7.9	8.2	8.6	8.6	8.5	8.1	7.4	6.3	5.7	5.4	5.2	5.0	5.0	4.9	
November	6.2	6.1	6.2	6.2	6.1	6.0	6.1	6.2	6.9	8.1	8.9	9.2	9.6	9.5	9.4	8.9	7.9	7.1	6.8	6.7	6.7	6.6	6.5	6.3
December	6.5	6.4	6.4	6.4	6.3	6.2	6.3	6.3	6.7	7.5	8.3	8.8	9.1	9.1	8.9	8.5	7.7	7.1	6.8	6.7	6.5	6.6	6.4	6.3

TABLE 93.—*Tornadoes in West Virginia, Maryland, Delaware, and Virginia*

Year	Date	Time	State	County	Direction of advance	Path		Value of property destroyed	Remarks
						length (miles)	width (yards)		
1916	None								
1917	Oct 29	10:30 p. m.	Virginia	Pittsylvania	se.	3	200	$50,000	
1918	Apr 30	4 p. m.	do	do	e.		100	16,000	Funnel-shaped cloud.
1919	None								
1920	do								
1921	Sept 22		do	Augusta		5	100	5,000	
1922	Aug 7	3 p. m.	do	Albemarle	se.	11	880	10,000	
1922	Aug 16	4:30 p. m.	do	Augusta	ne.	2	50	10,000	
1923	Apr 5	2:30–3 p. m.	Maryland, District of Columbia.	Montgomery, Prince Georges	ene.	11	100–150	100,000	
1923	Apr 29	12 a. m.	Virginia	Princess Anne	e.		600		
1924	Apr 30	5:30 p. m.	do	Amelia	ne.		100–300	30,000	
1924	do	5:30 p. m.	do	Greensville	ne.		40	1,000	
1924	June 8	Afternoon	Maryland	Charles	e.				Insufficient evidence.
1924	June 25	do	do	New Castle	ne.				Do.
1925	May 24	2 p. m.	West Virginia	Barbour, Tucker	ene.	30	880	20,000	
1925	June 21		Virginia		se.				Do.
1925	July 2		do	Shenandoah					Do.
1925	July 26		do	Nansemond					Do.
1926	June 12		do	Alleghany					Do.
1926	Aug 14	2 p. m.	West Virginia	Marshall	ene.	3		10,000	
1926	Nov 9	2:30–3:15 p. m.	Maryland	Charles		19	33–166	100,000	Wrecked school at La Plata.
1926	Nov 26		Virginia	Norfolk					Insufficient evidence.
1927	May 14	6 p. m.	District of Columbia		ese.	¼	10	1,000	
1927	Nov 17	2:30 p. m.	Virginia	Fairfax	nne.	6	30–230	325,000	This was the same tornado; its entire path was 17 miles long.
1927	do	2:30 p. m.	District of Columbia		ne.	8	140	300,000	
1927	do	2:30 p. m.	Maryland	Prince Georges	ne.	3	20–300	65,000	
1928	June 9	10:30 p. m.	do	Somerset					Insufficient evidence.
1928	July 22	5:30 p. m.	do	Charles	e.		100	10,000	

TABLE 93.—*Tornadoes in West Virginia, Maryland, Delaware, and Virginia*—Continued

Year	Date	Time	State	County	Direction of advance	Path		Value of property destroyed	Remarks
						length (miles)	width (yards)		
1929	May 2	3:30 p. m	Virginia	Rappahannock	ne.	13		300,000	
1929	do	4:20 p. m	West Virginia	Monongalia					Insufficient evidence.
1929	do	6 p. m	Virginia	Bath	ne.	17	250–800	75,000	
1929	do	8:30–10:30 p. m	Maryland	Frederick	ne.	28	110	100,000	
1929	do	9:30 p. m	do	Montgomery, Howard		10	200	90,000	
1929	do	12:55 p. m	Virginia	Scott	ne.	3		100,000	
1929	July 25	9 p. m	West Virginia	Mason					Do.
1930	None								
1931	Jan 5	5 p. m	Virginia	Mecklenburg		2	100	3,500	
1931	Apr 22	12:30 p. m	do	Campbell		1	60	4,500	
1931	May 30	3 p. m	do	Albemarle			1,500	9,000	
1931	July 16	3:30 p. m	Maryland	Garrett	s.		200	300	
1932	None								
1933	Aug 10	8:30 a. m	Maryland	Frederick	ne.		25		Negligible damage.
1934	May 14	5–6 p. m	do	Caroline	se.	4	880	5,500	Insufficient evidence.
1934	Aug. 2	10 a. m	do	Anne Arundel	nw.	¼	17		Waterspout occurred.
1934	do	6 p m	do	Harford	ne	1½	100		Slight damage.
1934	Aug. 3	12:30 p. m	do	Garrett	se.		200	3,000	
1935	Mar. 12	11:15 a. m	Virginia (1)	Mathews			100	2,000	Character doubtful.
1935	Sept. 4	3:30 p. m	Maryland	Prince Georges, Calvert, Anne Arundel, Queen Annes.	ene.	40	20–880	200,000	Rural crops and property destroyed; storm traversed Chesapeake Bay as waterspout.
1935	Sept. 5	10 a. m	Virginia (2)	Pittsylvania		3	1,760	7,500	Funnel-shaped cloud made contact with ground.
1935	do	1:30 p. m	Virginia (3)	Prince Edward			100–500	55,000	70 miles northeast of No. 2.
1935	do	4 p m	Virginia (4)	Norfolk	ne		200	22,000	100 miles east southeast of No 3.
1935	do	6–6:30 p. m	Maryland	Somerset	ne.	10	100	5,100	Most rural property affected.
1935	do	7:15 p. m	Virginia (5)	Middlesex			20	5,900	50 miles north of No 4.
1935	do	7:30 p. m	Virginia (6)	King and Queen			75	1,000	20 miles due west of No. 5.
1935	do	9 p. m	Virginia (7)	Sussex			200–400	3,000	40 miles southwest of No. 6.
1936	Mar. 17	5:30 p. m	Virginia	Pittsylvania	n.	30	400–900	45,000	Damage mostly to buildings.
1937	Feb. 21	10 p. m	do	Hanover	ne.	½	85	2,000	
1937	do	11:30 p. m	Maryland	Anne Arundel, Queen Annes, Kent.	ne.	40		100,000	
1937	May 6	12:45 p. m	do	Baltimore	e.	⅛	33	500	Disturbance in Hamilton, suburb in northeastern portion of Baltimore city; funnel-shaped cloud.
1937	May 13	4:30 p. m	do	Frederick	ne.	5		10,000	Funnel-shaped cloud; rural property damage.
1937	do	5:30 p. m	do	Westminster	ne.	8	1,760	155,000	Funnel-shaped cloud.
1937	May 22	5 p. m	do	Dorchester	ne.	1	200–1,000	5,025	Funnel-shaped cloud; crops and rural property damaged.
1937	May 26	4:20 p. m	do	Baltimore	se.	7		53,500	Funnel-shaped cloud disturbing central and east central portions of city.
1937	do	8:30 p. m	do	Montgomery	se.	1	100	5,000	
1937	June 17	2:47 p. m	do	Harford, Cecil	ne.	3	100		
1937	July 31	7:30 p. m	do	Talbot, Queen Annes	se.		33–50		Waterspout of 10 minutes observed in Eastern Bay.
1938	Apr. 18	3–3:35 p. m	Delaware	New Castle	ne.	14	33	50,000	Property damaged or destroyed at Newark, Wilmington.
1938	May 19	1:30 p. m	Virginia	Culpeper	ne.	5	900	2,000	Damage at Culpeper.
1938	May 20	3:30 p. m	do	Richmond	ene.	30	900	5,000	
1938	June 23	11:30 a. m	Maryland	Harford	ne.	4	200		Waterspout several hundred feet in Chesapeake Bay.
1938	July 15	3:45 a. m	do	Baltimore	ne.	20	200	56,000	Damage at Freeland and Maryland line.
1938	do	3:45 a. m	do	Carroll	ne.	8	200	20,000	
1938	Aug. 27		do	Dorchester					Waterspout, no damage.
1938	Aug. 31	8 p. m	do	Baltimore	ne.	5	880	3,500	3 homes damaged.
1939	July 18	6:30 p. m	Virginia	Pittsylvania	nw.	3	400	4,000	
1939	July 23	5 p. m	Maryland	Montgomery	s.	10	3,520	2,500	Mild; slight damage.
1939	Aug. 19	2 a. m	do	St. Marys	n.	5	100–150	9,500	
1939	do	12:30 a. m	Virginia	Northumberland	nw.	10	200	10,000	Crop damage.
1939	Oct. 21	7 p. m	Maryland	Baltimore	ne.	10	880	62,500	Houses and barns wrecked.
1940	July 23	5 p. m	do	Montgomery	s.	10	3,520		Damage slight.
1940	Aug. 5	5 p. m	Virginia	Frederick	n.				
1941	July 6	7:30 p. m	Delaware	New Castle	ne.	1	200	5,000	
1941	Aug. 12	4 p. m	Virginia	Dinwiddie	ne.	4	880	50,000	Damage at McHenry.
1941	Aug. 15	3 p. m	Maryland	Garrett	e.	20	167–333	5,000	2 funnel-shaped clouds side by side.
1941	Aug. 25	11:30 a. m	Delaware	New Castle	e.	30	333–500	150,000	
1942	Aug. 17	11 a. m	Maryland	Garrett	e.	1	33–50	500	
1942	do	11 a. m	do	do	e.	7	33–100	7,500	1 mile North of Deer Park to Swanton.
1942	Sept. 27	3:30 p. m	Virginia	Fluvanna	ne.		500	5,000	Thinly populated area.
1943	Apr. 13	6 p. m	Maryland	Wicomico	ne.	½	200	200	
1943	May 21	3 p. m	District of Columbia		ese.	2	50		Little damage done.
1943	Nov. 8	6 p. m	Maryland	Montgomery	n.	1	25–50	6,000	
1943	do	8:30 p. m	do	Prince Georges	nne.	8	25–66	14,000	
1944	Mar. 4	3:30 p. m	Virginia	Lee	e.	12	880	100,000	
1944	do	6 p. m	do	Washington	e.	5	1,760	500,000	Most damage done in town of Arlington.
1944	Apr. 24	5 p. m	do	Lunenberg	ne.	10	150	6,000	
1944	June 23	5:30 p. m	West Virginia	Upshur, Harrison, Taylor, Barbour, Randolph.	se.	40	167–333	2,000,000	103 persons were killed.
1944	do	6 p. m	do	Brooke, Preston, Grant	se.	80	167		
1944	do	10:30 p. m	do	Tucker	se.	½	167		
1944	do	6:30 p. m	Maryland	Alleghany	se.	½	100		Little damage done.
1944	do	8 p. m	do	Garrett	se.	8	1,760	100,000	
1944	do	9:30 p. m	do	Montgomery	se.	13	33		Do.
1944	do	11 p. m	do	Dorchester, Wicomico	se.	28	50–880	1,000,000	
1945	Sept. 14	3 p. m	West Virginia	Marshall	e.				Little property damage.

TABLE 94.—*Data for tropical hurricanes which have passed over or near Washington, D. C.*

Year	Date	Lowest pressure (inches)	Total rainfall (inches)	Highest wind speed, miles per hour, with direction		Highest tide (feet)
1889	Sept. 12	29.88	0.67	30	n.	
1889	Sept. 25	29.96	.70	24	ne.	
1891	July 7	29.81	1.64	27	sw.	
1893	June 15	29.85	.11	20	ne.	3.8
1893	Aug. 21	29.83	.06	20	ne.	3.8
1893	Aug. 24	29.92	.22	24	nw.	3.8
1893	Aug. 29	29.59	1.33	42	se.	6.2
1893	Oct. 13	29.05	2.17	48	se.	9.4
1893	Oct. 24	29.87	1.10	26	ne.	4.6
1893	Nov. 9	29.99	2.39	17	nw.	4.6
1894	Sept. 29	29.89	.17	25	ne.	5.2
1894	Oct. 10	29.47	1.78	34	nw.	3.3
1896	Sept. 29	29.14	.68	80	se.	6.7
1897	Sept. 23	29.89	1.28	22	ne.	4.1
1897	Nov. 2	29.60	1.42	30	nw.	4.3
1899	Aug. 21	29.75	.01	20	ne.	4.4
1899	Oct. 31	29.47	2.10	31	ne.	5.1
1900	Oct. 13	29.85	.42	25	ne.	3.9
1901	July 11	29.85	2.41	20	ne.	4.2
1901	Sept. 17	29.88	.15	15	nw.	4.1
1902	June 16	29.50	.70	28	nw.	
1902	Oct. 11	29.55	1.80	30	nw.	
1903	Sept. 17	29.74	.48	33	nw.	
1904	Sept. 14	29.86	5.00	40	nw.	
1904	Nov. 5	29.72	T	26	w.	
1904	Nov. 13	29.22	1.80	37	nw.	
1907	Sept. 23	29.66	3.35	20	n.	
1907	Sept. 29	29.71	1.90	26	nw.	
1908	Aug. 1	29.81	.01	22	n.	
1908	Oct. 29	29.64	.95	24	ne.	
1911	Aug. 29	29.99	4.14	18	n.	
1912	June 14	29.95	.28	15	e.	
1912	Sept. 24	29.98	2.28	20	e.	
1913	Sept. 3	30.06	.67	24	e.	

TABLE 94.—*Data for tropical hurricanes which have passed over or near Washington, D. C.*—Continued

Year	Date	Lowest pressure (inches)	Total rainfall (inches)	Highest wind speed, miles per hour, with direction		Highest tide (feet)
1913	Oct. 8	30.09	.01	13	ne.	
1915	Aug. 4	29.52	2.34	46	se.	
1916	July 21	29.77	.09	18	n.	
1920	Sept. 30	29.40	1.39	25	nw.	
1923	Oct. 24	29.54	.73	25	ne.	
1924	Aug. 26	29.56	1.50	21	nw.	
1924	Sept. 30	29.67	5.44	25	s.	
1925	Dec. 3	29.75	.85	36	ne.	4.1
1927	Oct. 3	29.66	1.92	34	nw.	
1927	Nov. 4	29.44	.35	30	n.	
1928	Aug. 11	29.66	8.67	30	ne.	
1928	Aug. 17	29.76	1.79	10	se.	
1928	Sept. 19	29.65	1.12	27	se.	
1929	Oct. 2	29.29	2.52	24	nw.	
1930	Sept. 2	29.96	T	18	nw.	
1932	Sept. 16	29.63	.00	15	nw.	4.6
1933	Aug. 23	28.94	6.42	40	ne.	11.0
1933	Sept. 16	29.81	.33	16	n.	5.5
1934	June 19	29.50	.99	21	se.	5.7
1934	Sept. 8	29.93	3.83	16	e.	4.0
1935	Sept. 6	29.64	6.70	19	n.	4.5
1936	Sept. 18	29.83	T	28	ne.	4.5
1936	Oct. 1	29.94	1.69	16	nw.	5.0
1938	Sept. 21	29.53	2.13	31	nw.	4.1
1938	Oct. 24	29.71	.49	16	nw.	4.3
1939	Aug. 19	29.69	2.83	19	e.	4.9
1940	Aug. 14	29.92	.40	18	se.	5.0
1943	Oct. 1	29.81	.31	19	n.	4.1
1944	Aug. 2	29.83	6.15	25	ne.	5.4
1944	Sept. 14	29.50	2.83	18	nw.	4.2
1944	Oct. 21	29.54	1.23	25	ne.	4.9
1945	Sept. 18	29.94	2.91	26	ne.	6.2

HUMIDITY

TABLE 95.—*Average hourly relative humidity*

Month	A. M.												P. M.												
	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mid-night	Mean
January	69	70	70	71	71	72	73	74	70	67	63	60	59	56	54	54	56	59	61	64	65	66	67	68	65.0
February	67	68	69	70	70	71	72	71	67	63	59	56	55	53	51	50	51	54	57	60	61	62	64	65	62.0
March	66	67	68	69	70	71	72	70	65	60	56	53	51	48	46	46	48	50	55	58	59	60	62	64	59.8
April	67	69	70	72	72	73	69	66	60	56	52	49	47	45	43	43	44	47	52	55	58	61	63	65	58.2
May	76	78	79	80	80	80	74	69	63	57	53	50	49	47	46	46	48	50	56	62	65	69	72	74	63.5
June	81	83	83	83	84	83	77	72	66	61	57	55	54	52	51	52	54	57	62	67	71	75	77	79	68.2
July	84	85	85	86	86	86	80	75	69	63	59	57	55	53	52	53	55	57	62	68	72	77	79	82	70.0
August	85	86	86	87	87	88	83	78	71	64	60	57	56	53	52	52	55	59	65	72	75	80	82	84	71.5
September	84	85	85	86	86	87	83	79	71	64	60	58	56	53	52	52	55	60	67	74	78	80	81	83	71.6
October	81	82	82	83	83	84	81	78	70	62	57	54	53	50	49	49	53	58	64	70	73	76	78	80	68.8
November	73	74	75	76	76	77	76	75	69	63	58	55	54	51	50	51	54	57	61	64	66	68	70	72	65.2
December	73	73	74	74	74	75	75	76	72	68	64	61	60	58	56	56	58	61	63	66	67	69	70	72	67.3

Based on 31-year hygrograph record.

TABLE 96.—*Average monthly relative humidity*

[Based on bihourly observations]

[Percent]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1914												74
1915	73	66	54	54	64	70	70	74	70	70	62	66
1916	66	65	58	59	60	71	74	73	70	71	63	61
1917	66	61	64	57	58	71	78	72	73	70	62	66
1918	66	62	56	66	65	66	66	73	71	68	65	68
1919	64	65	60	59	71	71	74	72	70	76	70	68
1920	64	68	59	59	62	71	70	78	73	68	72	64
1921	61	64	61	62	70	63	73	69	70	64	71	65
1922	62	66	63	55	65	72	75	74	74	67	62	69
1923	66	65	57	56	58	64	68	74	74	67	72	71
1924	61	63	59	57	67	73	69	71	74	63	62	64
1925	67	64	63	58	62	63	67	72	70	70	65	62
1926	64	66	56	51	54	65	70	77	79	74	68	70
1927	67	71	65	65	71	70	73	76	72	73	69	66
1928	55	60	61	58	65	73	70	78	76	71	64	65
1929	57	65	59	64	68	68	67	65	70	68	70	70
1930	68	62	54	60	56	62	60	57	62	59	67	63
1931	59	58	61	56	65	65	72	74	71	66	70	64
1932	67	57	57	53	63	65	61	63	63	70	66	68
1933	63	55	59	56	72	65	70	74	74	69	58	64
1934	63	57	62	56	61	68	67	72	80	65	65	60
1935	66	63	61	62	61	66	69	67	75	68	72	66
1936	67	64	64	54	58	65	66	70	71	70	57	69
1937	76	61	56	59	62	72	71	77	72	70	59	59
1938	66	63	61	59	66	68	73	71	75	69	68	65
1939	68	63	57	60	61	70	72	70	73	70	57	60
1940	57	60	54	60	64	65	68	76	68	69	62	66
1941	65	55	60	52	54	71	75	65	65	65	59	64
1942	59	50	57	50	63	71	70	76	72	72	62	64
1943	68	52	54	49	63	68	67	60	64	66	56	51
1944	63	60	57	58	63	67	63	66	74	69	68	61
1945	60	60	58	63	62	62	77	71	76	68	66	66

TABLE 97.—*Relative humidity (percent)*

Month	Average	Average frequency of days on which 100 percent occurred	Absolute lowest	Date	1:30 a. m. Average	1:30 a. m. Highest	1:30 a. m. Date	1:30 a. m. Lowest	1:30 a. m. Date	7:30 a. m. Average	7:30 a. m. Highest	7:30 a. m. Date	7:30 a. m. Lowest	7:30 a. m. Date
Number of years (through 1945).	[1] 31	[1] 31	[1] 31	31 [1]	[1] 31	4½	4½	4½	4½	41	41	41	41	41.
January	65	1.0	11	16, 1934	70	100	(2 times)	27	29, 1944	74	100	(17 times)	25	24, 1929.
February	62	1.1	11	8, 1932	67	100	1, 1943	34	15, 1943	72	100	(10 times)	28	14, 1923.
March	60	.7	6	11, 1929	66	100	18, 1943	32	4, 1943	72	100	(12 times)	20	7, 1929.
April	58	.4	9	24, 1933	68	100	17, 1945	27	7, 1943	68	100	(4 times)	20	15, 1927.
May	64	.4	11	5, 1941	77	97	(5 times)	37	19, 1944	72	100	(3 times)	26	4, 1924.
June	68	.7	14	10, 1925	82	99	12, 1942	35	1, 1945	75	100	23, 1907	28	8, 1932.
July	70	.9	13	31, 1930	84	98	20, 1945	37	2, 1944	79	99	(2 times)	41	25, 1911.
August	72	1.0	16	9, 1930	85	98	(3 times)	54	27, 1945	80	100	(3 times)	41	6, 1930.
September	72	1.5	11	2, 1929	84	99	21, 1943	46	25, 1942	81	100	(6 times)	44	(2 times).
October	69	.9	11	20, 1931	81	100	16, 1943	33	25, 1941	80	100	(16 times)	36	20, 1930.
November	65	1.0	10	30, 1932	73	100	(2 times)	35	14, 1942	76	100	(22 times)	24	9, 1917
December	67	.8	15	18, 1943	73	100	(7 times)	30	10, 1943	75	100	(17 times)	25	13, 1913.
Year	66	10.4	6	Mar. 11, 1929	76	100	(15 times)	27	(2 times)	75	100	(111 times)	20	(2 times).

Month	Average	Average frequency of days on which 100 percent occurred	Absolute lowest	Date	1:30 p. m. Average	1:30 p. m. Highest	1:30 p. m. Date	1:30 p. m. Lowest	1:30 p. m. Date	7:30 p. m. Average	7:30 p. m. Highest	7:30 p. m. Date	7:30 p. m. Lowest	7:30 p. m. Date
Number of years (through 1945).	[1] 31	[1] 31	[1] 31	31 [1]	[1] 31	8	8	8	8	41	41	41	41	41.
January	65	1.0	11	16, 1934	58	100	28, 1943	20	18, 1945	64	100	(7 times)	16	22, 1925.
February	62	1.1	11	8, 1932	54	98	11, 1943	17	18, 1943	60	100	(9 times)	20	15, 1931.
March	60	.7	6	11, 1929	50	100	6, 1943	17	(2 times)	58	100	(6 times)	9	25, 1910.
April	58	.4	9	24, 1933	46	98	12, 1943	17	29, 1940	55	100	(3 times)	14	10, 1910.
May	64	.4	11	5, 1941	48	95	10, 1945	12	5, 1941	62	100	14, 1905	18	(2 times).
June	68	.7	14	10, 1925	53	100	29, 1943	23	11, 1941	67	100	14, 1937	23	21, 1936.
July	70	.9	13	31, 1930	54	97	13, 1941	26	7, 1944	68	100	10, 1943	29	11, 1945.
August	72	1.0	16	9, 1930	55	99	2, 1944	25	23, 1944	72	100	(3 times)	19	10, 1930.
September	72	1.5	11	2, 1929	55	100	18, 1938	26	26, 1943	74	100	(3 times)	22	16, 1932.
October	69	.9	11	20, 1931	52	100	(2 times)	23	8, 1941	70	100	5, 1937	19	26, 1935.
November	65	1.0	10	30, 1932	53	96	(2 times)	12	16, 1939	64	100	(4 times)	21	16, 1939.
December	67	.8	15	18, 1943	59	100	(4 times)	17	(2 times)	65	100	(9 times)	18	22, 1943.
Year	66	10.4	6	Mar. 11, 1929	53	100	(10 times)	12	(2 times)	65	100	(48 times)	9	Mar. 25, 1910.

[1] From hygrograph.

TABLE 98.—*Average hourly wet bulb temperature* (°F.)

Month	A. M. 1	2	3	4	5	6	7	8	9	10	11	Noon	P. M. 1	2	3	4	5	6	7	8	9	10	11	Midnight	Mean
January	30	29	29	29	28	28	28	28	29	30	32	32	33	34	34	34	34	33	32	32	31	30	30	30	30.8
February	30	29	29	28	28	28	28	28	29	31	32	32	34	34	35	35	35	34	33	32	32	31	30	30	31.1
March	36	36	36	36	34	34	35	35	36	38	38	40	41	42	42	42	42	41	41	40	39	38	38	37	38.2
April	44	44	44	43	42	42	42	44	46	46	48	48	50	50	50	50	50	50	49	48	48	46	46	45	46.5
May	54	54	54	52	52	52	54	55	56	57	58	58	59	60	60	60	60	60	58	58	57	56	56	55	56.5
June	63	62	62	62	61	62	62	64	64	65	66	66	67	67	67	67	68	67	67	68	66	64	64	64	64.8
July	68	67	66	66	66	66	67	68	70	70	70	70	71	71	71	71	71	70	70	70	70	69	68	68	68.9
August	66	66	66	65	64	64	66	66	68	68	68	68	69	70	70	70	70	70	69	68	68	68	67	67	67.5
September	61	60	60	60	60	58	59	60	62	63	64	64	64	65	65	65	65	64	64	64	62	62	61	61	62.2
October	50	49	48	48	48	48	48	49	50	52	53	54	54	56	56	56	54	54	53	52	52	51	50	50	51.5
November	40	39	38	38	38	38	38	38	40	41	43	44	44	45	45	45	44	43	42	42	41	40	40	40	41.1
December	32	31	31	30	30	30	30	30	31	32	34	35	36	36	37	36	36	35	34	34	34	33	33	32	33.0

NOTE.—Derived by temperature-relative humidity relationship, supplemented by regular 8 a. m. and 8. p. m. (35 years) and noon (22 years) observations.

TABLE 99.—*Highest monthly wet bulb temperatures* (° *F.*)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec
1905	48.0	38.9	60.1	62.5	73.2	75.0	77.8	75.6	75.7	71.0	56.5	48.2
1906	61.5	53.5	56.3	61.0	70.7	77.6	77.0	78.0	76.1	69.0	64.0	56.0
1907	57.5	42.0	64.0	66.0	71.0	75.0	77.5	77.0	76.0	66.5	56.5	56.0
1908	46.5	56.0	63.0	67.9	74.5	77.5	76.5	80.0	70.1	65.0	61.6	58.5
1909	56.0	59.1	58.5	63.7	71.0	76.1	78.2	76.0	71.0	64.0	59.0	55.6
1910	46.1	59.1	63.9	65.1	71.7	77.6	78.6	75.2	75.3	70.2	47.0	51.3
1911	54.9	50.8	54.3	63.7	73.1	80.2	80.0	75.8	73.9	70.0	56.3	55.0
1912	48.7	49.4	53.8	66.0	72.0	74.3	76.2	75.3	76.2	68.8	61.0	55.7
1913	62.0	59.8	63.0	69.2	69.2	78.4	80.0	79.4	74.4	67.0	58.8	48.5
1914	56.8	49.0	57.9	64.6	75.2	76.8	76.5	74.9	75.2	69.0	62.2	53.3
1915	59.9	52.6	46.2	67.0	68.8	71.2	78.6	76.8	77.3	66.8	59.3	58.5
1916	58.3	53.3	49.9	62.0	69.0	71.2	78.8	78.8	73.2	68.0	57.8	55.1
1917	51.4	58.2	55.6	62.2	67.1	75.0	80.0	80.9	73.2	62.2	49.9	39.4
1918	36.2	53.1	61.0	68.0	79.2	78.0	75.3	83.5	72.5	68.0	64.3	59.0
1919	59.0	54.3	62.0	63.0	75.1	75.3	78.5	77.2	73.7	72.4	63.5	58.2
1920	40.3	42.6	57.7	63.8	65.4	74.1	76.0	76.7	73.0	68.3	60.2	59.7
1921	52.2	56.2	68.0	67.2	69.3	76.0	78.3	75.7	75.2	64.0	65.3	56.3
1922	53.0	61.0	64.1	67.7	69.7	74.6	78.9	75.7	79.3	70.8	59.0	49.6
1923	54.5	48.9	63.8	65.0	68.6	78.2	77.0	80.2	73.2	63.0	52.8	58.9
1924	61.8	45.2	55.0	59.5	67.0	80.0	77.4	77.0	76.3	66.3	56.9	62.3
1925	47.4	59.0	60.0	72.5	72.0	77.5	79.6	76.1	78.2	70.0	61.7	51.9
1926	57.3	51.7	57.4	64.5	68.8	75.0	77.9	80.0	77.0	75.0	67.2	45.1
1927	51.0	55.0	60.2	66.0	70.2	74.8	78.0	75.8	76.4	73.0	64.1	60.9
1928	56.9	50.3	60.5	61.5	71.2	74.0	79.0	78.8	74.1	71.5	65.8	57.0
1929	58.2	46.4	67.8	67.2	74.3	75.5	77.0	77.0	76.2	67.4	68.4	60.0
1930	58.1	63.2	62.0	61.8	69.7	76.8	78.0	75.7	75.2	66.2	64.2	45.0
1931	50.0	48.3	49.0	61.5	69.2	74.8	78.8	77.7	79.0	71.7	65.5	61.8
1932	66.3	59.0	56.2	62.4	72.8	76.0	77.6	77.0	79.2	71.0	62.5	62.5
1933	59.2	54.2	59.7	63.7	75.0	81.5	80.8	79.8	75.9	71.1	61.2	56.0
1934	54.9	37.2	60.5	62.8	72.8	79.0	79.0	78.0	74.0	63.5	67.0	63.3
1935	54.4	52.1	62.4	65.2	69.0	76.0	77.3	78.7	72.7	67.2	66.5	50.2
1936	43.4	52.8	60.5	66.3	71.0	74.3	77.3	79.7	74.8	70.5	66.4	58.0
1937	61.9	56.6	56.7	62.7	71.0	75.0	79.4	78.2	77.8	71.0	65.0	60.0
1938	53.7	60.5	66.0	66.3	70.2	76.7	79.3	79.1	74.4	66.0	68.1	57.0
1939	55.1	60.0	63.0	66.3	73.1	78.2	80.0	78.0	76.0	73.6	55.9	53.6
1940	52.0	46.0	63.0	59.2	68.5	75.4	81.0	78.0	71.5	66.5	61.0	56.0
1941	47.7	42.9	50.2	66.9	71.7	78.7	80.3	75.6	78.0	75.2	66.9	60.4
1942	53.0	46.7	64.3	66.3	76.8	76.5	80.8	79.7	77.2	66.2	63.0	47.9
1943	62.0	60.0	65.0	62.8	73.9	79.3	79.9	78.8	76.0	67.3	65.8	51.9
1944	57.2	52.7	60.0	60.8	72.9	80.0	78.4	79.2	75.8	71.2	59.0	48.1
1945	52.9	57.6	66.2	69.0	70.1	80.3	80.0	79.6	76.9	67.0	66.0	45.8

TABLE 100.—*Lowest monthly wet bulb temperatures* (° *F.*)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905	4.0	3.3	16.3	32.0	44.2	49.5	62.1	58.3	44.8	35.0	22 7	16.0
1906	11.4	6.0	19.0	29.0	38.0	52.0	55.1	63.0	50.9	33.5	30.0	13.6
1907	10.8	3.0	21.0	24.2	40.0	49.0	57.0	55.7	42.8	30.4	25.0	18.0
1908	9.2	6.1	25.0	27.6	37.0	54.0	59.5	55.0	44.0	35.0	21.0	20.0
1909	12.0	14.8	23.0	26.5	38.0	52.2	53.4	53.0	45.5	31.3	27.6	6.9
1910	10.5	7.6	24.4	34.0	40.0	44.2	60.3	58.6	50.8	29.0	26.0	11.9
1911	16.2	19.9	11.3	24.7	37.8	57.4	54.2	56.8	45.2	38.0	19.9	21.8
1912	−11.3	5.0	17.9	29.9	45.8	46.1	55.8	53.3	43.1	37.7	24.1	17.5
1913	21.0	11.0	31.9	31.9	35.2	42.9	53.4	58.2	43.0	33.9	27.2	23.7
1914	6.1	2.8	15.8	27.9	39.6	49.9	53.8	57.6	42.6	30.1	21.1	3.2
1915	14.9	15.7	21.0	29.8	39.0	48.1	58.6	53.0	43.5	34.3	24.3	19.8
1916	7.6	5.7	13.2	33.0	44.3	48.1	55.5	55.5	41.6	36.1	21.2	11.1
1917	12.6	1.6	20.4	27.0	41.3	51.2	62.8	56.2	41.6	26.1	19.2	−3.3
1918	0.6	−2.5	20.8	30.2	41.0	48.8	53.2	58.2	42.8	35.0	25.2	23.0
1919	9.1	20.2	26.9	23.0	45.0	52.2	59.5	55.0	49.0	40.4	26.5	7.4
1920	6.6	7.8	14.6	26.5	41.2	52.1	54.5	56.2	48.7	35.8	20.3	20.3
1921	8.9	19.4	22.7	25.8	44.0	49.2	63.1	54.2	54.2	35.8	28.0	10.0
1922	9.4	7.2	21.0	30.9	48.0	53.2	59.0	52.8	45.0	34.2	26.6	14.7
1923	16.5	8.9	15.2	13.9	36.6	51.2	55.4	49.7	45.9	37.9	28.0	21.8
1924	7.1	16.2	23.4	28.0	41.4	53.9	55.4	54.9	45.8	35.0	21.4	12.0
1925	1.9	15.8	17.8	31.2	40.3	48.3	55.0	52.0	47.1	31.9	22.2	10.1
1926	4.9	13.6	22.9	27.2	37.5	49.0	57.8	59.6	47.6	31.0	24.0	8.0
1927	6.2	28.0	22.4	31.0	43.0	49.0	53.9	51.9	46.8	41.2	24.2	12.9
1928	6.6	14.5	27.2	27.9	40.9	54.0	57.9	56.8	40.0	30.3	22.8	18.0
1929	6.8	17.0	13.4	33.0	40.0	42.2	51.8	52.0	41.2	34.4	9.5	12.4
1930	6.2	5.0	17.6	30.2	43.0	48.0	54.2	51.6	46.3	30.8	12.9	12.8
1931	16.2	17.9	23.8	33.8	40.9	53.8	62.0	56.3	46.0	38.6	29.3	22.1
1932	23.0	18.0	14.8	29.0	40.7	42.8	56.9	56.1	42.3	35.2	16.1	11.8
1933	16.9	11.2	17.0	29.7	42.2	46.8	53.7	59.1	53.2	29.0	16.6	8.0
1934	5.4	−7.6	17.0	30.1	44.9	58.5	59.7	49.9	53.5	33.4	25.2	15.5
1935	−2.0	6.2	22.5	27.1	40.0	53.8	61.0	52.3	40.6	35.6	21.9	5.8
1936	2.0	3.4	24.6	25.0	42.9	51.9	55.1	55.9	45.0	28.7	16.8	12.1
1937	25.2	16.8	19.4	32.3	41.8	57.5	57.2	62.0	44.5	31.9	21.9	18.0
1938	15.8	16.5	17.8	31.4	39.4	49.1	57.8	58.7	47.0	39.0	14.8	17.1
1939	9.4	14.6	19.4	31.0	39.3	53.4	55.0	59.4	46.2	32.7	28.0	20.5
1940	6.9	16.0	15.9	24.3	39.3	48.0	56.0	51.7	38.6	30.8	24.5	15.8
1941	18.0	16.0	11.5	35.0	37.9	51.8	60.0	50.4	47.9	33.2	26.0	23.2
1942	7.2	9.0	30.0	33.0	44.0	55.0	58.9	50.6	39.9	29.9	23.3	0.0
1943	12.2	5.2	8.9	26.0	38.2	55.0	52.2	56.9	41.2	36.0	25.8	12.1
1944	14.6	15.0	17.3	26.9	48.0	48.9	57.6	53.0	47.0	32.5	27.8	15.1
1945	9.3	14.6	30.0	31.5	37.2	44.3	54.5	52.6	51.1	36.6	23.8	13.6

TABLE 101.—*Wet bulb temperatures* (° F.)

Month	Average	Absolute highest	Date	Absolute lowest	Date	1:30 a. m.					7:30 a. m.				
						Average	Highest	Date	Lowest	Date	Average	Highest	Date	Lowest	Date
Number of years (through 1945).	31	(1)	(1)	(1)	(1)	4½	4½	4½	4½	4½	41	41	41	41	41.
January	30.8	66.3	15, 1932	−11.3	14, 1912	29.6	53.0	17, 1943	7.2	11, 1942	28.8	61.8	11, 1924	−11.3	14, 1912.
February	31.1	63.2	25, 1930	−7.6	9, 1934	31.0	57.6	27, 1945	6.0	15, 1943	28.4	60.0	20, 1939	−7.6	9, 1934.
March	38.2	68.0	28, 1921	8.9	4, 1943	39.3	62.6	20, 1945	10.0	4, 1943	35.8	63.7	23, 1929	8.9	4, 1943.
April	46.5	72.5	24, 1925	13.9	1, 1923	45.5	63.7	5, 1945	26.4	7, 1943	44.2	67.9	27, 1908	13.9	1, 1923.
May	56.5	79.2	28, 1918	35.2	11, 1913	57.0	71.0	31, 1942	36.2	2, 1945	54.5	71.5	23, 1911	35.2	11, 1913.
June	64.8	81.5	9, 1933	42.2	3, 1929	65.8	77.2	30, 1945	45.4	6, 1945	63.6	77.4	9, 1933	42.2	3, 1929.
July	68.9	81.0	26, 1940	51.8	20, 1929	68.6	76.3	18, 1942	52.2	1, 1943	78.6	76.6	29, 1930	51.8	20, 1929.
August	67.5	83.5	8, 1918	49.7	22, 1923	66.6	77.7	5, 1944	52.6	27, 1945	66.3	77.2	7, 1918	49.9	30, 1934.
September	62.2	79.3	15, 1922	38.6	26, 1940	62.5	76.2	10, 1941	40.2	29, 1942	60.6	75.0	12, 1925	38.6	26, 1940.
October	51.5	75.2	6, 1941	26.1	31, 1917	51.2	72.0	7, 1941	32.5	28, 1944	48.9	70.5	10, 1936	26.1	31, 1917.
November	41.1	68.4	2, 1929	9.5	30, 1929	41.2	66.9	1, 1941	24.0	24, 1945	38.7	65.1	16, 1926	9.5	30, 1929.
December	33.0	63.3	1, 1934	−3.3	30, 1917	30.7	57.8	24, 1941	.0	21, 1942	30.7	63.3	1, 1934	−3.3	30, 1917.
Year	49.3	83.5	Aug. 8, 1918	−11.3	Jan. 14, 1912	49.1	77.7	Aug. 5, 1944	.0	Dec. 21, 1942	48.3	77.4	June 9, 1933	−11.3	Jan. 14, 1912.

Month	Average	Absolute light	Date	Absolute lowest	Date	Noon					7:30 p. m.				
						Average	Highest	Date	Lowest	Date	Average	Highest	Date	Lowest	Date
Number of years (through 1945).	31	(1)	(1)	(1)	(1)	27	27	27	27	27	41	41	41	41	41.
January	30.8	66.3	15, 1932	−11.3	14, 1912	33.2	66.3	15, 1932	7.5	27, 1936	32.4	62.6	13, 1932	2.5	13, 1912.
February	31.1	63.2	25, 1930	−7.6	9, 1934	34.0	63.2	25, 1930	−.7	9, 1934	33.5	60.3	25, 1930	7.1	5, 1917.
March	38.2	68.0	28, 1921	8.9	4, 1943	41.2	68.0	28, 1921	17.0	9, 1932	40.3	65.1	23, 1929	15.9	9, 1932.
April	46.5	72.5	24, 1925	13.9	1, 1923	48.4	72.5	24, 1925	21.5	1, 1923	48.4	69.2	22, 1913	25.9	1, 1923.
May	56.5	79.2	28, 1918	35.2	11, 1913	58.4	76.8	31, 1942	40.0	1, 1943	58.0	79.2	28, 1918	38.2	9, 1923.
June	64.8	81.5	9, 1933	42.2	3, 1929	66.4	80.0	9, 1933	46.5	3, 1929	66.4	81.5	9, 1933	47.0	9, 1913.
July	68.9	81.0	26, 1940	51.8	20, 1929	69.8	80.3	2, 1941	54.5	11, 1945	70.2	81.0	26, 1940	54.8	2, 1918.
August	67.5	83.5	8, 1918	49.7	22, 1923	68.7	80.0	12, 1926	49.7	22, 1923	68.9	83.5	8, 1918	53.7	30, 1934.
September	62.2	79.3	15, 1922	38.6	26, 1940	64.3	79.3	15, 1922	43.0	28, 1942	63.8	78.3	12, 1931	42.8	28, 1942.
October	51.5	75.2	6, 1941	26.1	31, 1917	54.1	75.2	6, 1941	31.5	21, 1925	52.8	75.1	6, 1941	30.2	31, 1917.
November	41.1	68.4	2, 1929	9.5	30, 1929	44.4	68.4	2, 1929	13.5	30, 1929	42.3	67.3	6, 1938	15.4	30, 1929.
December	33.0	63.3	1, 1934	−3.3	30, 1917	35.6	62.5	25, 1932	10.0	29, 1933	34.1	61.8	25, 1932	3.4	30, 1917.
Year	49.3	83.5	Aug. 18, 1918	−11.3	Jan. 14, 1912	51.5	80.3	July 2, 1941	−.7	Feb. 9, 1932	50.9	83.5	Aug. 8, 1918	2.5	Jan. 13, 1912.

[1] Based on observational data shown in this table.

TABLE 102.—*Average hourly dew point temperature*

Month	A. M.											Noon	P. M.											Midnight	Mean
	1	2	3	4	5	6	7	8	9	10	11		1	2	3	4	5	6	7	8	9	10	11		
January	25	24	24	24	24	24	24	24	24	25	25	25	25	26	26	26	26	26	26	26	25	25	25	25	25.0
February	24	24	24	23	23	22	23	23	24	24	24	24	25	25	25	25	25	25	25	25	24	24	24	24	24.1
March	30	30	30	30	29	29	30	30	30	30	30	31	31	31	31	31	31	31	32	32	31	31	30	30	30.5
April	38	38	38	38	37	37	37	38	38	38	39	39	39	39	39	39	39	39	40	40	40	40	40	39	38.7
May	51	51	51	50	50	50	50	50	50	50	50	50	50	51	51	51	51	51	52	52	52	52	51	51	50.8
June	61	60	60	59	59	60	60	60	60	60	60	60	60	60	60	60	60	61	61	62	62	62	61	61	60.4
July	66	65	65	64	64	64	65	65	66	66	65	65	65	65	65	65	65	65	65	66	66	66	66	66	65.2
August	65	64	64	63	63	63	64	64	64	63	63	63	63	63	63	63	63	63	64	64	65	65	65	65	63.8
September	59	58	58	58	58	57	57	58	58	58	58	58	58	58	58	58	58	59	59	59	60	60	60	59	58.4
October	47	46	46	45	45	45	45	46	46	46	46	46	47	47	47	47	47	47	47	48	48	48	47	47	46.5
November	35	35	34	34	34	34	34	34	34	34	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34.7
December	28	27	27	27	27	27	26	26	27	27	28	28	28	29	29	28	28	28	28	28	28	28	28	28	27.6

NOTE.—Derived by temperature-relative humidity relationship, supplemented by regular 8 a. m. and 8 p. m. (35 years) and noon (22 years) observations.

TABLE 103.—*Mean monthly dew point*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1889							67.5	63.5	58.0	43.2	37.6	33.8
1890	32.8	33.5	28.5	40.0	53.1	62.7	63.1	63.7	59.6	46.5	35.5	23.3
1891	27.4	31.9	28.2	40.5	48.8	61.4	62.6	66.3	62.4	43.0	32.4	30.5
1892	22.5	27.0	26.6	39.0	51.9	66.3	66.3	65.2	55.8	41.5	32.8	24.2
1893	15.1	24.4	28.5	41.0	50.0	62.2	63.4	61.4	55.9	46.8	33.5	27.8
1894	29.4	26.2	35.0	39.2	54.1	61.0	64.1	63.4	61.2	47.4	32.1	27.8
1895	24.4	14.0	27.4	39.8	52.0	63.4	62.5	65.4	60.1	37.4	38.2	29.5
1896	23.0	24.7	27.1	43.3	57.3	61.0	67.2	64.4	58.9	43.2	40.4	24.2
1897	20.8	29.7	36.0	38.1	51.0	60.4	67.6	64.6	57.2	49.4	36.5	29.8
1898	27.1	23.4	38.8	37.0	55.4	60.8	67.0	68.4	60.0	49.6	34.0	24.8
1899	23.4	19.9	32.8	38.9	53.2	64.0	66.4	67.2	57.8	50.4	36.5	25.0
1900	25.0	23.0	25.9	38.1	49.0	62.0	66.1	68.0	63.1	54.4	38.6	26.2
1901	24.5	14.4	32.0	37.8	52.8	63.4	70.6	68.9	60.2	44.4	28.0	25.6
1902	20.4	18.7	36.4	39.2	54.2	58.4	65.4	62.1	59.0	49.4	42.5	27.0
1903	24.8	27.2	43.1	44.2	54.4	60.0	65.6	65.0	58.1	48.0	31.6	21.6
1904	19.0	16.4	31.0	36.4	52.4	62.4	65.2	63.8	59.5	43.8	32.6	22.5
1905	19.5	15.3	33.3	41.0	54.5	61.8	68.8	66.2	59.9	47.7	31.0	25.8
1906	29.0	22.8	27.2	38.4	50.1	64.5	66.8	70.3	64.5	47.8	36.3	28.1
1907	28.8	20.0	36.6	37.4	51.0	59.4	66.4	64.2	61.4	41.3	34.4	27.6
1908	22.0	19.4	34.8	41.0	55.0	61.0	66.5	64.6	58.2	48.1	33.9	26.4
1909	27.5	32.0	29.0	38.4	48.9	64.2	60.4	61.2	55.4	39.8	36.7	20.2
1910	24.5	22.8	34.9	42.1	48.8	59.6	66.8	63.9	60.2	47.6	28.3	20.6
1911	28.4	25.7	26.0	37.9	52.0	61.2	65.2	66.0	61.7	48.8	31.5	31.7
1912	14.6	18.2	30.7	42.2	53.4	58.6	65.0	62.2	62.0	47.4	33.0	28.2
1913	33.6	23.6	35.9	39.8	49.7	59.4	63.4	64.2	57.0	49.7	36.6	29.6
1914	27.9	18.1	28.4	39.1	50.8	59.5	64.8	65.8	54.5	50.6	32.2	25.2
1915	27.8	27.2	23.6	40.8	48.7	58.9	65.0	64.4	59.9	49.0	33.3	25.0
1916	28.8	23.0	24.6	37.7	51.6	58.6	68.2	65.8	56.0	46.0	34.0	23.4
1917	24.0	20.1	30.8	37.8	42.6	61.2	67.9	64.8	54.3	41.4	29.8	17.6
1918	14.0	24.2	32.2	40.6	55.7	58.6	61.0	66.6	54.0	48.5	33.8	31.2
1919	25.6	25.6	31.7	38.4	53.6	62.4	67.0	63.2	58.3	54.4	36.2	22.2
1920	17.2	22.2	30.6	37.4	45.8	60.2	63.7	66.8	59.4	49.4	35.8	28.1
1921	24.0	27.4	41.2	44.7	51.4	59.6	68.8	61.6	62.4	43.6	38.0	26.4
1922	20.5	27.1	32.2	38.6	53.4	63.8	67.1	63.6	60.2	47.2	35.2	27.5
1923	26.2	21.5	24.9	37.0	47.2	61.6	63.8	65.0	60.8	44.6	35.4	35.4
1924	22.4	22.7	28.9	35.6	47.7	61.5	63.5	64.1	55.0	44.6	33.3	24.8
1925	22.6	31.3	33.0	40.8	47.0	62.0	65.0	62.5	61.8	42.2	32.7	25.0
1926	22.6	25.7	24.2	32.3	46.5	55.6	65.0	67.6	60.8	49.0	34.4	25.0
1927	24.0	32.6	35.4	37.8	52.5	57.7	65.4	60.6	59.4	50.2	40.8	27.8
1928	20.4	24.2	30.0	35.6	49.2	60.6	66.0	68.6	57.0	49.6	37.0	27.8
1929	21.4	23.4	34.5	42.6	51.6	59.9	64.9	60.2	58.2	43.7	37.4	28.8
1930	26.0	28.7	27.4	37.6	48.2	59.5	62.8	58.3	59.8	40.8	34.8	24.2
1931	23.6	24.7	28.0	36.3	50.6	59.3	68.2	65.2	63.0	48.1	42.6	32.6
1932	35.0	27.8	24.8	33.8	49.0	59.4	61.8	62.4	55.1	47.3	33.0	29.2
1933	30.0	22.0	28.4	39.2	55.4	60.6	64.8	66.0	62.1	45.8	30.3	26.8
1934	25.8	11.0	27.6	37.4	50.4	64.7	67.2	63.4	63.2	43.9	38.0	24.6
1935	22.4	23.6	35.0	36.8	65.5	60.4	67.6	63.6	57.8	46.0	41.2	21.8
1936	20.4	18.2	37.0	34.4	50.4	58.3	64.7	65.8	60.2	48.8	30.6	30.0
1937	35.6	24.2	26.8	37.4	50.6	63.8	65.7	68.0	55.8	44.8	32.8	24.4
1938	24.8	28.2	35.2	41.0	50.2	60.2	66.8	67.2	57.9	46.4	38.5	27.8
1939	26.0	30.0	30.0	37.8	51.6	63.2	64.8	66.4	60.6	47.2	30.7	26.2
1940	14.4	24.0	24.2	35.5	50.1	60.5	64.6	64.0	55.4	43.9	35.1	31.5
1941	24.2	19.8	22.2	40.6	48.0	60.8	67.1	62.4	58.7	50.4	35.8	30.8
1942	24.2	18.7	33.4	40.8	55.4	63.4	66.6	66.0	60.4	50.6	35.9	25.0
1943	26.2	24.8	29.6	33.5	54.8	67.4	66.2	63.8	54.8	44.6	32.2	20.4
1944	26.3	25.2	28.4	37.9	56.9	61.5	64.2	64.0	60.5	45.4	36.7	22.2
1945	18.3	25.8	39.9	44.9	47.7	67.6	66.9	68.0	64.1	46.0	38.4	24.2

TABLE 104.—*Highest monthly dew point* (° *F.*)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905	48	38	55	72	71	73	77	75	75	70	55	47
1906	61	53	55	58	68	74	76	76	75	69	63	53
1907	56	40	58	62	71	74	77	75	74	65	56	56
1908	46	54	61	65	73	75	74	78	70	64	69	55
1909	56	58	55	62	68	74	75	72	70	63	58	55
1910	44	58	58	60	68	75	76	73	73	67	45	45
1911	52	48	51	61	69	77	77	74	73	68	56	54
1912	49	49	53	63	67	73	73	73	74	66	60	54
1913	60	59	58	67	67	75	77	77	73	67	55	47
1914	56	44	55	60	73	73	74	73	71	69	61	52
1915	60	52	40	60	66	68	75	74	75	66	58	57
1916	55	53	44	60	68	68	77	77	72	67	56	54
1917	51	53	54	60	64	73	76	79	71	61	45	38

TABLE 104.—*Highest monthly dew point* (° *F.*)—Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1918	33	49	56	62	76	75	74	84	67	65	62	58
1919	56	50	56	60	73	72	76	75	72	71	62	57
1920	40	39	57	63	64	71	74	75	71	67	57	59
1921	47	49	66	64	68	72	75	74	74	63	61	55
1922	49	54	60	63	68	71	77	72	72	70	57	48
1923	48	48	58	64	67	75	75	78	71	62	50	55
1924	61	40	54	54	65	79	75	81	71	63	51	58
1925	45	58	51	65	65	72	77	76	74	68	60	50
1926	57	51	44	62	67	70	76	77	75	72	65	44
1927	49	49	55	64	67	73	75	75	74	72	63	58
1928	48	47	55	61	68	71	76	77	72	70	62	54
1929	56	46	66	61	71	73	76	75	75	67	65	58
1930	54	55	61	57	64	71	76	74	73	63	63	40
1931	44	42	47	57	64	71	76	76	76	68	61	59
1932	61	57	55	57	67	73	75	73	74	70	62	61
1933	56	47	57	62	70	79	78	77	73	68	58	55
1934	53	36	57	57	66	74	77	75	73	61	65	63
1935	53	51	58	60	68	71	73	74	72	62	65	49
1936	39	48	57	60	67	70	72	77	72	70	62	57
1937	60	53	56	56	66	72	76	75	75	70	64	56
1938	43	60	60	61	66	73	75	75	72	60	67	56
1939	53	56	61	65	70	75	77	76	71	72	52	52
1940	50	42	61	56	64	75	77	74	70	61	55	56
1941	44	41	45	58	68	76	78	75	76	71	65	59
1942	52	47	60	57	71	74	77	76	75	66	60	47
1943	57	55	63	59	72	75	77	77	73	64	65	46
1944	52	52	49	55	70	77	76	77	74	70	58	47
1945	52	55	61	64	66	77	77	77	73	66	62	46

TABLE 105.—*Lowest monthly dew point* (° *F.*)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1905	−4	−10	9	21	28	44	58	54	39	26	8	9
1906	6	−4	2	15	28	47	51	60	46	24	24	3
1907	3	−2	13	18	29	46	51	47	37	23	20	12
1908	1	−6	16	12	24	46	50	51	37	25	12	8
1909	9	8	10	13	20	39	43	45	35	21	8	1
1910	2	−4	14	16	28	35	56	45	41	22	15	6
1911	4	10	−1	17	24	49	43	50	37	29	10	7
1912	−14	−10	11	17	37	35	48	47	38	33	17	−6
1913	13	1	12	16	22	33	45	52	38	25	18	16
1914	−3	−8	7	17	29	38	52	54	34	21	12	−1
1915	6	8	10	20	28	38	51	46	37	22	12	9
1916	−1	−1	1	24	31	38	50	50	35	31	10	0
1917	3	−12	10	15	23	45	58	51	35	20	13	−11
1918	−5	−14	9	15	27	31	40	55	36	27	16	10
1919	−1	8	13	10	36	34	48	44	38	28	18	−2
1920	−6	−4	3	12	25	38	48	52	42	27	11	14
1921	−2	12	12	14	33	40	56	46	45	25	19	0
1922	−2	−2	7	15	27	42	52	45	37	25	18	0
1923	7	−2	−1	−2	23	42	42	46	34	26	18	19
1924	−14	7	14	21	26	45	43	36	38	25	7	−3
1925	−5	2	3	17	28	40	41	44	41	18	11	−9
1926	−8	6	2	8	21	38	49	45	40	21	14	−3
1927	−3	18	13	10	33	39	45	43	39	34	16	−4
1928	−7	1	9	16	28	38	47	50	32	23	12	0
1929	−7	2	0	16	25	35	41	41	31	21	−7	0
1930	−5	−9	1	12	28	39	46	36	31	14	0	−2
1931	2	7	10	19	28	41	49	48	36	27	18	5
1932	3	5	1	15	27	25	48	50	32	27	3	0
1933	7	−6	−3	14	32	31	41	50	44	21	3	−7
1934	−14	−17	3	15	28	49	51	40	47	21	16	4
1935	−5	1	14	15	26	38	50	38	32	21	11	−3
1936	−10	−7	15	7	30	39	45	47	36	16	1	2
1937	13	3	7	18	26	46	49	51	37	21	12	4
1938	2	−4	8	17	31	39	48	50	42	28	9	−1
1939	−5	3	−5	14	22	41	47	50	38	22	11	4
1940	−5	5	−5	13	22	37	45	47	31	22	15	3
1941	6	−3	−6	18	16	35	55	40	42	26	21	12
1942	−1	−4	18	23	33	50	47	42	27	17	9	−15
1943	−3	−12	−9	3	20	45	45	48	28	22	14	−4
1944	6	4	1	17	37	39	46	43	38	24	14	4
1945	−5	3	17	16	24	35	37	45	45	28	14	2

TABLE 106.—*Dew point temperatures* (° F.)

Month	Average	Absolute highest	Date	Absolute lowest	Date	1:30 a. m. Average	1:30 a. m. Highest	1:30 a. m. Date	1:30 a. m. Lowest	1:30 a. m. Date	7:30 a. m. Average	7:30 a. m. Highest	7:30 a. m. Date	7:30 a. m. Lowest	7:30 a. m. Date
Number of years (through 1945)	31	(1)	(1)	(1)	(1)	4½	4½	4½	4½	4½	41	41	41	41	41.
January	25	61	2 times	−14	2 times	25	51	2, 1942	0	25, 1945	24	61	2 times	−14	14, 1912.
February	24	60	19, 1938	−17	9, 1934	24	55	27, 1945	−12	15, 1943	23	58	16, 1909	−17	9, 1934.
March	30	66	2 times	−9	4, 1943	30	60	17, 1943	−9	4, 1943	30	63	23, 1929	−6	18, 1941.
April	39	67	22, 1913	−2	1, 1923	38	60	5, 1945	7	7, 1943	38	65	27, 1908	−2	1, 1923.
May	51	76	28, 1918	16	12, 1941	51	70	2 times	28	2, 1943	50	69	3 times	21	5, 1926.
June	60	79	20, 1924	25	8, 1932	61	76	30, 1945	36	1, 1945	60	76	9, 1933	25	8, 1932.
July	65	77	26, 1945	37	1, 1945	66	75	2 times	46	1, 1943	65	76	29, 1930	43	2 times.
August	64	84	8, 1918	36	10, 1930	65	77	5, 1944	45	27, 1945	64	76	3 times	40	13, 1941.
September	58	76	2 times	27	28, 1942	59	76	10, 1941	32	29, 1942	58	74	5 times	31	26, 1940.
October	46	72	3 times	14	20, 1930	47	70	7, 1941	23	27, 1942	46	70	2 times	16	20, 1930.
November	35	67	6, 1938	−7	30, 1929	35	65	1, 1941	11	14, 1942	34	64	4 times	−4	30, 1929.
December	28	65	31, 1932	−15	21, 1942	27	58	5, 1941	−15	21, 1942	26	63	1, 1934	−11	30, 1917.
Year	44	84	Aug. 8, 1918	−17	Feb. 9, 1934	45	77	Aug. 5, 1944	−15	Dec. 21, 1942	43	76	5 times	−17	Feb. 9, 1934.

Month	Average	Absolute highest	Date	Absolute lowest	Date	Noon Average	Noon Highest	Noon Date	Noon Lowest	Noon Date	7:30 p. m. Average	7:30 p. m. Highest	7:30 p. m. Date	7:30 p. m. Lowest	7:30 p. m. Date
Number of years (through 1945)	31	(1)	(1)	(1)	(1)	28	28	28	28	28	41	41	41	41	41.
January	25	61	2 times	−14	2 times	25	61	2 times	−14	2 times	25	60	3 times	−14	5, 1912.
February	24	60	19, 1938	−17	9, 1934	24	60	19, 1938	−12	9, 1934	24	59	27, 1913	−10	2 times.
March	30	66	2 times	−9	4, 1943	30	66	2 times	−5	2 times	31	64	23, 1929	−3	10, 1933.
April	39	67	22, 1913	−2	1, 1923	37	65	24, 1925	3	1, 1923	39	67	22, 1913	3	6, 1943.
May	51	76	28, 1918	16	12, 1941	49	71	31, 1942	16	12, 1941	51	76	28, 1918	20	2, 1909.
June	60	79	20, 1924	25	8, 1932	59	75	2 times	30	8, 1932	62	79	2 times	35	2 times.
July	65	77	26, 1945	37	1, 1945	64	77	26, 1945	37	11, 1945	66	76	29, 1930	43	2, 1918.
August	64	84	8, 1918	36	10, 1930	62	81	3, 1924	42	25, 1942	65	82	8, 1918	36	10, 1930.
September	58	76	2 times	27	28, 1942	58	75	22, 1931	27	28, 1942	60	76	17, 1931	32	2 times.
October	46	72	3 times	14	20, 1930	45	70	2 times	14	20, 1930	48	72	3 times	19	21, 1930.
November	35	67	6, 1938	−7	30, 1929	35	67	6, 1938	−7	30, 1929	35	67	6, 1938	−7	30, 1929.
December	28	65	31, 1932	−15	21, 1942	27	60	25, 1932	−9	27, 1925	27	65	31, 1932	−7	27, 1933.
Year	44	84	Aug. 8, 1918	−17	Feb. 9, 1934	43	81	Aug. 3, 1924	−14	Jan. 21, 1924	44	82	Aug. 8, 1918	−14	Jan. 5, 1912.

[1] Based on observational data shown in this table.

TABLE 107.—*Average seasonal dew point*

Year	Winter	Spring	Summer	Autumn
1889				46.3
1890	33.4	40.5	63.2	47.2
1891	27.5	39.2	63.4	45.9
1892	26.7	39.2	65.9	43.4
1893	21.2	39.8	62.3	45.4
1894	27.8	42.8	62.8	46.9
1895	22.1	39.7	63.8	45.2
1896	25.7	42.6	64.2	47.5
1897	24.9	41.7	64.2	47.7
1898	26.8	43.7	65.4	47.9
1899	22.7	41.6	65.9	48.2
1900	24.3	37.7	65.4	52.0
1901	21.7	40.9	67.6	44.2
1902	21.6	43.3	62.0	50.3
1903	26.3	47.1	63.5	45.9
1904	19.0	39.9	63.8	45.3
1905	19.1	42.9	65.6	46.2
1906	25.9	38.6	67.2	49.5
1907	25.6	41.7	63.3	45.4
1908	23.0	43.6	64.0	46.7
1909	28.6	38.8	61.9	44.0
1910	22.5	41.9	63.4	45.4
1911	24.9	38.6	64.1	47.3
1912	21.5	42.1	61.9	47.5
1913	28.5	41.8	62.3	47.8
1914	25.2	37.4	63.4	45.8
1915	26.7	37.7	62.8	47.4
1916	25.6	38.0	64.2	45.3
1917	22.5	33.7	64.6	41.8
1918	18.6	42.8	62.1	45.4

TABLE 107.—*Average seasonal dew point*—Continued

Year	Winter	Spring	Summer	Autumn
1919	27.5	41.2	64.2	49.6
1920	20.5	37.9	63.6	48.2
1921	26.5	35.8	63.3	48.0
1922	24.7	41.4	64.8	40.9
1923	25.1	36.4	63.5	46.9
1924	26.8	37.4	63.0	44.3
1925	26.2	40.3	63.2	45.6
1926	24.4	31.0	62.7	48.1
1927	27.2	41.9	61.2	50.1
1928	24.1	38.3	65.1	47.9
1929	24.2	42.9	61.7	46.4
1930	27.8	37.7	60.2	45.1
1931	24.2	38.3	64.2	51.2
1932	31.8	35.9	61.2	45.1
1933	27.1	41.0	63.8	46.1
1934	21.2	38.5	65.1	48.4
1935	23.5	45.8	63.5	48.3
1936	20.1	40.6	62.9	46.5
1937	29.9	38.3	65.8	44.5
1938	25.8	42.1	64.7	47.6
1939	27.9	39.9	64.8	46.2
1940	21.5	36.6	63.0	44.8
1941	25.2	36.9	63.4	48.3
1942	24.6	43.2	65.3	49.0
1943	25.3	39.3	65.8	43.9
1944	24.0	41.1	63.2	47.5
1945	22.1	44.2	65.5	49.5

PRESSURE

TABLE 108.—*Pressure—mean station*

[Inches]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1873	29.983	29.906	29.907	29.829	29.907	29.884	29.925	29.940	29.983	29.970	29.907	30.067	29.934
1874	30.078	30.064	29.923	29.935	29.874	29.871	29.941	29.918	29.971	30.024	30.099	30.076	29.981
1875	30.122	30.029	29.977	29.873	29.871	29.922	29.887	29.917	29.950	29.919	30.009	29.939	29.951
1876	30.062	30.033	29.932	29.907	29.949	29.889	29.898	29.953	29.865	29.942	29.881	29.956	29.939
1877	30.065	30.003	29,898	29.874	29.910	29.886	29.856	29.857	29.972	29.953	30.037	30.086	29.950
1878	29.984	29.877	29.889	29.728	29.849	29.844	29.854	29.799	30.007	29.932	29.883	29.921	29.881
1879	29.975	29.980	29.980	29.815	29.940	29.860	29.856	29.839	30.010	30.049	30.048	30.052	29.950
1880	30,063	30.008	29.955	29.905	29.948	29.888	29.868	29.934	29.942	29.998	30.122	29.941	29.964
1881	30.038	30.064	29.664	29.800	29.918	29.787	29.835	29.910	29.954	30.026	30.080	30.057	29.928
1882	30.067	30.037	29.995	29.923	29.890	29.803	29.910	29.909	29.939	29.971	30.063	30.031	29.962
1883	30.082	30.164	29.885	29.895	29.847	29.863	29.891	29.934	29.956	30.042	30.067	30.019	29.970
1884	30.042	29.972	29.923	29.778	29.842	29.944	29.762	29.932	29.994	30.036	29.980	30.064	29.939
1885	30.019	29.896	29.947	29.932	29.835	29.910	29.854	29.859	29.960	29.888	29.856	29.941	29.908
1886	29.954	29.984	29.841	29.967	29.804	29.846	29.812	29.859	30.003	30.053	29.925	30.029	29.923
1887	29.949	30.108	29.876	29.892	29.901	29.885	29.851	29.863	29.990	29.928	29.973	30.018	29.936
1888	30.090	29.976	29.965	30.003	29.854	29.819	29.899	29.882	29.934	29.872	30.012	29.967	29.939
1889	29.913	30.031	29.789	29.826	29.828	29.899	29.856	29.958	29.906	29.916	29.960	30.048	29.911
1890	30.111	29.978	29.935	29.986	29.834	29.864	29.906	29.909	29.995	29.796	29.962	29.957	29.936
1891	29.937	29.968	29.958	29.892	29.917	29.837	29.898	29.868	30.024	29.970	30.048	30.073	29.949
1892	29.939	30.007	29.902	29.960	29.855	29.860	29.944	29.879	30.034	29.919	29.958	29.967	29.935
1893	29.875	30.021	29.942	29.906	29.777	29.877	29.848	29.849	29.925	29.970	29.995	30.026	29.918
1894	30.043	30.002	29.985	29.914	29.799	29.882	29.889	29.896	29.959	29.878	30.001	30.023	29.939
1895	29.927	29.918	29.898	29.885	29.940	29.927	29.855	29.839	29.938	29.938	30.053	30.008	29.927
1896	30.063	29.796	29.900	30.006	29.899	29.859	29.917	29.916	29.909	29.930	30.086	30.080	29.947
1897	30.037	29.952	29.955	29.978	29.840	29.839	29.830	29.857	30.018	29.998	29.992	29.973	29.939
1898	29.917	29.990	30.078	29.846	29.795	29.874	29.912	29.886	29.948	29.986	29.980	29.959	29.931
1899	30.052	29.951	29.854	29.964	29.928	29.926	29.865	29.848	29.940	30.075	29.955	29.994	29.946
1900	29.978	29.921	29.911	29.905	29.854	29,846	29.873	29.907	29.957	30.051	29.945	29.996	29.929
1901	29.918	29.868	29.811	29.825	29.744	29.878	29.841	29.898	29.949	30.056	29.951	29.976	29.893
1902	30.007	29.799	29.885	29.831	29.917	29.810	29.897	29.853	29.921	29.965	29.976	30.002	29.905
1903	29.900	29.983	30.096	29.785	30.014	29.812	29.845	29.872	30.028	29.945	29.995	29.964	29.936
1904	29.998	30.084	30.005	29.878	29.872	29.911	29.902	29.946	29.986	29.999	29.911	29.952	29.954
1905	30.036	30.093	30.005	29.793	29.872	29.849	29.847	29.868	29.945	30.007	29.948	29.992	29.938
1906	30.006	30.096	29.981	29.897	29.878	29.828	29.859	29.890	29.972	29.933	29.999	30.028	29.947
1907	30.117	30.017	29.971	29.811	29.884	29.828	29.803	29.900	29.901	29.987	29.957	29.930	29.926
1908	29.915	30.005	29.991	29.847	29.822	29.946	29.945	29.904	29.993	29.019	29.969	29.976	29.944
1909	30.040	29.855	29.767	29.945	29.815	29.868	29.839	29.902	29.988	29.987	30.082	29.878	29.914
1910	30.004	30.036	29.973	29.800	29.880	29.819	29.811	29.934	29.967	29.923	29.781	29.986	29.910
1911	30.071	30.027	29.941	30.021	29.920	29.827	29.897	29.900	29.947	29.973	29.970	30.072	29.964
1912	29.970	29.881	30.011	29.903	29.851	29.919	29.911	29.857	29.940	29.971	29.959	29.970	29.929
1913	30.022	29.954	30.019	29.915	29.892	29.910	29.867	29.918	30.011	29.867	30.046	29.953	29.948
1914	29.828	30.035	29.935	29.923	29.964	29.875	29.863	29.900	30.025	29.977	30.005	30.056	29.949
1915	29.990	30.009	29.821	29.926	29.805	29.883	29.822	29.846	29.971	29.999	29.949	29.946	29.914
1916	30.134	29.930	29.827	29.835	29.814	29.809	29.885	29.884	29.959	30.028	30.040	29.919	29.922
1917	29.938	29.895	29.981	29.851	29.740	29.898	29.857	29.895	29.999	29.941	30.011	30.132	29.928
1918	29.824	29.999	29.907	29.893	29.958	29.826	29.883	29.928	29.937	30.008	29.965	30.022	29.929
1919	29.970	29.902	30.017	29.917	29.820	29.997	29.888	29.836	29.929	30.009	30.001	30.033	29.943
1920	30.094	29.903	29.917	29.721	29.944	29.861	29.881	29.937	29.897	30.007	30.017	29.894	29.923
1921	30.065	29.967	30.029	29.933	29.876	29.862	29.879	29.968	29.915	29.905	29.943	29.943	29.940
1922	30.076	30.025	29.995	29.965	29.872	29.850	29.905	29.877	30.000	29.905	29.983	30.034	29.957
1923	29.980	30.033	29.937	29.876	29.834	29.807	29.879	29.869	29.981	30.000	29.975	29.958	29.927
1924	30.089	29.971	29.696	29.875	29.739	29.832	29.886	29.877	29.963	30.091	29.995	30.178	29.924
1925	30.082	29.934	29.966	29.902	29.847	29.870	29.823	29.966	29.908	29.889	30.029	29.852	29.922
1926	29.932	29.789	29.864	29.863	29.778	29.812	29.849	29.880	29.992	29.857	30.011	30.004	29.886
1927	30.063	29.904	29.993	29.967	29.796	29.884	29.871	29.876	29.907	29.881	30.011	29.975	29.927
1928	29.946	29.991	29.818	29.847	29.796	29.772	29.859	29.909	29.933	30.040	29.959	30.042	29.909
1929	29.989	29.998	29.863	29.789	29.952	29.838	29.927	29.878	29.983	29.945	29.971	29.963	29.925
1930	30.131	29.993	29.729	29.931	29.898	29.866	29.819	29.886	29.887	29.985	30.080	29.982	29.932
1931	29.925	29.945	29.813	29.913	29.816	29.859	29.809	29.899	29.910	29.965	30.089	30.022	29.914
1932	30.032	29.911	29.757	29.847	29.922	29.794	29.771	29.876	29.959	29.921	30.077	30.070	29.911
1933	29.935	29.947	29.871	29.850	29.839	29.830	29.897	29.850	29.830	30.009	29.911	30.026	29.900
1934	30.024	30.077	30.050	29.884	29.879	29.790	29.837	29.919	29.959	29.951	30.018	29.992	29.948
1935	30.082	29.954	29.958	29.791	29.887	29.822	29.876	29.892	29.935	30.085	29.990	29.957	29.936
1936	29.928	29.993	29.762	29.932	29.937	29.800	29.783	29.894	29.959	29.985	29.974	30.139	29.924
1937	30.130	29.900	29.852	29.860	29.864	29.794	29.861	29.939	29.960	29.927	29.977	30.031	29.925
1938	29.944	30.094	29.895	29.923	29.832	29.878	29.865	29.883	29.901	29.983	30.045	29.985	29.936
1939	29.928	29.991	29.953	29.837	29.861	29.861	29.861	29.846	29.927	29.939	30.089	29.810	29.909
1940	29.970	29.836	29.852	29.840	29.778	29.819	29.935	29.964	29.938	29.982	30.025	30.010	29.904
1941	30.038	29.843	29.873	29.949	29.854	29.855	29.856	29.867	29.999	30.000	29.963	29.987	29.924
1942	29.972	29.823	29.773	29.941	29.908	29.851	29.880	29.936	29.937	29.933	29.998	29.974	29.910
1943	29.968	29.899	29.948	29.865	29.926	29.878	29.866	29.811	29.985	29.871	30.005	30.007	30.025
1944	30.025	29.977	29.965	29.883	29.956	29.824	29.880	29.908	29.916	29.985	29.933	30.028	29.940
1945	29.941	30.012	29.909	29.978	29.787	29.849	29.899	29.910	30.013	29.925	29.944	29.922	29.924

TABLE 109.—*Pressure—Highest*

[Inches (reduced to sea level)]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1873	30.49	30.58	30.76	30.26	30.44	30.43	30.30	30.31	30.40	30.54	30.62	30.62	30.76
1874	30.72	30.60	30.47	30.64	30.48	30.34	30.29	30.28	30.32	30.49	30.72	30.82	30.82
1875	30.78	30.72	30.50	30.42	30.36	30.26	30.26	30.32	30.42	30.55	30.71	30.70	30.78
1876	30.62	30.97	30.53	30.52	30.40	30.20	30.25	30.23	30.23	30.47	30.40	30.69	30.97
1877	30.62	30.61	30.60	30.34	30.39	30.27	30.26	30.24	30.35	30.52	30.58	30.60	30.62
1878	30.73	30.37	30.51	30.31	30.24	30.21	30.18	30.20	30.50	30.40	30.56	30.58	30.73
1879	30.55	30.76	30.72	30.46	30.50	30.29	30.30	30.20	30.45	30.83	30.60	30.65	30.83
1880	30.66	30.68	30.52	30.42	30.40	30.31	30.20	30.42	30.34	30.50	30.78	30.58	30.78
1881	30.70	30.84	30.39	30.36	30.50	30.21	30.24	30.31	30.32	30.61	30.75	30.68	30.84
1882	30.91	30.76	30.72	30.50	30.45	30.27	30.30	30.34	30.31	30.37	30.58	30.60	30.91
1883	30.66	30.80	30.57	30.45	30.34	30.46	30.23	30.29	30.47	30.65	30.68	30.64	30.80
1884	30.88	30.73	30.48	30.26	30.34	30.50	30.10	30.32	30.51	30.64	30.48	30.70	30.88
1885	30.85	30.50	30.48	30.61	30.19	30.31	30.17	30.25	30.36	30.35	30.38	30.80	30.85
1886	30.85	30.62	30.44	30.51	30.31	30.29	30.23	30.33	30.42	30.50	30.47	30.57	30.85
1887	30.66	30.90	30.72	30.63	30.33	30.34	30.20	30.29	30.42	30.46	30.80	30.91	30.91
1888	30.85	30.70	30.51	30.62	30.29	30.28	30.27	30.29	30.51	30.42	30.73	30.63	30.85
1889	30.58	30.88	30.54	30.45	30.35	30.45	30.27	30.27	30.32	30.37	30.70	30.84	30.88
1890	30.74	30.57	30.59	30.67	30.29	30.38	30.29	30.27	30.36	30.35	30.40	30.63	30.74
1891	30.59	30.68	30.59	30.47	30.41	30.26	30.33	30.23	30.43	30.54	30.84	30.66	30.84
1892	30.67	30.73	30.54	30.50	30.34	30.26	30.52	30.19	30.43	30.46	30.45	30.64	30.73
1893	30.46	30.83	30.63	30.47	30.40	30.32	30.25	30.22	30.36	30.53	30.71	30.90	30.90
1894	30.66	30.84	30.64	30.44	30.46	30.31	30.22	30.22	30.53	30.40	30.77	30.47	30.84
1895	30.51	30.59	30.56	30.64	30.31	30.47	30.26	30.27	30.40	30.58	30.70	30.78	30.78
1896	30.58	30.56	30.67	30.55	30.41	30.28	30.39	30.33	30.38	30.49	30.76	30.94	30.94
1897	30.75	30.69	30.73	30.66	30.41	30.29	30.30	30.22	30.43	30.59	30.60	30.56	30.75
1898	30.54	30.64	30.64	30.29	30.27	30.28	30.32	30.24	30.43	30.47	30.56	30.63	30.64
1899	30.98	30.71	30.44	30.42	30.35	30.25	30.26	30.24	30.42	30.56	30.53	30.64	30.98
1900	30.59	30.73	30.60	30.42	30.33	30.18	30.20	30.31	30.33	30.45	30.66	30.52	30.73
1901	30.76	30.39	30.40	30.48	30.18	30.22	30.18	30.19	30.48	30.60	30.48	30.54	30.76
1902	30.79	30.41	30.46	30.32	30.37	30.48	30.26	30.24	30.33	30.59	30.53	30.71	30.79
1903	30.58	30.67	30.58	30.46	30.48	30.30	30.18	30.41	30.44	30.39	30.73	30.61	30.73
1904	30.91	30.67	30.86	30.53	30.37	30.35	30.29	30.39	30.62	30.56	30.55	30.51	30.91
1905	30.70	30.73	30.60	30.44	30.31	30.19	30.18	30.21	30.33	30.54	30.63	30.83	30.83
1906	30.66	30.90	30.88	30.51	30.39	30.28	30.33	30.22	30.42	30.59	30.52	30.70	30.90
1907	30.64	30.81	30.59	30.39	30.39	30.26	30.13	30.35	30.42	30.61	30.53	30.52	30.81
1908	30.61	30.88	30.65	30.53	37.24	30.33	30.24	30.30	30.40	30.60	30.45	30.61	30.88
1909	30.66	30.49	30.50	30.70	30.28	30.26	30.26	30.33	30.42	30.59	30.68	30.48	30.70
1910	30.76	30.72	30.46	30.29	30.42	30.24	30.19	30.28	30.30	30.48	30.34	30.75	30.76
1911	30.77	30.64	30.63	30.58	30.38	30.19	30.22	30.18	30.36	30.52	30.68	30.59	30.77
1912	30.63	31.52	30.69	30.56	30.23	30.44	30.39	30.24	30.42	30.48	30.53	30.60	30.63
1913	30.76	30.60	30.91	30.50	30.34	30.48	30.19	30.37	30.52	30.50	30.56	30.41	30.91
1914	30.60	30.69	30.59	30.44	30.56	30.26	30.20	30.19	30.46	30.39	30.71	30.63	30.71
1915	30.56	30.60	30.42	30.47	30.35	30.30	30.22	30.21	30.40	30.45	30.52	30.60	30.60
1916	30.68	30.67	30.46	30.31	30.30	30.22	30.32	30.27	30.44	30.46	30.60	30.56	30.68
1917	30.81	30.64	30.54	30.48	30.23	30.33	30.21	30.26	30.44	40.37	30.70	30.74	30.81
1918	30.47	30.74	30.63	30.49	30.42	30.24	37.21	30.44	30.40	30.54	30.54	30.73	30.74
1919	30.78	30.53	30.74	30.38	30.34	30.46	30.34	30.28	30.42	30.46	30.64	30.83	30.83
1920	30.92	30.92	30.51	30.26	30.52	30.34	30.25	30.27	30.34	30.36	30.61	30.57	30.92
1921	30.97	30.57	30.57	30.41	30.42	30.30	30.26	30.28	30.28	30.58	30.47	30.74	30.97
1922	30.73	30.62	30.69	30.52	30.48	30.17	30.21	30.31	30.47	30.48	30.50	30.65	30.73
1923	30.85	30.58	30.73	30.74	30.30	30.21	30.38	30.20	20.64	30.44	30.62	30.87	30.87
1924	30.72	30.71	30.21	30.43	30.16	30.28	30.25	30.25	30.53	30.52	30.50	30.76	30.76
1925	30.69	30.53	30.56	30.60	30.32	30.28	30.27	30.47	30.50	30.51	30.63	30.56	30.69
1926	30.54	30.46	30.62	30.35	30.38	30.25	30.24	30.21	30.36	30.36	30.59	30.67	30.67
1927	31.01	30.49	30.53	30.53	30.44	30.32	30.25	30.26	30.38	30.43	30.75	30.62	31.01
1928	30.58	30.68	30.54	30.49	30.50	30.20	30.28	30.27	30.42	30.55	30.55	30.56	30.68
1929	30.68	30.50	30.59	30.45	30.55	30.16	30.34	30.34	30.40	30.72	30.57	30.61	30.72
1930	30.80	30.59	30.55	30.48	30.37	30.41	30.22	30.34	30.27	30.51	30.84	30.68	30.80
1931	30.55	30.44	30.40	30.56	30.29	30.26	30.14	30.37	30.50	30.50	30.62	30.72	30.72
1932	30.61	30.75	30.33	30.54	30.41	30.23	30.16	30.28	30.50	30.44	30.83	30.68	30.83
1933	30.66	30.76	30.50	30.41	30.29	30.26	30.35	30.34	30.20	30.50	30.64	30.94	30.76
1934	30.56	30.97	30.75	30.68	30.51	30.34	30.31	30.42	30.46	30.37	30.60	30.58	30.97
1935	30.77	30.77	30.73	30.24	30.35	30.26	30.37	30.25	30.36	30.58	30.46	30.72	30.77
1936	30.56	30.60	30.40	30.52	30.62	30.20	30.80	30.35	30.40	30.49	30.67	30.73	30.73
1937	30.81	30.48	30.47	30.47	30.44	30.22	30.19	30.31	30.53	30.64	30.69	30.64	30.81
1938	30.54	10.78	30.41	30.42	30.39	30.30	30.11	30.20	30.36	30.42	30.51	30.61	30.78
1939	30.50	30.68	30.64	30.44	30.26	30.24	30.24	30.24	30.50	30.53	30.56	30.52	30.68
1940	30.56	30.46	30.44	30.40	30.19	30.28	30.36	30.35	30.35	30.50	30.68	30.63	30.68
1941	30.63	30.35	30.45	30.41	30.40	30.22	30.20	30.36	30.42	30.58	30.52	30.59	30.63
1942	30.60	30.43	30.31	30.36	30.31	30.29	30.25	30.43	30.57	30.47	30.55	30.72	30.72
1943	30.69	30.68	30.92	30.41	30.43	30.24	30.38	30.10	30.53	30.50	30.47	30.76	30.92
1944	30.56	30.61	30.68	30.47	30.47	30.31	30.26	30.39	30.42	30.56	30.55	30.72	30.72
1945	30.49	30.65	30.37	30.70	30.24	30.24	30.23	30.26	30.53	30.53	30.57	30.52	30.70

TABLE 110.—*Pressure—Lowest*

[Inches, reduced to sea level]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1873	29.58	29.36	29.24	29.60	29.49	29.66	29.80	29.78	29.70	29.34	29.08	29.43	29.08
1874	29.58	29.68	29.57	29.48	29.54	29.65	29.75	29.69	29.49	29.70	29.22	29.61	29.22
1875	29.64	29.43	29.48	29.59	29.46	29.76	29.69	29.74	29.64	29.53	29.53	29.44	29.43
1876	29.56	29.34	29.25	29.56	29.66	29.74	29.79	29.77	29.16	29.56	29.46	29.16	29.16
1877	29.42	29.50	29.14	29.46	29.50	29.58	29.72	29.70	29.74	29.30	29.39	29.34	29.14
1878	29.42	29.39	29.25	29.35	29.61	29.52	29.61	29.69	29.56	28.79	28.99	28.72	28.72
1879	29.36	29.52	29.42	29.42	29.70	29.51	29.59	29.62	29.72	29.58	29.58	29.64	29.64
1880	29.55	29.34	29.50	29.56	29.84	29.71	29.69	29.74	29.70	29.53	29.50	29.68	29.34
1881	29.30	29.38	29.07	29.56	29.60	29.63	29.69	29.71	29.84	29.63	29.74	29.45	29.07
1882	29.41	29.35	29.56	29.40	29.55	29.55	29.66	29.65	29.59	29.83	29.81	29.68	29.35
1883	29.64	29.75	29.40	29.62	29.35	29.72	29.71	29.72	29.62	29.53	29.81	29.61	29.35
1884	29.24	29.35	29.51	29.23	29.66	29.67	29.66	29.73	29.77	29.76	29.50	29.58	29.23
1885	29.34	29.19	29.63	29.55	29.51	29.53	29.71	29.60	29.55	29.15	29.62	29.29	29.15
1886	28.96	29.37	29.27	29.40	29.58	29.61	29.74	29.69	29.72	29.80	29.50	29.53	28.96
1887	29.48	29.41	29.49	29.34	29.63	29.63	29.72	29.72	29.66	29.56	29.46	29.43	29.34
1888	29.75	29.55	29.42	29.58	29.69	29.74	29.64	29.46	29.73	29.55	29.53	28.97	28.97
1889	29.20	29.57	29.47	29.29	29.73	29.68	29.70	29.73	29.56	29.54	29.49	29.67	29.20
1890	29.77	29.67	29.48	29.53	29.63	29.78	29.75	29.80	29.93	29.44	29.68	29.45	29.44
1891	29.28	29.51	29.50	29.54	29.83	29.68	29.78	29.74	29.74	29.72	29.49	29.63	29.28
1892	29.35	29.44	29.37	29.62	29.58	29.67	29.83	29.76	29.72	29.66	29.57	29.59	29.35
1893	29.24	29.31	29.44	29.46	29.43	29.65	29.74	29.59	29.74	29.05	29.76	29.54	29.05
1894	29.48	29.54	29.67	29.55	29.53	29.70	29.75	29.84	29.74	29.47	29.74	29.52	29.47
1895	29.38	29.42	29.54	29.40	29.66	29.83	29.70	29.78	29.77	29.70	29.54	29.44	29.38
1896	29.58	28.71	29.19	29.76	29.73	29.60	29.76	29.86	29.63	29.69	29.58	29.79	28.71
1897	29.72	29.55	29.39	29.51	29.54	29.71	29.66	29.70	29.89	29.70	29.36	29.43	29.36
1898	29.45	29.44	29.84	29.47	29.50	29.66	29.76	29.82	29.75	29.48	29.47	29.29	29.29
1899	29.33	29.56	29.04	29.59	29.68	29.79	29.83	29.74	29.71	29.47	29.50	29.23	29.04
1900	29.38	29.30	29.39	29.64	29.45	29.71	29.59	29.87	29.70	29.85	29.34	29.31	29.30
1901	29.32	29.58	29.37	29.10	29.56	29.78	29.80	29.86	29.68	29.67	29.38	29.53	29.10
1902	29.35	29.25	29.34	29.24	29.71	29.50	29.79	29.74	29.64	29.55	29.49	29.42	29.24
1903	29.37	29.36	29.61	29.38	29.92	29.63	29.64	29.77	29.74	29.64	29.68	29.46	29.36
1904	29.59	29.62	29.61	29.54	29.67	29.72	29.68	29.83	29.78	29.54	29.22	29.37	29.22
1905	29.46	29.53	29.58	29.54	29.68	29.74	29.63	29.65	29.90	29.76	29.48	29.56	29.46
1906	29.34	29.64	29.52	29.54	29.48	29.71	29.72	29.81	29.76	29.64	29.64	29.68	29.34
1907	29.59	29.68	29.54	29.26	29.68	29.60	29.71	29.74	29.66	29.65	29.33	29.26	29.26
1908	28.93	29.03	29.60	29.40	29.56	29.82	29.74	29.72	29.81	29.64	29.62	29.55	28.93
1909	29.24	29.31	28.92	29.67	29.50	29.66	29.60	29.46	29.87	29.63	29.61	29.24	28.92
1910	29.28	29.64	29.51	29.60	29.58	29.58	29.67	29.70	29.82	29.68	29.60	29.47	29.28
1911	29.48	29.75	29.26	29.51	29.51	29.67	29.70	29.77	29.75	29.69	29.39	29.53	29.29
1912	29.62	28.99	29.38	29.33	29.60	29.83	29.61	29.58	29.84	29.76	29.61	29.57	28.99
1913	28.90	29.43	29.49	29.61	29.75	29.81	29.78	29.75	29.72	29.36	29.14	29.37	28.90
1914	29.28	29.47	29.25	29.66	29.45	29.72	29.78	29.81	29.81	29.69	29.57	29.45	29.25
1915	29.05	29.61	29.61	29.49	29.36	29.68	29.60	29.52	29.67	29.71	29.27	29.32	29.05
1916	29.70	29.25	29.09	29.41	29.56	29.61	29.62	29.69	29.76	29.55	29.38	29.34	29.09
1917	29.35	29.26	29.55	29.23	29.46	29.77	29.59	29.61	29.64	29.45	29.33	29.27	29.23
1918	28.89	29.08	29.50	29.60	29.55	29.37	29.75	29.78	29.76	29.62	29.28	29.59	28.89
1919	29.64	29.27	29.48	29.68	29.59	29.76	29.72	29.73	29.60	29.80	29.51	29.50	29.27
1920	29.53	29.60	29.33	29.23	29.69	29.41	29.62	29.74	29.40	29.51	29.26	29.39	29.23
1921	29.53	29.46	29.72	29.55	29.58	29.67	29.71	29.72	29.71	29.52	29.50	29.42	29.42
1922	28.85	29.50	29.37	29.25	29.37	29.61	29.72	29.66	29.81	29.57	29.58	29.36	28.85
1923	29.53	29.63	29.16	29.37	29.45	29.42	29.64	29.68	29.80	29.54	29.56	29.34	29.16
1924	29.36	29.47	28.98	29.37	29.38	29.67	29.66	29.56	29.63	29.83	29.36	29.28	28.98
1925	29.70	29.36	29.49	29.58	29.36	29.65	29.56	29.78	29.73	29.24	29.32	29.46	29.24
1926	29.40	29.25	29.30	29.48	29.47	29.57	29.47	29.77	29.77	29.22	29.34	29.57	29.22
1927	29.44	29.62	29.51	29.35	29.60	29.69	29.74	29.77	29.58	29.30	29.44	29.34	29.30
1928	29.16	29.34	29.25	29.18	29.52	29.57	29.75	29.66	29.65	29.74	29.58	29.36	29.16
1929	29.40	29.63	28.96	29.10	29.09	29.63	29.69	29.63	29.74	29.29	29.32	29.44	28.96
1930	29.74	29.58	29.12	29.23	29.63	29.57	29.63	29.72	29.66	29.66	29.41	29.55	29.12
1931	29.06	29.64	29.20	29.16	29.62	29.39	29.55	29.49	29.65	29.53	29.72	29.70	29.06
1932	29.53	29.55	28.67	29.47	29.75	29.53	29.40	29.73	29 63	29 63	29 50	29 55	28.67
1933	29.27	29.41	29.20	29.45	29.58	29.68	29.72	28.94	29.53	29.61	29.34	29.61	28.94
1934	29.16	29.32	29.59	29.35	29.70	29.50	29.73	29.79	29.76	29.55	29.52	29.31	29.16
1935	29.56	29.51	29.48	29.41	29.63	29.56	29.73	29.68	29.64	29.59	29.64	29.66	29.41
1936	29.07	29.43	29.07	29.39	29.66	29.56	29.65	29.75	29.68	29.30	29.48	29.55	29.07
1937	29.66	29.41	29.42	29.50	29.68	29.53	29.74	29.78	29.63	29.37	29.42	29.59	29.37
1938	29.22	29.44	29.51	29.19	29.41	29.73	29.72	29.76	29.53	29.58	29.67	29.50	29.19
1939	29.36	29.33	29.46	29.53	29.42	29.68	29.64	29.69	29.69	29.56	29.90	29.48	29.33
1940	29.56	29.04	29.41	29.46	29.57	29.47	29.81	29.65	29.54	29.76	29.71	29.32	29.04
1941	29.65	29.29	29.39	29.54	29.57	29.49	29.70	29.66	29.77	29.78	29.40	29.38	29.29
1942	29.36	29.25	28.74	29.65	29.74	29.60	29.76	29.76	29.62	29.56	29.43	28.96	28.74
1943	29.49	29.49	29.45	29.20	29.66	29.67	29.73	29.64	29.83	29.38	29.71	29.53	29.20
1944	29.58	29.54	29.48	29.43	29.72	29.51	29.63	29.70	29.50	29.49	29.64	29.08	29.08
1945	29.25	29.70	29.35	29.44	29.53	29.57	29.67	29.74	29.69	29.67	29.54	29.39	29.25

TABLE 111.—*Standard deviations of monthly averages*

[Period of record, 1871–1945]

[Pressure (inches)]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Average	30.00	29.97	29.91	29.89	29.87	29.86	29.87	29.89	29.96	29.97	29.99	30.00
Standard deviation	.071	.077	.085	.064	.058	.043	.039	.036	.040	.059	.061	.059

TABLE 112.—*Extremes of pressure*

[Period of 73 years, 1873–1945]

Month	Mean (station)		Mean (sea level)		Highest (sea level)			Lowest (sea level)		
	Inches	Millibars	Inches	Millibars	Inches	Millibars	Date	Inches	Millibars	Date
January	30.00	1,015.9	30.13	1,020.3	31.01	1,050.1	27, 1927	28.85	977.0	11, 1922.
February	29.97	1,014.9	30.09	1,019.0	30.97	1,048.8	28, 1934	28.71	972.2	6, 1896.
March	29.91	1,012.9	30.04	1,017.3	30.92	1,047.1	18, 1913	28.67	970.9	6, 1932.
April	29.89	1,012.2	30.02	1,016.5	30.74	1,041.0	1, 1923	29.10	985.4	3, 1901.
May	29.87	1,011.5	30.00	1,015.9	30.62	1,036.9	22, 1936	29.35	993.9	21, 1883.
June	29.86	1,011.2	29.97	1,014.9	30.50	1,032.9	15, 1884	29.37	994.6	12, 1918.
July	29.87	1,011.5	29.98	1,015.2	30.52	1,033.6	7, 1892	29.40	995.6	1, 1932.
August	29.89	1,012.2	30.01	1,016.3	30.47	1,031.8	24, 1925	29.46	997.6	21, 1888.
September	29.96	1,014.6	30.06	1,018.0	30.62	1,036.9	22, 1904	29.16	987.5	17, 1876.
October	29.97	1,014.9	30.09	1,019.0	30.83	1,044.0	26, 1879	28.79	974.9	23, 1878.
November	29.99	1,015.6	30.13	1,020.3	30.84	1,044.4	19, 1891	28.99	981.7	22, 1878.
December	30.00	1,015.9	30.13	1,020.3	30.94	1,047.8	29, 1933	28.72	972.6	10, 1878.
Year	29.93	1,013.5	30.05	1,017.6	31.01	1,050.1	Jan. 27, 1927	28.67	970.9	Mar. 6, 1932.

TABLE 113.—*Average seasonal pressure*

Year	Winter	Spring	Summer	Autumn
1873		881	916	955
1874	1,070	911	910	1,031
1875	1,077	907	909	993
1876	1,011	929	913	899
1877	1,003	894	866	987
1878	986	822	832	941
1879	958	912	852	1,036
1880	1,042	936	897	1,021
1881	1,013	794	844	1,020
1882	1,054	936	874	991
1883	1,090	876	896	1,022
1884	1,012	848	879	1,093
1885	996	905	874	901
1886	959	871	839	997
1887	1,026	890	866	964
1888	1,030	941	867	939
1889	968	814	904	927
1890	1,048	918	893	918
1891	954	922	868	1,014
1892	1,006	906	894	970
1893	952	875	858	963
1894	1,024	899	887	979
1895	957	908	877	976
1896	961	935	897	973
1897	1,025	924	842	1,003
1898	959	906	891	971
1899	989	915	880	990
1900	966	890	875	984
1901	929	793	872	985
1902	932	878	853	987
1903	961	962	843	989
1904	1,013	918	920	999
1905	1,025	890	855	967
1906	1,029	919	859	968
1907	1,055	889	844	948
1908	948	887	932	994
1909	961	842	870	1,019
1910	970	884	855	890
1911	1,028	961	875	963
1912	978	922	896	957
1913	983	942	898	975
1914	935	941	879	1,002
1915	1,019	851	850	973
1916	1,006	825	859	1,009
1917	918	857	883	984
1918	950	919	879	970
1919	967	918	907	980
1920	1,014	861	893	974
1921	976	946	903	921
1922	1,014	944	877	963
1923	1,015	882	852	985
1924	1,013	770	865	1,016
1925	1,035	905	886	942
1926	860	835	847	953
1927	993	919	877	933
1928	970	820	844	977
1929	1,007	868	881	966
1930	1,030	853	857	984
1931	951	847	858	988
1932	991	842	814	986
1933	985	853	859	917
1934	1,039	938	839	976
1935	1,011	879	863	1,003
1936	958	877	826	973
1937	1,062	859	865	955
1938	1,021	883	875	976
1939	967	884	846	985
1940	873	823	906	982
1941	968	892	859	987
1942	931	874	889	990
1943	949	913	852	954
1944	1,004	935	871	985
1945	993	891	886	961

TABLE 114.—*Pressure differences between Washington, D. C., and Oswego, N. Y.*

[Departure from average (thousandths of an inch)]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1873	−24	−19	62	−15	−8	0	11	−42	28	0	4	8
1874	7	−36	27	−11	19	−6	43	−24	−22	11	29	−2
1875	−5	29	−26	−20	10	14	−35	−16	17	15	−36	15
1876	46	26	2	16	5	24	−11	−19	−42	58	−68	5
1877	−3	−15	−18	−59	−18	10	−6	11	10	−13	−5	−30
1878	−35	−53	6	−15	4	−8	−25	2	−19	−6	−38	21
1879	3	−17	−30	−36	−23	−17	−13	−22	−2	−3	17	−45
1880	−16	24	−42	49	21	−11	−24	−27	7	−4	−6	−34
1881	−43	−45	−42	−16	−19	−45	−12	−5	3	−14	31	9
1882	18	9	16	14	−20	18	5	−14	−61	−48	−39	22
1883	−1	44	17	−4	9	22	28	4	−23	−24	52	2
1884	15	−9	−19	−27	18	−40	5	12	33	22	−25	11
1885	37	−5	22	10	−13	42	1	3	28	−29	−12	14
1886	−26	6	2	−36	−4	−12	−34	3	22	−19	25	−20
1887	33	18	−19	14	−21	−11	−5	−14	1	11	8	−11
1888	−8	−24	−16	11	−14	3	−2	29	−21	18	−47	11
1889	−20	32	−53	−53	−3	15	−12	10	−21	−52	−12	23
1890	42	−3	3	1	−5	−5	8	13	−18	−23	15	−34
1891	−26	33	−46	27	−12	−28	8	0	7	−16	21	30
1892	−11	−52	−12	20	5	18	2	−8	25	23	−26	−22
1893	6	9	4	−1	24	−8	6	−16	14	−1	15	17
1894	−6	−36	39	−22	−28	33	5	0	−3	21	29	−6
1895	11	49	−14	−24	36	−17	31	26	23	21	−21	−5
1896	−30	15	3	29	32	3	27	21	−10	−24	18	−27
1897	41	−39	14	24	1	3	0	8	−23	−36	26	−3
1898	−1	5	8	−23	−25	8	−16	35	29	2	−7	41
1899	16	17	15	34	14	9	20	−36	26	−37	−44	46
1900	26	28	6	−5	12	11	28	−9	−4	−22	6	11
1901	−6	26	22	−85	−23	27	−8	−13	−3	41	−2	−4
1902	5	−1	2	39	17	31	16	2	−8	15	−17	−12
1903	47	46	−15	−35	−10	−18	14	−6	24	−2	6	55
1904	−1	10	13	6	9	1	15	20	19	11	−5	−2
1905	−19	25	−16	17	14	6	1	−5	7	16	5	−16
1906	−5	−38	−17	−1	17	1	−16	−7	−5	−27	−40	−40
1907	−15	5	26	3	−2	−11	14	2	25	20	−5	22
1908	17	29	32	36	12	9	3	−4	5	−53	48	26
1909	−24	7	14	35	−1	−7	12	−8	−4	30	−25	14
1910	−16	14	23	−21	15	−16	3	16	−15	19	4	−4
1911	8	2	44	5	6	−14	4	−3	−7	−24	53	−4
1912	22	6	−40	24	27	4	0	22	0	20	42	55
1913	46	21	72	−9	−20	−13	16	5	−17	−32	18	−27
1914	−40	−45	11	4	1	0	−27	14	−13	−18	38	−40
1915	−42	−47	−22	−12	−15	−30	−15	−16	5	14	34	4
1916	59	−30	−32	4	18	−26	−10	13	39	10	19	15
1917	18	27	48	−15	−4	9	16	6	−15	26	−48	−28
1918	−4	59	−2	−53	42	−2	−8	14	15	11	22	−24
1919	26	−5	−52	25	−22	−4	−3	18	28	10	−8	3
1920	−26	−21	64	23	−17	−6	24	−9	−5	26	−28	20
1921	−2	−20	22	15	−36	−15	0	24	29	38	−50	0
1922	−28	5	−8	28	−16	−1	−12	−1	−6	4	10	−22
1923	−31	0	32	33	−23	10	−38	15	−12	−29	−26	156
1924	53	−47	−76	12	17	1	8	13	5	−31	34	16
1925	−32	−4	0	−26	13	19	0	6	−14	10	25	17
1926	15	108	11	26	−30	20	−26	−8	−24	−3	40	−52
1927	−10	−40	−26	−12	11	−8	0	−14	0	−2	24	−17
1928	60	16	31	30	−28	5	8	−1	7	49	26	0
1929	46	−28	46	1	26	−1	14	−9	−9	−6	20	−21
1930	2	8	26	21	22	40	−8	−10	9	−18	19	−8
1931	−8	−32	−36	13	13	−27	−6	−18	14	19	26	−14
1932	7	−1	26	−2	−15	−6	14	12	−9	15	−64	5
1933	4	47	−1	−6	−5	−2	−10	−44	3	−5	23	−18
1934	6	−37	−4	20	−18	8	−23	−1	−13	−4	−4	−12
1935	−12	−12	6	−45	−19	−5	1	−12	5	6	−83	−29
1936	18	1	−35	48	27	−13	−20	5	−19	20	7	−20
1937	−24	0	−3	−26	4	−25	1	−4	2	6	14	−5
1938	−9	−17	26	13	2	−7	12	19	−5	−46	−6	−3
1939	−22	17	−19	19	5	−5	−2	−14	3	15	−48	10
1940	21	−100	0	−25	−38	32	−14	−36	−14	−18	9	−21
1941	−64	−7	−20	−43	−1	−8	9	15	24	25	34	−7
1942	10	−27	8	19	6	−12	4	8	5	−13	23	12
1943	−46	59	−81	21	18	23	−5	13	−19	−36	−14	13
1944	−9	−6	−28	−16	0	15	8	18	0	−23	−44	0
1945	−29	4	10	42	3	−14	−1	10	−9	53	−21	−24

TABLE 115.—*Pressure differences between Washington, D. C., and Wilmington, N. C.*

[Departure from average (thousandths of an inch)]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec
1873	18	4	−35	−6	85	19	12	17	28	−2	−2	5
1874	−8	43	29	35	32	10	26	28	21	25	52	3
1875	81	−4	40	28	8	−2	0	22	7	−28	60	19
1876	−51	18	27	13	19	10	10	37	9	22	42	7
1877	22	38	29	88	40	9	16	13	75	−4	90	47
1878	62	34	20	26	14	24	−2	10	45	−6	−9	−23
1879	−14	17	46	−17	58	−8	9	−6	26	28	−3	34
1880	67	−7	56	−21	−11	8	29	27	−14	21	76	31
1881	48	57	−8	−13	47	22	31	47	−12	−8	39	34
1882	33	−8	−71	52	34	−5	29	33	15	49	77	39
1883	53	28	32	42	9	13	10	56	51	63	12	8
1884	4	11	38	30	23	60	−7	41	1	13	30	43
1885	−8	37	28	30	49	23	9	20	31	32	−7	−11
1886	63	9	−13	62	−8	30	33	21	10	17	−45	51
1887	−38	14	50	9	51	50	13	47	11	28	14	64
1888	22	35	19	11	31	5	38	−31	20	−31	75	−9
1889	13	22	37	46	25	−1	7	15	−6	6	9	−12
1890	−16	9	2	4	4	2	20	−19	15	−59	−29	−9
1891	−29	−21	75	−19	41	26	8	−21	6	−6	25	−34
1892	−9	54	17	−16	−48	−32	−5	−10	28	−33	−17	21
1893	−14	8	22	−7	−21	23	−1	25	−21	37	41	−34
1894	8	7	0	−5	−26	−38	−14	13	35	−10	−32	11
1895	−9	−27	−11	36	26	35	34	−38	−27	−13	50	18
1896	34	−41	−12	−12	−9	7	−40	−11	−27	7	6	29
1897	11	37	4	13	−15	11	1	−22	−5	63	−35	−11
1898	−35	1	62	−9	−9	−4	25	−48	−15	26	−13	−38
1899	8	10	−20	31	12	2	−8	46	−10	74	16	−5
1900	4	−13	14	28	−14	−8	−22	−20	−38	39	−17	10
1901	−16	−17	−48	20	38	7	−2	−11	13	11	−23	10
1902	−1	10	−10	−32	−1	−8	25	24	7	22	39	34
1903	9	−12	82	0	84	45	0	39	27	6	30	−10
1904	22	35	76	11	36	38	21	13	10	34	10	7
1905	14	63	52	−4	26	29	7	3	10	20	7	39
1906	26	77	66	−10	12	24	32	13	36	74	−33	−28
1907	−5	30	−5	−10	12	16	−17	−2	−47	−33	−12	−38
1908	−29	−13	−12	−27	−21	33	54	13	19	59	−38	−8
1909	7	−101	−26	−18	−22	−21	−20	16	16	−46	−10	−30
1910	−40	−21	2	−31	−30	−21	−40	30	−12	−18	−48	−27
1911	−45	7	−12	14	−9	−3	−14	1	−31	14	−25	12
1912	17	10	38	−57	−13	15	−8	−42	10	−2	−56	−38
1913	−38	−4	−24	−18	−4	18	−24	0	11	−26	−31	−7
1914	−52	27	−16	−4	−24	−5	3	−45	1	2	−12	80
1915	13	8	0	−20	11	34	−8	−25	−6	−4	−32	−30
1916	−24	−7	−4	−10	−25	1	11	−17	−6	43	−7	−30
1917	−28	−63	−16	8	−40	−39	−22	6	37	−27	6	63
1918	−10	−32	−16	48	44	13	26	4	−11	−7	4	18
1919	−15	11	39	−13	−1	58	−14	−34	−25	−16	16	14
1920	22	18	−42	−36	44	−19	−26	−13	−6	−39	13	−30
1921	2	8	−19	−13	28	4	−22	−5	−43	−21	−14	−25
1922	26	−4	−9	−14	12	−20	−10	−18	22	−24	−40	19
1923	−31	−14	−27	−23	4	−49	14	−23	1	7	22	−58
1924	−3	18	−33	2	−33	2	15	2	15	14	−20	−15
1925	22	−17	8	21	−15	−43	−15	33	−30	−28	−4	−32
1926	−31	−60	−37	−23	−24	5	0	−33	1	−54	6	2
1927	−19	−17	5	20	−49	5	−37	9	−30	−34	−50	−19
1928	−94	−29	−30	−42	−6	−57	−28	−28	11	−18	−62	29
1929	−3	24	−64	−70	−38	−14	−4	4	15	−18	−14	−59
1930	35	−29	−58	12	−32	−16	−18	−18	−64	0	5	16
1931	−55	−2	16	−23	−34	−27	−20	−38	−82	−61	−20	−20
1932	57	−28	−37	−16	−2	−25	−32	−27	−10	−24	50	−11
1933	−35	−53	−52	20	−19	−16	−1	−12	−48	16	−55	−26
1934	−26	34	25	4	9	−52	−29	−28	−7	−30	−10	−26
1935	−32	−17	−30	14	−9	−30	−15	13	1	−6	23	−21
1936	−24	15	−31	−25	−4	−10	−28	−35	−13	−14	−41	53
1937	34	−23	−11	1	−20	−35	−11	−31	0	−25	−14	−11
1938	−32	−13	−44	−28	−2	−18	−36	−46	−23	2	4	−5
1939	−44	−42	−16	−52	−39	−15	4	−25	−4	−30	12	−72
1940	−2	−35	7	−19	−25	−43	4	63	4	−5	−25	10
1941	24	−3	−13	14	−40	−13	−9	−20	−13	−45	−19	4
1942	−10	−36	−49	−20	−16	10	−3	−3	−16	10	1	−11
1943	−14	−77	−86	−29	−25	−28	0	−13	19	−8	−19	−3
1944	15	13	32	−14	−14	14	7	−22	3	10	0	−28
1945	21	−7	−42	31	−48	−11	10	−2	11	−32	−17	12

TABLE 116.—*Pressure differences between Washington, D. C., and Cincinnati, Ohio*

[Departure from average (thousandths of an inch)]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1873	6	−36	−60	−12	60	−2	−6	−27	−26	−57	−46	−34
1874	−5	22	−68	−32	−56	−45	13	−24	−31	−24	20	−26
1875	−9	−8	50	−29	−13	36	38	54	19	4	73	81
1876	32	63	68	36	73	78	35	46	3	65	17	29
1877	35	−13	23	69	20	58	77	74	108	113	126	91
1878	63	66	72	63	40	48	48	31	42	−31	−48	−59
1879	−77	−20	−2	−65	20	−30	1	−39	2	2	22	46
1880	69	31	−11	8	6	−21	−28	8	−42	7	16	−72
1881	−1	51	−72	−76	6	−33	−46	7	22	22	48	25
1882	15	55	27	13	36	−9	2	17	−38	35	18	10
1883	43	25	−26	41	−2	23	−14	−10	11	54	20	10
1884	−39	53	25	−30	−6	46	−32	7	22	−7	−13	45
1885	−27	−3	−20	25	29	3	5	17	20	21	−20	−37
1886	21	−9	−8	51	−23	6	0	0	14	−27	−12	−5
1887	26	70	−33	3	40	7	8	0	21	−34	−7	36
1888	83	22	−9	−6	46	0	18	−6	−3	2	14	−31
1889	0	19	−58	−45	−11	19	13	−3	−32	−66	5	30
1890	26	38	−12	13	13	−14	25	−29	3	−51	−24	−33
1891	−22	47	54	−7	−37	15	−1	−5	−10	−36	58	43
1892	−64	29	−35	23	32	27	−2	−13	28	−53	−20	−39
1893	−15	23	19	74	−22	12	−17	−19	21	26	31	−17
1894	26	−4	23	1	−29	−15	−9	−5	5	6	−5	−1
1895	1	−110	−11	19	8	−4	7	−10	−20	−46	27	62
1896	6	−56	−55	25	14	−3	8	−23	−18	−21	17	−12
1897	−5	20	38	20	−61	−21	−91	−14	−36	27	2	9
1898	4	4	83	−62	−21	−6	15	9	4	51	−4	−22
1899	25	−6	27	34	14	−17	−5	−9	−19	40	12	5
1900	2	30	−20	−9	−10	18	−11	−39	−24	44	−32	1
1901	−58	−82	30	−96	−2	21	−15	32	−2	18	−89	25
1902	−31	−86	4	−35	3	−5	−7	−13	18	6	27	11
1903	−3	1	42	−19	75	−3	−21	8	13	−56	−22	−17
1904	26	29	88	−18	35	30	12	13	5	10	−45	11
1905	−72	−8	47	−16	22	6	21	1	−3	4	−15	−17
1906	16	−17	19	−46	−6	25	23	10	19	7	−48	−31
1907	35	10	18	−53	14	19	−26	−14	−18	−34	−26	0
1908	−27	43	39	−18	33	17	21	10	16	−3	2	−7
1909	−2	19	−47	50	1	−3	−15	−5	−8	−10	23	−51
1910	−8	−11	−7	−5	−29	−34	−11	22	−12	−18	−11	−39
1911	−10	−2	3	43	−32	−34	−17	0	−4	12	−3	28
1912	−26	−25	11	11	8	−12	5	−15	−5	−18	−54	−7
1913	45	−25	51	−46	−32	−31	−11	11	19	−39	7	−72
1914	−34	−4	−35	−5	−39	−7	−2	4	−10	24	0	15
1915	19	28	−98	−24	21	28	−3	0	11	18	40	−1
1916	52	−74	−7	−13	−4	36	33	−20	−2	37	21	4
1917	2	−47	37	−14	−66	−3	17	5	1	16	−50	9
1918	6	40	−21	25	18	−5	−21	23	−28	49	−6	69
1919	−40	23	−31	12	27	60	8	−24	−16	49	15	2
1920	−22	−40	35	5	10	−28	−1	21	−24	−20	−12	3
1921	3	16	63	1	−23	−7	−1	26	−12	0	6	−10
1922	−13	12	50	10	21	−22	3	−11	3	−12	−38	35
1923	14	−38	−1	0	40	−51	10	−3	12	−22	0	19
1924	−11	−4	−86	23	−21	23	−2	−3	8	−6	13	−2
1925	22	25	−6	14	−29	−7	−9	14	3	−24	25	−77
1926	−16	−45	−34	−39	−41	−5	5	1	29	−7	53	11
1927	−26	−7	11	45	−1	−4	−6	−28	−12	−42	21	−28
1928	−66	3	−41	7	−54	19	−13	3	−24	40	−40	18
1929	7	4	17	−27	6	−23	2	−40	20	4	−12	8
1930	33	38	−23	11	−18	9	−40	−29	−24	−8	47	−11
1931	−49	−18	−25	−17	−6	−32	−13	−23	−35	−14	40	1
1932	18	−6	−75	−18	−13	−12	−53	−14	−16	32	10	26
1933	3	−23	−24	52	17	−45	12	−30	−23	16	−26	20
1934	−6	−11	37	25	−21	−7	3	19	28	−23	38	−19
1935	7	2	60	−31	−15	−4	5	9	−12	24	−15	−50
1936	−6	28	−11	6	−21	0	−25	10	26	13	−45	56
1937	78	−12	−87	44	−18	−40	−9	9	−13	6	−22	−4
1938	16	28	37	13	8	−12	21	−39	−10	−26	48	18
1939	17	37	9	−15	−9	8	16	−8	15	−3	−50	−55
1940	−47	−57	−8	−8	−11	−11	−9	62	−43	14	−9	24
1941	−14	−83	−72	3	−55	12	20	−13	26	18	4	12
1942	−17	−90	11	−26	15	11	−4	19	−13	15	36	2
1943	12	−19	−80	−19	41	−11	16	−11	−8	−30	−26	−42
1944	−20	16	56	29	33	−11	36	12	−6	−34	−20	−18
1945	−48	18	29	43	−12	−3	24	−6	42	−16	23	−8

TABLE 117.—*Weather data at Washington, D. C., for selected synoptic weather maps*

[Winter series (first set)]

[December 1910–January 1911]

Date	Average daily cloudiness (tenths)	Average daily temperature (° F.)	Total precipitation midnight to midnight (inches)	Lowest nighttime temperature (° F.)	Highest daytime temperature (° F.)	Number of hours with precipitation between—			
						Midnight to 6 a. m.	6 a. m. to noon	Noon to 6 p. m.	6 p. m. to midnight
Dec. 20	8	28	0	31	35				
Dec. 21	3	23	0	18	28				
Dec. 22	1	26	0	19	33				
Dec. 23	10	35	0.17	25	37		3	3	6
Dec. 24	10	38	.73	34	40	6	2		
Dec. 25	1	28	0	28	32				
Dec. 26	10	30	T	23	37			1	
Dec. 27	1	35	0	23	47				
Dec. 28	9	40	T	29	50			1	
Dec. 29	9	52	0	41	62				
Dec. 30	8	42	.09	42	42	5	2		
Dec. 31	2	27	0	21	33				
Jan. 1	10	33	.62	27	37		5	6	5
Jan. 2	10	45	.03	34	54	1	2	2	
Jan. 3	10	42	.73	48	48	4	6	6	6
Jan. 4	0	26	.06	22	28	3			
Jan. 5	4	26	0	19	34				
Jan. 6	4	36	0	26	47				
Jan. 7	3	40	0	31	50				
Jan. 8	5	42	T	34	50				2
Jan. 9	3	38	0	36	37				
Jan. 10	0	37	0	27	47				
Jan. 11	10	44	T	34	53			5	4
Jan. 12	10	50	.02	50	56	1		3	3

[Winter series (second set)]

[January 1934–February 1934]

Jan. 20	1	38	0	25	51				
Jan. 21	6	40	0	25	54				
Jan. 22	10	38	0.62	33	41		4	6	6
Jan. 23	4	46	.04	39	55	6	4		
Jan. 24	4	40	0	32	47				
Jan. 25	1	54	T	38	69				3
Jan. 26	7	44	0	41	50				
Jan. 27	7	48	.02	35	60	4	2		
Jan. 28	7	50	.03	45	65			2	1
Jan. 29	3	22	T	10	15	2			
Jan. 30	3	12	0	8	16				
Jan. 31	1	22	0	10	35				
Feb. 1	10	35	.82	32	38		4	6	2
Feb. 2	8	28	.01	23	28			3	3
Feb. 3	0	20	0	14	28				
Feb. 4	7	30	T	17	43			1	
Feb. 5	9	28	.09	26	34			6	5
Feb. 6	1	22	0	19	28				
Feb. 7	8	27	0	13	41				
Feb. 8	10	21	.02	23	24		6	1	
Feb. 9	0	3	0	−6	12				
Feb. 10	1	18	0	7	28				
Feb. 11	9	26	.02	15	36				6
Feb. 12	9	33	T	28	38			1	1

[Spring series (first set)]

[April 1908–May 1908]

Apr. 19	6	62	T	56	72		1	1	
Apr. 20	1	62	0	44	80				
Apr. 21	0	52	0	43	60				
Apr. 22	1	58	0	39	76				
Apr. 23	2	69	0	55	83				
Apr. 24	2	70	0	54	87				
Apr. 25	7	66	0.02	57	76		2	3	
Apr. 26	1	72	0	58	85				
Apr. 27	7	75	.03	66	85	2			2
Apr. 28	7	64	0	56	71				
Apr. 29	2	61	0	46	76				
Apr. 30	7	55	.17	52	68			6	2
May 1	2	48	0	39	56				
May 2	4	55	.04	44	66			2	
May 3	4	53	0	44	62				
May 4	9	47	.29	42	51	6	1	1	2
May 5	9	50	.32	45	55	6	3	1	4
May 6	10	48	.35	46	50	1	6	6	6
May 7	9	56	1.01	47	64	6	6	3	
May 8	7	58	T	51	64	1		1	
May 9	7	54	.04	49	60	2	2		1
May 10	1	54	0	44	64				
May 11	2	62	0	42	82				
May 12	4	76	T	63	88		2		2

TABLE 117.—*Weather data at Washington, D. C., for selected synoptic weather maps*—Continued

[Spring series (second set)]

[April 1939–May 1939]

Date	Average daily cloudiness (tenths)	Average daily temperature (° F.)	Total precipitation midnight to midnight (inches)	Lowest nighttime temperature (° F.)	Highest daytime temperature (° F.)	Number of hours with precipitation between—			
						Midnight to 6 a. m.	6 a. m. to noon	Noon to 6 p. m.	6 p. m. to midnight
Apr. 19	6	55	0.01	53	62	1		1	
Apr. 20	5	55	0	45	65				
Apr. 21	2	60	.07	47	72				2
Apr. 22	2	56	.01	51	63	1			
Apr. 23	1	59	0	42	76				
Apr. 24	2	70	0	50	89				
Apr. 25	8	74	T	59	90				1
Apr. 26	9	71	.98	65	81	6	2	2	3
Apr. 27	9	67	T	59	75		2	2	
Apr. 28	10	55	T	55	55	1	6	4	
Apr. 29	10	46	.25	43	49	6	6	4	
Apr. 30	10	48	.02	45	55		2	2	1
May 1	4	50	0	40	60				
May 2	9	52	T	45	60			1	
May 3	9	54	0	47	61				
May 4	0	56	0	43	70				
May 5	0	62	0	46	78				
May 6	0	70	0	51	89				
May 7	5	75	0	60	90				
May 8	8	75	T	67	84			2	1
May 9	9	76	.04	66	86	3		1	2
May 10	4	73	0	63	83				
May 11	9	68	T	59	78			3	
May 12	3	60	0	51	68				

[Summer series (first set)]

[July 1918–August 1918]

July 20	0	76	0	62	91				
July 21	0	80	0	65	96				
July 22	1	82	0	67	96				
July 23	5	82	0	71	94				
July 24	5	84	0.01	75	94				1
July 25	5	80	1.08	70	91			3	
July 26	5	79	0	68	90				
July 27	6	80	.11	71	90			2	1
July 28	8	81	.01	70	92			2	1
July 29	8	80	.24	74	86			4	
July 30	9	77	.10	72	84		1	4	2
July 31	10	66	.28	65	67	5	2	5	
Aug. 1	5	70	0	58	82				
Aug. 2	7	76	0	66	86				
Aug. 3	2	77	0	69	85				
Aug. 4	7	76	T	68	85	1			
Aug. 5	4	86	.05	74	98	2			
Aug. 6	3	92	0	78	106				
Aug. 7	2	88	.32	79	104				5
Aug. 8	3	84	0	72	96				
Aug. 9	7	85	0	79	94				
Aug. 10	9	81	.24	74	88	1		1	4
Aug. 11	7	81	T	73	89			2	

[Summer series (second set)]

[June 1923–July 1923]

June 19	1	78	0	64	92				
June 20	4	83	0	70	96				
June 21	1	86	0	73	98				
June 22	2	83	0	75	93				
June 23	5	82	0.42	70	93				4
June 24	1	82	0	70	93				
June 25	3	84	0	74	93				
June 26	4	84	T	75	93				3
June 27	4	79	0	72	86				
June 28	8	76	.33	70	86		1	3	3
June 29	7	69	0	63	75				
June 30	1	67	0	58	77				
July 1	5	67	0	54	80				
July 2	9	70	T	61	78	1			1
July 3	4	72	0	64	80				
July 4	6	78	0	68	89				
July 5	4	80	.46	67	93				2
July 6	6	80	.01	68	89			2	
July 7	8	76	T	67	84	2			
July 8	5	74	0	66	83				
July 9	5	76	0	68	84				
July 10	5	80	0	67	94				
July 11	7	80	1.13	75	90		1		5
July 12	8	78	T	70	86		1		2

TABLE 117.—*Weather data at Washington, D. C., for selected synoptic weather maps*—Continued

[Autumn series (first set)]

[September 1927–October 1927]

Date	Average daily cloudiness (tenths)	Average daily temperature (° F.)	Total precipitation midnight to midnight (inches)	Lowest nighttime temperature (° F.)	Highest daytime temperature (° F.)	Number of hours with precipitation between—			
						Midnight to 6 a. m.	6. a. m to noon	Noon to 6 p. m.	6 p. m. to midnight
Sept. 19	9	69	0.40	71	75	3	-------	3	2
Sept. 20	3	64	0	54	74	-------	-------	-------	-------
Sept. 21	2	61	0	54	68	-------	-------	-------	-------
Sept. 22	1	59	0	48	70	-------	-------	-------	-------
Sept. 23	4	60	0	50	69	-------	-------	-------	-------
Sept. 24	0	58	0	46	70	-------	-------	-------	-------
Sept. 25	1	61	0	44	78	-------	-------	-------	-------
Sept. 26	3	62	0	47	76	-------	-------	-------	-------
Sept. 27	2	66	0	51	82	-------	-------	-------	-------
Sept. 28	5	66	0	59	74	-------	-------	-------	-------
Sept. 29	4	74	0	64	83	-------	-------	-------	-------
Sept. 30	2	77	0	66	88	-------	-------	-------	-------
Oct. 1	1	80	0	67	93	-------	-------	-------	-------
Oct. 2	1	78	0	68	88	-------	-------	-------	-------
Oct. 3	8	74	1.92	68	80	-------	2	6	5
Oct. 4	2	69	T	66	80	1	-------	-------	-------
Oct. 5	0	64	0	51	76	-------	-------	-------	-------
Oct. 6	0	66	0	53	80	-------	-------	-------	-------
Oct. 7	3	72	0	60	83	-------	-------	-------	-------
Oct. 8	10	62	.50	66	66	2	6	3	2
Oct. 9	7	54	.29	48	62	2	5	-------	-------
Oct. 10	1	56	0	43	70	-------	-------	-------	-------
Oct. 11	2	61	0	50	72	-------	-------	-------	-------
Oct. 12	9	66	1.53	62	74	-------	2	4	6

TABLE 117.—*Weather data at Washington, D. C., for selected synoptic weather maps*—Continued

[Autumn series (second set)]

[September 1934-October 1934]

Date	Average daily cloudiness (tenths)	Average daily temperature (° F.)	Total precipitation midnight tomidnight (inches)	Lowest nighttime temperature (° F.)	Highest daytime temperature (° F.)	Number of hours with precipitation between—			
						Midnight to 6 a. m.	6. a. m. to noon	Noon to 6 p. m.	6 p. m. to midnight
Sept. 19	3	64	0	53	75	-------	-------	-------	-------
Sept. 20	5	68	0	55	80	-------	-------	-------	-------
Sept. 21	10	66	1.92	64	68	-------	6	6	2
Sept. 22	7	75	.04	66	84	6	-------	-------	-------
Sept. 23	8	73	T	66	80	2	1	-------	-------
Sept. 24	8	74	T	66	81	-------	-------	1	-------
Sept. 25	8	73	0	67	79	-------	-------	-------	-------
Sept. 26	5	73	0	64	82	-------	-------	-------	-------
Sept. 27	6	76	.42	66	87	-------	-------	1	-------
Sept. 28	2	66	0	57	74	-------	-------	-------	-------
Sept. 29	10	72	.41	61	80	5	2	2	3
Sept. 30	8	70	1.06	66	77	6	3	-------	-------
Oct. 1	1	56	0	52	62	-------	-------	-------	-------
Oct. 2	0	56	0	44	67	-------	-------	-------	-------
Oct. 3	3	59	0	46	72	-------	-------	-------	-------
Oct. 4	10	60	0	52	67	-------	-------	-------	-------
Oct. 5	10	58	.11	57	60	1	1	6	6
Oct. 6	10	60	.43	57	63	6	6	2	-------
Oct. 7	1	62	0	56	71	-------	-------	-------	-------
Oct. 8	0	62	0	48	76	-------	-------	-------	-------
Oct. 9	2	64	0	51	77	-------	-------	-------	-------
Oct. 10	10	59	0	56	63	-------	-------	-------	-------
Oct. 11	2	68	0	55	81	-------	-------	-------	-------
Oct. 12	1	56	0	59	66	-------	-------	-------	-------

UPPER AIR DATA

TABLE 118.—*Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for January*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	3		3					1			1		4	1	3	1		17
NNE	1		1				1			1		1	1	4	4	1		15
NE	3		1	1		1	1	1		3	3	1	1	2				18
ENE		1								6	2	1			3	1		14
E		1			1				1		6							9
ESE										5			1	1		1		8
SE								1	1	3	2	2	2	1	1	1		14
SSE					1				1	2	7	9	3	2	2			27
S								1	2	6	12	9	6	6		2		44
SSW										1	20	12	11	11	2			57
SW											3	5	5	5	3	1		22
WSW									1		1	2	4	6	9	1		24
W											1	3	5	14	13	1		37
WNW	4											2	8	25	27	11		77
NW	13	3	1	1	1				1			5	7	34	28	10		104
NNW	8			1	1					1	4	3	9	11	11	6		55
Calm		5	1							2	4	5	9	1	3	2		32
Total	32	10	7	3	4	1	2	4	7	30	66	60	76	124	109	39		574
2,000 meters, m. s. l.:																		
N		2									1		1	1	3	3		11
NNE				1							1	3	1	2	3			11
NE											2	4	1	3		1		11
ENE									1		2	2	2	1		1		9
E											1		4	1				6
ESE										1			2	1				4
SE										1	1	4	1	3	1			11
SSE											1	5	7	8				21
S	1								1		4	9	13	5	3	1		37
SSW											3	12	15	9	5			44
SW												2	2	3	4			11
WSW										1		4	2	9	2			18
W										1	2	1	3	10	8	1		26
WNW	1										1	1	8	19	16	10		56
NW	8	1									1	4	13	25	19	8		79
NNW	1	1								1		1	7	13	8	8		40
Calm											4	4	6	5	5	1		25
Total	13	2	0	1	0	0	0	0	2	5	24	56	88	118	77	34		420
3,000 meters, m. s. l.:																		
N											1		2		1			4
NNE											1	3	2	1	3			10
NE											1	1	1		1			4
ENE												4	2			1		7
E											1	1	1	1				4
ESE												1	1					2
SE												1	3	1	1			6
SSE												1	8	6				15
S											1	6	11	3	2			23
SSW											1	4	11	5	2			23
SW												1	1	2	2	1		7
WSW												2	3	4	3			12
W											2		6	5				13
WNW													9	11	2	2		24
NW	2											3	13	16	18	3		55
NNW												3	7	7	4	2		23
Calm												2	5	5	3	1		16
Total	2	0	0	0	0	0	0	0	0	0	8	33	86	67	42	10	0	248
4,000 meters, m. s. l.:																		
N														1				1
NNE										1				2	1			4
NE												1				1		2
ENE												2	4					6
E													1					1
ESE												1	1					2
SE												1				1		2
SSE											1		6	3				10
S											1	2	4	4	1			12
SSW											1	1	7	3	1			13
SW													1		3			4
WSW													1	1				2
W												1	4	3				8
WNW													10	3	5			18
NW	1											2	11	9	4	2		29
NNW											1			3	1	1		6
Calm													2					2
Total	1									1	4	11	52	32	16	5	0	122
5,000 meters, m. s. l.:																		
N														1				1
NNE										1			1	1				3
NE												1						1
ENE													1					1
E																		0
ESE												1						1
SE												1						1
SSE												1	1	2	2			6
S												2	1	3	1			7
SSW												1	5	2				8
SW														1	2			3
WSW																		0
W													1	3				4
WNW												1	7	3	2	1		14
NW	1											2	6	3	4	1		17
NNW											1		1					2
Calm																		
Total	1	0	0	0	0	0	0	0	0	1	1	10	24	19	11	2		69

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for February*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	2	1	1		1		1				1			1	3	2		13
NNE	2	2	2			2	1		1	1		1	3	1		3	1	20
NE	1	1	1		1			1	2	2	2	2	1	1		1		16
ENE	1			1		1	2	3	1	1			3	1	1			15
E					1	1	2	1		1		2				1		9
ESE							1	1	1	2		1	1					7
SE									1	1	2		2	2	1	1	1	11
SSE									1	10	11	4	4	4				34
S				1				1		3	17	9	6	1	1			39
SSW						1				2	14	16	4	6				43
SW								1			3	6	11	3	2	1		27
WSW												2	5	5	3			15
W													4	12	6	2		24
WNW	5											3	8	45	34	10		105
NW	8	1								1			8	18	37	33		106
NNW	6	2	1				2			1			1	8	12	14		47
Calm				1		1		2		4	2	3	12	2	3		1	31
Total	25	7	5	3	3	6	9	10	7	29	52	49	73	110	103	68	3	562
2,000 meters, m. s. l.:																		
N	1		1			1			1		1			4	1	2		12
NNE		4									2	1	2	5	1			15
NE		1								2	1	4	3	3				14
ENE							2			2	2	1		2	2			11
E									1		1	1	3	1				7
ESE												2	2	1				5
SE										2		2	1	2	1			8
SSE										3	5	6	11	1	1			27
S							1				5	10	9	5		1		31
SSW											2	4	16	5	2			29
SW									1		2	1	9	4	2			19
WSW												1	6	3	1			11
W													1	10	2	2		15
WNW	2										1	3	9	24	15	12		66
NW	8	1									2	1	8	17	25	8		70
NNW	5	1									2	3	5	7	6	5		34
Calm			1			1					2	5	8	6	1	1		25
Total	16	7	2	0	0	2	3	0	3	9	28	45	93	100	60	31		399
3,000 meters, m. s. l.:																		
N		1		1							1		1	3	1			8
NNE		1										1	4	3	1	1		11
NE			1								1	3	3	1				9
ENE							1	1		1		1	1	2	1			8
E												1	2	1				4
ESE													2	2				4
SE											1	1	2		1			5
SSE												6	6	1	1			14
S											2	6	8		2			18
SSW											1	5	7	6	1			20
SW											1		4	3				8
WSW													3	1				4
W														4	3			7
WNW												3	8	14	13	2		40
NW	3										1	4	8	4	12	5		37
NNW	2		1									1	4	7	3	2		20
Calm						1						3	2	4				10
Total	5	2	2	1	0	1	1	1	0	1	8	35	65	56	39	10		227
4,000 meters, m. s. l.:																		
N	1												3					4
NNE	1											1	4					6
NE										1		2						3
ENE							1					1		1				3
E												1			1			2
ESE													1					1
SE										1		1	1		1			4
SSE												2	5	1	1			9
S										1			2	1				4
SSW											1		4	5				10
SW													1	2				3
WSW													1	1				2
W														2	3			5
WNW												1	5	12	7	1		26
NW	1										2	3	4	2	7	2		21
NNW	1											1		4	2	1		9
Calm												2		3				5
Total	4	0	0	0	0	0	1	0	0	3	3	13	33	34	22	4	0	117
5,000 meters, m. s. l.:																		
N													2					2
NNE												2	3	1				6
NE													1	1				2
ENE												1						1
E												2	2					4
ESE											1	1		1				3
SE													1	2				3
SSE														1	1			2
S													1					1
SSW														2	2	1		5
SW													2	5	8			15
WSW											1	2	2	3	5			13
W																		0
WNW																		0
NW																		0
NNW		1													5	1		7
Calm												1						1
Total	0	1	0	0	0	0	0	0	0	0	2	9	14	16	21	2	0	65

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for March*

[Period of record, 1939-44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	4	1	2	1							1		3	4	2	4	1	23
NNE	3	2	1	2						1	3	1		3	1	5		22
NE	1			2	1		1			1	2		2	3	2	1		16
ENE		2	1		2	2	2	2	2	3	1	1	2	2	1	2		25
E					1	1	1	2		5		1	1	2		1		15
ESE					1			1	2	3		2	1		1	2		13
SE							2	1	1	1		1		1	1		1	9
SSE	1		1			1	2		3	11	9	3	4	1	1			37
S								4	2	16	20	6	7	2	2			59
SSW										4	15	16	7	3	3			48
SW											8	5	5	3	1	1		23
WSW											2	4	9	5				20
W	1											1	8	21	5	2		38
WNW	3	2									1	3	13	40	20	6		88
NW	9	5								1			17	26	18	23		99
NNW	11	3	1									1	4	8	9	12		49
Calm			2				1	1	1		1	3	4	5	4	2	1	25
Total	33	15	8	5	5	4	9	11	11	46	63	48	87	129	71	61	3	609
2,000 meters, m. s. l.:																		
N											2	1	4	4	6	3		20
NNE												3	5	3	3	4		18
NE								1			1	2	5		2	2		13
ENE								1	1	1	1	5	2	3	2			16
E			1								4	2	1	2	1			11
ESE										1	2	3		2	2			10
SE										2	1	1	1	1			1	7
SSE	2									2	4	6	5	2	3	1		25
S										6	8	8	10	6	3			41
SSW										2	3	15	10	5	1	1		37
SW											1	3	9	3	2			18
WSW											1	2	5	8				16
W	2											3	8	8	4	1		26
WNW		1										6	8	17	17	6		55
NW	5											4	19	16	15	10		69
NNW	6	2									2	4	6	6	6	6		38
Calm	1								1		2	3	3	6	4	1		21
Total	16	3	1	0	0	0	0	2	2	14	32	71	101	92	71	35	1	441
3,000 meters, m. s. l.:																		
N												1	2	8	2	1		14
NNE												1	1	2	2	1		7
NE									1		1			1	2	1		6
ENE											2		3	1	2			8
E								1			1	4		1	2	1		10
ESE											1	1	2		2			6
SE										1	2	2	2					7
SSE											1	4	3	5	2			15
S										2	3	7	7	4	1	1		25
SSW										1	4	2	5	2	2			16
SW												1	4	1	2			8
WSW												1	5	2	1			9
W													1	10	2	2		15
WNW											1	2	6	9	8	2		28
NW		2									1	8	5	8	10	6		40
NNW	3										3		2	3	8	3		22
Calm											2		4	2	2			10
Total	3	2	0	0	0	0	0	1	1	4	19	37	52	59	50	18		246
4,000 meters, m. s. l.:																		
N												1		1				2
NNE													2			1		3
NE									1					1	1	1		4
ENE													2		1			3
E								1			1		2	1				5
ESE												2						2
SE												2	2					4
SSE												3	2	2	3			10
S										2	1	4	4	3	1			15
SSW										1	1	2	2		1			7
SW													2					2
WSW												1	1	2	1			5
W												1	1	3	1	1		7
WNW													2	6	8			16
NW		2									1	4	5	2	8	2		24
NNW												1		2	3	1		7
Calm																		
Total	0	2	0	0	0	0	0	1	1	3	4	21	27	23	28	6	0	116
5,000 meters, m. s. l.:																		
N															1			1
NNE													1	1				2
NE									1					1	1			3
ENE													1					1
E						1					1	1	1	1				5
ESE													1					1
SE													2					2
SSE													3	1	1			5
S	1									1		2	4	2				10
SSW											1	3	1		1			6
SW													2					2
WSW													1			1		2
W													2	2		1		5
WNW													2	3	2	1		8
NW			2										3	1	3	1		10
NNW													1	2	2	1		6
Calm																		
Total	1	0	2	0	0	1	0	0	1	1	2	6	25	14	11	5		69

Table 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for April*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	10	5	1								1		2	2	1	2		24
NNE	1	3	2	1	1					1	1		1		1	5		17
NE	1	2	3	1	1	1	2	2	1		1				3			18
ENE	2			1	4	1	2		2	1	2	1	1	2	2	2		23
E				2		3	1		2	1		1		1	1	1		13
ESE	1	1	1	1		1	2	3	3	2		3		1	1	2		22
SE		1		1	1		1	3	1	2			4	3	1	1		19
SSE				2				3	11	10	10	6	4	2	2	2		52
S	1	1				1	1	3	2	10	14	11	5	4				53
SSW	2	1		2	1				1	4	17	13	8	3	5	1		58
SW		1		1							6	6	6	3	1	2		26
WSW											2	3	3	8	2	2		20
W	2	1								1	1	3	4	14	7	1	1	35
WNW	4									2	1	3	6	26	13	11		66
NW	10	4	1		1							1	5	18	32	16		88
NNW	13	5	2		1					1		2	2	7	13	7		53
Calm	1	1	1				1		2	2	4	4	1	3	2	5		27
Total	48	26	11	12	10	7	10	14	25	37	60	57	52	97	87	60	1	614
2,000 meters, m. s. l.:																		
N	6	5									1		2	2		7		23
NNE	2		1							1	1	1	2	2	2	2		14
NE	2	1	1						1		1	3	1	3		1		14
ENE	2	1	1						1	1	1	1	2	5	1	1		17
E	1	1									1	2	2		2	1		10
ESE	2	1						1			4	2	1	2	2	3		18
SE		1								2		4	3	3	2			15
SSE	1		1	1			1			2	9	5	12	8	6			46
S	1	3								2	4	13	9	9	4	1		46
SSW	2	1	1		1					3	2	11	9	10	2	4		46
SW	2		1								1	2	4	4	1			15
WSW					1						1	3	4	4	3	1		17
W	1	1											4	13	5	1		25
WNW	1	2									1	5	9	15	5	9		47
NW	6	5										6	6	10	17	14		64
NNW	6											4	4	8	9	11		42
Calm	1	1	2				1			1	2	2	5	4	3	1		23
Total	36	23	8	1	2	0	2	1	2	12	29	64	79	102	64	57		482
3,000 meters, m. s. l.:																		
N	7	4										1	2	2	1	2		19
NNE						1					1	1	1	1		2		7
NE	1	2											2	2		1		8
ENE	1	2									1	1	3	2		1		11
E		1										1	1		1	1		5
ESE	3						1				1	1	2		1	2		11
SE										1	2	2	3	2	2	1		13
SSE	1				1		1		1		6	6	4	5	3	2		30
S	3										1	6	6	6	1	2		25
SSW	3	2						1	1		1	4	5	7	5	1		30
SW		2	1								1	1	1	2	1	1		10
WSW											1	1	2	2	1			7
W			1									1	2	5	4			13
WNW		2										2	7	5	2	2		20
NW	5		1								1	3	4	7	10	8		39
NNW	1	3										1	3	6	5	5		24
Calm	4		1	1								1	3	1	4	1		16
Total	29	18	4	1	1	1	2	1	2	1	16	33	51	55	41	32		288
4,000 meters, m. s. l.:																		
N	4	3	1											2	1	1		12
NNE	1													1				2
NE		1													1	1		3
ENE																1		1
E		1												1				2
ESE		2			1								1	1		2		7
SE	1										3		1	2	1	2		10
SSE	1	1		1				1	1		3	2	3	2		2		17
S											1	2		1	2	3		9
SSW		1									1	1	1	5	1	1		11
SW		2	1								1					1		5
WSW														1				1
W														2	4			6
WNW	1											1	1	2	2			7
NW	2											1	2	4	2	4		15
NNW	2	1											2	3	3			11
Calm	1													1		3		5
Total	13	12	2	1	1	0	0	1	1	0	9	7	11	28	17	21	0	124
5,000 meters, m. s. l.:																		
N	3	2												1	1	1		8
NNE																		0
NE		1													1			2
ENE																		0
E		1													1			2
ESE	2	1		1										2		1		7
SE								1				2	1		1	2		7
SSE			1					1			1	2		3		2		10
S	2												1	1	2			6
SSW										1			1	2	2			6
SW		1		1														2
WSW																		0
W													1					1
WNW												2		1	3			6
NW	2	1											1	3	3	1		11
NNW												1		3	1			5
Calm																		0
Total	9	7	1	2	0	0	0	2	0	1	1	7	5	16	15	7	0	73

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for May*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	2	2	4	1							1		1	3	3	3		20
NNE	6	2	2	2		1					1	1		3	3	1		22
NE	1	2	2	2			3	2		1	1			1		3		18
ENE		1	2	5		1	1	2		4	1	2	2					21
E		3		2	1		1	2	2	1	3	2	2	1		1		21
ESE	1	1				1	1	1	5	2	4	3	1	2	1	1		24
SE	2		1		1	1	2	8	3	4	4		1	2	1	1		31
SSE	1	1				2	1	2	7	12	13	7	3	5	1	1		56
S					2		1	1	12	14	24	17	6	3	3			83
SSW									6	9	15	10	14	12	3	1		70
SW			1		1			2			4	7	3	2	5	2		27
WSW							1			1	3	3	2	6	2	1		19
W	2								1		3	1	10	6	9	1		33
WNW	6		1							2	2	2	3	11	17	9		53
NW	11	4									1	1	2	14	21	23		77
NNW	8	2	5		1								2	7	10	8		43
Calm	1	2			1				2	1	2	3	4	7	10	5		38
Total	41	20	18	12	7	6	11	20	38	51	82	59	56	85	89	61		656
2,000 meters, m. s. l.:																		
N	3	1	2									4		1	4	2		17
NNE	2	1	1						1	1	2	3	1	2		3		18
NE	1	1		1		1				2		1	1	2	2	2		13
ENE	3		1	1	1					1	2	1	1	1	1			13
E	2	2	1						1		2	2	3	1	1	1		16
ESE		1						1	2	2	3	3	3	3	2			20
SE			2		1			3	1	2	3		4	2	1	1		20
SSE	1	1						1	4	3	7	11	8	9	2	1		48
S	1		1				2	1	2	17	11	5	11	14	11			76
SSW									1	7	6	18	14	10	5	1		62
SW	2	1			1					1	2	1	7	3	6			24
WSW	1								1	2	2	1	5	6				18
W	2	1										4	2	9	8	1		27
WNW	3										3	3	11	13	7	6		46
NW	5	1					1			1	2	5	9	8	18	14		64
NNW	1	3		1							2	2	3	8	11	5		36
Calm	5	1								1	3	2	7	4	8	2		33
Total	32	14	8	3	3	1	3	6	13	40	50	66	90	96	87	39		551
3,000 meters, m. s. l.:																		
N	1	1					1					1	1	1	2	1		9
NNE	1	2	1					1		1	1		2	2		2		13
NE	1										1		1	1				4
ENE			2	1						1		1	1	1		3		10
E		2									1	2	2	2	2	2		13
ESE	1					1	1			1		2	3	3	3	2		17
SE		1		1					3	2	2	4	2	2				17
SSE	1	1							3	2	2	5	9	3	4	4		34
S	1	1				1			4	6	8	8	10	4	5	3	1	52
SSW		1		1			1		1	2	8	6	7	8	1	2		38
SW	1									1	2		4	4	2	1		15
WSW	1									1		2	4	3	1			12
W	2										2	2		5	4	4		19
WNW											3	3	5	7	9	6		33
NW	3	1								1	1	7	6	9	11	7		46
NNW	4												5	4	5	5		23
Calm	3											1	4	4	1	2		15
Total	20	10	3	3	0	2	3	1	11	18	31	44	66	63	50	44	1	370
4,000 meters, m. s. l.:																		
N														2				2
NNE	1										1		1		1			4
NE									1				2					3
ENE	3								1					2	1			7
E		1								2	1		4	1	1			10
ESE	1	1									2	1	1	3				9
SE	1	1						1	2		2	1	3	1				12
SSE	2						1		1	1	3	2	3	2	2			17
S	1							2	2	2	6	5	7	1				26
SSW							1			6	4	2	1	1	2			17
SW										1				3				4
WSW												2	2	1	1			6
W	1										1	1	2	1	5			11
WNW											1		1	4	6	1		13
NW	3										2	5	7	4	3			24
NNW	1												4	2	3			10
Calm	1										2	3			1			7
Total	15	3	0	0	0	0	2	3	7	12	25	22	38	28	26	1		182
5,000 meters, m. s. l.:																		
N														1		1		2
NNE												1	1			2		4
NE											1				1			2
ENE		2					1			1				1	1			6
E											1				1	1		3
ESE	1														1	1		3
SE				1					1	1		1	1		2			7
SSE										1	1		1	1	2	3		9
S									1	2		6	5	3	1			18
SSW						1				1	1	2	2	1	1			9
SW														2				2
WSW													1	1				2
W														3	2	1		6
WNW														3	2	1		6
NW	1												3	4	3			11
NNW												1		2		2		5
Calm												1		3				4
Total	2	2	0	1	0	1	1	0	2	6	4	12	14	25	17	12	0	99

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for June*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	3	1			1						1		1		1	4		12
NNE	3	2				1							2			2		10
NE	3	2	3		3	1	1	2	1	1				1				18
ENE		3	3	1		3	2					3			1			16
E		3	1		1	3	1	1		1					2			13
ESE					2	3	1	1	1	1	3		1	1				14
SE							1	3	1	3	3	1	1	2				15
SSE								3	6	11	14	9	4		2	1	1	51
S					2	1	2	2	13	9	20	9	4	5	4	1		72
SSW		3						1	2	5	17	22	10	8	3	2		73
SW	1	1				1			1	2	5	15	9	7	3	3		48
WSW	1						1	1		1	8	6	10	7	7	2		44
W		1						1	1	1	2	4	12	8	10	2		42
WNW	3	1						1				2	4	9	18	8		46
NW	9	3	1							1		1	7	9	23	20		74
NNW	4	2	1										2	3	13	14		39
Calm	1	1	1		1				2		1		5	5	4	3		24
Total	28	23	10	1	10	13	9	16	28	36	74	72	72	65	91	62	1	611
2,000 meters, m. s. l.:																		
N											1	2	1		3	2		9
NNE	3			1								1		2	2			9
NE	1			1							2	3			4	3		14
ENE	1		2							1			2	2	3	1		12
E		2			1					1	1	2		1	1	1		10
ESE											1		4		2	1		8
SE								1		1	1	3			3			9
SSE			1			2	2		1	1	8	9	8	7	3	1		43
S	3	1		1	1			1	1	6	2	12	11	7	6	3		55
SSW		2				1			1	1	8	10	14	11	8	3	1	60
SW	1										4	5	13	11	7	2		43
WSW												5	10	12	8	3		38
W					1		1				1	3	9	12	6	4	1	38
WNW			1								1	8	6	10	8	6		40
NW	6										1	6	9	19	14	10		65
NNW	3					1					1	1	2	6	12	5		31
Calm	1											4	3	5	3	6		22
Total	19	5	4	3	3	4	3	2	3	11	32	74	92	105	93	51	2	506
3,000 meters, m. s. l.:																		
N												3	1	1	2			7
NNE	2	1									1		1	1	2			8
NE		2			1						2	1	1		1	2		10
ENE	1	1	1								1		1		3	1		9
E												1		1	2			4
ESE	1											2	1		1			5
SE									1			1	1		2	1		6
SSE	2		2			1			1		2	5	3	3	4	2		25
S	1	2	2	1	1				1	1	6	5	9	8	5			42
SSW	1	2					1		1	4	4	9	10	5	6	2		45
SW											2	9	7	9	9			36
WSW	2	1									2	5	2	10	6	2		30
W		2			1					1		7	8	8	4	2		33
WNW	1									1	2	6	6	5	4	4		29
NW	1											4	13	9	13	6		46
NNW											1	2	4	4	5	6		22
Calm	1											2	4	3	7	1		18
Total	13	11	5	1	3	1	1	0	4	7	23	62	72	67	76	29		375
4,000 meters, m. s. l.:																		
N														1		1		2
NNE		1									1	1			2	2		7
NE											1			1	2			4
ENE		1														3		4
E														1				1
ESE													1					1
SE										2		1		1				4
SSE	2	1		1					1			2	4	2	3	1		17
S	1			3					1	1	1	3	1	2	4	2		19
SSW	1				1			1		1	4	4	6	1	2	1		22
SW											1	2	1	6	5			15
WSW		1						1	1			2	1	5	4			15
W	1	1								1		1	4	3	2	1		14
WNW	1											3	5	2	3	1		15
NW	1											1	6	10	9	5		32
NNW												1	1	5	3	3		13
Calm										1		2	2			3		8
Total	7	5	0	4	1	0	0	2	3	6	8	23	32	40	39	23		193
5,000 meters, m. s. l.:																		
N															1			1
NNE	1											2	1		3			7
NE											1		1		1			3
ENE	1																	1
E													1					1
ESE													1					1
SE											1		1	1				3
SSE			2		1					1	2	1	1	1	2	3		14
S				2						1		2	1	1	3			10
SSW				1		1						3	4		1	2		12
SW	1											2	1	1	5			10
WSW		1		1							1		1		2	1		7
W		1									1		4	2		3		11
WNW												2	2	1		2		7
NW												1	4	4	5			14
NNW													3	1	2	1		7
Calm												1	1					2
Total	3	2	2	4	1	1	0	0	0	2	6	14	27	12	25	12	0	111

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for July*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	7	2	2				1						1	4	1	3		21
NNE	2	5	2	2		1			1		1	1	1			1		17
NE	1		1	4	3	2	2	1			1				1	1		17
ENE		1	1	3	4	2						1	3	1	1			17
E			5	2	2	1	3		1		2	3	1	2				22
ESE	1		1	2	1	3	5	3	1	1	2			2		1		23
SE	1	3		1		2	3	2	2	1	4	3	1	3	1			27
SSE	1	1	2	1		6	4	6	8	9	8	4	2	3	1			56
S		1			1	1	1	4	4	21	21	6	5	6	8	1		80
SSW	3		1					5	3	10	25	14	11	12	3			87
SW	1				1			1	2		7	8	15	15	3			53
WSW	3							1		1	3	7	1	7	3	5		31
W	1	2			1				2	2	3	3	7	18	6	3		48
WNW	1	1								1		1	4	11	10	2		31
NW	8	5			1		1				3		3	6	19	20		66
NNW	9	3	2	1			1						2		6	11		35
Calm	4	1	2			2			1	1	2	1	2	2	1	2		21
Total	43	25	19	16	14	20	21	23	25	47	82	52	59	92	64	50		652
2,000 meters, m. s. l.:																		
N	2	1	1										4	2		8		17
NNE						1			1				3	2	3	2		13
NE	1	2	1	1								1	1	2	2			11
ENE			1	2	1	1			1					6	1			13
E	3		1	1				1			1	1	1	1	3		1	14
ESE		2	1	1		2			1		1	2	5	1		1		17
SE	1	1		1		1	1			1	1	3	1	5	3	2		21
SSE	1	4	2		4		1	3	2	3	7	8	6	3	1	3		48
S	2	1			1	2	2			5	9	17	6	16	5	3		69
SSW	2	2			1	2	1	1	4	2	9	18	16	9	5	5		77
SW	1		1				2		1	1		6	11	10	8	4		45
WSW	2	1					1			1		4	7	8	2	3		29
W	1								1	1	1	1	9	10	11	5		40
WNW		1						1				2	2	9	8	2		25
NW	3	2										7	15	9	17	8		61
NNW	2	3	2										5	7	6	2		27
Calm	1		2	1		1						1	5	1	2	1		15
Total	22	20	12	7	7	10	8	6	11	14	29	71	97	101	77	49	1	542
3,000 meters, m. s. l.:																		
N	1	2	1										3	1	2	3		13
NNE	1								1			1	1	3	1			8
NE	1		1			1					1	1	1	2		1		9
ENE				1	1					1			3	1	1	1		9
E		1		1							1		1	3	3	1		11
ESE	1			1				1					5		2	2		12
SE	2	1	1						1		1	1	4	4	1	1		17
SSE	1			3		1		1		2	7	2	4	8	6	1		36
S	2	1		1			2	1	2	5	6	6	13	8	6			53
SSW	1	1		1	1	3	2	1	1	2	6	6	12	8	4	4		53
SW	3	1					1			1	2	4	6	10	4	3		35
WSW	1								1	1		6	5	3	6	1		24
W	4	1						1			2	1	5	10	6	2	1	33
WNW			1										5	6	5			17
NW	2										1	4	7	13	16	4		47
NNW	1												7	4	4	2		18
Calm	2		1									1	2	1	1	1		10
Total	23	8	5	8	2	6	5	5	6	12	27	33	84	85	68	27	1	405
4,000 meters, m. s. l.:																		
N	1	1										1		1	3	1		8
NNE	1									1			2		1			5
NE											1		2		1	1		5
ENE				1	1									1				3
E				1										1	2			4
ESE	1							1				3	1		1			7
SE	1								1				2	2	4	1		11
SSE		1	1					1	1		3	3	2	3	3	1		19
S	3				1	1		2	1		3	3	7	5	4	1		31
SSW	1	2						3			3	3	6	4	2	3	1	28
SW	1	1		1							1	1	5	3	1	1		15
WSW		1		1							1	2	2	1	2	1	1	12
W	1	1			1							2	4	3	3			15
WNW	1												1	4	3			9
NW													4	10	4	2		20
NNW	1												2	6	1	1		11
Calm	1		1										1	1	1			5
Total	13	7	2	4	3	1	0	7	3	1	12	18	41	45	36	13	2	208
5,000 meters, m. s. l.:																		
N		1											1	1				3
NNE												1	1	1		1		4
NE												1	1			1		3
ENE					2									1				3
E													1					1
ESE									1			2		1	1			5
SE													1	2	1	1		5
SSE	1							1			3	2		3	1	1		12
S	1					1		2			2	3	3	3	3	2		20
SSW	1		1				1	1	1		2	2	5	4	1			19
SW	2											1	2	1		1		7
WSW	1											3	1	2				7
W					1							1	2	3	2			9
WNW													1	2	2	1		6
NW											1		1	5	5			12
NNW	1											1	2	3	1	1		9
Calm			1															1
Total	7	1	2	0	3	1	1	4	2	0	8	17	22	32	17	9		126

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for August*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	5	3	3		1	1		1			2	1	2		2	7		28
NNE	8	1	5	3		1	1	3						1	3	2	1	29
NE	1	2	5	1	3			2		2					2	3		21
ENE	2	3	6	5	3	1	2	1				1	1		1	1		27
E			1	5	5	4					1		1		2			19
ESE	2		1	3	1	2	2		2			1				1		15
SE	1	1	1		2	3	1	6	3	6	2	1						27
SSE		1			1		4		5	8	6	1	2	3		1	1	33
S		1	1				4	3	10	10	19	9	5	4	1	3		70
SSW		2				1			5	10	34	21	17	10	5	2		107
SW	1									4	10	15	9	5	3	3		50
WSW								1	1		1	2	4	5	1	2		17
W				1			2			1	2	2	6		4	5		23
WNW	2	2	1			1		1			2	4	2	5	5	3		28
NW	13	6	3	1	2	1			1		2	1	1	11	12	15		69
NNW	24	10	4	3		1					2		3	6	4	17		74
Calm	2			2			1	2	1	4	4	4		2	2			24
Total	61	32	31	24	18	16	17	20	28	45	87	63	53	52	47	65	2	661
2,000 meters, m. s. l.:																		
N	3		2		1							1	3	3	5	4		22
NNE	3	2	2	1			2					2	1	3	5	4		25
NE		2	3	1	1						1		2	2	3			15
ENE	4	2	4	1									2	3	2	1		20
E			1		2	1				1			1	2	1	1		10
ESE	1		1	1						2	1	1			1	4		12
SE	1	2	1	1				3	1	3	2	2	2	1	3	1	1	24
SSE	2	1						1		5	4	7	3	5	2			30
S	2	1	1	2			1	2	6	2	6	8	12	5	8	4	1	61
SSW	4	1	2			1	1	2	4	5	9	12	23	14	12	5		95
SW		3	1	1						1	3	3	10	13	5	2		42
WSW			1						1			3	2	5	2			14
W	1					1				1		2	4	7	1	3		20
WNW	1	1			1						1	4	5	4	3	3		23
NW	8		3		1					1	1	2	8	7	21	9		61
NNW	6	4	2	1							1	6	7	8	15	15		65
Calm					1		1	1		1	4		4	7	1	1		21
Total	36	19	24	9	7	3	5	9	12	22	33	53	89	89	90	57	2	560
3,000 meters, m. s. l.:																		
N	3		1			1						1	1	1	6	1		15
NNE	2	2	2					1				2	2	3	4	3		21
NE	2		1	1									1	1	2	1		9
ENE	1					1	2						1	2		1		12
E	1			1		1	1			1			1	1	3			10
ESE	1	1								2		2		2	1	2		11
SE	2	1	1			1		2	2	6		1		1	1	1		19
SSE			1			1				1	1	7	6	5	1	2		25
S		1	1			3		1	2	3	5	4	13	3	5	3	1	45
SSW	2	5					1	2	2	3	5	11	12	10	9	5		67
SW	2		2			1					4	5	8	7	7	2		38
WSW		1										1	3	1	3			9
W		1									1	3	3	2	2	4		16
WNW									1		2	2	2	7	2	3		19
NW		1				1	1		1	1		3	6	12	14	6		46
NNW	2	3							1			3	8	14	10	6		47
Calm									1	1	2	4	3	2	1	1		15
Total	18	18	11	2	5	6	4	6	10	18	20	49	70	74	71	41	1	424
4,000 meters, m. s. l.:																		
N	2												1	2	2	1		8
NNE	1			1	1						1	1	1		1	3		10
NE	1		1		1								1	2		1		7
ENE		1		2									1	2				6
E				1		2		1					1	3				8
ESE		2							1		1	1			2			7
SE		3		1	1			1		3	3	1			1	1		15
SSE	1									2		2	5	7	1			18
S		1				1			1	3	2	3	8	6	3	2		30
SSW	1									1	4	3	11	7	4	2		33
SW	1	1			1							4	5	6	3	1		22
WSW													1	1				3
W											1		2	3	1	3		10
WNW					1							3	2	2	2			10
NW									1			1	3	7	8	3		23
NNW											2	4	3	2	7	6		24
Calm							1		1		2	3	1	1				9
Total	7	8	1	5	5	3	1	2	4	9	16	26	46	51	36	23		243
5,000 meters, m. s. l.:																		
N														1	1	2		4
NNE			1								1					2		4
NE													2			1		3
ENE	1	2											1	1				5
E						1						1	2					4
ESE	1						1				1				1	1		5
SE	1	2		1				1	1			1		1	2			10
SSE	1											2	1	3	1			8
S	1										2	1	3	5	5			17
SSW		1	1							1	3	3	5	3	2			19
SW				1									4	5	1			11
WSW																		0
W											1		3	2	2			8
WNW														1	2			3
NW													1	4	5	6	1	17
NNW													2	3		2	4	11
Calm							1						1	1			1	4
Total	5	5	2	2	0	1	2	1	1	1	8	12	29	27	25	12		133

TABLE 118.—Continued. *Frequency of wind direction at selected levels m. s. l. for each surface wind direction for September*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	13	7	4	3					1					1	4	5		38
NNE	6	4	2	5	2	2	1		1		1		1	3	2	1		31
NE	3	2	3	6	7	1		1		1	1		1			2	1	29
ENE	1	1	1	6	3	4	2	1	2	1			2		3	1		28
E	1			1	5	3	1	3	1	1		1		1	1			19
ESE	1	1	1	2	4	1	3	2	1		3	2		1				22
SE		1			2			1	3	2	4	1	1		1			16
SSE				1				1	4	7	4	5	4	2	1	1		30
S	1		1				1	2	4	12	15	7	3	3	2			51
SSW	1						1	1	2	8	15	20	10	7	3	3	1	72
SW										1	7	8	3	10	5	1		35
WSW		1										5	1	6	2	1		16
W	1	1						1			1	3	6	6	9	1		29
WNW	3	1			1		1						1	7	14	6		34
NW	8	1	4				1		1	1	1	2	3	7	17	27		73
NNW	10	7	7	3	2		1	2	2			2	2	6	11	19		74
Calm	1	1	2			1		2		2	1	5	1	5	3	6	2	32
Total	50	28	25	27	26	12	12	17	22	36	53	61	39	65	78	74	4	629
2,000 meters, m. s. l.:																		
N	9	1	1	2						1	1	2	3	3	4	6		33
NNE	2	2	3	1			1				2		4	2	1	2		20
NE	1	3		4	3	1	1			1	1	2	1	1	1	3		23
ENE	3	1	1	4	1	2	1	1	1	1	2	1			1	1		21
E				3		2	2			1	2		1	1	3	1		16
ESE	1	3		1	1	2	1			2		1	2	3	2			19
SE			1	1	2						1	2	1	2		2		12
SSE			1	1	1		1	3		3	3	3	4	3	5	1		29
S	1	2	1	1				1	1	3	5	6	7	4	8	1		41
SSW		1							3	4	7	8	15	11	8	6		63
SW										2	2	3	6	8	3	5		29
WSW		1										1	3	6	4	1		16
W									2		1	1	4	7	8	3		26
WNW		2										2	6	4	11	4		29
NW	2	2	1	3				1	1		2	9	10	9	19	10		69
NNW	5	4	2	1	2			1		2	3	4	9	8	9	11		61
Calm	3		1	1	1		1	1		1		2	3	2	9	4		29
Total	27	22	12	23	11	7	8	8	8	21	32	47	79	74	96	61		536
3,000 meters, m. s. l.:																		
N	3	2		1							2	2	4	4	2	6		26
NNE	3	2							1				4	2	4			16
NE	1	2		1	2			1	2			2	3	1	2	4		21
ENE	1	1		1	4				1		2	3		2	3	1		19
E		1	1	2		1		1	1			2	2	1				12
ESE	1					3		1			1	1	3	1	1	4		16
SE	1			1		1			1				2	3	1	1		11
SSE			2	1	2					2	2	7		4		2		22
S	2		1		1		2	1	1	2		4	5	5	2	5		31
SSW	1	1					1		2		6	6	14	12	1	2		46
SW										1		1	10	1	4	3		20
WSW			1										2	6	2	1		12
W							1					3	3	6	4			17
WNW												1	4	6	6	3		20
NW		1	1	1							3	9	5	7	9	3		39
NNW	3	2	1	2	1						4	7	8	8	4	5		45
Calm	1		2	1		1				1	1	2	3	2	5	2		21
Total	17	12	9	11	10	6	4	4	9	6	21	50	72	71	50	42		394
4,000 meters, m. s. l.:																		
N		1									2	1	5	1	1	4		15
NNE	1							1	1			1		2	2	3		11
NE	1			1	1		1		1			2	2	1	1	1		12
ENE				1	2				1			1	3	2	1			11
E		2	1	1					1		1	1	1	1	1			10
ESE	1				1	1	1		1			1	1	1	1	1		10
SE				1									4		1	1		7
SSE			1	2					1	1	3	3	4		3			18
S	2			1					3	2	2	1	2	4	3	1		21
SSW	1									2	6	3	5	3	3	1	1	25
SW											2	3	2	1	2	1		11
WSW												1	1	2	2			6
W												2	1	4	2			9
WNW												2	3	6	2	2		15
NW				1						1	1	3	6	6	3			21
NNW	2	1			1						1	1	7	5	1	3		22
Calm					1	1						3	2	3	1	2		13
Total	8	4	2	8	6	2	2	1	9	6	18	29	49	42	30	20	1	237
5,000 meters, m. s. l.:																		
N	1												3	1		2		7
NNE	1										1		1	1	2			6
NE			1					1			1	1	1	1	1	1		8
ENE						1				1		1	1	2				6
E		3										1	1		1	1		7
ESE	1		1			1								2		1		6
SE				1								2	1	1				5
SSE			1		1			1			1	2	2					8
S	1					1			1	2		2	3	1	1	1		13
SSW	1									1	1	1	4	1	2	2		13
SW											1	1	2	1	1	1		7
WSW													3	1				4
W												1	4	2				7
WNW												2	3	2	2			9
NW											1	1	4	4	1			11
NNW	1				1					1		2	1	3	1	1		11
Calm												2		1	2			5
Total	6	3	3	1	2	3	0	2	1	5	6	19	34	24	14	10		133

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for October*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	9	4	3	1			1				1	1		1	4	7		32
NNE	2	6	6	4	3	2				2	2	3	1	1	3	2		37
NE	4	2	2	6	4	2	3		1	2	4		1	2	1	2		36
ENE		2	2	2	1	1	1	1	5	2			1	1	2			21
E			1	1		1												3
ESE	1						2		1	3			1			1		9
SE		2			1			1		3	2	1	2	3	3			18
SSE							1		4	5	4	2	5	2	2	1		26
S						1		1	7	12	12	11	3	5	3	1		56
SSW	1					1		1	1	4	17	19	9	11	4	1		69
SW	1								2		4	9	12	7	7			42
WSW												5	6	2	3	5		21
W		2	1						1		3		5	9	6	2		29
WNW	3	2				1				1	1	3	4	15	19	5		54
NW	13	3			1						1		2	9	22	19		70
NNW	17	5	1		1						1	3	2	7	6	20		63
Calm	1	1		1			1	3	1	2	5	4	5	5	5	3		37
Total	52	29	16	15	11	9	9	7	23	36	57	61	59	80	90	69		623
2,000 meters, m. s. l.:																		
N	6	3	1	1						1	2		5	1	2	4		26
NNE	4		1	4	1						4	1	1	6	5	2		29
NE	2	1	2	2			1	2	1		1	1	3	2	4	2		24
ENE		1		1	1						1	1	3	1	2			11
E												1			1	1		3
ESE	1											2	1	1	1			6
SE										1	1	1	4	2	3	2	1	15
SSE	1								1	1	2	6	3	3	4			21
S					1				1	8	7	8	9	10	6			50
SSW	2	1		1						1	5	9	20	10	10			59
SW			1							1		6	8	6	6	2		30
WSW		1										2	6	2	4	1		16
W		1	1						1		2	1	3	8	5	3		25
WNW	1	1					1					5	5	15	12	5		45
NW	7	1						1				6	3	13	16	12		59
NNW	8	4									2	2	4	6	13	12		51
Calm	3								2	2	2	6	4	7	4	2		32
Total	35	14	6	9	3	0	2	3	6	15	29	58	82	93	98	48	1	502
3,000 meters, m. s. l.:																		
N	3				1						1		1	3	3	3		15
NNE	3				2		1				1	1	4	4	4			20
NE	2		4						1	2		1			2	3		15
ENE				1								4	3	1				9
E	1										1					1		3
ESE											1		2					3
SE												2	3	2	2	2	1	12
SSE	1									2	4	2	2	1	3			17
S								2		6	5	5	5	8	6			37
SSW										1	3	8	15	7	5	3		42
SW										2	1	3	4	7	3	1		21
WSW			1									1	3	1	3			9
W		1	1								2		1	7	1	2		15
WNW								1			3	2	6	8	5	1		26
NW	2	2									4	2	3	9	7	6		35
NNW	1	2	2							1	2	2	2	7	7	6	1	33
Calm	1	1						1			2	6	4	1	3	2		21
Total	14	6	8	1	3	0	1	4	1	14	30	39	58	67	52	33	2	333
4,000 meters, m. s. l.:																		
N	1										1				1	2		5
NNE	1	1											2	2	1		1	8
NE	1	1		1						1			1			2		7
ENE			1							1		2	2	1				7
E												1			1			2
ESE													2					2
SE			1								1	2		2		2		8
SSE	1									2	1	1	3	2	2			12
S										4	3	3	4	8	4	2		28
SSW										1	8	8	6	3	1			27
SW										2	1		1	2	3			9
WSW												1	1		2			4
W	1												3	3		1		8
WNW												4	2	7	1			14
NW		2									1	1	2	2	5	1		14
NNW	2	2										1	3	4	4	1		17
Calm	1						1					3	1	2	1	1		10
Total	8	6	2	1	0	0	1	0	0	10	9	27	35	41	28	13	1	182
5,000 meters, m. s. l.:																		
N	1	1													1			3
NNE	3					1						1		1				6
NE												1	1		2			4
ENE				1							1	1	4					7
E												1		1				2
ESE													1					1
SE												2				1	1	4
SSE											1	1	2	3	1			8
S										2	2	2	4	6	1	2		19
SSW											2	4	5	1	3	1		16
SW												1		2	2			5
WSW													2		1			3
W													2	2				4
WNW												2		2	1			5
NW	1										1	1		2	2	2		9
NNW	1	1									1		3	3	1	2		12
Calm											1		1	2				4
Total	6	2	0	1	0	1	0	0	0	2	9	17	25	25	15	8	1	112

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for November*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N		2		2							1	1	1	1	6	3		17
NNE	1	4	1	1	1			1	3	2		2	4	3	2		1	26
NE	3	3	1	3	2	2	1	2	2	1	3	1	1	1	1	1		28
ENE			2	1	2		2			1	1			1	1			11
E			1				2	2		3	1			2				11
ESE					1			1	3			1		1				7
SE		1					1	2	1	3	1	1	1	1	2	1		15
SSE								1	1	5	4	4	3	2	1			21
S	1				1			1	2	7	16	12	4	12	1	1		58
SSW	1					1		1	1	6	23	15	13	11				72
SW	1							1		4	2	8	14	4	3			37
WSW										1	2	4	4	6	2	2		21
W											1	2	5	11	5	1		25
WNW	5	1										1	9	15	26	8		65
NW	19	9		1						1		4	7	24	42	32		139
NNW	13	4	2					1		1		2	4	6	11	10		54
Calm			1							3	4	7	4	4	4			27
Total	44	24	8	8	7	3	6	13	13	38	59	65	74	105	107	59	1	634
2,000 meters, m. s. l.:																		
N			1								2	1	3	2		3		12
NNE	1	1						1	2		1	3	4	5	2	1		21
NE			1				2		2		4	1	5	4	1	2		22
ENE				1	1		1		1	2		1		3				10
E					1					1	2	3	1					8
ESE								1		1				2				4
SE									2	1	3	3		3	1			13
SSE										1	2	5	3	3	2			16
S									1	2	7	12	14	8	5			49
SSW								1			5	18	11	16	4			55
SW											3	6	11	7	4	1		32
WSW												3	4	5	3			15
W	1										1	2	4	9	4	2		23
WNW	3	1										2	10	12	17	6		51
NW	9	6			1					2	3	6	13	17	30	18		105
NNW	4	4	1	1					1	2	2	1	5	5	3	8		37
Calm											4	8	2	6	6			26
Total	18	12	3	3	2	0	3	3	9	12	39	75	90	107	82	41	0	499
3,000 meters, m. s. l.:																		
N											1	1	1		2	3		8
NNE	2								1	1	1	1	3	4	1	2		16
NE		1								1	4	2	5	1	1			15
ENE				1	1		1			1			1	1	2			8
E										1	1	2	1					5
ESE										2								2
SE										2	2	1	1	1				7
SSE												2	4	4	1			11
S									1		1	8	15	5	3			33
SSW										1	6	10	15	8	1			41
SW										1		4	4	3	2	1		15
WSW												1	3	3	1			8
W											1	1	4	6	1			13
WNW	1		1									1	4	8	8	2		25
NW	4	1	1	1						1	1	1	16	12	20	6		64
NNW	2	2	2	1						1	1	1	2	1	3	3		19
Calm											1	4	2	3	1			11
Total	9	4	4	3	1	0	1	0	2	12	20	40	81	60	47	17	0	301
4,000 meters, m. s. l.:																		
N														1				1
NNE										1			1	1	2			5
NE											1	1	1	1				4
ENE					1							1	1					3
E											1	1	1	1				4
ESE										1	1							2
SE										1	1		1	1				4
SSE													2	2				4
S												4	10	2	2	1		19
SSW											1	8	9	5				23
SW													1	2				3
WSW													1					1
W											1			4				5
WNW		1	1										1	6	3	1		13
NW	1		1								1	2	6	10	8	4		33
NNW	1		1								2		2	1		1		8
Calm												1		2				3
Total	2	1	3	0	1	0	0	0	0	3	9	18	37	39	15	7	0	135
5,000 meters, m. s. l.:																		
N													1					1
NNE														1				1
NE												1		2				3
ENE												1	1					2
E												1		1				2
ESE												1						1
SE											1			1				2
SEE													1	2				3
S									1			5	3	2	2			13
SSW											1	3	10	2				16
SW													1	2				3
WSW													1					1
W														3				3
WNW			1										3	2		1		7
NW			1								1		6	5	8			21
NNW	1										1	1	1			1		5
Calm												1		1				2
Total	1	0	2	0	0	0	0	0	1	0	4	14	28	24	10	2	0	86

TABLE 118.—Continued. *Frequency of wind direction at selected levels, m. s. l. for each surface wind direction for December*

[Period of record, 1939–44]

Direction at the surface	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm	Total
1,000 meters, m. s. l.:																		
N	3	3		1					1		1	1	3	4	2	4		23
NNE	1	3	1								2	1	1		1	2		12
NE	1	1	1			2	2	3	4			4		1	1			20
ENE	1	2	1			2		1	3	1		5		1		1		18
E					1			2	1	1								5
ESE									3		2							5
SE									1		3	1	2					7
SSE									1	5	8	3	1	1				19
S									2	4	14	7	5	3	5	1		41
SSW									2	4	18	19	16	4	2			65
SW	1			1					1		4	12	5	14	3	1		42
WSW											2	3	6	12	2			25
W	1											3	9	12	10	2		37
WNW	4	2						1		1		3	12	23	34	6		86
NW	8	2								1	1	2	15	29	31	25		114
NNW	7	6	3			1	1				1	1	8	7	9	12		56
Calm							1		2	4	5	8	1	6	5			32
Total	27	19	6	2	1	3	4	5	18	27	62	73	84	117	105	54		607
2,000 meters, m. s. l.:																		
N		1	1	1		1						2	7	2	4	1		20
NNE		2											2	3	1			8
NE					1					3	1	3	2		2			12
ENE										1	1	1	1		1	1		6
E											1	2						3
ESE											2		2					4
SE												2	2	1				5
SSE										1	2	6	2	4	1			16
S											2	8	9	7	1			27
SSW										1	5	15	20	6	3			50
SW	1										2	8	11	9	2	1		34
WSW	1												6	5	7			19
W										1			8	7	4			20
WNW	2	1				1		1			2	1	9	16	20	2		55
NW	7										2	6	13	19	22	13		82
NNW	6	5						1	1			1	10	5	9	6		44
Calm		1								2	3	4	2	5	5	1		23
Total	17	10	1	1	1	2	0	2	1	9	23	59	106	89	82	25		428
3,000 meters, m. s. l.:																		
N	1		1	1								4	5	1	2	1		16
NNE		1												3		1		5
NE										2	1	2	1	3				9
ENE										1		2		1				4
E													1	1				2
ESE										1			1	1				3
SE											1			2				3
SSE											4	1	3	4				12
S												3	7	3	1			14
SSW										1	1	12	14	7	1			36
SW												4	6		3			13
WSW						1						1	4	2	2	2		12
W													5	4	1			10
WNW	1										1	1	8	7	6	2		26
NW	1											7	12	10	14	8		52
NNW	4	4								1	1	2	6	5	3	1		27
Calm												3	6	1	3	1		14
Total	7	5	1	1	0	1	0	0	0	6	9	42	79	55	36	16	0	258
4,000 meters, m. s. l.:																		
N												3	2		3	1		9
NNE														1	1			2
NE											1	1	1					3
ENE										1			1	1				3
E													1					1
ESE													1					1
SE												1						1
SSE											1		4	2				7
S												1	5	4				10
SSW											1	5	11	4	1			22
SW												2	3	3				8
WSW	1												3		2			6
W													2	1				3
WNW	1											1	5	3		3		13
NW											2	2	3	8	10	5		30
NNW	3	2									1	2	2	1	4	1		16
Calm												3	2	1	1			7
Total	5	2	0	0	0	0	0	0	0	1	6	21	46	29	22	10	0	142
5,000 meters, m. s. l.:																		
N												1	2	2	1	1		7
NNE													1					1
NE																		0
ENE										1					1			2
E													1					1
ESE													1					1
SE												1						1
SSE											1		1	2	1			5
S												2	3	2				7
SSW												7	5	4				16
SW												2	3					5
WSW	1												1		2			4
W													1					1
WNW	1												5	1	1			8
NW											1	1	3	6	3	4		18
NNW	2	1									2		3		1	2		11
Calm												2		2	1			5
Total	4	1	0	0	0	0	0	0	0	1	4	16	30	19	11	7	0	93

TABLE 119.—*Average upper air wind speed at 4 a. m.*

[Period of record, 1939–44]

[Meters per second]

04	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Surface	3.4	3.9	4.1	3.6	2.9	2.6	2.9	3.0	2.8	3.0	3.8	4.1
500 m	10.2	10.6	10.6	10.0	9.4	8.6	7.6	8.0	8.4	9.7	11.6	10.5
750	11.1	11.5	11.6	10.3	9.4	8.4	7.2	7.6	7.7	9.5	11.4	11.7
1,000	11.3	12.2	11.9	10.6	8.9	7.9	6.6	6.6	7.5	9.6	11.4	12.6
1,500	12.1	12.8	13.5	11.6	8.7	7.4	6.8	6.4	7.4	9.2	11.2	12.8
2,000	13.9	13.8	13.9	11.8	9.2	8.2	7.3	7.0	7.6	10.2	12.4	13.8
2,500	15.2	14.5	13.3	11.8	9.9	8.5	7.5	7.6	7.6	9.8	12.4	14.6
3,000	17.1	15.3	14.8	11.9	10.0	8.7	8.0	7.6	7.9	9.5	12.8	14.8
4,000	15.7	15.3	14.2	9.8	11.1	9.0	7.2	8.4	8.8	9.8	11.0	9.7
5,000	-----	14.0	-----	9.0	15.7	6.8	8.9	8.3	8.6	7.5	7.5	-----
6,000	-----	-----	-----	-----	16.5	7.8	2.0	10.0	3.5	-----	11.0	-----
7,000	-----	-----	-----	-----	-----	8.7	4.0	-----	4.0	11.0	-----	-----
8,000	-----	-----	-----	-----	-----	4.0	8.0	-----	-----	-----	10.0	-----
9,000	-----	-----	-----	-----	-----	6.5	-----	-----	-----	-----	11.0	-----
10,000 m	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

10 a. m.

[Meters per second]

10	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Surface	4.4	5.6	5.4	5.2	4.6	3.8	4.0	4.0	4.0	4.5	4.8	4.9
500 m	9.1	9.4	8.5	7.3	6.0	5.5	4.4	5.1	5.6	9.5	8.9	9.1
750	10.5	10.7	9.6	8.1	7.6	5.9	5.0	5.9	6.3	7.4	10.0	10.4
1,000	11.3	11.5	10.2	8.6	7.6	6.5	6.0	6.3	6.6	8.0	10.2	11.5
1,500	12.6	12.5	11.8	10.9	8.7	8.0	6.7	6.7	7.4	9.1	11.2	12.9
2,000	13.4	13.2	13.2	11.7	9.1	9.0	7.2	7.2	8.2	10.0	12.1	15.0
2,500	15.2	14.3	14.9	12.4	9.8	9.8	8.0	8.1	9.0	11.0	12.7	15.4
3,000	18.0	15.6	16.0	14.1	10.3	10.4	9.0	8.7	9.7	11.3	13.7	16.5
4,000	20.2	19.1	18.5	14.7	10.4	11.3	9.7	9.3	8.7	10.4	14.4	19.8
5,000	26.5	23.7	20.3	15.9	11.9	10.9	13.1	11.1	11.4	11.0	18.3	17.8
6,000	31.0	9.0	22.0	16.4	14.9	10.9	10.6	13.0	10.4	10.3	18.6	19.0
7,000	30.4	29.0	24.6	17.8	17.9	12.4	11.9	15.3	11.2	14.0	-----	23.4
8,000	67.0	30.0	25.2	19.0	17.6	14.8	9.2	10.9	11.6	17.6	-----	24.5
9,000	-----	27.0	20.5	18.4	17.2	8.0	6.3	13.3	10.9	19.3	-----	17.6
10,000 m	-----	-----	20.2	20.2	24.5	6.0	5.5	12.2	9.5	10.0	-----	23.0

2 p. m.

[Meters per second]

14	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Surface	4.6	5.4	5.9	5.4	5.0	4.7	4.5	4.5	4.4	4.6	5.1	4.8
500 m	7.6	8.1	8.2	7.8	6.9	6.2	5.6	6.0	5.5	6.7	8.0	8.4
750	8.8	8.8	8.8	8.2	7.0	6.4	5.4	5.4	5.6	7.4	8.4	9.3
1,000	10.2	9.7	10.0	8.5	7.1	6.6	5.7	5.9	5.8	8.0	8.9	10.5
1,500	12.6	12.1	11.8	9.6	7.8	7.4	6.4	6.4	6.7	9.5	10.7	12.5
2,000	15.1	13.8	14.4	11.3	9.0	8.8	7.6	7.5	7.8	11.6	12.8	14.7
2,500	17.4	16.4	16.8	13.2	10.1	9.7	8.4	8.1	8.9	12.4	14.6	16.8
3,000	18.6	18.6	19.3	14.9	11.0	10.3	5.7	8.9	9.8	12.5	15.8	18.0
4,000	22.9	22.4	22.8	16.6	12.2	11.8	9.9	9.8	11.1	14.3	17.9	22.5
5,000	25.0	25.0	23.6	17.5	13.3	12.7	10.5	11.3	12.0	14.8	20.8	24.7
6,000	25.8	30.0	25.3	18.7	14.2	13.6	11.7	13.4	13.8	17.1	23.7	28.0
7,000	28.1	30.1	25.4	17.4	13.9	13.0	13.8	15.1	14.8	18.4	23.0	27.6
8,000	26.1	29.3	27.4	17.2	15.9	14.2	16.8	16.2	14.9	19.9	27.5	28.8
9,000	26.2	30.7	30.0	18.3	17.7	14.8	17.4	17.2	16.3	22.0	27.9	33.2
10,000 m	22.0	27.3	33.8	11.5	18.2	14.1	16.6	17.3	20.3	26.5	32.2	41.3

10 p. m.

[Meters per second]

22	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Surface	3.5	4.3	4.3	3.9	3.4	3.2	3.2	3.1	3.0	2.9	3.6	3.8
500 m	10.3	10.8	10.6	10.6	10.0	9.0	8.0	8.3	8.5	10.0	11.1	10.3
750	11.3	11.0	11.7	11.1	10.0	8.9	8.0	7.8	7.9	10.0	11.3	11.1
1,000	11.8	11.9	11.9	11.0	9.7	8.5	7.2	7.3	7.7	10.0	11.4	11.7
1,500	12.3	12.2	13.1	11.7	9.3	8.0	6.5	7.1	7.8	9.6	11.0	12.1
2,000	12.6	12.6	13.9	13.2	8.8	8.0	6.5	6.9	7.3	9.8	12.4	13.0
2,500	13.6	13.4	14.7	12.3	8.4	7.9	6.3	6.6	7.0	9.1	11.5	13.1
3,000	14.5	13.6	15.0	12.6	8.8	7.8	6.1	6.4	7.0	8.9	11.9	13.0
4,000	10.5	-----	11.7	10.7	8.2	7.5	6.5	6.8	7.2	7.8	9.1	13.1
5,000	-----	-----	19.0	8.8	9.4	8.0	7.6	6.9	7.3	6.2	20.0	-----
6,000	-----	-----	-----	-----	9.0	18.0	10.0	8.5	6.0	6.0	-----	-----
7,000	-----	-----	-----	-----	12.0	-----	-----	-----	6.0	-----	-----	-----
8,000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9,000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10,000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

TABLE 120.—*Average relative humidity*

[Period of record, January 1940–December 1945]

[Based on observations taken at 2300, 75th meridian time]

Altitude (kilometers)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Surface	71	64	65	65	71	78	79	78	78	76	70	70
0.5	69	59	59	58	62	68	69	67	68	64	64	66
1.0	69	60	60	58	61	66	68	67	68	64	63	66
1.5	69	59	62	58	62	68	69	68	67	65	62	65
2.0	64	59	62	57	62	66	68	65	63	59	60	60
2.5	57	55	58	55	59	63	63	60	58	55	57	56
3.0	53	53	53	52	56	58	58	52	51	49	51	52
4.0	52	49	50	49	49	52	52	44	48	46	47	51
5.0	54	47	51	46	47	49	46	40	44	43	44	50
6.0	56	54	51	46	45	45	44	38	42	37	44	52
7.0	56	61	49	47	43	44	41	38	41	36	45	51
8.0	53	58	46	45	44	46	45	37	39	43	36	51
9.0	-----	-----	-----	-----	45	47	47	43	31	44	32	-----
10.0	-----	-----	-----	-----	-----	52	57	43	35	57	-----	-----

TABLE 121.—*Average pressures (Mbs.)*

[Elevation: 25 meters, m. s. l.]

[Period of record, January 1940–December 1943]

Altitude (kilometers)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Surface	1,018	1,014	1,015	1,015	1,014	1,013	1,014	1,014	1,017	1,016	1,018	1,018
0.5	958	954	956	958	958	959	960	960	961	960	960	959
1.0	900	896	899	902	903	905	906	906	907	905	903	901
1.5	845	841	844	748	851	853	855	855	855	852	850	847
2.0	793	789	793	798	801	804	805	805	805	801	798	795
2.5	743	740	744	749	754	757	759	758	758	754	750	746
3.0	697	694	698	704	709	713	715	714	714	708	704	701
4	612	608	613	620	625	631	633	632	631	625	620	616
5	536	532	537	544	550	557	559	559	557	551	545	540
6	467	464	469	476	483	490	492	492	490	483	477	472
7	406	404	408	415	422	430	432	432	430	423	416	412
8	352	349	352	360	367	376	378	378	375	369	361	357
9	303	301	304	311	319	327	329	329	327	320	313	308
10	260	259	262	268	276	284	286	286	284	277	270	266
11	223	222	224	230	237	245	246	247	245	238	232	227
12	191	190	191	197	203	211	212	213	210	205	200	194
13	165	163	164	168	173	181	182	182	180	175	170	166
14	140	139	140	143	147	154	155	155	154	150	146	141
15	120	119	119	122	126	131	132	132	131	128	124	120
16	-----	-----	102	104	108	111	112	112	112	108	105	-----
17	-----	-----	87	89	92	94	96	96	95	92	89	-----
18	-----	-----	-----	-----	78	80	-----	81	80	78	-----	-----
19	-----	-----	-----	-----	-----	-----	-----	69	69	-----	-----	-----

TABLE 122.—*Upper air average daytime temperature*

Altitude (kilometers)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Surface	1.5	2.5	8.6	15.3	21.4	25.2	27.0	25.8	22.8	16.8	9.2	2.1
0.5	−.9	−.3	5.3	11.5	17.4	21.3	23.1	22.1	19.1	13.5	6.4	−.6
1	−2.0	−2.2	3.3	8.3	14.3	18.3	19.7	18.9	16.2	10.8	4.3	−1.8
1.5	−3.0	−3.5	1.8	5.6	11.5	15.8	16.8	15.9	14.0	8.9	2.3	−2.4
2	−3.8	−4.8	.2	3.4	8.8	13.3	14.1	13.3	12.0	7.2	.5	−3.4
2.5	−5.5	−6.8	−1.8	1.1	6.2	10.8	11.5	11.1	10.0	5.3	−1.1	−4.7
3	−7.3	−8.5	−3.8	−1.2	3.6	8.4	8.8	8.8	7.8	3.2	−3.2	−6.6
4	−12.1	−13.2	−8.9	−6.3	−1.7	3.1	3.5	3.8	3.0	−1.9	−8.0	−11.2
5	−18.0	−19.0	−14.7	−12.0	−7.3	−2.2	−1.7	−1.4	−2.2	−7.4	−13.4	−16.9
6	−24.4	−25.0	−20.9	−18.6	−13.4	−7.8	−7.4	−7.1	−7.9	−13.7	−20.0	−23.3
7	−31.4	−31.7	−27.4	−25.7	−20.1	−14.1	−13.6	−13.3	−14.5	−20.7	−26.8	−30.1
8	−38.2	−38.2	−34.4	−32.7	−27.2	−21.0	−20.4	−20.0	−21.5	−27.8	−33.9	−36.8
9	−44.8	−44.3	−41.1	−39.6	−34.5	−28.2	−27.4	−26.9	−28.6	−34.7	−40.7	−43.2

NOTE.—Temperatures are in degrees centigrade.

TABLE 123.—*Upper air average nighttime temperature*

Altitude (kilometers)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Surface	−0.5	1.4	5.9	11.2	17.2	21.6	23.2	22.5	19.2	13.0	7.8	2.0
0.5	−1.7	−.1	4.7	10.2	16.5	20.6	22.3	21.5	18.2	12.6	6.9	1.1
1	−3.0	−1.9	2.4	7.8	13.9	18.1	19.6	18.6	15.5	10.1	4.6	−.6
1.5	−4.3	−3.5	.2	4.9	10.8	15.2	16.4	15.7	12.9	7.8	2.6	−1.8
2	−5.3	−5.5	−1.7	2.3	7.7	12.2	13.3	12.8	10.6	5.8	.5	−2.7
2.5	−6.7	−7.3	−3.8	.3	4.8	9.4	10.4	10.2	8.5	3.6	−1.4	−4.2
3	−8.7	−9.2	−5.9	−2.8	2.0	6.7	7.7	7.9	6.3	1.4	−3.4	−6.2
4	−13.9	−14.5	−11.1	−8.5	−3.6	1.3	2.3	2.8	1.0	−3.6	−8.5	−11.4
5	−19.9	−20.2	−17.2	−14.4	−9.7	−4.1	−3.1	−2.7	−4.3	−9.4	−14.1	−17.2
6	−26.5	−26.4	−24.0	−21.2	−16.1	−10.0	−9.0	−8.5	−10.4	−16.0	−20.6	−23.7
7	−33.2	−33.0	−30.8	−28.3	−23.0	−16.3	−15.4	−14.9	−16.9	−23.0	−27.4	−30.3
8	−40.5	−39.6	−37.6	−35.4	−30.3	−23.4	−22.4	−21.8	−24.1	−30.2	−34.4	−36.8
9	−46.8	−45.9	−44.6	−42.6	−37.6	−30.8	−29.8	−28.9	−31.4	−37.3	−41.2	−43.4
10	−52.2	−51.2	−50.7	−49.5	−45.0	−38.1	−37.3	−36.2	−38.6	−44.0	−47.8	−49.5
11	−55.3	−54.8	−55.1	−55.2	−51.7	−45.3	−45.2	−43.5	−45.7	−50.1	−53.1	−54.1
12	−56.0	−55.4	−56.6	−58.3	−57.2	−52.4	−52.3	−50.4	−52.6	−55.1	−56.8	−56.2
13	−56.0	−54.7	−56.3	−59.0	−60.5	−58.1	−58.2	−56.4	−57.8	−58.8	−58.4	−57.2
14	−57.1	−56.1	−57.3	−58.7	−61.1	−61.9	−61.6	−61.0	−62.3	−61.7	−59.7	−58.4
15	−58.9	−57.7	−58.6	−59.2	−60.5	−63.3	−63.6	−64.1	−65.3	−64.0	−61.1	−59.7
16	−60.1	−59.0	−60.0	−59.9	−60.5	−63.3	−63.7	−65.1	−66.8	−64.8	−62.5	−60.9
17	−61.1	−60.0	−60.8	−60.1	−60.7	−62.7	−62.6	−63.9	−65.9	−64.6	−63.0	−61.1

NOTE.—Temperatures are in degrees centigrade.

TABLE 124.—*Lapse rate in °C per km.*

Altitude (kilometers)	Winter	Spring	Summer	Autumn
0.25	5.4	5.4	6.0	4.8
0.75	3.0	5.2	5.8	5.2
1.25	2.6	5.4	5.8	4.2
1.75	2.0	4.4	5.6	4.0
2.25	3.4	4.6	5.2	3.8
2.75	3.6	5.0	5.2	4.4
3.5	5.0	5.3	5.2	5.0
4.5	5.8	5.9	5.3	5.5
5.5	6.4	6.4	5.8	6.3
6.5	6.7	6.9	6.3	6.8
7.5	6.6	7.0	6.9	7.0
8.5	6.3	7.1	7.2	7.0
9.5	5.6	6.8	7.4	6.9
10.5	3.7	5.6	7.5	6.1
11.5	1.2	3.4	7.0	5.2
12.5	.1	1.2	5.9	3.5
13.5	1.2	.4	3.9	2.9
14.5	1.6	.4	2.2	2.3
15.5	1.2	.7	.3	1.2
16.5	.7	.4	+.9	+.2

NOTE.—All values are negative except those marked plus.

TABLE 125.—*Minimum free air temperatures ° C*

Kilometers	−25.6	−26.1	−20.0	−9.4	0.6	6.1	11.1	9.4	2.2	−3.3	−11.7	−25.0
1	−22.2	−19.8	−17.8	−9.5	−1.2	5.0	7.8	9.8	−1.2	−5.4	−11.3	−16.3
2	−23.8	−26.1	−21.8	−15.8	−7.2	−2.8	2.0	3.1	−3.2	−11.1	−19.1	−21.4
3	−26.2	−27.8	−24.8	−22.9	−12.2	−6.4	−5.0	−4.6	−6.4	−15.9	−24.7	−25.0
4	−30.9	−33.5	−33.4	−28.7	−18.8	−12.0	−8.9	−8.2	−13.1	−21.3	−28.8	−32.0
5	−35.8	−36.8	−38.6	−34.7	−25.3	−19.8	−14.3	−13.0	−21.6	−27.6	−32.1	−35.1
6	−42.7	−43.1	−41.8	−41.2	−32.5	−23.6	−21.5	−19.6	−27.5	−30.0	−39.4	−39.1
7	−49.9	−45.4	−44.0	−46.8	−40.2	−29.5	−30.0	−26.5	−35.0	−37.3	−43.4	−46.3
8	−55.0	−51.3	−49.5	−47.4	−45.1	−35.9	−33.6	−33.1	−44.0	−42.4	−46.2	−48.0
9	−57.9	−61.0	−55.8	−55.1	−51.1	−44.1	−42.0	−39.3	−50.8	−49.4	−53.8	−54.9
10	−64.0	−60.0	−60.7	−59.8	−54.6	−51.9	−49.5	−45.6	−50.4	−53.3	−60.8	−60.4
11	−64.5	−63.2	−64.7	−66.9	−63.3	−59.2	−54.8	−54.2	−58.2	−59.4	−62.0	−64.3
12	−69.9	−68.3	−69.3	−66.2	−70.1	−63.5	−65.0	−61.5	−63.6	−66.0	−65.3	−68.9
13	−69.0	−72.2	−70.1	−70.9	−70.9	−70.1	−72.6	−67.1	−66.1	−66.4	−72.9	−70.2
14	−69.2	−75.9	−75.2	−75.2	−72.1	−75.1	−73.0	−73.7	−72.1	−69.1	−71.4	−67.4
15	−68.8	−70.9	−68.8	−68.5	−71.0	−73.5	−74.8	−79.0	−73.8	−73.1	−72.9	−70.9
16	−68.7	−67.7	−64.7	−70.9	−72.0	−72.0	−74.6	−75.5	−76.0	−75.3	−76.4	−67.1

TABLE 126.—*Maximum free air temperatures ° C.*

Kilometers	25.0	28.9	33.9	35.0	36.1	38.9	41.1	41.1	40.0	35.6	28.3	23.3
1	15.3	16.2	20.8	22.4	24.2	26.9	30.8	28.0	24.6	24.6	18.0	16.4
2	13.8	11.3	13.4	15.2	16.8	21.4	21.8	21.3	18.3	16.5	15.8	10.1
3	7.1	5.6	7.4	8.3	12.0	15.5	18.8	14.9	14.7	10.9	10.0	4.8
4	1.6	−1.2	2.8	1.4	9.4	8.5	10.3	9.0	8.9	6.9	3.5	.8
5	−4.8	−7.1	−5.4	−5.5	1.7	1.5	4.3	2.5	2.1	1.8	−2.4	−4.7
6	−13.1	−13.8	−12.3	−11.4	−5.3	−3.7	−1.6	−3.0	−3.3	−3.7	−8.5	−11.4
7	−20.4	−20.2	−19.5	−18.1	−13.6	−9.3	−4.8	−7.6	−9.0	−9.4	−12.6	−17.1
8	−28.5	−27.4	−27.3	−25.0	−19.3	−15.7	−13.1	−14.0	−14.2	−16.0	−18.7	−22.7
9	−35.7	−34.9	−34.7	−32.9	−27.5	−23.1	−19.9	−21.1	−22.8	−23.3	−25.1	−29.1
10	−39.7	−39.1	−37.5	−39.6	−35.1	−30.8	−25.0	−27.7	−29.9	−31.8	−32.6	−36.7
11	−44.0	−39.9	−41.8	−43.1	−42.3	−37.0	−31.2	−33.9	−35.9	−35.1	−39.0	−41.4
12	−44.8	−39.8	−43.4	−44.3	−45.5	−44.1	−36.9	−40.4	−42.4	−41.6	−44.4	−44.7
13	−45.9	−40.7	−45.2	−46.5	−46.0	−44.3	−42.0	−47.8	−48.0	−47.0	−49.4	−48.2
14	−48.1	−45.7	−48.5	−46.9	−47.0	−50.5	−46.4	−53.3	−50.9	−51.5	−50.2	−51.9
15	−50.3	−48.7	−49.5	−50.1	−46.4	−53.3	−50.2	−56.1	−52.8	−53.6	−52.3	−53.8
16	−52.6	−49.6	−50.6	−51.8	−47.7	−55.7	−53.9	−56.7	−51.9	−54.2	−56.4	−53.8

MISCELLANEOUS

TABLE 127.—*Frequencies of days with thunderstorms*

[Number of years (through 1945), 63]

Month	Average	Greatest	Year	Least	Year
January	0.2	2	1908	0	(55)
February	.5	3	1943	0	(40)
March	1.2	5	1911	0	(18)
April	2.3	6	1912	0	(6)
May	5.3	12	1933	2	(4)
June	7.2	14	1929	3	1927
July	8.6	16	1931	4	1924
August	5.9	12	1911	2	[1] 1943
September	3.0	8	1921	0	(4)
October	.8	4	[1] 1926	0	(31)
November	.4	2	[1] 1926	0	(41)
December	.2	2	1923	0	(54)
Year	35.6	48	[1] 1925	22	1888

Italics in parentheses indicate total number of cases.

[1] Other dates, earlier.

TABLE 128.—*Average rag-weed-pollen count*

[Period of record 1929–40]

Day	Amount	Day	Amount	Day	Amount
Aug. 13	1	Aug. 29	85	Sept. 13	79
Aug. 14	2	Aug. 30	95	Sept. 14	71
Aug. 15	3	Aug. 31	106	Sept. 15	63
Aug. 16	5	Sept. 1	116	Sept. 16	56
Aug. 17	8	Sept. 2	125	Sept. 17	49
Aug. 18	11	Sept. 3	133	Sept. 18	43
Aug. 19	14	Sept. 4	140	Sept. 19	37
Aug. 20	18	Sept. 5	144	Sept. 20	32
Aug. 21	22	Sept. 6	144	Sept. 21	28
Aug. 22	27	Sept. 7	140	Sept. 22	24
Aug. 23	33	Sept. 8	131	Sept. 23	21
Aug. 24	40	Sept. 9	121	Sept. 24	18
Aug. 25	48	Sept. 10	110	Sept. 25	15
Aug. 26	56	Sept. 11	98	Sept. 26	12
Aug. 27	65	Sept. 12	88	Sept. 27	10
Aug. 28	75				

TABLE 129.—*Highest river stage for each month and year, with date.*

Leiter gage near Washington, D. C., on the Potomac River.

[Elevation of zero of gage: 38.00 feet]

Year	January		February		March		April		May		June		July		August		September		October		November		December		Annual		
	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Month	Date
1930													1.8	4	0.8	9	1.0	11	0.8	20, 25	1.2	20	3.3	28			
1931	2.7	7	2.7	14	5.9	31	6.9	3	6.6	24	3.8	19	4.1	12	4.3	25	2.6	1	1.9	1	1.1	23	3.0	15	6.9	4	3
1932	4.4	10	9.4	6	8.6	30	7.7	1	15.2	14	2.6	1	2.9	10	1.3	6	1.9	4	7.6	19	9.4	11	5.8	30	15.2	5	14
1933	9.4	28	5.0	1	9.4	22	12.8	22	7.5	22	3.7	2	6.4	3	10.6	25	6.6	17	3.2	2	2.0	27	3.6	20	12.8	4	22
1934	7.0	9	3.5	26	6.1	30	5.4	1	3.5	5	3.4	22	2.4	1	3.8	16	7.8	18	6.3	1	3.2	30	13.5	2	13.5	12	2
1935	9.0	24	8.8	17	6.8	15	8.4	12	6.0	9	3.2	13	2.8	26	4.2	13	7.8	8	2.9	30	4.7	16	5.0	17	9.0	1	24
1936	7.6	11	14.7	28	28.1	19	8.1	8	3.2	1			2.3	13	3.9	30	2.1	18	5.9	19	2.8	9	5.2	21	28.1	3	19
1937	10.5	24	10.7	23	5.6	23	23.3	28	8.0	1			3.9	17	10.1	27			15.6	30			4.5	21	23.3	4	28
1938	4.9	27	4.2	21	5.5	17	3.8	3	6.1	25	3.5	1	5.1	26	3.8	11	2.1	[3] 2, 3	2.2	1	2.1	8	7.3	12	7.3	12	12
1939	7.4	31	12.6	5	8.3	2	9.1	19	4.3	2	3.8	24, 25	4.6	25	6.2	1	2.6	5	4.9	4					12.6	2	5
1940	5.5	24	7.5	13	7.1	5	11.3	22	5.7	29	9.5	2	3.2	5	6.7	19	7.0	1	3.3	4	6.0	17	6.3	30	11.3	4	22
1941	5.7	1	4.2	23	5.8	18	8.9	7	2.6	1, 2	6.5	7	5.8	7	2.2	24	2.1	1	1.0	26, 27	1.5	[4] 28	3.9	26	8.9	4	7
1942	2.9	[1] 11	5.6	22	6.8	11	7.0	12	13.2	24	4.0	7	2.9	[2] 1	6.8	15	3.6	28	26.9	17	4.3	5	13.2	31	26.9	10	17
1943	12.6	1	9.2	8	7.6	16	9.6	22	8.4	22	3.7	1	3.7	16	2.1	2	2.6	3	3.2	28	6.8	10	2.9	[5] 29	12.6	1	1
1944	6.2	30	5.9	29	9.1	25	6.2	30	9.3	9	3.4	1	2.0	1	1.8	3	4.8	21	7.2	23	2.7	1, 30	5.8	13, 29	9.3	5	9
1945	6.2	4	8.2	28	8.7	1	5.9	28	5.1	20	4.6	20	4.6	18	7.8	1	13.9	20	4.4	1	7.6	30	7.0	1	13.9	9	20

[1] 23, 24.
[2] 12, 29.
[3] 22, 23, 24.
[4] 29, 30.
[5] 30, 31.

TABLE 130.—*Mean river stages for each month*

Potomac River at Leiter estate, near Washington, D. C. (6 miles above Key Bridge)
Drainage area=11,560 square miles

[Elevation of gage zero=38.00 feet, m. s. l.]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Max.	Date
1938	3.1	3.4	3.7	3.3	3.2	2.6	2.4	2.5	1.7	1.4	1.7	3.2	7.3	12–12
1939	2.9	6.2	4.8	4.5	3.2	2.6	2.7	2.5	1.5	2.0	3.0		12.6	2–5
1940	3.4	4.5	4.3	5.9	3.5	4.4	2.4	2.7	3.0	2.2	3.6	3.9	11.3	4–22
1941	3.9	3.3	3.9	4.1	2.2	2.8	2.8	1.7	1.4	.8	1.2	2.0	8.9	4–7
1942	2.4	3.1	3.8	4.3	4.2	3.2	2.2	3.8	2.3	5.6	3.5	4.1	26.9	10–17
1943	4.8	5.4	5.0	4.4	4.1	2.8	2.3	1.5	1.2	1.4	2.5	1.8	12.6	1–1
1944	2.7	3.0	5.7	4.5	4.3	2.4	1.4	1.1	1.8	2.9	2.3	3.6	9.3	5–9
1945	4.0	5.1	5.2	3.8	4.0	3.0	2.9	3.4	4.4	2.7	2.9	4.5	13.9	9–20

TABLE 131.—*Highest river stage for each month and year, with date*

Wisconsin Ave. gage, Washington, D. C., on the Potomac River

Year	January		February		March		April		May		June		July		August		September		October		November		December		Annual		
	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Date	Stage	Month	Date
1935									3.9	21	4.3	19	4.2	8	4.6	8	4.6	6, 8	4.2	3, 13	4.5	26	4.7	13	4.7	12	13
1936	4.6	5	6.3	28	17.3	19	4.6	6	4.4	11	5.0	18	4.4	22, 23	4.4	29	4.7	30	5.4	17	3.9	8	4.6	19	17.3	3	19
1937	5.3	24	5.2	23	3.7	13	14.3	28	4.7	1	4.7	10	4.9	15	5.5	27	4.7	7	7.8	30	5.4	13	5.1	5	14.3	4	28
1938	4.1	2	4.3	27	4.7	5	4.5	9	5.0	31	4.5	1	4.3	1	4.4	27	4.3	15	4.3	22	4.2	1, 5	4.2	26	5.0	5	31
1939	4.1	5	6.0	5	4.3	15, 16, 30	4.9	19	4.8	5	4.6	19	4.7	21	5.0	19	5.0	1	4.4	4	4.2	21, 22	4.0	13	6.0	2	5
1940	4.7	15	4.8	20	4.8	5	5.0	24	5.2	24	4.9	8	4.2	14	4.9	16	4.7	1	4.7	5	4.8	1	5.2	28	5.2	5, 12	24, 28
1941	4.5	13, 17	4.2	14	3.9	3	4.7	5, 7	4.1	8	5.2	7	4.3	29	4.2	11	4.4	25	4.1	21	4.3	6	4.0	24	5.2	6	7
1942	4.8	31	4.2	8	4.8	3	4.5	28	6.2	24	4.8	27	4.6	23, 24	5.5	9	4.8	27	17.7	17	4.3	10	6.1	31	17.7	10	17
1943	5.9	1	4.8	7	3.9	19	4.8	21	4.9	24	4.1	3, 16	4.3	21	4.5	14	4.6	16	4.7	28	4.4	8	3.8	2	5.9	1	1
1944	4.4	5	4.1	26	4.7	25	4.4	25	4.7	9	5.0	5	4.4	19	5.3	2	4.1	30	4.9	20	4.7	19	4.9	8	5.3	8	2
1945	4.4	15	4.4	15	4.3	12	4.5	17	5.0	3	4.6	27	4.6	29	4.7	2	6.7	20	5.0	2	4.6	19	5.4	3	6.7	9	20
1946	4.8	18	4.3	19	4.7	20	4.9	1	5.4	30	5.2	3	4.6	17	4.8	3	4.6	13									

Flood stage, 7 feet.
Elevation of zero of gage 1.4 feet, below mean sea level.

TABLE 132.—*Climatic data for stations in central Maryland*

County [1]	Station	Temperature					Average frost dates				Average precipitation													
		Length of record	January average	July average	Maximum	Minimum	Length of record	Last in spring	First in autumn	Growing season [2]	Length of record	January	February	March	April	May	June	July	August	September	October	November	December	Annual
		Yr.	°*F.*	°*F.*	°*F.*	°*F.*	*Yr.*			*Days*	*Yr.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*
Anne Arundel	Annapolis	40	35.3	77.5	106	−6	35	Apr. 10	Nov. 1	205	40	3.70	3.26	3.81	3.76	3.58	4.28	4.62	5.11	3.76	2.90	2.52	3.42	44.72
	Jewell	10	34.1	75.7	100	−14	6	Apr. 20	Oct. 24	187	10	2.99	3.23	3.50	3.16	2.71	5.03	5.21	4.80	3.88	3.59	2.37	3.89	44.36
Baltimore	Baltimore	40	35.5	77.9	107	−7	40	Apr. 8	Nov. 2	208	40	3.57	2.96	3.53	3.66	3.37	3.56	4.14	4.98	3.54	2.94	2.46	3.23	41.94
	Freeland										10	3.60	2.75	3.89	3.40	3.73	4.02	5.32	3.73	3.27	2.55	2.45	3.14	41.85
	Lake Montebello	14	34.5	76.1	101	−10	12	Apr. 13	Nov. 2	203	15	3.35	2.66	3.23	3.35	3.40	4.14	5.04	5.39	2.95	2.56	2.59	3.53	42.19
	Lutherville	12	34.4	75.6	108	−18	12	Apr. 26	Oct. 17	174	13	3.66	3.13	3.70	4.36	3.42	3.99	3.91	5.24	3.76	3.87	3.20	2.91	45.15
	Maryland Line	14	32.9	74.6	105	−14	14	Apr. 21	Oct. 23	185	14	3.84	2.80	3.46	4.04	3.37	4.24	4.33	4.61	3.96	3.86	3.10	2.88	44.49
	Pleasant Hill						14	Apr. 26	Oct. 18	175	14	3.56	2.94	3.44	3.95	3.35	3.95	3.72	4.56	3.88	3.62	2.92	2.77	42.66
	Towson	10	32.7	74.9	104	−14	25	Apr. 17	Oct. 22	188	27	3.79	2.91	3.56	4.05	3.49	3.73	3.80	4.95	3.31	3.12	2.70	3.15	42.56
	Woodstock College	40	33.5	75.6	105	−18	40	Apr. 22	Oct. 15	176	40	3.38	2.79	3.34	3.45	3.35	3.91	4.04	4.51	3.58	2.88	2.43	3.14	40.80
Calvert	Ferry Landing	22	35.9	76.0	106	−13	22	Apr. 16	Oct. 23	190	22	3.83	2.77	3.41	4.03	3.89	3.53	5.10	5.25	3.95	2.75	2.78	2.70	43.99
	Solomons	40	36.9	78.1	104	−5	40	Apr. 8	Nov. 7	213	40	3.09	2.69	3.24	3.04	2.98	3.36	4.46	4.27	3.15	2.40	1.97	2.70	37.35
Carroll	Taneytown	11	31.3	75.6	105	−22	10	Apr. 24	Oct. 16	175	11	2.75	3.19	3.41	3.06	2.89	3.92	3.53	4.77	3.54	2.68	2.21	3.52	39.47
	Westminster	24	32.9	75.2	104	−16	22	Apr. 22	Oct. 19	180	24	3.35	2.88	3.89	3.53	3.61	4.15	3.76	4.87	4.14	3.19	2.60	3.20	43.17
Charles	La Plata	16	36.9	76.3	108	−12	16	Apr. 18	Oct. 22	187	17	4.41	2.88	3.63	3.93	4.03	4.12	5.19	5.03	4.28	2.96	3.05	2.93	46.44
Frederick	Emmitsburg	36	32.2	75.2	104	−23	38	Apr. 17	Oct. 27	193	40	3.42	3.00	4.01	3.77	3.82	4.62	4.15	4.42	3.82	3.55	2.74	3.32	44.64
	Frederick	40	33.1	77.0	109	−21	34	Apr. 21	Oct. 17	179	40	3.27	2.93	3.51	3.52	3.37	4.34	4.06	4.44	3.30	3.07	2.35	3.21	41.37
	Monrovia	12	34.0	75.0	105	−14	12	Apr. 22	Oct. 19	180	19	3.33	2.92	3.40	3.04	3.35	4.85	4.54	4.79	3.19	2.97	2.09	3.47	41.94
	State Senator	30	31.3	74.1	104	−14	30	Apr. 20	Oct. 25	188	30	3.44	2.81	3.59	3.90	3.81	4.59	4.07	4.41	4.01	3.57	2.76	3.11	44.07
Harford	Aberdeen	20	33.0	75.7	105	−13	20	Apr. 16	Oct. 27	194	20	3.36	2.81	3.20	3.41	3.35	3.55	4.53	5.14	3.47	2.48	2.54	2.53	40.37
	Darlington	40	31.6	74.8	105	−17	40	Apr. 21	Oct. 21	183	40	3.63	3.13	3.55	3.45	3.26	4.16	4.51	5.07	3.82	3.23	2.64	3.66	44.11
	Fallston	40	32.3	74.4	104	−14	40	Apr. 20	Oct. 22	185	40	3.60	3.09	3.55	3.78	3.26	4.01	4.38	5.19	3.86	3.36	2.72	3.50	44.30
	Van Bibber	18	32.3	75.4	101	−18	14	Apr. 19	do	186	19	3.49	3.41	4.01	3.70	3.35	4.51	4.14	5.21	3.94	3.43	2.46	4.07	45.72
Montgomery	Boyds	19	33.6	75.2	106	−17	19	Apr. 27	Oct. 17	173	18	3.11	2.69	3.08	3.25	3.17	3.57	3.16	4.23	3.51	2.70	2.30	2.48	37.25
	Great Falls	40	33.2	75.7	106	−21	33	Apr. 24	Oct. 18	177	40	3.31	2.69	3.21	3.29	3.39	3.89	4.03	4.45	3.63	2.97	2.16	3.13	40.15
	Rockville	13	33.0	74.2	104	−14					13	3.35	2.49	3.43	3.35	3.72	4.54	4.15	4.54	3.03	2.44	2.03	3.10	40.17
	Takoma	40	33.3	75.5	108	−10	36	Apr. 15	Oct. 27	195	39	3.61	2.98	3.44	3.55	3.36	3.82	4.16	4.22	3.60	2.76	2.32	3.33	41.15
Prince Georges	Bell	18	34.3	75.8	106	−23	18	Apr. 27	Oct. 16	172	18	3.76	2.88	3.34	4.01	3.78	3.40	3.74	4.70	4.12	2.96	2.90	2.57	42.16
	College Park	40	34.1	75.9	107	−26	37	Apr. 28	Oct. 15	170	40	3.41	2.91	3.54	3.54	3.68	3.93	3.98	4.61	3.58	2.74	2.39	3.10	41.41
	Cheltenham	38	35.1	75.8	106	−16	38	Apr. 18	Oct. 20	185	38	3.79	2.85	3.69	4.06	3.59	4.16	4.53	4.81	3.52	2.90	2.59	3.23	43.72
	Laurel	40	33.5	75.5	106	−19	40	Apr. 22	Oct. 17	178	40	3.49	2.82	3.65	3.72	3.48	3.99	4.26	4.93	3.56	2.95	2.47	3.27	42.59
St. Marys	Charlotte Hall	7	33.0	77.0	102	−19	18	Apr. 16	Oct. 22	189	19	3.43	3.21	3.09	3.94	3.96	4.20	4.72	5.37	3.95	2.95	2.23	3.18	44.23

[1] Howard County, Md., for which no records are available, is best represented by Woodstock College, Baltimore County, or Laurel, Prince Georges County.

[2] Length of growing season between average dates of last frost in spring and first in fall.

TABLE 132.—Continued. *Climatic data for stations in Northern Virginia*

County [1]	Station	Temperature					Average frost dates				Average precipitation													
		Length of record	January average	July average	Maximum	Minimum	Length of record	Last in spring	First in autumn	Growing season [2]	Length of record	January	February	March	April	May	June	July	August	September	October	November	December	Annual
		Yr.	°*F.*	°*F.*	°*F.*	°*F.*	*Yr.*			*Days*	*Yr.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*	*In.*
Albemarle	Charlottesville	40	37.0	76.9	107	−9	40	Apr. 6	Nov. 5	213	40	3.56	2.87	3.54	3.75	3.79	5.14	4.69	4.92	3.45	3.51	2.58	3.42	45.22
Arlington	Clarendon										14	3.48	2.84	2.90	3.59	3.78	3.54	3.47	5.08	4.00	3.74	2.80	2.52	41.74
Campbell	Lynchburg	40	38.5	77.2	106	−7	40	Apr. 4	Oct. 25	204	40	3.36	2.65	3.56	3.09	3.06	4.28	3.83	4.16	2.96	3.07	2.27	3.15	39.44
Culpeper	Culpeper	31	34.5	75.3	104	−20	32	Apr. 15	Oct. 23	191	31	3.25	2.43	2.89	3.56	3.89	4.31	3.51	4.45	3.53	2.85	2.56	2.87	40.10
Elizabeth City	Langley Field	40	40.9	78.4	102	4	19	Mar. 18	Nov. 17	244	20	3.31	3.11	3.05	3.09	3.44	4.04	4.69	4.22	3.58	1.91	2.18	2.85	39.47
Fauquier	Leeds Manor	10	32.4	73.7	107	−9	11	Apr. 8	Nov. 2	208	9	3.21	2.25	3.28	3.84	3.70	5.66	4.79	5.33	3.03	2.89	2.49	3.09	43.56
Fluvanna	Columbia	40	37.0	75.9	110	−15	39	Apr. 17	Oct. 20	186	40	3.60	2.80	3.62	3.61	3.66	3.95	4.49	4.50	3.23	2.86	2.36	3.07	41.75
Goochland	Lassiter										12	3.54	3.14	3.77	3.05	3.40	4.16	5.06	3.77	2.72	2.41	2.48	3.03	40.53
Hanover	Ashland	30	36.5	76.6	105	−16	30	Apr. 20	Oct. 20	183	30	3.07	2.80	3.57	3.48	3.42	4.29	4.58	5.13	3.26	2.96	2.13	3.16	41.85
	Doswell	12	38.1	77.1	107	−15	14	do	Oct. 19	182	13	2.95	2.46	3.15	3.51	3.37	4.64	4.12	4.74	2.64	3.28	1.88	3.20	39.94
Henrico	Richmond	40	39.1	78.0	107	−3	40	Mar. 29	Nov. 2	218	40	3.50	3.05	3.57	3.50	3.51	4.34	4.61	4.81	3.12	2.60	2.09	3.23	41.93
James City	Williamsburg	40	40.4	77.0	102	−3	40	Apr. 9	Oct. 31	205	38	3.65	3.43	4.00	3.77	3.82	4.77	6.15	5.55	3.42	2.81	2.26	3.58	47.21
King George	Dahlgren	19	36.3	76.7	106	−3	19	Mar. 31	Nov. 4	218	19	3.37	2.67	3.23	3.51	3.19	3.55	4.32	4.96	3.57	2.31	2.36	2.58	39.62
King William	West Point	14	37.5	77.0	108	−4	15	Apr. 13	Oct. 27	197	16	3.13	3.13	4.13	3.28	3.46	3.98	5.68	4.10	3.11	3.11	2.24	3.40	42.75
Louisa	Mineral	23	35.2	74.8	108	−18	23	Apr. 23	Oct. 21	181	23	3.59	2.53	3.27	3.58	3.61	3.58	4.24	4.20	3.36	2.69	2.29	2.63	39.57
Middlesex	Christchurch	15	41.1	77.8	104	2	15	Mar. 31	Nov. 8	222	15	4.27	3.30	3.48	4.13	3.78	4.12	5.57	4.57	4.55	2.95	2.39	3.16	46.27
Orange	Orange										8	4.36	2.62	3.32	3.92	3.54	3.96	4.39	3.90	4.78	3.34	2.85	2.33	43.31
Prince George	Hopewell	40	39.9	78.7	108	−10	40	Apr. 4	Oct. 31	210	39	3.32	3.04	3.70	3.37	3.70	4.93	4.71	4.71	3.61	2.52	2.14	3.34	43.09
Prince William	Manassas						9	Apr. 16	Oct. 18	185	17	3.64	2.78	3.28	3.20	3.74	3.21	3.61	4.16	3.34	3.04	2.71	2.91	39.62
	Quantico	40	35.0	77.0	107	−16	40	Apr. 14	Oct. 31	200	36	3.13	2.36	2.92	3.07	3.16	3.54	3.83	4.34	3.08	2.54	2.08	2.53	36.58
Richmond	Warsaw	29	36.8	76.4	102	−10	29	Apr. 15	Oct. 25	193	30	3.20	3.19	3.91	3.37	3.18	4.49	4.34	4.90	2.82	3.01	2.46	3.27	42.14
Shenandoah	Woodstock	40	33.8	74.9	109	−23	40	Apr. 19	Oct. 18	182	40	2.59	1.96	2.79	2.72	3.33	3.90	3.36	3.83	2.67	2.64	1.81	2.29	33.89
Spotsylvania	Fredericksburg	40	37.1	76.4	105	−21	40	Apr. 15	Oct. 24	193	40	3.50	2.73	3.36	3.44	3.62	4.20	4.42	4.89	3.49	3.04	2.18	2.95	41.82
Warwick	Newport News	29	40.8	77.4	105	1	28	Mar. 29	Nov. 6	222	27	3.12	3.61	4.19	3.25	3.86	4.79	6.24	5.77	2.82	2.81	2.18	3.62	46.26

[1] The following counties, for which no records are available, are best represented by the station indicated: Amherst—Lynchburg; Caroline—Ivanhoe; Charles City—Hopewell; Essex and Northumberland—Warsaw; Fairfax—Clarendon; Gloucester—Williamsburg; Green-Orange; King and Queen and New Kent—West Point; Lancaster and Mathews—Christchurch; Madison and Rappahannock—Page—Woodstock; Stafford—Fredericksburg; Westmoreland—Dahlgren; York—Williamsburg.

[2] Length of growing season between average dates of last frost in spring and first in fall.

TABLE 133.—*Killing frosts and frost-free period*

[Dates of and days between killing frosts]

Year	Latest in spring	Earliest in autumn	Frost-free period (days)	Year	Latest in spring	Earliest in autumn	Frost-free period (days)
1872	Apr. 17	Oct. 21	187	1901	Mar. 18	Oct. 7	203
1873	Mar 23	do	212	1902	Apr. 14	Oct. 22	191
1874	Apr. 29	Oct. 15	169	1903	Apr. 6	Oct. 28	205
1875	Apr. 22	Oct. 12	173	1904	Apr. 17	Oct. 7	173
				1905	Apr. 19	Oct. 22	186
1876	Apr. 25	Oct. 12	170				
1877	Apr. 15	Oct. 23	191	1906	May 11	Oct. 12	154
1878	Mar. 26	Oct. 28	216	1907	Apr. 3	Oct. 22	202
1879	Apr. 8	Oct. 26	201	1908	Apr. 5	Nov. 1	210
1880	Apr. 12	Oct. 19	190	1909	Apr. 12	Oct. 20	191
				1910	Mar. 18	Oct. 30	226
1881	Apr. 7	Nov. 5	212				
1882	Apr. 12	do	207	1911	Apr. 10	Nov. 3	207
1883	Mar. 25	Nov. 15	228	1912	Apr. 8	do	209
1884	Apr. 9	Oct. 19	193	1913	May 12	Oct. 23	164
1885	Apr. 14	Nov. 4	204	1914	Apr. 10	Oct. 28	201
				1915	Apr. 3	Oct. 25	205
1886	Mar. 24	Nov. 5	226				
1887	Apr. 20	Oct. 16	179	1916	Apr. 9	Nov. 4	209
1888	Apr. 26	Oct. 4	161	1917	Apr. 14	Oct. 13	182
1889	Apr. 6	Oct. 9	186	1918	Apr. 6	Oct. 23	200
1890	do	Oct. 31	208	1919	Apr. 26	Nov. 10	198
				1920	Apr. 14	Nov. 4	204
1891	Apr. 9	Oct. 29	203				
1892	Apr. 16	Oct. 6	173	1921	Apr. 11	Oct. 14	186
1893	Mar. 30	Oct. 17	201	1922	Apr. 22	Oct. 19	180
1894	Apr. 9	Oct. 15	189	1923	Apr. 15	Nov. 1	200
1895	Mar. 29	Oct. 9	194	1924	Apr. 3	Oct. 23	203
				1925	May 7	Oct. 28	174
1896	Apr. 9	Oct. 19	193				
1897	Apr. 21	Oct. 31	193				
1898	Apr. 6	Oct. 24	201				
1899	Apr. 11	Oct. 2	174				
1900	Apr. 15	Oct. 20	188				

TABLE 133.—*Killing frosts and frost-free period*—Continued

Year	Latest in spring	Earliest in autumn	Frost-free period (days)	Year	Latest in spring	Earliest in autumn	Frost-free period (days)
1926	Apr. 20	do	191	1936	Apr. 8	Oct. 27	202
1927	Mar. 25	Nov. 7	227	1937	Mar. 28	Oct. 25	211
1928	Apr. 18	Oct. 30	195	1938	Mar. 11	Nov. 24	258
1929	Mar. 11	Nov. 10	244	1939	Apr. 13	Nov. 26	227
1930	Apr. 24	Oct. 21	180	1940	Apr. 14	Oct. 21	188
1931	Mar. 21	Nov. 7	231	1941	Mar. 30	do	205
1932	Apr. 17	Nov. 13	210	1942	do	Oct. 28	212
1933	Apr. 23	Oct. 26	186	1943	Apr. 16	Nov. 12	210
1934	Mar. 29	Nov. 3	219	1944	Apr. 14	Oct. 23	192
1935	Apr. 16	Nov. 24	222	1945	Apr. 7	Nov. 5	212

Latest in spring, May 12, 1913.
Earliest in autumn, Oct. 2, 1899.
Shortest frost-free period ..... 154 days in 1906.
Longest frost-free period ..... 258 days in 1938.

Average date in spring ..... Apr. 10.
Average date in autumn ..... Oct. 26.
Average frost-free period ..... 199 days.

	Killing frosts in spring as late as or later—	Killing frosts in autumn as early as or earlier—	Frost-free period as short as or shorter (days)
10 percent of time	Apr. 25	Oct. 9	172
25 percent of time	Apr. 17	Oct. 19	185
50 percent of time	Apr. 11	Oct. 25	200
75 percent of time	Apr. 5	Nov. 3	209
90 percent of time	Mar. 25	Nov. 10	225
95 percent of time	Mar. 21	Nov. 13	230

TABLE 134.—*Dates of last killing frost in spring*

MARYLAND

Year	Washington County		Frederick County		Washington County	Frederick County	Harford County		Baltimore County		Prince Georges County	Montgomery County		Prince Georges County		Anne Arundel County	Prince Georges County	Calvert County
	Clear Spring	Chewsville	State Sanatorium	Emmitsburg	Keedysville	Frederick	Fallston	Aberdeen	Woodstock	Baltimore	Laurel	Great Falls	Takoma	College Park	Bell	Annapolis	Cheltenham	Solomons
1899		Apr. 11		Apr. 10			Apr. 17		Apr. 10	Mar. 25	Apr. 11							Apr. 4
1900	Apr. 11	May 9		Apr. 11			May 10		Apr. 15	Mar. 22	do							Apr. 10
1901		Apr. 17				Mar. 18	Apr. 1		Apr. 4	Mar. 17	Apr. 12							Mar. 18
1902	Apr. 16	May 10					Apr. 16		Apr. 16	Mar. 7	Apr. 16						Apr. 4	Mar. 27
1903	Apr. 6	Apr. 23		Apr. 6		May 2	May 2		Apr. 6	Feb. 26	Apr. 22	May 2	Apr. 6			Apr. 5	Apr. 6	Apr. 5
1904	Apr. 21	Apr. 21		Apr. 20		Apr. 22	Apr. 23		Apr. 22	Apr. 17	Apr. 14	Apr. 20	Apr. 21			Apr. 21	Apr. 20	Apr. 20
1905	Apr. 19	May 21		Apr. 19	Apr. 19	Apr. 24	Apr. 19		Apr. 19	Apr. 19	Apr. 19	Apr. 19	Apr. 20	Apr. 24		Apr. 19	Apr. 19	Apr. 19
1906	Apr. 24	May 10		May 10	May 11	May 11	May 11		May 11	Apr. 3	May 11	May 11	Apr. 1	May 11		Apr. 24	May 11	May 11
1907	May 21	May 22			May 12	May 12	May 12		Apr. 22	Apr. 21	May 5	May 12	Apr. 21	May 12		Apr. 21	Apr. 21	Apr. 2
1908	Apr. 17	Apr. 20		Apr. 17	Apr. 22	Apr. 17	Apr. 17		Apr. 17	Apr. 4	May 2	Apr. 17	Apr. 18	Apr. 22		Apr. 5	Apr. 5	Apr. 4
1909	Apr. 12	May 12	Apr. 24	Apr. 11	May 3	Apr. 12	Apr. 12		Apr. 12	Apr. 11	May 3	May 3	Apr. 12	May 12		Apr. 11	Apr. 12	Apr. 11
1910	Mar. 20	May 16	Apr. 8	Mar. 19	May 16	May 16	Mar. 19		Mar. 22	Mar. 18	Apr. 14	Mar. 14	Mar. 20	May 16		Mar. 16	Mar. 22	Mar. 22
1911	Apr. 23	May 5	Apr. 18	Apr. 12	May 5	Apr. 11	May 3		Apr. 18	Apr. 2	May 6	May 16	Apr. 11	May 6			Apr. 12	Apr. 11
1912	Apr. 9	May 1	Apr. 11	Apr. 8	Apr. 11	Apr. 9	Apr. 9		Apr. 9	Apr. 4	Apr. 24	Apr. 11	Apr. 9	Apr. 11		Apr. 4	Apr. 10	Apr. 4
1913	May 12	May 12	May 12	May 12	May 12	May 12	May 12		May 12	May 12	May 12	May 12	May 12	May 12		May 12	May 12	May 12
1914	Apr. 11	Apr. 10	Apr. 11	Apr. 11	May 1	Apr. 10	Apr. 10		Apr. 10	Apr. 10	Apr. 14	Apr. 9	Apr. 10	May 3		Apr. 10	Apr. 14	Apr. 10
1915	Apr. 6	May 27	Apr. 14	Apr. 4	Apr. 16	Apr. 15	Apr. 5		Apr. 15	Apr. 3	Apr. 15	Apr. 5	Apr. 5	Apr. 15		Mar. 31	Apr. 15	Apr. 3
1916	Apr. 11	Apr. 11	Apr. 10	Apr. 9	Apr. 11	Apr. 11	Apr. 10		Apr. 11	Mar. 19	Apr. 16	Apr. 11	Apr. 9	Apr. 11		Apr. 8	Apr. 11	Mar. 20
1917	Apr. 16	do	Apr. 26	Apr. 15	May 11	Apr. 15	Apr. 15		Apr. 15	Apr. 14	Apr. 14	Apr. 17	Apr. 15	Apr. 15		Apr. 10	Apr. 15	Apr. 15
1918	May 2	May 2	Apr. 21	Apr. 13	May 2	Apr. 16	Apr. 13		Apr. 6	Mar. 28	Apr. 6	May 2	Apr. 12	Apr. 6		Mar. 27	Apr. 13	Mar. 29
1919	Apr. 27	Apr. 30	Apr. 26	Apr. 26	Apr. 27	Apr. 26	Apr. 27		Apr. 30	Apr. 2	Apr. 27		Apr. 3	Apr. 27		Apr. 2	Apr. 27	Apr. 2
1920	Apr. 15	May 15	Apr. 25	Apr. 11	May 15	Apr. 15	Apr. 15	Apr. 10	May 16	Apr. 11	May 16	May 16	Apr. 14	May 16		Apr. 11	May 6	Apr. 6
1921	Apr. 12	Apr. 12	Apr. 19	Apr. 12	Apr. 12	Apr. 12	Apr. 12	Apr. 12	Apr. 12	Apr. 22	Apr. 12	Apr. 12	Apr. 12	Apr. 12	Apr. 12	Apr. 2	Apr. 12	Apr. 2
1922	Apr. 29	May 1	Apr. 24	Apr. 25	Apr. 30	Apr. 29	Apr. 29	Apr. 24	May 1	Apr. 24	Apr. 29	May 1	Apr. 24	May 1	May 1	Apr. 24	Apr. 29	Apr. 24
1923	May 11	May 11	Apr. 19	Apr. 19	May 11	Apr. 24	Apr. 19	Apr. 10	May 11	Apr. 2	May 11	May 11	Apr. 10	May 11	May 11	Apr. 10	Apr. 17	Apr. 2
1924	May 5	May 5	Apr. 9	Apr. 3	May 5	Apr. 4	Apr. 21	Apr. 4	May 5	Apr. 3	Apr. 21	Apr. 21	Apr. 3	May 5	May 5	Apr. 3	Apr. 21	Apr. 3
1925	May 8	May 8	Apr. 21	Apr. 21	May 8	Apr. 21	do	Apr. 21	May 8	Apr. 7	May 6	May 8	Apr. 21	May 8	May 8	Apr. 7	do	Apr. 7
1926	May 5	May 5	May 4	Apr. 27	May 5	Apr. 27	Apr. 20	Apr. 20	Apr. 27	Apr. 20	Apr. 27	May 5	Apr. 20	May 5	May 5	Apr. 20	Apr. 20	Apr. 20
1927	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 12
1928	Apr. 18	May 14	Apr. 18	Apr. 18	May 14	Apr. 26	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 18
1929	May 17	May 17	Apr. 2	Apr. 2	May 17	Mar. 29	Apr. 2	Mar. 19	Apr. 30	Mar. 19	Mar. 29	Apr. 30	Mar. 18	Apr. 30	Apr. 30	Mar. 18	Mar. 29	Mar. 18
1930	Apr. 26	June 1	Apr. 25	Apr. 25	Apr. 26	Apr. 24	Apr. 25	Apr. 24	Apr. 27	Apr. 24	Apr. 25	Apr. 26	Apr. 24	Apr. 27	Apr. 27	Apr. 24	Apr. 26	Apr. 24
1931	May 4	May 4	Apr. 30	Apr. 30	Apr. 30	Apr. 30	Apr. 30	Apr. 30	Apr. 30	Apr. 30	Apr. 30	Apr. 30	Apr. 30	A0r. 30	Apr. 30	Apr. 30	Apr. 30	Apr. 30
1932	Apr. 17	Apr. 27	Apr. 27	Apr. 17	Apr. 19	Apr. 17	Apr. 18	Apr. 17	Apr. 20	Apr. 15	Apr. 17	Apr. 20	Apr. 20	Apr. 20	Apr. 20	Apr. 15	Apr. 17	Apr. 17
1933	Apr. 27	do	do	Apr. 27	Apr. 27	Apr. 27	Apr. 23	Apr. 28	Apr. 23	Apr. 23	Apr. 27	Apr. 27	Apr. 23	Apr. 27	Apr. 27	Apr. 23	Apr. 27	Apr. 23
1934	Apr. 28	Apr. 29	Apr. 28	Apr. 28	Apr. 28	Apr. 29	Apr. 28	Apr. 28	Apr. 29	Apr. 28	Apr. 29	Apr. 29	Apr. 28	Apr. 29	Apr. 29	Mar. 30	Apr. 29	Mar. 30
1935	Apr. 19	Apr. 26	Apr. 16	Apr. 16	Apr. 26	Apr. 16	Apr. 16	Apr. 16	Apr. 16	Mar. 27	Apr. 16	Apr. 16	Apr. 16	Apr. 16	Apr. 26	Mar. 18	Apr. 16	Mar. 18
1936	May 29	May 29	Apr. 25	Apr. 23	May 29	Apr. 25	Apr. 25	Apr. 9	May 29	Apr. 23	Apr. 25	Apr. 25	Apr. 23	Apr. 25	Apr. 27	Apr. 8	Apr. 23	Apr. 8
1937	Apr. 17	Apr. 17	Apr. 13	Apr. 13	Apr. 17	Apr. 17	Apr. 13	Apr. 11	Apr. 17	Apr. 11	Apr. 13	Apr. 17	Apr. 12	Apr. 17	Apr. 17	Apr. 11	Apr. 12	Mar. 28
1938	May 13	May 12	Apr. 11	Apr. 11	Apr. 24	Apr. 24	Apr. 11	do	Apr. 24	do	Apr. 11	Apr. 11	Apr. 11	Apr. 24	Apr. 24	Mar. 11	Apr. 24	Mar. 11
1939		May 4	Apr. 13	Apr. 13	May 4	Apr. 14	Apr. 14	Apr. 13	Apr. 14	Apr. 13	Apr. 14	Apr. 14	Apr. 14	Apr. 14	Apr. 14	Apr. 14	Apr. 13	Mar. 23
1940		May 12	Apr. 25	Apr. 15	May 12	Apr. 28	Apr. 23	Apr. 14	Apr. 29	Apr. 14	Apr. 15	Apr. 29	Apr. 15	Apr. 29	Apr. 29	Apr. 14	Apr. 25	Apr. 14
1941		May 13	Apr. 3	Mar. 31	May 13	Apr. 25	Mar. 31	Apr. 9	May 13	Mar. 30	Apr. 3	Apr. 9	Mar. 31	May 13	May 13	Mar. 30	Apr. 9	Mar. 31
1942	Apr. 22	Apr. 22	Apr. 13	Apr. 13	Apr. 22	Apr. 22	Apr. 14	Apr. 14	Apr. 14	Apr. 14	Apr. 14	Apr. 14	Apr. 14	Apr. 22	Apr. 22	do	Apr. 14	Mar. 30
1943		May 5	Apr. 16	Apr. 16	May 5	May 5	May 2	Apr. 16	May 2	Apr. 16	May 2	May 2	Apr. 16	May 2	May 2	Apr. 16	May 2	Apr. 16
1944	Apr. 30	Apr. 29	Apr. 14	Apr. 14	Apr. 29	Apr. 29	Apr. 6	Apr. 4	Apr. 14	Apr. 4	Apr. 14	Apr. 29		Apr. 14	Apr. 14		Apr. 6	Apr. 4
1945	May 2	May 2	Apr. 7	Apr. 23	May 2	May 2	Apr. 7	Apr. 7	May 2	Apr. 7	Apr. 7	May 2	Apr. 7	May 2	May 2	Mar. 5	May 2	Mar. 5

See footnotes at end of table.

TABLE 134.—Continued. *Dates of last killing frost in spring*

VIRGINIA

Year	District of Columbia	Berkley County	Frederick County	Loudoun County		Shenandoah County	Prince William County	Rockingham County	Culpeper County	Spotsylvania County	Augusta County	Albemarle County	King George County	Richmond County	Campbell County	Flu-vanna County	Henrico County	York County
	Washington	Martinsburg, W. Va.	Winchester	Mount Weather	Lincoln	Woodstock	Quantico	Dale Enterprise	Culpeper	Fredericksburg	Staunton	Charlottesville	Dahlgren	Warsaw	Lynchburg	Columbia	Richmond	Williamsburg
1899	Apr. 11	Apr. 17				Apr. 10	Apr. 2	Apr. 17		Apr. 11	Apr. 17	Apr. 4		Apr. 17	Apr. 10		Mar. 28	
1900	Apr. 15	Apr. 15				Apr. 15	May 10	May 4		Apr. 10	May 10	Apr. 10		Apr. 15	Mar. 26	Apr. 15	Apr. 15	
1901	Mar. 18	Apr. 6			Apr. 12	Apr 12	Apr. 5	Apr. 12		Mar. 29	Apr. 12	Mar. 12		Mar. 18	Mar. 18	Apr. 28	Mar. 17	Mar. 8
1902	Apr. 14	Apr. 15			Mar. 16	Apr. 14	Mar. 26	Apr. 14		Mar. 20	Apr. 16	Apr. 9		Mar. 26	Mar. 19	Mar. 21	Mar. 7	Mar. 26
1903	Apr. 6	May 3			May 2	Apr. 5	May 5	May 2		Apr. 6	May 2	Apr. 6		Apr. 6	Apr. 5	May 5	Apr. 5	Mar. 4
1904	Apr. 17	Apr. 23			Apr. 22	Apr. 22	Apr. 19	Apr. 22		Apr. 22	Apr. 22	Apr. 22		Apr. 21	Apr. 22	Apr. 22	Apr. 20	Apr. 20
1905	Apr. 19	Apr. 19			Apr. 24	Apr. 24	May 2	Apr. 24		Apr. 19	Apr. 19	Apr. 18		Apr. 19	Apr. 19	Apr. 19	Apr. 19	Apr. 19
1906	May 11	Apr. 8		May 10	May 11	Apr. 3	May 11	May 11		May 11	May 11	Apr. 1		May 11	Apr. 4	May 8	Apr. 1	May 10
1907	Apr. 3	May 12		Apr. 2	May 12	Apr. 22	Apr. 21	Mar. 28		Apr. 20	Apr. 20	Apr. 7		Apr. 20	Apr. 21	Apr. 21	Apr. 15	Apr. 21
1908	Apr. 5	Apr. 17		May 1	Apr. 17	do	Apr. 22	May 3	Apr. 22	Apr. 17	Apr. 17	Apr. 5		Apr. 22	Mar. 22	Apr. 17	Apr. 4	Apr 17
1909	Apr. 12	Apr. 24		Mar. 31	May 3	May 3	Apr. 26	May 4	Apr. 12	May 3	Apr. 12	Apr. 11		Apr. 11	pr. 11	Apr. 29	Apr. 11	Apr. 11
1910	Mar. 18	May 16		Mar. 18	May 16	Apr. 8	May 17	May 15	Apr. 8	Mar. 22	May 15	Mar. 18		Mar. 21	Mar. 18	Mar. 20	Mar. 16	Mar. 18
1911	Apr. 10	Apr. 10		Apr. 24	Apr. 25	Apr. 11	May 3	May 3	Apr. 24	May 3	May 3	Apr. 4		Apr. 11	Apr. 10	Apr. 11	Apr. 2	Apr. 25
1912	Apr. 8	Apr. 8	Apr. 8	Apr. 8	Apr. 11	Apr. 24	Apr. 24	Apr. 23	Apr. 9	Apr. 9	Apr. 8	Mar. 26		Apr. 9	Mar. 26	Apr. 9	Mar. 26	Apr. 9
1913	May 12	May 12	Apr. 21	Apr. 21	May 12	Apr. 12	Mar. 29	May 12	Apr. 8	Apr. 22	May 12	Apr. 8		Apr. 22	Mar. 29	Apr. 8	Mar. 29	Mar. 29
1914	Apr. 10	Apr. 11	Apr. 10	Mar. 30	Apr. 14	Apr. 11	Apr. 14	Apr. 10	Apr. 10	Mar. 25	Apr. 10	Apr. 10		Mar. 24	Apr. 10	Apr. 10	Apr. 10	Apr. 10
1915	Apr. 3	Apr. 16	Apr. 4	Apr. 14	Apr. 15	Apr. 16	Apr. 16	Apr. 16	Apr. 16	Apr. 5	Apr. 15	Apr. 4		Apr. 8	Apr. 5	Apr. 18	Apr. 1	Apr. 5
1916	Apr. 9	Apr. 11	Apr. 9	Apr. 7	Apr. 14	Apr. 27	Apr. 11	Apr. 11	Apr. 11	Apr. 11	Apr. 27	Apr. 9		do	Apr. 9	Apr. 11	Mar. 23	Apr. 11
1917	Apr. 14	Apr. 16	Apr. 4	Apr. 15	do	Apr. 14	Apr. 15	Apr. 16		Apr. 14	Apr. 15	Apr. 14		Apr. 14	Apr. 14	Apr. 15	Apr. 14	Apr. 15
1918	Apr. 6	Apr. 13	Apr. 14	Apr. 13	Apr. 26	Apr. 30		May 2	Apr. 14	Apr. 12	May 2	Apr. 13		Apr. 13	Apr. 6	May 2	Apr. 6	Apr. 6
1919	Apr. 26	Apr. 26	Apr. 25	Apr. 26	Apr. 11	Apr. 25	Apr. 25	Apr. 26	Apr. 19	Apr. 3	Apr. 27	Apr. 3		Apr. 27	Apr. 3	Apr. 19	Apr. 26	Apr. 26
1920	Apr. 14	Apr. 15	Apr. 11	Apr. 15	Mar. 30	Apr. 24		May 16	Apr. 15	Apr. 15	May 15	Apr. 14		May 5	Apr. 11	May 15	Mar. 22	Apr. 15
1921	Apr. 11	Apr. 12	Mar. 30	Apr. 19	Apr. 24	Mar. 30	Mar. 30	Apr. 11	Mar. 30	Apr. 2	Apr. 2	Mar. 30	Mar. 29	Mar. 30	Apr. 2	Apr. 12	Apr. 2	Mar. 30
1922	Apr. 22	Apr. 25	Apr. 22	Apr. 24	Apr. 15	Apr. 29	Mar. 23	Apr. 29	Apr. 24	Mar. 23	Apr. 24	Mar. 18	Mar. 23	Apr. 30	Apr. 24	Apr. 25	Mar. 23	Mar. 23
1923	Apr. 15	May 10	Apr. 15	Apr. 18	Apr. 3	Apr. 15	Apr. 2	Apr. 18	Apr. 15	Apr. 10	Apr. 15	Mar. 15	Apr. 2	Apr. 9	Apr. 10	Apr. 10	Apr. 1	Apr. 10
1924	Apr. 3	Apr. 20	Apr. 2	Apr. 3	Apr. 21	Apr. 3	Apr. 3	Apr. 21	Apr. 3	Apr. 4		Apr. 3	Apr. 3		Apr. 4	Apr. 4	Apr. 3	Apr. 3
1925	May 7	May 6	May 4	Apr. 21	Apr. 20	Apr. 22	Apr. 7	May 27	Apr. 7	Apr. 7		Apr. 21	Apr. 7	May 8	Apr. 7	Apr. 8	Apr. 7	Mar. 30
1926	Apr. 20	Apr. 29	Apr. 30	Apr. 27	Apr. 21	May 5	Apr. 20	May 5	Apr. 27	Apr. 20	Apr. 20	Apr. 20	Apr. 20	May 1	Apr. 16	May 5	Apr. 20	Apr. 20
1927	Mar. 25	May 1	Apr. 28	Apr. 25	Apr. 23	Apr. 25	Mar. 11	Apr. 28	Apr. 25	Mar. 11	Apr. 25	Apr. 11	Apr. 12	Apr. 25	Mar. 5	Apr. 12	Mar. 5	
1928	Apr. 18	May 14	Apr. 27	Apr. 28	Apr. 18	May 14	Apr. 18	do	Apr. 18	Apr. 18	Apr. 16	Apr. 16	Apr. 18	Apr. 18	Apr. 17	Apr. 26	Mar. 6	Apr. 17
1929	Mar. 11	May 17	Mar. 30	Mar. 11	Apr. 2	Apr. 2	May 19	Apr. 13	Mar. 18	Mar. 18	Mar. 29	Mar. 11	Mar. 18		Mar. 11	Apr. 19	Mar. 11	
1930	Apr. 24	Apr. 24	Apr. 26	Apr. 25	Apr. 24	Apr. 27	Apr. 9	Apr. 26	Apr. 24	Apr. 24	Apr. 25	Mar. 28	Apr. 10		Apr. 1	Apr. 27	Mar. 5	Apr. 25
1931	Mar. 21	Apr. 30	Apr. 30	Apr. 27	Mar. 26	May 4	Mar. 24	Apr. 30	Apr. 30	Apr. 3	Apr. 7	Mar. 31	Mar. 21		Mar. 21	Apr. 13	Mar. 24	Apr. 13
1932	Apr. 17	Apr. 17	Apr. 17	Apr. 16	Apr. 17	Apr. 19	Apr. 4	Apr. 28	Apr. 18	Apr. 17	Apr. 18	Apr. 4	Mar. 16		Mar. 16	Apr. 19	Mar. 11	Apr. 18
1933	Apr. 23	Apr. 27	Apr. 23	Apr. 21	Apr. 27	Apr. 27	Mar. 30	do	Apr. 23	Apr. 27	Apr. 23	Apr. 23	Mar. 25		Mar. 30	Apr. 27	Mar. 30	Mar. 30
1934	Mar. 29	Apr. 28	Apr. 28	Apr. 28	Apr. 28	Apr. 28	Apr. 28	do	Apr. 28	Apr. 28	Apr. 26	Apr. 13	Mar. 30		Apr. 22	Apr. 26	do	Apr. 29
1935	Apr. 16	Apr. 26	Apr. 17	Apr. 15	Apr. 17	Apr. 18	Apr. 16	Apr. 18	Apr. 16	Apr. 18	Apr. 17	Apr. 16	Apr. 16		Mar. 15	Mar. 15	Mar. 15	Mar. 15
1936	Apr. 8	Apr. 25	Apr. 23	Apr. 8	Apr. 23	Apr. 23	Apr. 8	Apr. 23	Apr. 23	Apr. 25	Apr. 23	Apr. 8	Apr. 8		Apr. 23	Apr. 23	Mar. 8	Apr. 19
1937	Mar. 28	Apr. 13	Apr. 17	Apr. 12	Apr. 17	Apr. 17	Mar. 27	Apr. 17	Apr. 11	Apr. 11	Apr. 17	Apr. 11	Mar. 28		Mar. 27	Apr. 17	Mar. 28	Apr. 13
1938	Mar. 11	Apr. 11	Apr. 11	Apr. 11	Apr. 24	Apr. 3	Mar. 12	Apr. 11	do	do	Apr. 23	Apr. 8	Feb. 17		Mar. 28	Mar. 11	Mar. 11	Apr. 11
1939	Apr. 13	Apr. 14	Apr. 14	Apr. 14	Apr. 13	Apr. 14	Apr. 5	Apr. 14	Apr. 14	Apr. 14	May 4	Apr. 13	Mar. 19		Apr. 14	Apr. 14	Mar. 19	Apr. 14
1940	do	Apr. 29	Apr. 23	Apr. 25	do	Apr. 25	do	Apr. 23	May 5	do	Apr. 25	Apr. 29	Apr. 14	Apr. 13	do	Apr. 27	Apr. 13	Do.
1941	Mar. 30	May 13	Apr. 3	Apr. 3	May 3	Apr. 3	Mar. 30	Apr. 3	Mar. 31	Mar. 31	Apr. 3	Mar. 30	Mar. 30	Apr. 9	Mar. 30	Mar. 30	Mar. 31	Apr. 9
1942	do	Apr. 14	Apr. 14	Apr. 14	Apr. 14	Apr. 14	do	Apr 14	Apr. 14	Apr. 14	Apr. 20	Mar. 31	Mar. 29	Apr. 14	do	Apr. 14	Mar. 30	Mar. 30
1943	Apr. 16	May 2	May 2	Apr. 16	May 2	May 2	Apr. 16	May 2	Apr. 16	May 2	May 2	Apr. 16	Apr. 16	Apr. 16	Apr. 16	May 2	Apr. 16	May 2
1944	Apr. 4	Apr. 30	Apr. 6	Apr. 30	Apr. 6	Apr. 14	Apr. 6	Apr. 14	Apr. 6	Apr. 6	Apr. 29	Apr. 6	Apr. 6	Apr. 6	Apr. 5	Apr. 6	Apr. 6	Apr. 6
1945	Apr. 7	May 2	May 2	May 2	May 2	May 2	May 2	May 2	May 2	May 2	May 2	Apr. 7	Apr. 7	May 2	Apr. 7	Apr. 7	Apr. 7	May 2

See footnotes at end of table.

TABLE 134.—Continued. *Dates of first killing frost in autumn*

MARYLAND

Year	Washington County		Frederick County		Washington County	Frederick County	Harford County		Baltimore County		Prince Georges County	Montgomery County		Prince Georges County		Anne Arundel County	Prince Georges County	Calvert County
	Clear Spring	Chewsville	State Sanatorium	Emmitsburg	Keedysville	Frederick	Fallston	Aberdeen	Woodstock	Baltimore	Laurel	Great Falls	Takoma	College Park	Bell	Annapolis	Cheltenham	Solomons
1899	Oct. 1	Oct. 1		Oct. 1		Oct. 1	Oct. 3		Oct. 2	Nov. 4	Oct. 1			Oct. 1		Oct. 22		Nov. 13
1900	Oct. 18	Oct. 10		Oct. 20			Oct. 20		Oct. 20	Nov. 16	Oct. 17		Oct. 16	Oct. 18				Nov. 16
1901	Oct. 25	Oct. 4		Nov. 6			Oct. 25		Oct. 26	Nov. 11	Oct. 4			Oct. 5			Oct. 25	Nov. 16
1902	Oct. 15	Oct. 15		Oct. 30			Oct. 22		Oct. 22	Oct. 30	Oct. 22			Oct. 15			Oct. 22	Oct. 30
1903	Oct. 25	Sept. 29		Nov. 7		Oct. 25	Oct. 27		Nov. 7	Nov. 7	Oct. 19	Oct. 28	Oct. 27	Sept. 29			Oct. 28	Nov. 7
1904	Sept. 23	Sept. 22		Oct. 28		Sept. 25	Oct. 7		Sept. 23	Oct. 28	Oct. 7	Oct. 24	Oct. 23	Sept. 23		Oct. 31	Oct. 16	Nov. 12
1905	Oct. 21	Sept. 26		Nov. 2	Oct. 13	Oct. 22	Oct. 22		Oct. 22	Nov. 10	Oct. 13	Oct. 13	Oct. 13	Oct. 13		Nov. 2	Oct. 22	Nov. 14
1906	Oct. 11	Oct. 12		Oct. 11	Oct. 11	Oct. 12	Oct. 12		Oct. 12	Nov. 9	Oct. 12	Oct. 12	Oct. 12	Oct. 12		Oct. 11	Oct. 12	Oct. 12
1907	Oct. 15	Oct. 9		Oct. 9	Oct. 15	Oct. 20	Oct. 15		Oct. 22	Oct. 22	Oct. 14	Oct. 20	Oct. 21	Oct. 13		Nov. 4	Oct. 9	Nov. 30
1908	Nov. 13	Oct. 3		Oct. 31	Oct. 3	Oct. 12	Oct. 13		Oct. 2	Nov. 2	Oct. 13	Oct. 3	Nov. 1	Oct. 3		Nov. 2	Nov. 1	Nov. 5
1909	Oct. 20	Sept. 28	Oct. 13	Oct. 20	Oct. 13	Oct. 20	Oct. 13		Oct. 20	Dec. 7	do	Oct. 13	Oct. 20	Oct. 13		Oct. 13	Oct. 14	Nov. 9
1910	Oct. 30	Oct. 24	Oct. 30	Oct. 29	Oct. 24	Oct. 29	Oct. 29		Oct. 30	Oct. 30	Oct. 24	Oct. 29	Oct. 30	Oct. 24		Oct. 30	Oct. 29	Oct. 30
1911	Nov. 3	Oct. 25	Oct. 25	Nov. 2	Oct. 25	Nov. 3			Oct. 25	Nov. 3	Oct. 30	Nov. 3	Nov. 2	Oct. 25		Nov. 3	Nov. 3	Nov. 3
1912	do	Oct. 27	Nov. 3	Nov. 3	Oct. 16	Oct. 28	Oct. 16		Oct. 16	Nov. 4	Oct. 16	Nov. 4	Nov. 3	Oct. 16		Nov. 4	Oct. 16	Nov. 4
1913	Oct. 22	Oct. 14	Oct. 22		Oct. 22	Oct. 22	Oct. 22		Oct. 22	Nov. 11	Oct. 22	Oct. 22	Oct. 22	Oct. 22		Oct. 31	Oct. 22	Oct. 22
1914	Nov. 7	Sept. 28	Oct. 27	Oct. 27	Oct. 27	Oct. 28	Oct. 27		Sept. 29	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 27		Oct. 28	Oct. 28	Oct. 28
1915	Oct. 11	Oct. 11	Oct. 24	Nov. 11	Oct. 11	Oct. 11	Oct. 11		Oct. 11	Nov. 13	Oct. 11	Oct. 11	Nov. 6	Oct. 11		Nov. 17	Oct. 11	Nov. 4
1916	Oct. 23	Oct. 1	Nov. 15	Nov. 15	Oct. 1	Oct. 2	Oct. 18		Oct. 1	Nov. 16	Oct. 1	Oct. 1	Nov. 16	Oct. 1		Nov. 16	do	Nov. 16
1917	Oct. 7	Sept. 11	Oct. 10	Oct. 13	Sept. 11	Oct. 7	Oct. 7		Oct. 7	Oct. 14	Oct. 7	Oct. 7	Oct. 13	Oct. 7		Oct. 13	Oct. 7	Oct. 13
1918	Oct. 9	Oct. 8	Oct. 21	Nov. 3	Oct. 15	Oct. 23	Nov. 2		Oct. 9	Nov. 3	Oct. 9		Nov. 8	Oct. 9		Nov. 24	Oct. 23	Nov. 7
1919	Oct. 13	Oct. 13	Nov. 3	Nov. 14	Nov. 3	Oct. 13	Nov. 3	Nov. 10	Oct. 13	Nov. 10	Nov. 3		Nov. 14	Nov. 3			Nov. 7	Nov. 14
1920	Oct. 7	Oct. 3	Nov. 12	Nov. 13	Oct. 7	Nov. 4	Oct. 30	Nov. 13	Oct. 2	Nov. 13	Oct. 30	Oct. 30	Oct. 30	Oct. 30		Nov. 13	Oct. 30	Nov. 13
1921	Oct. 13	Oct. 13	Oct. 26	Nov. 6	Oct. 13	Oct. 13	Oct. 13	Nov. 6	Oct. 13	Nov. 11	Oct. 9	Oct. 14	Oct. 14	Oct. 9	Oct. 13	Nov. 11	Oct. 14	Nov. 11
1922	do	do	Oct. 19	Oct. 19	do	Oct. 19	Oct. 21	Sept. 26	Nov. 22	Oct. 13	Oct. 19	Oct. 19	Oct. 13	do		Nov. 10	Oct. 19	Nov. 23
1923	Oct. 8	Oct. 5	Nov. 1	Nov. 1	Oct. 5	Oct. 7	Nov. 1	Nov. 1	Oct. 7	Nov. 2	Oct. 8	Oct. 9	Nov. 1	Oct. 8	Oct. 8	Nov. 1	Oct. 8	Nov. 2
1924	Oct. 21	Sept. 11	Oct. 21	Oct. 23	Sept. 11	Oct. 22	Oct. 22	Oct. 23	Oct. 23	Oct. 23	Oct. 21	Oct. 21	Oct. 23	Oct. 21	Oct. 21	Oct. 23	Oct. 22	Oct. 22
1925	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 11	Oct. 29
1926	Oct. 22	Oct. 22	Oct. 26	Oct. 26	Oct. 22	Oct. 22	Oct. 26	Oct. 27	Oct. 22	Oct. 27	Oct. 27	Oct. 22	Oct. 27	Oct. 22	Oct. 22	Oct. 27	Oct. 22	Oct. 27
1927	Nov. 5	Nov. 5	Nov. 7	Nov. 7	Nov. 5	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7	Nov. 7

TABLE 134.—Continued. *Dates of first killing frost in autumn*

MARYLAND—Continued

Year	Washington County		Frederick County		Washington County	Frederick County	Harford County		Baltimore County		Prince Georges County	Montgomery County		Prince Georges County		Anne Arundel County	Prince Georges County	Calvert County
	Clear Spring	Chewsville	State Sanatorium	Emmitsburg	Keedysville	Frederick	Fallston	Aberdeen	Woodstock	Baltimore	Laurel	Great Falls	Takoma	College Park	Bell	Annapolis	Cheltenham	Solomons
1928	Oct. 26	Oct. 26	Oct. 27	Oct. 27	Oct. 26	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 26	Oct. 27	Oct. 27	Oct. 26	Oct. 27	Oct. 27	Oct. 27
1929	Sept. 19	Oct. 9	Oct. 18	Oct. 18	Oct. 9	Oct. 11	Oct. 11	Oct. 18	Oct. 9	Oct. 18	Oct. 18	Oct. 11	Nov. 10	Oct. 11	Oct. 9	Nov. 10	Oct. 11	Nov. 10
1930	Oct. 2	Oct. 2	Oct. 19	Oct. 19	Oct. 2	Oct. 19	Oct. 19	Oct. 19	Oct. 19	Oct. 21	Oct. 19	Oct. 19	Oct. 21	Oct. 19	Oct. 19	Oct. 21	Oct. 19	Oct. 21
1931	Oct. 13	Oct. 13	Nov. 7	Nov. 7	Oct. 13	Oct. 13	Nov. 7	Nov. 7	Oct. 13	Nov. 7	Oct. 18	Oct. 13	Nov. 7	Oct. 13	Oct. 13	Nov. 7	Nov. 5	Nov. 7
1932	Oct. 14	Oct. 14	Oct. 14	Oct. 14	Oct. 14	Oct. 14	Oct. 31	Oct. 31	Oct. 14	Oct. 31	Oct. 14	Oct. 15	Oct. 31	Oct. 15	Oct. 15	Oct. 31	Oct. 15	Nov. 4
1933	do	do	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26
1934	Oct. 13	Oct. 13	Oct. 13	Oct. 13	Oct. 13	Oct. 13	Oct. 13	Oct. 13	Oct. 13	Oct. 13	Oct. 14	Oct. 13	Oct. 14	Oct. 14	Oct. 13	Nov. 13	Oct. 13	Nov. 13
1935	Sept. 30	Sept. 30	Oct. 7	Oct. 7	Sept. 30	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Oct. 5	Nov. 24	Oct. 5	Nov. 24
1936	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Nov. 19
1937	Oct. 9	Oct. 9	Oct. 15	Oct. 15	Oct. 9	Oct. 15	Oct. 15	Oct. 15	Oct. 9	Oct. 15	Oct. 15	Oct. 9	Oct. 15	Oct. 15	Oct. 9	Oct. 15	Oct. 15	Nov. 21
1938	Oct. 7	Oct. 7	Nov. 16	Nov. 10	Oct. 7	Oct. 8	Nov. 16	Nov. 10	Oct. 8	Nov. 10	Nov. 10	Oct. 8	Nov. 10	Oct. 8	Oct. 8	Nov. 24	Oct. 8	Nov. 24
1939	-------	Oct. 13	Oct. 15	Oct. 15	Oct. 13	Oct. 15	Oct. 16	Oct. 16	Oct. 15	Oct. 16	Oct. 15	Oct. 15	Oct. 15	Oct. 15	Oct. 15	Nov. 15	Oct. 15	Nov. 15
1940	-------	Sept. 26	Oct. 19	Oct. 19	Oct. 19	Oct. 19	Oct. 19	Oct. 19	Oct. 19	Oct. 21	Oct. 19	Oct. 19	Oct. 19	Oct. 19	Oct. 19	Oct. 21	Oct. 19	Nov. 19
1941	-------	Oct. 17	Oct. 17	Oct. 17	Oct. 17	Oct. 17	Oct. 26	Oct. 26	Oct. 17	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 17	Oct. 17	Nov. 25	Oct. 26	Nov. 25
1942	Sept. 29	Sept. 25	Oct. 27	Oct. 27	Sept. 29	Sept. 29	Oct. 27	Oct. 27	Sept. 29	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Sept. 29	Oct. 27	Oct. 27	Nov. 14
1943	-------	Oct. 4	Nov. 5	Nov. 5	Oct. 4	Oct. 5	Nov. 10	Nov. 12	Oct. 5	Nov. 14	Oct. 18	Nov. 5	Nov. 5	Oct. 21	Oct. 11	Nov. 12	Oct. 21	Nov. 17
1944	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	-------	Oct. 16	Oct. 16	-------	Oct. 16	Nov. 26
1945	Oct. 4	Oct. 4	Oct. 11	Nov. 5	Oct. 4	Oct. 4	Oct. 4	Oct. 15	Oct. 4	Oct. 5	Oct. 4	Oct. 15	Oct. 15	Oct. 15	Oct. 4	Nov. 5	Oct. 15	Nov. 24

TABLE 134.—Continued. *Dates of first killing frost in autumn*

VIRGINIA

Year	District of Columbia	Berkley County	Frederick County	Loudoun County		Shenandoah County	Prince William County	Rockingham County	Culpeper County	Spottsylvania County	Augusta County	Albemarle County	King George County	Richmond County	Campbell County	Flu vanna County	Henrico County	York County
	Washington	Martinsburg, W. Va.	Winchester	Mount Weather	Lincoln	Woodstock	Quantico	Dale Enterprize	Culpeper	Fredericksburg	Staunton	Charlottesville	Dahlgren	Warsaw	Lynchburg	Columbia	Richmond	Williamsburg
1899	Oct. 2	Oct. 1	-------	-------	-------	Oct. 1	Oct. 2	Oct. 1	-------	Oct. 2	Oct. 2	Nov. 13	-------	Oct. 2	Oct. 2	-------	Nov. 13	-------
1900	Oct. 20	Oct. 18	-------	-------	-------	Oct. 18	Nov. 7	Nov. 9	-------	Oct. 18	Nov. 9	-------	-------	Oct. 18	Nov. 10	Oct. 18	Nov. 10	-------
1901	Oct. 7	Oct. 4	-------	-------	Oct. 7	Oct. 25	Nov. 6	Oct. 4	-------	Oct. 21	Oct. 25	Nov. 6	-------	Oct. 25	Oct. 26	Oct. 25	Nov. 6	Nov. 17
1902	Oct. 22	Oct. 22	-------	-------	Oct. 22	Oct. 15	Oct. 21	Oct. 15	-------	Oct. 30	Oct. 15	Nov. 2	-------	Oct. 30	Oct. 30	Oct. 22	Oct. 30	Oct. 15
1903	Oct. 28	Oct. 25	-------	-------	Oct. 19	Oct. 19	Nov. 7	Oct. 19	-------	Oct. 27	Oct. 25	Oct. 27	-------	Oct. 27	Oct. 27	Oct. 19	Nov. 7	Oct. 27
1904	Oct. 7	Oct. 7	-------	-------	Sept. 23	Oct. 7	Oct. 24	Sept. 23	-------	Oct. 8	Oct. 7	Oct. 24	-------	Oct. 29	Oct. 24	Oct. 7	Oct. 28	Oct. 17
1905	Oct. 22	Oct. 22	-------	-------	Oct. 7	Oct. 21	Oct. 14	Oct. 22	-------	Oct. 22	Oct. 22	Nov. 2	-------	Oct. 22	Oct. 22	Oct. 13	Nov. 2	Oct. 13
1906	Oct. 12	Oct. 12	-------	Oct. 1	Oct. 10	Oct. 11	Oct. 11	Oct. 12	-------	Oct. 11	Oct. 11	Oct. 11	-------	Oct. 11	Oct. 11	Oct. 11	Oct. 12	Do.
1907	Oct. 22	do	-------	Oct. 14	Oct. 9	Oct. 13	Oct. 25	Oct. 9	Oct. 15	Oct. 22	Oct. 9	Nov. 12	-------	Oct. 19	Oct. 15	Oct. 14	Oct. 22	Oct. 22
1908	Nov. 1	Oct. 13	-------	Oct. 31	Oct. 3	Oct. 3	Oct. 13	Oct. 2	Oct. 8	Oct. 31	Oct. 3	Nov. 5	-------	Oct. 13	Nov. 1	Oct. 31	Oct. 31	Nov. 1
1909	Oct. 20	Oct. 20	-------	Oct. 13	Oct. 13	Oct. 13	do	Oct. 13	Oct. 13	Oct. 13	Oct. 13	Nov. 18	-------	Nov. 18	Oct. 17	Oct. 13	Oct. 20	Oct. 29
1910	Oct. 30	Oct. 29	-------	Oct. 29	Oct. 30	Oct. 30	Oct. 29	Oct. 29	Oct. 29	Oct. 29	Oct. 29	Oct. 30	-------	Oct. 30	Oct. 30	Oct. 29	Oct. 30	Oct. 30
1911	Nov. 3	do	-------	Nov. 2	Oct. 25	Oct. 25	Nov. 3	Oct. 25	Nov. 3	Nov. 3	Oct. 25	Nov. 3	-------	Nov. 3	Nov. 3	Nov. 2	Nov. 3	Nov. 3
1912	do	Oct. 17	Nov. 3	Nov. 3	Oct. 17	Oct. 27	Oct. 25	Oct. 17	do	Nov. 4	Oct. 27	do	-------	Nov. 4	Nov. 4	Nov. 3	do	Oct. 28
1913	Oct. 23	Sept. 23	Oct. 22	Oct. 22	Oct. 22	Oct. 22	Oct. 23	Oct. 21	Oct. 22	Oct. 22	Oct. 22	Oct. 22	-------	Oct. 22	Oct. 22	Oct. 22	Oct. 22	Oct. 22
1914	Oct. 28	Oct. 27	Oct. 28	Oct. 27	Oct. 27	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 28	-------	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 28
1915	Oct. 25	Oct. 11	Nov. 6	Oct. 10	Oct. 11	Oct. 10	Oct. 25	Oct. 9	Oct. 10	Nov. 4	Oct. 9	Nov. 16	-------	Oct. 25	Oct. 11	Oct. 10	Oct. 25	Nov. 4
1916	Nov. 4	Oct. 2	Oct. 18	Oct. 1	do	Oct. 11	Oct. 11	Sept. 19	Oct. 11	do	Oct. 11	Nov. 15	-------	Oct. 11	Oct. 27	Oct. 11	Nov. 2	Nov. 2
1917	Oct. 13	Sept. 11	Oct. 7	Oct. 12	Oct. 7	Oct. 10	Oct. 16	Oct. 7	Oct. 7	Oct. 13	Oct. 7	Oct. 21	-------	Oct. 31	Oct. 10	Oct. 7	Oct. 31	Oct. 31
1918	Oct. 23	Oct. 22	-------	Nov. 3	-------	Oct. 8	Oct. 22	Sept. 22	Oct. 22	Oct. 23	Oct. 22	Nov. 12	-------	Oct. 23	Oct. 23	Oct. 15	Nov. 3	Nov. 3
1919	Nov. 10	Nov. 3	Nov. 10	do	Nov. 3	Oct. 6	Nov. 14	Nov. 6	Nov. 6	Nov. 6	Nov. 6	Nov. 14	-------	Nov. 9	Nov. 14	Nov. 3	Nov. 9	Nov. 10
1920	Nov. 4	Oct. 7	Nov. 13	Nov. 13	Nov. 13	Oct. 9	-------	Oct. 30	Oct. 30	Oct. 30	Oct. 29	Nov. 12	Nov. 13	Oct. 30	Nov. 4	Oct. 30	Nov. 13	Oct. 30
1921	Oct. 14	Oct. 14	Oct. 26	Oct. 13	Oct. 26	Oct. 13	Nov. 27	Oct. 9	Oct. 13	Nov. 6	Oct. 13	Nov. 11	Oct. 14	Oct. 14	Oct. 14	Oct. 13	Nov. 6	Nov. 6
1922	Oct. 19	Oct. 19	Nov. 10	Oct. 31	Oct. 21	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 19	Nov. 22	Oct. 27	-------	Nov. 1	Oct. 27	Nov. 10	Nov. 10
1923	Nov. 1	Oct. 7	Nov. 2	Nov. 1	Nov. 1	Nov. 2	Nov. 1	do	Nov. 1	Nov. 1	Oct. 27	Nov. 1	Nov. 1	Nov. 2	do	do	Nov. 1	Nov. 1
1924	Oct. 23	Oct. 22	Oct. 23	Oct. 22	Oct. 22	Oct. 23	Nov. 17	Oct. 21	Oct. 22	Oct. 23	-------	Nov. 16	Nov. 17	Oct. 23	Oct. 22	Oct. 23	Oct. 24	Nov. 17
1925	Oct. 28	Oct. 23	Oct. 27	Oct. 10	Oct. 28	Oct. 11	Oct. 23	Oct. 10	Oct. 11	Oct. 11	-------	Oct. 28	Oct. 22	Oct. 11	Oct. 11	Oct. 11	Oct. 23	Oct. 11
1926	do	Oct. 22	do	Oct. 26	Oct. 27	Oct. 27	Oct. 27	Oct. 26	Oct. 27	Oct. 28	Oct. 23	Oct. 26	Oct. 27	Oct. 21	Oct. 28	Oct. 27	Oct. 28	Oct. 28
1927	Nov. 7	Sept. 22	Nov. 7	Nov. 6	Nov. 7	Nov. 7	Nov. 7	Nov. 6	Nov. 6	Nov. 7	Nov. 6	Nov. 7	Nov. 7	Nov. 14	Nov. 7	Nov. 5	Nov. 7	Nov. 7
1928	Oct. 30	Oct. 26	Oct. 25	Oct. 28	Oct. 27	Oct. 26	Oct. 30	Oct. 21	Oct. 30	Oct. 30	Oct. 26	Nov. 24	Oct. 30	Oct. 28	Oct. 27	Oct. 26	Nov. 12	Oct. 30
1929	Nov. 10	Oct. 9	Nov. 10	Nov. 10	Nov. 6	Oct. 9	Nov. 10	Oct. 18	Nov. 10	Nov. 10	Nov. 10	Nov. 22	Oct. 26	-------	Nov. 6	Oct. 18	Nov. 22	Nov. 6
1930	Oct. 21	Oct. 20	Oct. 21	Oct. 20	Oct. 21	Oct. 18	Oct. 19	do	Oct. 21	Oct. 21	Oct. 22	Oct. 22	Oct. 21	-------	Oct. 21	Oct. 5	Oct. 22	Oct. 21
1931	Nov. 7	Oct. 19	Oct. 19	Oct. 3	Nov. 7	Oct. 19	Nov. 7	Oct. 19	Nov. 3	Nov. 7	Oct. 19	Nov. 7	Nov. 5	-------	Nov. 3	Oct. 19	Nov. 3	Nov. 7
1932	Nov. 13	Oct. 31	Nov. 2	Nov. 2	Oct. 31	Oct. 29	Nov. 18	Oct. 29	Nov. 2	Nov. 4	Nov. 2	Nov. 12	Nov. 23	-------	Nov. 2	Oct. 29	Nov. 13	Nov. 13
1933	Oct. 26	Oct. 14	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 26	Oct. 19	Oct. 26	Oct. 15	Oct. 26	Nov. 11	-------	Oct. 27	Oct. 19	Nov. 9	Nov. 9	
1934	Nov. 3	do	Oct. 13	Oct. 14	Oct. 13	Oct. 13	Nov. 12	Oct. 14	Oct. 14	Oct. 29	Oct. 13	Nov. 12	Oct. 15	-------	Oct. 14	Oct. 14	Oct. 14	Oct. 15
1935	Nov. 24	Oct. 5	Oct. 5	Oct. 6	Oct. 5	Oct. 5	Nov. 23	Oct. 5	Oct. 9	Oct. 8	Sept. 30	Nov. 23	Nov. 17	-------	Oct. 7	Oct. 7	Nov. 19	Nov. 24
1936	Oct. 27	Oct. 27	Oct. 27	Oct. 28	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Oct. 28	Oct. 28	Oct. 27	Oct. 27	Nov. 18	-------	Oct. 28	Oct. 28	Oct. 28	Oct. 28
1937	Oct. 25	Oct. 15	Oct. 17	Oct. 11	Oct. 15	Oct. 15	Oct. 15	Oct. 15	Oct. 15	Oct. 15	Oct. 16	Oct. 15	Nov. 23	-------	Oct. 15	Oct. 15	Oct. 15	Oct. 15
1938	Nov. 24	Oct. 8	Nov. 1	Oct. 6	Nov. 10	Oct. 8	Oct. 8	Oct. 8	Oct. 8	Oct. 26	Oct. 3	Nov. 16	Nov. 10	-------	Nov. 10	Oct. 8	Nov. 10	Nov. 1
1939	Nov. 26	Oct. 13	Oct. 16	Oct. 17	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Oct. 15	Oct. 13	Oct. 29	Nov. 30	-------	Oct. 16	Oct. 15	Nov. 7	Nov. 7
1940	Oct. 21	Oct. 21	Oct. 19	Sept. 27	Oct. 21	Oct. 19	Oct. 21	Nov. 9	Sept. 26	Oct. 19	Nov. 9	Oct. 20	Oct. 21	-------	Oct. 21	Oct. 21	Oct. 21	Oct. 21
1941	Oct. 26	Oct. 29	Oct. 17	Oct. 26	Oct. 26	Oct. 29	Oct. 17	Oct. 12	Oct. 29	Oct. 26	Oct. 16	Oct. 29	Nov. 13	Oct. 25	Nov. 10	Oct. 29	Nov. 9	Nov. 9
1942	Oct. 28	Sept. 30	Sept. 30	Sept. 29	Oct. 28	Sept. 29	Oct. 27	Sept. 29	Oct. 27	Oct. 27	Oct. 27	Oct. 27	Nov. 15	Oct. 27	Oct. 28	Oct. 28	Oct. 28	Oct. 27
1943	Nov. 12	Nov. 5	Oct. 18	Oct. 18	Oct. 18	Oct. 18	Nov. 5	Oct. 5	Nov. 4	Nov. 5	Sept. 26	Nov. 10	Nov. 12	Nov. 10	Oct. 18	Oct. 18	Nov. 12	Nov. 10
1944	Oct. 23	Oct. 16	Oct. 16	Oct. 24	Oct. 16	Oct. 16	Oct. 23	Oct. 16	Oct. 16	Oct. 16	Oct. 16	Nov. 24	Nov. 13	Oct. 16	Nov. 16	Oct. 23	Nov. 7	Oct. 16
1945	Nov. 5	Oct. 4	Oct. 4	Oct. 12	Oct. 4	Oct. 4	Nov. 5	Oct. 4	Nov. 5	Oct. 27	Oct. 4	Nov. 5	Nov. 5	Nov. 5	Nov. 5	Oct. 14	Nov. 5	Do.

NOTE.—There is no uniform standardized method for the determination of killing frost dates, this determination being mainly determined by visual observation. A competent observer will make an unbiased survey of the conditions prevailing in the immediate area and so determine whether or not the day will be recorded as a killing frost date. If this is not determined the date with 32° F., or lower is recorded and this may not have any major effect upon the local vegetation. Usually a killing frost is recorded as one which generally kills warm season crops and vegetables such as cotton, corn, melons, beans, and peppers but may not kill the more hardy crops such as wheat, rye, cabbage, and beets. There may be some areas in which the hardy crops make up, say, 80 to 90 percent of the local vegetation so making the killing frost date difficult to determine. There is also some question as to how great a surrounding area is included for each station.

The following dates are to be used with the above in mind. This will serve as an approximate method. A more rigorous method would be to determine the temperatures and time intervals at these temperatures necessary to kill the specific crop in which one is interested; then record the dates on which these conditions occurred.

TABLE 135.—*Average monthly and annual temperature (°F.) at selected stations*

I. NORTH AMERICA

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1. ALASKA														
Anchorage	26	2	19	24	35	45	54	57	56	48	36	22	13	35
Atka	10	34	33	34	37	41	45	49	52	48	42	37	33	40
Barrow	26	−17	−17	−15	0	20	35	40	39	31	17	0	−12	10
Dutch Harbor	40	32	32	34	36	41	46	51	53	48	42	36	33	40
Fairbanks	36	−11	−1	10	29	47	58	60	55	44	27	3	−7	26
Fort Yukon	21	−21	−16	0	22	43	58	61	55	42	21	−6	−20	20
Holy Cross	35	−1	5	13	27	42	55	57	54	44	30	12	1	28
Juneau	44	28	30	34	41	48	54	57	55	50	43	36	31	42
Kennecott	26	5	11	19	31	42	51	52	50	43	31	15	5	30
Ketchikan	30	33	35	38	43	49	55	58	58	54	47	40	35	45
Kodiak	36	30	32	33	37	43	50	54	55	50	42	35	31	41
Kotzebue	13	−10	−6	−1	14	30	44	53	51	41	24	6	−4	20
Matanuska	21	13	18	24	37	47	55	58	56	48	37	22	14	36
Naknek	13	15	20	23	35	43	52	55	54	48	36	23	16	35
Nome	34	3	6	9	20	34	46	50	50	42	29	16	8	26
St. Paul Island	29	25	23	25	29	35	42	46	48	45	39	34	29	35
2. BRITISH AMERICA														
Aklavik, N. W. T	8	−21	−10	−7	8	31	48	56	50	38	17	−6	−17	16
Atlin, British Columbia	14	−2	7	18	31	42	50	53	51	44	36	22	14	31
Barkerville, British Columbia	36	16	19	26	35	44	50	54	53	45	37	26	20	35
Belle Island, Newfoundland	45	10	13	17	29	35	41	48	51	45	37	30	18	31
Churchill, Manitoba	18	−20	−16	−3	22	33	43	56	53	42	27	8	−9	20
Cochrane, Ontario	15	0	2	15	32	46	58	63	59	51	39	24	7	33
Dawson, Yukon	40	−20	−12	4	29	46	57	60	54	43	26	2	−13	23
Edmonton, Alberta	38	6	11	23	40	51	57	61	59	50	41	25	14	36
Fort St. James, British Columbia	10	7	12	22	34	44	51	55	53	45	37	24	17	33
Fort Simpson, N. W. T	10	−19	−12	0	27	44	56	62	57	46	29	4	−13	23
Fort Smith, N. W. T	14	−12	−12	12	26	44	55	59	55	45	29	10	−9	25
Halifax, Nova Scotia	35	26	23	30	40	49	58	65	65	59	49	39	28	44
Hebron, Labrador	23	−6	−5	6	18	32	40	47	48	41	31	20	4	23
Kamloops, British Columbia	34	22	27	38	50	58	65	70	68	59	48	36	27	47
Massett, British Columbia	33	35	37	39	42	48	54	57	58	53	47	40	38	46
Mayo Landing, Yukon	13	−17	−5	12	31	45	56	58	54	43	28	5	−12	25
Montreal, Quebec	40	13	14	26	42	55	65	70	66	58	47	33	20	42
Nottingham Island, N. W. T	8	−8	−12	−3	9	25	35	42	43	36	26	8	−5	16
Quebec, Quebec	40	10	11	23	37	51	61	66	63	55	44	30	17	39
St. Johns, Newfoundland	52	23	22	28	35	43	51	59	60	54	45	37	29	41
Toronto, Ontario	70	22	22	29	41	53	63	68	67	59	47	36	26	44
Victoria, British Columbia	43	39	40	44	48	53	57	60	60	56	50	45	41	49
Winnipeg, Manitoba	40	−3	1	16	39	52	62	67	63	54	42	23	7	35
3. GREENLAND														
Eismitte, Central Greenland	1	−42	−53	−40	−24	−4	4	12	1	−8	−32	−46	−22	−22
Godthaab	50	14	14	19	25	33	40	44	43	38	31	24	18	29
Ivigtut	45	19	19	24	31	40	46	50	47	41	34	27	21	33
Jacobshavn	52	0	−3	3	15	31	40	46	44	35	25	17	9	22
Upernivik	52	−7	−10	−7	7	25	35	41	41	33	25	15	2	17
4. UNITED STATES														
a. Mississippi River to Atlantic Ocean North														
Albany, N. Y	129	24	24	34	47	59	68	72	71	63	51	39	28	48
Atlantic City, N. J	67	34	33	40	48	58	67	73	72	67	57	46	37	53
Boston, Mass	106	28	29	36	46	58	67	72	70	64	54	43	32	50
Buffalo, N. Y	65	25	24	32	43	54	65	70	69	63	51	40	29	47
Burlington, Vt	55	19	19	29	43	56	65	70	67	60	49	37	24	45
Canton, N. Y	35	16	16	28	42	54	64	69	66	59	47	35	22	43
Chicago, Ill	75	25	27	36	47	58	68	73	72	65	54	40	29	50
Cincinnati, Ohio	75	32	34	43	54	64	73	77	75	69	57	44	35	55
Detroit, Mich	70	25	25	34	46	58	70	73	71	64	52	39	29	49
Evansville, Ind	49	34	36	46	56	66	76	79	78	72	60	47	36	57
Green Bay, Wis	59	16	18	29	43	55	66	71	68	61	49	35	22	44
Minneapolis, Minn	55	14	17	30	46	58	68	73	70	62	50	33	20	45
New York, N. Y	46	31	31	38	49	61	64	74	73	67	56	44	35	52
Philadelphia, Pa	73	33	34	41	52	63	71	76	75	68	58	46	36	54
Pittsburgh, Pa	75	31	32	40	51	62	70	74	72	66	55	43	34	52
Sault Ste. Marie, Mich	53	12	11	21	36	48	58	63	61	54	43	30	19	38
b. Mississippi River to Atlantic Ocean South														
Asheville, N. C	38	39	40	47	54	63	70	73	72	67	56	46	39	56
Atlanta, Ga	62	43	46	53	61	69	76	78	78	73	63	52	45	61
Birmingham, Ala	61	46	48	56	63	71	78	80	80	76	65	54	47	64
Charleston, S. C	73	50	52	58	65	73	79	82	81	77	68	58	52	66
Columbia, S. C	59	47	48	56	63	72	79	81	80	75	64	54	47	64
Jacksonville, Fla	74	56	58	63	69	75	80	82	82	79	71	62	56	69
Memphis, Tenn	75	41	44	53	62	70	78	81	80	74	63	52	44	62
Miami, Fla	48	68	68	71	74	77	80	82	82	81	78	72	69	75
Montgomery, Ala	74	49	52	58	65	73	80	82	81	77	67	56	50	66
Nashville, Tenn	75	39	42	50	59	68	76	79	78	72	61	49	41	60

TABLE 135.—*Average monthly and annual temperature (°F.) at selected stations*—Continued

I. NORTH AMERICA—Continued

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
4. UNITED STATES—Continued														
b. Mississippi River to Atlantic Ocean South—Continued														
New Orleans, La	75	55	57	63	69	76	81	83	83	80	71	62	56	70
Norfolk, Va	75	42	42	49	57	67	75	78	77	72	62	52	43	60
Pensacola, Fla	60	53	55	60	67	74	79	81	81	78	70	60	54	68
Raleigh, N. C	52	42	43	51	59	68	76	78	77	72	62	51	43	60
Richmond, Va	65	38	40	47	57	67	75	78	77	71	60	49	40	58
Tampa, Fla	55	61	62	67	71	77	80	82	82	80	74	67	62	72
Washington, D. C	75	34	36	44	54	64	73	77	75	69	57	46	37	56
c. Mississippi River to Rocky Mountains														
Amarillo, Tex	50	37	39	47	56	64	74	77	77	70	59	46	38	57
Bismarck, N. Dak	67	8	12	25	43	55	64	70	68	58	45	28	16	41
Brownsville, Tex	78	60	63	68	74	78	82	84	84	81	75	67	62	73
Dallas, Tex	32	46	50	57	65	72	81	84	84	78	68	56	47	66
Del Rio, Tex	35	52	56	64	71	77	83	86	84	79	70	60	52	70
Des Moines, Iowa	66	21	25	37	50	62	71	76	74	66	54	39	26	50
Dodge City, Kans	70	30	34	43	54	63	73	79	77	69	57	43	33	54
Galveston, Tex	75	54	56	62	69	76	81	83	83	80	73	63	56	70
Huron, S. Dak	64	13	16	30	46	57	67	73	71	62	48	32	20	44
Kansas City, Mo	57	30	32	43	55	65	74	79	78	70	59	45	34	55
Little Rock, Ark	66	42	45	53	62	70	78	81	80	75	64	52	44	62
North Platte, Nebr	69	24	28	37	49	59	69	75	73	64	51	37	28	50
Oklahoma City, Okla	54	38	40	50	60	68	77	81	81	74	62	50	40	60
Roswell, N. Mex	51	40	44	51	59	67	76	78	77	70	60	48	40	59
San Antonio, Tex	60	53	56	62	69	75	81	84	84	79	71	61	54	69
St. Louis, Mo	108	32	35	45	56	66	75	80	78	70	58	45	35	56
Shreveport, La	71	48	51	58	68	73	80	83	83	77	67	56	49	66
d. Rocky Mountains to Sierra Nevada														
Albuquerque, N. Mex	52	34	39	46	54	63	72	76	74	68	56	44	35	55
Boise, Idaho	75	30	34	43	50	58	66	74	73	62	52	41	32	51
Denver, Colo	74	31	33	39	48	57	67	72	71	63	51	40	32	50
El Paso, Tex	54	45	50	56	64	72	80	82	80	75	65	53	45	64
Grand Junction, Colo	54	26	34	43	52	62	72	78	76	65	54	40	28	52
Havre, Mont	64	14	16	28	44	54	62	69	67	56	45	30	21	42
Helena, Mont	64	20	24	33	44	52	60	68	66	56	46	33	25	44
Lander, Wyo	46	19	22	32	42	52	61	68	66	56	44	31	20	43
Miles City, Mont	48	17	19	32	47	57	67	74	72	61	48	34	22	46
Modena, Utah	41	26	32	39	46	54	64	71	69	60	49	37	28	48
Phoenix, Ariz	50	52	56	61	68	76	85	90	89	83	71	60	53	70
Reno, Nev	58	32	36	42	48	55	63	71	69	61	51	42	34	50
Salt Lake City, Utah	70	29	34	42	50	58	68	77	75	65	53	41	32	52
Sheridan, Wyo	48	19	23	31	43	52	62	68	66	56	45	33	23	43
Spokane, Wash	65	27	31	40	49	56	63	70	69	59	49	38	31	49
Yellowstone, Wyo	35	18	21	27	37	45	54	62	60	51	40	29	20	39
e. Sierra Nevada to Pacific Coast														
Eureka, Calif	58	47	47	48	50	52	54	56	56	56	54	51	48	52
Fresno, Calif	56	46	52	56	61	68	75	82	80	74	65	55	47	63
Los Angeles, Calif	67	56	56	58	60	63	66	70	71	70	66	62	57	63
North Head, Wash	46	42	43	45	48	51	55	57	58	56	53	48	44	50
Portland, Ore	46	39	42	47	52	57	62	67	67	62	54	47	41	53
Roseburg, Ore	68	41	44	48	52	58	63	69	68	60	55	47	43	54
Sacramento, Calif	99	46	51	55	59	64	70	74	73	70	63	54	46	60
San Francisco, Calif	73	50	53	54	56	57	59	59	59	62	61	57	52	56
San Diego, Calif	71	55	56	57	59	61	64	68	69	67	64	60	57	61
Seattle, Wash	55	40	42	46	50	56	60	64	64	59	53	46	42	52
Tatoosh Island, Wash	56	46	52	56	61	68	75	82	80	74	65	55	47	63
5. MEXICO														
Chihuahua	21	50	53	60	66	73	79	77	75	71	65	55	49	65
Colima	15	72	72	75	77	80	80	79	78	80	78	76	73	77
Hermosillo	5	60	63	68	73	80	88	90	88	86	79	70	60	76
La Paz	11	63	65	68	70	74	78	82	84	82	79	72	66	74
Mazatlan	42	68	68	69	72	76	81	83	83	82	80	75	70	76
Merida	33	73	74	78	81	83	82	82	81	81	78	75	73	78
Mexico City	48	54	57	61	63	65	64	62	62	61	59	57	55	60
Monterrey	20	58	62	68	74	78	80	81	82	78	72	63	57	71
Oaxaca	28	63	66	69	72	73	71	69	70	68	67	65	63	68
Tampico	14	66	68	72	76	80	82	82	82	81	77	72	67	76
Tuxtla, Gutierrez	10	70	73	76	80	81	78	77	78	76	75	73	72	76
Vera Cruz, Mexico	20	70	71	73	77	80	81	81	81	80	79	75	72	77
Zacatecas	35	51	53	56	61	65	64	61	61	59	58	55	51	58
6. CENTRAL AMERICA AND WEST INDIES														
Balboa Heights, C. Z	25	78	78	80	80	79	79	79	78	78	78	78	78	79
Belize, British Honduras	14	74	76	77	79	80	80	80	80	80	78	75	74	78
Christiansted, V. I	26	77	76	77	78	80	81	82	82	82	81	80	78	79
Ciudad Trujillo, Dominican Republic	26	75	75	76	77	79	80	80	81	80	79	78	76	78
Cristobal, C. Z	30	80	80	80	81	81	80	80	80	80	79	79	80	80
Fort de France, Martinique	23	76	76	77	79	80	80	80	81	81	80	79	77	79
Guatemala City, Guatemala	6	63	66	69	70	72	71	69	69	69	68	66	63	63

TABLE 135.—*Average monthly and annual temperature (°F.) at selected stations*—Continued

I. NORTH AMERICA—Continued

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
6. CENTRAL AMERICA AND WEST INDIES—Continued														
Habana, Cuba	60	72	72	74	77	79	81	82	82	81	79	75	72	77
Hamilton, Bermuda	65	63	63	63	66	70	76	79	80	79	74	69	65	71
Kingston, Jamaica	33	76	76	77	78	80	81	81	81	81	79	78	77	79
Nassau, Bahamas	15	71	72	73	75	78	80	82	82	80	76	73	77	
San Jose, Costa Rica	12	66	67	68	69	69	68	68	68	68	67	67	66	67
San Juan, P. R.	25	75	75	75	77	79	80	80	80	80	78	76	78	
Santiago, Cuba	16	75	75	77	78	80	81	82	82	81	80	76	79	78
II. SOUTH AMERICA														
Asuncion, Paraguay	29	83	82	80	74	68	62	64	68	72	74	78	82	74
Belem, Brazil	20	79	79	79	80	80	80	80	80	80	80	80	80	80
Bogota, Colombia	6	58	58	58	58	58	57	56	56	57	57	57	57	57
Buenos Aires, Argentina	10	74	73	69	63	55	50	50	51	55	60	66	71	61
Caracas, Venezuela	22	66	66	68	70	71	70	69	70	70	70	68	66	69
Concepcion, Chile	8	66	65	62	57	53	51	49	50	53	56	60	63	57
Cordoba, Argentina	41	74	73	70	63	57	51	51	54	59	64	69	73	63
Cuiaba, Brazil	15	82	82	82	80	77	76	75	78	80	82	82	81	80
Goiaz, Brazil	13	80	76	76	77	75	73	73	76	79	78	76	74	76
Grenada, Windward Islands	45	77	77	78	79	80	77	79	80	80	80	79	78	79
Iquique, Chile	13	69	69	67	65	62	61	59	60	61	63	66	68	64
La Paz, Bolivia	4	54	53	52	51	49	46	47	48	50	52	54	54	51
Lima, Peru	15	73	74	74	70	66	63	61	61	61	63	66	70	67
Manaus, Brazil	13	81	82	81	81	81	81	82	83	84	84	84	82	82
Montevideo, Uruguay	10	72	72	67	63	56	50	50	51	55	59	65	70	61
Natal, Brazil	18	82	81	81	80	79	77	75	76	78	80	81	82	79
Paramaribo, Dutch Guiana	26	78	78	79	79	79	79	79	81	82	81	81	79	80
Porto Alegre, Brazil	22	77	77	74	69	63	58	60	59	62	67	70	74	67
Port of Spain, Trinidad	31	78	78	79	80	81	80	80	80	80	80	80	79	80
Port Stanley, Faulkland Islands	7	50	50	46	43	40	37	36	37	40	42	45	48	43
Punta Arenas, Chile	37	52	51	48	44	39	36	35	37	40	44	47	50	44
Quito, Ecuador	7	57	57	57	57	57	57	57	57	58	58	57	57	57
Rio de Janeiro, Brazil	79	79	79	78	75	72	70	69	70	70	71	74	77	73
Rivadavia, Argentina	10	87	85	82	75	68	61	61	67	74	78	83	86	76
Sao Gabriel, Brazil	4	77	79	78	77	77	76	74	76	77	78	78	78	77
Santa Cruz, Argentina	11	59	59	54	48	42	36	35	39	43	50	54	58	48
Santiago, Chile	14	69	68	65	59	53	48	48	50	54	58	63	67	59
Valparaiso, Chile	24	64	64	62	60	57	54	54	54	56	58	60	63	59
Victoria, Argentina	9	76	74	68	61	52	45	48	49	54	60	67	73	61
III. AFRICA														
Accra, Gold Coast	25	81	81	82	81	80	79	77	76	77	78	80	81	79
Addis Abba, Ethiopa	4	62	59	64	61	63	59	57	59	58	60	61	60	60
Algiers, Algeria	37	49	51	53	56	61	68	73	75	71	64	57	52	61
Ascencion Island	18	77	79	80	80	79	78	76	76	75	75	76	76	77
Beira, Mozambique	25	81	81	79	77	73	69	68	70	73	77	79	80	76
Cairo, Egypt	26	56	58	64	70	76	82	83	83	79	75	68	60	71
Capetown, Union of South Africa	44	70	71	68	64	59	56	55	56	58	61	65	68	62
Casablanca, Morocco	15	54	56	57	59	64	68	72	73	71	66	60	55	63
Dakar, Senegal	18	70	72	72	74	76	81	82	82	83	83	77	74	77
Dar-es-Salaam, Tanganyika	33	82	82	82	80	78	76	75	75	75	77	80	82	79
Duala, Cameroon	13	80	80	80	79	79	77	75	75	76	76	78	79	78
Elizabethville, Belgian Congo	13	72	72	72	69	66	61	61	65	71	75	74	72	69
Entebbe, Uganda	19	72	72	72	71	71	70	69	69	70	71	71	71	71
Port Lapparine, Algeria	7	55	58	65	74	79	84	84	83	80	73	65	58	71
Francistown, Bechuanaland	18	76	75	72	68	62	56	56	60	69	75	76	76	68
Jibouti, French Somaliland	3	78	79	81	84	88	93	96	94	90	85	81	79	86
Kayes, French Sudan	16	77	81	88	94	96	90	84	82	84	86	84	77	85
Khartoum, Anglo-Egyptian Sudan	33	73	75	81	87	92	93	90	88	90	89	82	74	84
Livingstone, Northern Rhodesia	22	77	76	76	73	67	63	63	67	76	82	80	77	73
Massawa, Eritrea	16	79	79	81	85	88	93	95	94	91	87	84	80	86
Mauritius Island	55	79	78	78	76	71	69	68	68	69	72	75	77	73
Mombasa, Kenya	10	80	81	82	80	78	76	75	75	76	78	79	80	78
Mossamedes, Angola	10	71	74	74	75	71	63	61	62	63	67	69	70	68
Port Victoria, Seychelles	27	80	81	81	82	81	79	78	78	79	79	79	79	80
Pretoria, Union of South Africa	15	73	72	69	64	58	53	52	57	64	70	70	72	64
Tananarive, Madagascar	27	70	70	69	67	63	59	58	59	63	67	69	69	65
Timbuktu, French Sudan	11	71	75	83	89	95	95	91	88	91	89	80	71	85
Tripoli, Libya	19	54	56	60	65	69	74	79	80	78	74	65	58	68
Windhoek, Southwest Africa	28	75	72	70	66	60	56	55	60	66	70	72	74	66
Zinder, Niger	10	74	81	88	93	93	89	84	81	85	68	83	75	84
Zomba, Nyasaland	36	72	72	71	69	66	63	62	65	69	74	75	73	69

TABLE 135.—*Average monthly and annual temperature (°F.) at selected stations*—Continued

IV. EUROPE

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Amsterdam, Netherlands	20	38	38	42	47	56	59	63	62	59	51	42	40	50
Athens, Greece	46	48	49	53	60	68	76	81	81	75	67	58	51	64
Belgrade, Yugoslavia	34	31	33	44	52	62	67	71	70	63	54	42	35	52
Berlin, Germany	80	32	34	39	48	57	63	66	65	58	49	39	34	49
Bern, Switzerland	23	31	32	39	46	55	60	63	62	56	47	38	32	47
Bucharest, Romania	20	27	33	42	52	62	69	73	72	64	54	41	34	52
Budapest, Hungary	30	31	34	43	52	62	68	71	69	61	52	41	35	52
Copenhagen, Denmark	40	32	32	35	43	52	59	63	61	55	47	39	35	46
Dublin, Ireland	30	43	43	44	47	53	58	60	60	56	51	45	43	50
Gibraltar	78	55	56	57	60	65	69	73	75	72	66	60	56	64
Grimsey, Iceland	47	28	27	26	30	35	42	45	44	42	37	32	30	35
Helsinki, Finland	92	21	20	25	34	46	57	62	60	51	42	32	25	40
Istanbul, Turkey	16	43	40	46	53	62	70	74	75	68	63	54	47	58
Lisbon, Portugal	75	51	52	55	58	62	67	71	72	69	62	57	51	60
London, England	34	41	41	43	47	55	60	63	62	58	51	44	41	50
Madrid, Spain	70	40	44	48	54	61	69	77	76	67	56	47	41	57
Malta Island	62	53	53	55	59	64	71	77	77	74	69	62	56	64
Marseille, France	50	43	45	49	55	61	68	72	71	66	58	50	44	57
Messina, Sicily (Italy)	16	51	53	56	60	66	73	79	80	76	69	61	55	65
Moscow, Russia	35	13	16	23	38	53	60	64	60	50	39	27	18	38
Odessa, Russia	35	26	29	36	47	60	68	73	71	62	52	40	32	50
Oslo, Norway	60	24	26	31	40	51	60	63	60	52	42	33	26	42
Paris, France	20	38	39	44	50	56	62	66	65	60	52	43	40	51
Prague, Czechoslovakia	17	30	32	39	48	57	63	67	65	59	49	39	32	48
Reykjavik, Iceland	10	30	30	31	36	43	49	52	51	46	39	34	30	39
Rome, Italy	50	45	48	51	57	64	71	76	76	70	62	53	47	60
Sofia, Bulgaria	25	28	33	42	50	59	65	69	68	61	53	40	33	50
Stockholm, Sweden	33	27	26	30	38	48	58	63	60	53	43	35	28	42
Trondheim, Norway	60	27	28	31	38	46	54	57	55	49	40	33	28	40
Vienna, Austria	20	32	34	42	49	58	62	66	65	58	49	39	34	49
V. ASIA														
Aden, Arabia	42	76	77	79	83	87	90	98	86	88	84	80	77	83
Akmolinsk, Siberia	18	0	3	12	33	56	66	70	65	53	36	19	8	35
Alma-Ata, Siberia	47	17	19	32	50	61	69	73	71	60	46	32	23	46
Amoy, China	24	59	56	60	67	74	81	84	84	83	77	69	62	71
Ankara, Turkey	8	31	31	41	52	62	68	72	74	65	57	47	36	53
Aparri, Luzon	16	74	74	77	80	82	84	83	82	82	80	78	75	79
Arisan, Formosa	13	44	45	47	53	56	58	59	59	58	54	52	46	53
Ashkhabad, Siberia	34	33	41	50	61	74	83	86	82	73	60	48	40	61
Bagdad, Iraq	27	49	54	61	70	81	90	94	94	88	78	63	52	73
Bangkok (Siam), Thailand	17	77	80	84	85	85	84	83	83	82	81	79	77	82
Blagoveshchensk, Siberia	33	−12	−1	15	36	51	63	70	66	54	34	12	−7	32
Bombay, India	53	76	76	80	83	86	84	81	81	81	82	81	78	81
Calcutta, India	43	67	71	80	86	86	85	84	83	83	81	73	66	79
Canton, China	22	56	57	63	71	78	81	83	83	80	75	68	60	71
Cape Chelyvskin, Siberia	11	−14	−13	−19	−5	15	30	35	32	27	13	−6	−15	7
Changchun, Manchuria	21	1	9	24	44	57	68	75	72	59	44	24	7	40
Chumbi, Tibet	20	33	34	40	46	52	57	59	58	56	48	40	36	46
Colombo, Ceylon	49	80	79	80	82	82	83	82	81	81	81	80	80	81
Dairen, Manchuria	25	23	26	36	49	60	69	75	77	68	57	41	28	51
Davao, P. I.	10	79	80	81	82	81	80	80	80	81	81	81	80	80
Delhi, India	43	59	63	74	85	92	93	88	86	85	80	69	61	78
Hanoi, Fr. Indo-China	30	62	63	68	75	82	85	84	84	82	77	71	65	75
Harbin, Manchuria	20	−4	5	21	42	56	67	74	71	58	42	19	1	38
Hongkong, China	53	60	59	63	70	77	81	82	82	81	76	69	63	72
Irkutsk, Siberia	35	−6	−1	14	33	46	58	63	59	46	32	13	−1	30
Jerusalem, Palestine	17	48	48	55	61	69	73	75	76	73	69	62	52	63
Lhasa, Tibet	4	32	33	42	50	57	63	63	61	59	49	41	33	49
Mandalay, Burma	32	71	76	83	90	89	87	87	86	85	83	78	71	82
Manila, P. I.	53	78	78	81	83	84	83	81	81	81	81	80	78	81
Mukden, Manchuria	24	9	16	31	48	61	72	77	75	63	50	30	14	46
Nanking, China	10	38	40	47	58	69	76	82	82	74	64	52	41	60
Novo-Mariinski, Siberia	15	−10	−6	−2	6	26	40	52	50	39	23	6	−6	18
Okhotsk, Siberia	32	−10	−7	6	21	35	44	54	55	46	27	5	−7	22
Olekminsk, Siberia	25	−32	−19	−1	23	43	60	67	58	44	23	−6	−26	20
Petropavlovsk, Siberia	16	14	15	22	30	36	44	51	54	49	40	27	19	33
Omsk, Siberia	27	−3	0	11	32	51	62	66	61	51	34	15	3	32
Port Arthur, Manchuria	24	24	27	35	48	58	67	74	76	68	57	42	30	50
Rangoon, Burma	43	77	79	84	87	84	81	81	80	81	82	80	77	81
Shanghai, China	23	40	41	48	58	67	75	82	83	75	65	54	44	61
Singapore, Malay States	39	79	80	81	81	82	82	81	81	81	81	81	80	81
Taikyu, Iran	22	30	33	42	54	63	72	79	80	70	58	46	33	55
Tehran, Iran	22	36	41	49	60	70	80	85	84	77	64	53	42	62
Tianan, Formosa	30	63	62	68	74	79	81	82	81	80	76	71	65	73
Tientsin, China	20	25	30	42	57	68	77	81	80	70	58	42	28	55
Tobolsk, Siberia (U. S. S. R.)	22	−4	4	16	33	49	60	65	60	49	33	14	3	32
Tokyo, Japan	30	38	39	44	54	62	69	76	78	72	61	51	42	57
Tomsk, Siberia	33	−4	2	15	30	47	60	66	60	49	33	13	1	31
Turukhansk, Siberia	46	−18	−10	2	15	31	48	61	55	41	20	−4	−17	19
Tyukatin, Korea	20	−6	5	24	44	56	66	73	71	58	43	25	3	39
Urga, Mongolia	26	−11	−3	12	33	46	58	63	60	47	31	8	−6	28
Yinkow, Manchuria	29	14	19	32	48	61	70	77	76	65	51	34	20	47

TABLE 135.—*Average monthly and annual temperature (°F.) at selected stations*—Continued

VI. AUSTRALIA

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Adelaide	80	74	74	70	64	58	54	52	54	57	62	67	71	63
Alice Springs	52	83	82	77	68	60	54	53	58	65	74	79	82	70
Auckland, New Zealand	56	66	67	65	61	57	54	52	52	55	57	60	64	59
Brisbane	48	77	77	74	70	65	60	59	61	65	70	73	76	69
Christchurch, New Zealand	23	62	61	58	53	48	43	42	44	49	53	57	61	53
Coolgardie	15	78	77	72	65	58	53	52	54	59	64	71	75	65
Darwin	40	84	83	84	84	82	79	77	79	83	85	86	85	83
Dunedin, New Zealand	59	58	58	55	52	47	44	42	44	48	51	53	56	51
Hobart, Tasmania, Australia	55	62	62	59	55	51	47	46	48	51	54	57	60	54
Melbourne	70	67	67	64	59	54	50	49	51	54	58	61	65	58
Perth	25	74	74	71	67	61	57	55	56	58	61	66	71	64
Sydney	67	72	71	69	65	59	55	53	55	59	63	67	70	63
Thursday Island	28	82	82	82	82	80	79	78	78	79	81	83	83	81
Wellington, New Zealand	56	62	62	60	57	53	50	48	49	52	54	57	60	55

VII. OCEANIA

Aituoni, Havaoa Island	3	79	79	80	80	79	78	78	77	78	79	79	79	79
Alofi, Tonga Islands	20	80	80	80	78	76	74	74	74	75	76	77	79	77
Apia, Samoa Islands	42	80	80	80	80	79	78	78	78	79	79	79	80	79
Avarua, Cook Islands	24	78	78	78	76	73	71	70	70	71	73	74	76	74
Batavia, Java	55	79	79	80	80	80	80	79	80	80	81	80	79	80
Buna Bay, New Guinea	25	81	80	80	80	80	79	79	78	79	80	80	81	80
Chatam Islands	12	58	58	57	54	50	47	45	46	48	50	53	55	52
Cocos Island	33	81	82	82	81	81	80	79	79	79	80	80	81	80
Daru, New Guinea	24	82	81	81	81	80	79	77	77	79	80	81	82	80
Easter Island	2	73	74	73	70	68	65	63	64	64	65	67	70	68
Fanning Island	10	82	82	82	82	82	82	82	83	82	83	84	82	82
Guam, Marianas	26	79	79	80	82	82	83	81	81	81	81	81	80	81
Hilo, Hawaii Island	34	70	70	71	71	73	74	75	75	75	75	73	72	73
Honolulu, Oahu Island	34	71	71	72	73	75	77	78	78	78	77	75	73	75
Jaluit, Marshall Islands	8	82	82	83	82	82	82	82	82	82	84	82	82	82
Kieta, Solomon Islands	9	82	82	82	81	81	80	80	80	81	82	82	82	81
Kupang, Timor (N. E. Indies)	21	81	81	81	81	81	80	79	80	81	82	83	82	81
Malden Island	24	81	82	82	82	82	83	82	82	83	82	82	82	82
Manokwari, New Guinea	5	80	80	80	80	80	80	80	80	80	81	81	81	80
Midway Island	9	66	65	67	68	71	75	78	79	78	75	71	67	72
Norfolk Island	15	73	73	71	69	65	63	61	61	62	65	67	70	67
Noumea, New Caledonia	10	79	79	78	76	73	70	69	68	70	72	76	78	74
Ocean Island, Gilbert Islands	21	82	82	82	82	82	82	82	82	83	83	83	82	82
Papeete, Society Islands	5	81	81	81	81	79	77	76	76	78	79	79	80	79
Ponape, Caroline Islands	7	80	80	80	80	80	80	80	80	79	80	80	80	80
Port Morsby, New Guinea	39	83	82	82	82	81	79	78	78	79	80	82	83	81
Rabaul, New Britain	18	81	82	82	82	82	82	81	81	82	82	82	82	82
Sandakan, North Borneo	45	80	80	81	82	82	82	82	82	82	81	81	80	81
Suva, Fiji Islands	43	79	80	80	78	76	74	73	73	74	75	77	79	77
Tulagi, Solomon Islands	20	82	82	82	82	82	81	81	81	81	81	82	82	82
Vila, New Hebrides	7	81	81	80	79	76	75	72	72	74	76	78	80	77
Wake Island	2	77	76	80	77	81	83	83	83	82	81	79	79	80
Yap, Caroline Islands	24	80	80	81	82	82	82	82	82	82	82	82	81	82

VIII. ANTARCTICA

Grytiyiken	10	43	43	42	37	34	29	28	29	33	36	38	40	36
Laurie Island	8	33	33	32	26	19	15	10	15	20	25	29	31	24

TABLE 136.—*Average monthly and annual precipitation (inches and tenths) at selected stations*

I. NORTH AMERICA

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1. ALASKA														
Anchorage	26	0.8	0.7	0.6	0.4	0.5	0.7	1.6	2.6	2.6	2.2	1.0	0.9	14.6
Atka	12	6.4	4.7	5.0	4.9	4.9	3.9	5.3	5.4	7.1	7.5	8.3	5.9	69.0
Barrow	25	.2	.2	.1	.1	.1	.3	.9	.7	.5	.6	.3	.3	4.2
Dutch Harbor	28	5.9	5.6	4.9	3.9	4.2	2.7	1.9	2.4	5.3	7.3	5.7	7.0	56.9
Fairbanks	35	1.0	.5	.7	.3	.6	1.4	1.9	2.0	1.3	.8	.7	.6	11.7
Fort Yukon	21	.4	.4	.3	.3	.5	.8	1.1	1.2	.6	.6	.4	.3	6.8
Holy Cross	26	1.4	1.0	1.3	.6	.7	1.2	2.7	3.7	2.9	1.6	1.2	1.3	19.6
Juneau	46	7.2	5.5	5.5	5.4	5.2	4.0	5.1	7.4	10.2	11.4	9.2	7.6	83.7
Kennecott	22	1.7	1.4	1.1	.6	1.2	1.6	2.4	3.0	3.3	2.6	1.8	1.6	22.3
Ketchikan	30	13.6	11.2	12.1	10.9	8.4	6.6	8.1	11.6	12.2	20.2	20.0	15.9	151.0
Kodiak	46	4.8	4.9	3.9	4.2	5.9	4.9	3.6	5.0	5.5	7.5	5.6	6.2	61.9
Kotzebue	5	.7	.2	.2	.4	.1	.4	1.3	1.1	.6	.5	.3	.3	6.1
Matanuska	21	.9	.8	.6	.5	.7	1.1	1.9	2.7	2.5	1.8	1.0	1.1	15.5
Naknek	13	1.0	1.3	1.3	1.0	1.5	1.5	3.6	4.4	3.5	2.5	1.2	1.3	24.1
Nome	35	1.1	.8	.8	.7	.6	1.1	2.5	3.2	2.7	1.6	1.0	1.1	17.3
St. Paul Island	36	2.2	1.6	1.8	1.3	1.5	1.3	2.6	3.3	3.5	3.2	2.9	2.1	27.3
2. BRITISH AMERICA														
Aklavik, N. W. T.	8	.6	.6	.4	.5	.6	.7	1.3	1.0	1.0	1.0	.7	.5	8.7
Atlin, British Columbia	18	.9	.9	.6	.3	.4	.8	1.0	.9	1.3	1.3	1.3	1.2	10.9
Barkersville, British Columbia	37	3.3	2.6	2.6	2.2	2.5	3.5	3.2	3.2	3.7	3.1	3.4	3.5	37.0
Belle Island, Newfoundland	25	2.2	2.0	3.5	2.7	2.6	5.4	5.0	6.0	5.7	6.0	3.9	2.7	47.6
Churchill, Manitoba	5	.3	.3	.7	.8	.9	1.6	3.3	2.2	2.0	1.5	.8	.4	14.8
Cochrane, Ontario	25	1.8	1.2	1.6	1.8	2.2	2.6	3.5	3.2	3.2	2.7	2.5	1.7	28.0
Dawson, Yukon	39	.8	.7	.5	.5	1.0	1.2	1.5	1.6	1.4	1.2	1.1	1.0	12.6
Edmonton, Alberta	15	.8	.7	.7	.8	1.9	3.3	3.6	2.5	1.4	.7	.7	.8	17.7
Fort St. James, British Columbia	10	1.5	1.2	1.2	.9	1 1	1.5	1.3	1.3	1.3	1.4	1.6	1.4	15.7
Fort Simpson, N. W. T.	14	.6	.7	5	.8	1.4	1.6	1.8	1.4	1.7	1.3	.7	.9	13.4
Fort Smith, N. W. T.	17	.5	.6	.9	.5	1.0	1.7	2.2	1.9	1.7	.9	.9	.8	13.5
Halifax, Nova Scotia	41	5.5	4.0	4.6	4.8	3.9	4.1	3.7	4.5	4.2	5.3	5.2	5.4	55.2
Hebron, Labrador	15	.9	.7	.9	1 1	1.6	2.2	2.7	2.7	3.4	1.6	1.1	.6	19.4
Kamloops, British Columbia	34	.9	.7	.3	.4	.9	1.3	1.1	1.1	1.0	.6	.9	1.5	10.9
Massett, British Columbia	36	5.5	4.5	4.0	4.6	3.8	2.5	3.0	2.8	4.0	6.7	7.1	6.7	55.2
Mayo Landing, Yukon	14	.5	.5	.5	.4	.9	1.5	1.6	1.4	1.2	.9	.7	.8	10.8
Montreal, Quebec	40	3.8	3.4	3.5	2.6	3.0	3.5	3.5	3.8	3.6	3.3	3.5	3.8	41.2
Nottingham Island, N. W. T.	7	.7	.7	.8	1.2	1.1	1.1	1.5	2.3	2.0	1.3	1.8	1.1	15.4
Quebec, Quebec	40	3.6	3.1	3.1	2.4	3.2	4.1	4.1	4.0	4.0	3.4	3.1	3.1	41.2
St. Johns, Newfoundland	52	5.4	5.1	4.5	4.2	3.5	3.5	3.7	3.6	3.8	5.4	6.1	4.9	53.8
Toronto, Ontario	70	2.9	2.6	2.6	2.4	3.0	2.8	3.0	2.8	3.2	2.5	3.0	2.8	33.5
Victoria, British Columbia	48	4.3	3.1	2.2	1.2	1.0	.9	.4	.6	1.5	2.8	4.3	4.7	27.0
Winnipeg, Manitoba	40	.9	.8	1.1	1.4	2.0	3.0	3.2	2.1	2.2	1.3	1.1	.9	20.0
3. GREENLAND														
Godthaab	45	1.4	1.7	1.6	1.2	1.7	1.4	2.2	3.1	3.3	2.5	1.9	1.5	23.5
Ivigtut	50	3.3	2.6	3.3	2.5	3.5	3.2	3.1	3.7	5.9	5.7	4.6	3.1	44.6
Jacobshavn	52	.4	.4	.5	.5	.6	.8	1.2	1.4	1.3	.9	.7	.5	9.0
Upernivik	50	.4	.5	.7	.6	.6	.5	.9	1.1	1.1	1.1	1.1	.9	9.1
4. UNITED STATES														
a. Mississippi River to Atlantic Ocean North														
Albany, N. Y.	119	2.5	2.4	2.8	2.7	3.3	3.8	3.9	3.7	3.3	3.1	2.9	2.5	36.9
Atlantic City, N. J.	67	3.5	3.3	3.6	3.2	3.0	3.1	3.7	4.5	3.2	3.1	3.0	3.7	40.9
Boston, Mass.	128	3.6	3.4	4.0	3.7	3.4	3.2	3.5	3.9	3.3	3.4	3.9	3.7	43.0
Buffalo, N. Y.	65	3.2	2.8	2.7	2.6	2.8	2.8	2.9	2.8	2.9	3.1	3.0	3.2	34.8
Burlington, Vt	55	1.8	1.6	2.2	2.3	2.9	3.5	3.6	3.3	3.4	3.0	2.6	1.9	32.1
Canton, N. Y.	53	2.6	2.3	2.6	2.5	3.0	3.5	3.6	3.4	3.4	3.0	3.0	2.6	35.6
Chicago, Ill.	75	1.9	1.9	2.7	2.8	3.6	3.5	3.1	3.2	3.2	2.6	2.4	1.9	32.8
Cincinnati, Ohio	75	3.3	2.8	3.9	3.2	3.6	3.8	3.5	3.4	2.7	2.4	2.8	2.9	38.3
Detroit, Mich	73	2.1	2.1	2.4	2.6	3.3	3.4	3.2	2.8	2.7	2.4	2.3	2.3	31.5
Evansville, Ind	69	3.7	3.1	4.2	3.9	3.8	4.0	3.2	3.2	3.3	2.8	3.6	3.3	42.2
Green Bay, Wis.	59	1.4	1.4	1.9	2.5	3.3	3.5	3.0	3.0	3.2	2.2	2.0	1.4	28.7
Minneapolis, Minn.	55	.8	.9	1.4	2.1	3.6	4.2	3.4	3.2	3.1	2.1	1.4	.9	27.2
New York, N. Y.	50	3.7	3.8	3.6	3.2	3.2	3.3	4.2	4.3	3.4	3.5	3.0	3.6	43.0
Philadelphia, Pa.	73	3.3	3.3	3.4	3.0	3.3	3.2	4.2	4.6	3.1	2.8	2.7	3.4	40.4
Pittsburgh, Pa.	75	2.9	2.5	3.2	3.0	3.2	3.7	4.1	3.3	2.6	2.5	2.3	2.8	36.0
Sault Ste. Marie, Mich.	50	2.0	1.4	1.8	2.1	2.6	2.7	2.7	2.7	3.5	3.1	3.0	2.2	29.9

TABLE 136.—*Average monthly and annual precipitation (inches and tenths) at selected stations*—Continued

I. NORTH AMERICA—Continued

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
4. UNITED STATES—Continued														
b. Mississippi River to Atlantic Ocean South														
Ashville, N. C	38	2.8	2.7	3.5	3.0	3.2	3.8	4.3	4.1	2.9	2.8	1.9	3.0	38.0
Atlanta, Ga	62	4.8	4.8	5.3	3.8	3.5	3.9	4.6	4.3	3.2	2.6	3.0	4.6	48.4
Birmingham, Ala	61	5.2	4.8	6.0	4.9	4.0	4.3	5.2	4.4	3.0	2.6	3.3	5.0	52.7
Charleston, S. C	73	3.0	3.2	3.2	2.7	3.2	4.6	7.1	6.6	4.9	3.2	2.2	2.8	46.7
Columbia, S. C	59	3.0	3.9	3.4	3.0	3.0	4.2	5.6	5.5	3.5	2.4	1.9	3.0	42.4
Jacksonville, Fla	74	2.8	3.0	3.1	2.7	3.9	6.0	6.8	6.1	7.0	4.5	1.9	2.9	50.8
Memphis, Tenn	75	4.9	4.3	5.3	4.9	4.0	3.6	3.2	3.1	2.8	2.8	4.2	4.6	47.7
Miami, Fla	58	2.7	2.0	2.6	3.4	6.6	7.1	6.0	6.2	9.0	8.8	2.7	1.9	59.0
Montgomery, Ala	74	4.9	5.4	6.3	4.8	3.6	4.1	4.8	4.1	3.1	2.3	3.2	4.8	51.3
Nashville, Tenn	75	4.6	4.1	5.1	4.2	3.8	4.1	4.0	3.4	3.2	2.5	3.4	4.0	46.1
New Orleans, La	75	4.6	4.4	5.0	5.3	4.9	5.8	6.7	6.0	5.3	3.6	3.5	4.6	59.8
Norfolk, Va	75	3.2	3.4	3.3	3.3	6.7	4.2	5.8	5.3	3.8	3.1	2.4	3.2	45.2
Pensacola, Fla	60	4.2	4.3	4.6	4.1	3.6	4.5	6.6	8.0	5.4	4.3	3.6	4.4	57.7
Raleigh, N. C	52	3.4	3.8	3.8	3.5	4.0	4.6	5.6	5.4	3.7	2.9	2.4	3.4	46.5
Richmond, Va	74	3.3	3.1	3.7	3.4	3.6	3.9	4.5	4.7	3.2	2.9	2.3	3.0	41.6
Tampa, Fla	55	2.3	2.7	2.6	2.2	3.1	7.6	7.8	8.0	6.4	2.8	1.5	2.0	48.9
Washington, D. C	75	3.4	3.0	3.7	3.3	3.6	3.9	4.4	4.3	3.7	3.0	2.6	3.2	42.0
c. Mississippi River to Rocky Mountains														
Amarillo, Tex	50	.5	.8	.9	1.6	3.1	2.8	2.6	3.0	2.3	1.7	1.0	.7	21.0
Bismarck, N. D	67	.4	.5	.9	1.5	2.3	3.3	2.3	1.8	1.3	.9	.6	.5	16.3
Brownsville, Tex	73	1.4	1.2	1.2	1.4	2.6	2.8	1.9	2.4	5.6	3.2	2.0	1.8	27.4
Dallas, Tex	32	2.3	2.2	2.9	4.1	4.7	3.3	2.0	2.2	2.7	3.0	2.6	2.5	34.5
Del Rio, Tex	35	.6	.5	.7	1.8	2.9	2.6	2.4	1.7	3.0	1.8	1.2	.7	19.9
Des Moines, Iowa	67	1.1	1.1	1.8	2.7	4.3	4.8	3.4	3.6	3.6	2.5	1.6	1.2	31.7
Dodge City, Kans	70	.4	.7	.9	2.0	2.9	3.2	2.9	2.6	1.8	1.4	.8	.6	20.2
Galveston, Tex	75	3.6	2.9	2.8	3.2	3.4	3.9	4.2	4.4	5.7	4.3	3.8	4.0	46.2
Huron, S. Dak	64	.6	.5	1.0	2.2	2.8	3.5	2.7	2.3	1.6	1.2	.6	.5	19.5
Kansas City, Mo	57	1.3	1.6	2.5	3.4	4.9	4.7	3.6	4.0	4.3	2.7	2.1	1.4	36.3
Little Rock, Ark	66	4.8	3.8	4.6	5.1	4.7	3.7	3.4	3.5	3.1	2.8	4.0	4.2	47.5
North Platte, Nebr	69	.4	.5	.8	2.2	2.7	3.1	2.6	2.3	1.5	1.0	.4	.5	18.1
Oklahoma City, Okla	54	1.3	1.1	2.1	3.3	4.9	3.8	2.5	2.8	3.1	2.9	2.1	1.6	31.4
Roswell, N. Mex	68	.5	.5	.7	.9	1.2	1.6	2.1	2.1	2.1	1.3	.8	.6	14.4
San Antonio, Tex	60	1.6	1.5	1.8	3.1	3.4	2.7	2.2	2.2	2.9	2.2	1.8	1.8	27.0
St. Louis, Mo	108	2.2	2.4	3.5	3.8	4.5	4.4	3.5	3.4	3.2	2.8	2.8	2.5	39.0
Shreveport, La	71	4.1	3.5	4.2	4.7	4.3	3.4	3.6	2.6	2.8	2.9	3.8	4.6	44.4
d. Rocky Mountains to Sierra, Nevada														
Albuquerque, N. Mex	53	.4	.3	.4	.6	.7	.6	1.4	1.3	1.0	.8	.5	.4	8.5
Boise, Idaho	75	1.8	1.4	1.6	1.2	1.4	8.	.2	.2	.5	1.0	1.3	1.6	13.1
Denver, Colo	74	.4	.6	1.1	2.1	2.3	1.3	1.6	1.4	1.0	1.0	.6	.6	14.0
El Paso, Tex	63	.4	.4	.3	.3	.4	.6	1.8	1.6	1.3	.8	.5	.5	8.9
Grand Junction, Colo	54	.6	.6	.8	.8	.7	.4	.7	1.1	1.0	.9	.6	.6	8.6
Havre, Mont	65	.7	.5	.6	.9	1.8	2.9	1.7	1.2	1.2	.7	.6	.6	13.2
Helena, Mont	64	.8	.6	.8	1.0	2.0	2.2	1.1	.8	1.2	.9	.7	.7	12.7
Lander, Wyo	46	.5	.7	1.2	2.2	2.4	1.1	.9	.6	1.0	1.5	.7	.7	13.7
Miles City, Mont	62	.6	.5	.8	1.0	2.0	2.6	1.5	1.0	1.0	.8	.5	.5	12.9
Modena, Utah	41	.8	1.0	1.1	.8	.8	.3	1.3	1.4	1.0	1.0	.5	.7	10.8
Phoenix, Ariz	50	.8	.8	.7	.4	.1	.1	1.0	1.0	.9	.4	.7	.9	7.8
Reno, Nev	75	1.5	1.1	.8	.5	.5	.3	.2	.2	.2	.4	.6	1.0	7.2
Salt Lake City, Utah	70	1.4	1.5	2.0	2.0	1.9	.8	.6	.8	.9	1.5	1.4	1.4	16.0
Sheridan, Wyo	42	.8	.7	1.2	1.9	2.6	2.0	1.2	.9	1.3	1.1	.6	.6	15.1
Spokane, Wash	65	2.0	1.6	1.2	1.1	1.3	1.3	.5	.6	.9	1.2	2.0	2.2	15.8
Yellowstone, Wyo	35	1.2	1.0	1.4	1.4	1.8	1.6	1.3	1.2	1.2	1.5	1.0	1.1	15.8
e. Sierra Nevada to Pacific Coast														
Eureka, Calif	67	7.1	6.5	5.2	3.3	1.8	.7	.1	.2	1.0	2.3	5.2	6.3	39.8
Fresno, Calif	66	1.8	1.6	1.6	.9	.4	.1	T	T	.2	.6	.8	1.6	9.5
Los Angeles, Calif	67	3.1	3.4	2.8	1.1	.4	.1	T	T	.2	.6	1.1	2.8	15.5
North Head, Wash	50	8.8	7.4	5.6	4.1	3.0	2.3	1.0	1.0	3.0	5.0	8.4	9.5	59.1
Portland, Oreg	50	6.6	5.4	3.9	2.9	2.2	1.5	.6	.6	2.0	3.1	6.1	6.7	41.6
Roseburg, Oreg	68	5.1	4.2	3.2	2.3	1.9	1.2	.3	.3	1.2	2.5	4.7	5.4	32.1
Sacramento, Calif	94	3.7	3.0	2.6	1.5	.7	.1	T	T	.2	.8	1.8	3.7	18.2
San Francisco, Calif	94	4.8	3.8	3.1	1.6	.7	.2	T	T	.3	1.0	2.4	4.4	22.1
San Diego, Calif	96	1.9	2.1	1.5	.7	.3	.1	T	.1	.1	.4	.9	2.0	10.1
Seattle, Wash	68	4.8	3.7	3.1	2.3	1.8	1.4	.6	.7	1.7	2.8	4.8	5.6	33.3
Tatoosh Island, Wash	66	1.8	1.6	1.6	.9	.4	.1	T	T	.2	.6	.8	1.6	9.5
5. MEXICO														
Chihuahua	22	.2	.4	.3	.2	.2	1.6	3.6	3.7	3.3	.9	.5	.4	15.4
Colima	19	.4	T	.1	T	.1	5.7	7.4	7.1	7.1	3.8	.5	1.5	33.9
Hermosillo	5	1.6	.6	.2	4.7	5.8	.3	2.4	4.3	1.7	1.0	.4	1.4	24.2
La Paz	12	.2	.1	T	T	T	.2	.4	1.2	1.4	.6	.5	1.1	5.7
Mazatlan	46	.8	.5	.2	.1	.1	1.5	5.9	8.3	8.0	2.6	.9	1.3	30.1
Merida	31	1.1	.7	1.0	.9	2.6	7.0	4.5	5.4	5.3	3.3	1.6	1.1	34.5
Mexico City	48	.2	.3	.5	.7	1.9	4.1	4.5	4.3	4.1	1.6	.5	.3	22.8
Monterrey	33	.6	.7	.8	1.3	1.3	3.0	2.3	2.4	5.2	3.0	1.5	.8	22.8
Oaxaca	30	.1	.2	.6	1.5	3.2	6.6	3.5	4.1	4.9	2.0	.4	.2	27.4
Tampico	15	1.5	1.2	1.0	1.5	1.8	8.7	4.9	4.8	10.8	5.0	2.0	1.6	44.8
Tuxtla, Gutierrez	6	.1	.1	T	1.0	2.6	8.9	6.0	6.2	6.5	2.9	.6	.2	35.0
Vera Cruz, Mexico	20	.9	.6	.3	.8	2.0	9.6	13.7	11.8	13.6	6.0	3.5	1.0	63.9
Zacatecas	35	.5	.3	.4	.2	.9	4.1	4.1	3.4	3.5	1.6	.6	.6	20.2

TABLE 136.—*Average monthly and annual precipitation (inches and tenths) at selected stations*—Continued

I. NORTH AMERICA—Continued

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
6. CENTRAL AMERICA AND WEST INDIES														
Balboa Heights, C. Z	30	0.9	0.8	0.7	2.8	7.8	8.1	7.4	8.0	7.9	10.3	10.2	4.4	69.3
Belize, British Honduras	22	6.2	2.3	1.6	2.4	5.2	7.5	6.8	6.6	10.0	13.4	8.9	7.5	78.3
Christiansted, V. I	42	2.2	2.2	1.2	3.0	4.3	4.7	3.4	4.2	5.7	5.8	6.0	3.8	46.4
Ciudad Trujillo, Dominican Republic	25	2.4	1.4	1.9	3.9	6.8	6.2	6.4	6.3	7.3	6.0	4.8	2.4	55.8
Cristobal, C. Z	60	3.5	1.6	1.5	4.3	12.4	13.8	15.7	15.4	12.4	15.4	21.1	11.0	128.0
Fort de France, Martinique	31	4.7	4.2	2.9	3.9	4.7	7.4	9.4	10.3	9.2	9.6	7.9	5.9	80.2
Guatemala City, Guatemala	29	.3	.1	.5	1.2	6.0	10.8	8.0	7.8	9.1	6.8	.9	.3	51.8
Habana, Cuba	72	2.8	1.9	1.9	2.2	4.5	6.6	4.8	5.4	5.8	6.5	3.0	2.3	47.6
Hamilton, Bermuda	65	4.4	4.7	4.8	4.0	4.5	4.5	4.5	5.6	5.1	5.8	5.0	4.8	57.6
Kingston, Jamaica	53	.9	.7	1.0	1.2	4.2	4.0	1.5	3.4	4.4	7.0	2.8	1.6	32.5
Nassau, Bahamas	59	2.2	1.7	1.5	2.4	5.9	6.6	6.0	6.6	7.0	6.6	2.8	1.4	50.7
San Jose, Costa Rica	8	.4	.2	1.0	1.7	8.0	9.5	5.8	5.9	10.8	12.1	6.2	.9	62.5
San Juan, P. R	25	4.2	2.7	3.0	4.1	5.3	5.3	5.7	6.0	6.2	5.6	6.9	5.8	60.6
Santiago, Cuba	21	1.2	.7	1.5	2.8	6.0	5.1	2.2	3.8	6.0	8.5	3.9	1.2	42.9
II. SOUTH AMERICA														
Asuncion, Paraguay	30	5.5	5.1	4.3	5.2	4.6	2.7	2.2	1.5	3.1	5.5	5.9	6.2	51.8
Belem, Brazil	15	9.2	13.6	17.3	16.7	11.7	9.1	3.1	3.0	1.8	3.3	1.1	4.2	94.1
Bogota, Colombia	49	2.3	2.6	4.0	5.8	4.5	2.4	2.0	2.2	2.4	6.3	4.7	2.6	41.7
Buenos Aires, Argentina	53	3.0	2.4	4.5	3.1	3.0	2.6	2.2	2.4	3.0	3.5	3.0	3.9	36.7
Caracas, Venezuela	46	.9	.4	.6	1.3	3.1	4.0	4.3	4.3	4.2	4.3	3.7	1.8	32.8
Concepcion, Chile	45	.7	.8	2.4	3.3	7.8	9.8	9.8	7.3	4.0	2.3	1.8	1.0	51.0
Cordoba, Argentina	40	4.1	4.5	3.5	1.9	1.3	.3	.5	.5	.8	2.4	3.7	4.8	28.2
Cuiaba, Brazil	29	10.0	8.6	8.1	4.0	2.2	.5	.3	1.1	1.8	5.2	6.0	8.1	55.8
Goiaz, Brazil	11	12.5	9.9	10.2	4.6	.4	.3	.0	.3	2.3	5.3	9.4	9.5	64.8
Grenada, Windward Islands	44	4.7	2.7	2.7	2.2	4.4	8.5	9.4	9.0	8.2	8.2	8.6	7.2	75.7
Iquique, Chile	40	T	T	T	T	T	T	0	T	T	T	T	0	T
La Paz, Bolivia	5	3.8	4.9	2.6	1.5	.5	.1	.2	1.1	.8	1.3	1.6	4.2	22.3
Lima, Peru	18	0	0	0	0	.1	.2	.4	.4	.4	.2	.1	0	1.9
Manaus, Brazil	27	9.8	9.2	9.8	8.6	7.0	3.8	2.3	1.4	2.0	4.1	6.1	7.8	71.8
Montevideo, Uruguay	24	2.6	3.1	3.2	4.6	3.4	3.2	2.4	3.5	3.4	2.5	3.2	3.5	38.8
Natal, Brazil	18	1.9	4.8	7.0	9.2	7.1	8.7	7.7	3.8	1.4	.8	.7	1.1	54.2
Paramaribo, Dutch Guiana	75	8.5	6.5	7.9	9.0	12.2	11.9	9.2	6.2	3.1	3.0	4.9	8.8	91.0
Porto Alegre, Brazil	22	4.6	4.0	3.9	4.7	4.3	5.1	4.3	5.3	5.0	3.5	3.2	4.6	52.6
Port of Spain, Trinidad	32	2.3	1.2	1.4	1.3	2.8	6.4	7.8	7.6	6.9	5.6	6.5	4.7	54.5
Port Stanley, Falkland Island	25	2.7	2.2	2.4	2.4	2.6	2.2	2.1	2.0	1.4	1.5	2.0	2.8	26.2
Punta Arenas, Chile	20	1.2	1.2	1.6	2.1	2.2	2.0	1.8	1.9	1.6	1.0	1.3	1.3	19.2
Quito, Ecuador	7	4.2	4.3	5.2	7.4	5.0	1.5	.9	1.5	3.0	3.7	3.8	3.8	44.2
Rio de Janeiro, Brazil	84	4.9	4.8	5.1	4.2	3.1	2.1	1.6	1.7	2.6	3.1	4.1	5.4	42.6
Rivadavia, Argentina	20	3.8	4.4	2.9	1.4	.4	.1	.1	.2	.8	1.5	2.2	3.0	20.8
Sao Gabriel, Brazil	10	10.3	7.7	10.0	10.6	12.0	9.2	8.8	7.2	5.1	6.9	7.2	10.4	105.0
Santa Cruz, Argentina	20	.6	.3	.4	.6	.4	.5	.4	.6	.3	.3	.4	.7	5.4
Santiago, Chile	58	.1	.1	.2	.5	2.5	3.3	3.0	2.2	1.2	.6	.3	.2	14.1
Valparaiso, Chile	31	0	0	.4	.5	4.4	5.7	3.9	2.7	1.3	.5	.2	.2	19.8
Victoria, Argentina	20	2.9	3.2	2.9	1.7	.9	.4	.4	.5	1.2	2.5	2.1	2.2	20.8
III. AFRICA														
Accra, Gold Coast	48	0.6	1.2	2.0	3.4	5.3	7.0	1.6	0.6	1.3	2.3	1.4	0.9	27.6
Addis Ababa, Ethiopia	37	.5	1.5	2.6	3.4	3.4	5.4	11.0	11.8	7.5	.8	.6	.2	48.7
Algiers, Algeria	37	4.0	2.7	3.1	1.9	1.8	.7	.1	.1	.4	3.2	4.4	4.5	27.9
Ascencion Island	32	.2	.5	.6	1.5	.8	.5	.5	.5	.3	.2	.2	.1	5.9
Beira, Mozambique	25	11.7	9.7	9.5	4.1	2.5	1.5	1.0	1.0	.8	1.6	4.8	10.0	58.2
Cairo, Egypt	26	.2	.2	.2	.1	.1	T	0	0	T	.1	.1	.2	1.2
Capetown, Union of South Africa	94	.7	.6	.9	1.9	3.7	4.4	3.6	3.3	2.3	1.6	1.1	.8	24.7
Casablanca, Morocco	22	2.0	2.0	2.4	1.2	.8	.2	0	T	.4	1.2	2.8	2.6	15.6
Dakar, Senegal	30	T	T	T	T	T	.6	3.0	9.7	5.4	1.7	.1	.2	20.8
Dar-es-Salaam, Tanganyika	37	2.8	2.4	4.7	11.0	7.2	1.5	1.2	1.0	1.1	1.5	3.1	3.7	41.1
Duala, Cameroon	23	1.8	3.7	8.0	9.1	11.8	21.2	29.2	27.3	20.9	16.9	6.1	2.5	158.5
Elizabethville, Belgian Congo	21	9.8	9.8	8.5	1.8	.2	0	T	0	.1	1.3	4.8	11.2	47.5
Entebbe, Uganda	42	2.6	3.6	6.1	10.2	.3	4.9	3.1	2.8	3.0	3.9	5.1	4.6	59.3
Fort Laperrine, Algeria	10	.2	T	T	.2	.6	.2	.1	.4	.1	T	0	.2	2.3
Francistown, Bechuanaland	17	4.4	2.6	2.9	.9	.3	0	0	0	.2	.8	2.5	3.5	17.9
Jibouti, Fr. Somaliland	21	.2	.5	1.2	.3	.1	T	.2	.6	.3	.5	.7	.5	5.0
Kayes, French Sudan	18	T	T	T	.1	.7	3.8	7.3	8.4	5.5	1.6	T	.1	27.5
Khartoum, Anglo-Egyptian Sudan	36	0	0	T	T	.1	.4	2.0	2.9	.7	.2	T	0	6.2
Livingstone, Northern Rhodesia	26	7.0	5.3	4.7	.9	.3	0	T	T	.1	.6	3.2	5.2	27.5
Massawa, Eritrea	21	1.6	.7	.6	.5	.4	0	.1	.2	.2	.3	.9	1.8	7.4
Mauritius Island	43	8.5	7.8	8.7	5.0	3.8	2.6	2.3	2.5	1.4	1.6	1.8	4.6	50.6
Mombasa, Kenya	47	1.1	.6	2.6	7.5	12.5	4.7	3.7	2.4	2.6	3.3	3.8	2.5	47.5
Mossamedes, Angola	10	.4	.5	1.2	1.6	0	0	0	0	0	0	.1	.1	3.9

TABLE 136.—*Average monthly and annual precipitation (inches and tenths) at selected stations*—Continued

III. AFRICA—Continued

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Port Victoria, Seychelles	30	16.9	12.5	9.1	7.0	6.1	4.5	2.6	2.2	5.8	5.0	9.4	13.6	92.6
Pretoria, Union of S. Africa	33	5.4	4.2	3.6	1.2	.6	.1	.3	.5	.6	2.5	4.7	4.4	28.3
Tananarive, Madagascar	27	12.0	11.5	7.5	2.0	.6	.3	.2	.3	.6	2.5	4.8	11.4	53.7
Timbuktu, French Sudan	17	0	T	T	T	.2	.9	2.7	2.7	1.0	.1	T	0	7.7
Tripoli, Libya	19	3.7	2.1	1.0	.6	.3	0	0	.1	.5	1.5	2.3	4.5	16.6
Windhoek, Southwest Africa	10	3.1	2.9	2.8	1.4	.2	0	0	.1	.1	.4	.8	1.8	13.6
Zinder, Niger	16	0	0	T	.1	.5	2.1	6.0	8.7	2.6	.5	T	0	20.5
Zomba, Nyasaland	31	11.2	9.7	9.1	3.4	.9	.5	.3	.4	.3	1.2	4.8	10.7	52.6

IV. EUROPE

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Amsterdam, Netherlands	28	2.0	1.5	1.9	1.6	1.9	2.0	2.9	3.2	2.5	3.4	2.3	2.7	28.0
Athens, Greece	54	2.2	1.5	1.4	.9	.8	.6	.3	.4	.6	1.6	2.8	2.5	15.5
Belgrade, Yugoslavia	33	1.3	1.2	1.6	2.4	2.8	3.0	2.6	1.9	1.7	2.4	1.9	1.6	24.4
Berlin, Germany	80	1.7	1.4	1.6	1.5	1.9	2.4	3.1	2.3	1.7	1.8	1.7	1.9	22.9
Bern, Switzerland	23	1.9	1.8	3.0	3.1	4.4	4.4	4.5	4.5	3.5	3.4	2.7	2.7	40.0
Bucharest, Romania	60	1.3	1.1	1.6	1.7	2.5	3.5	2.7	2.0	1.6	1.7	1.9	1.6	23.2
Budapest, Hungary	35	1.5	1.2	1.8	2.3	2.9	2.9	2.1	2.0	2.0	2.6	2.1	1.9	25.2
Copenhagen, Denmark	40	1.5	1.2	1.5	1.6	1.6	1.8	2.4	3.0	2.0	2.2	1.8	2.1	22.8
Dublin, Ireland	52	2.4	2.0	1.9	1.9	2.1	2.0	2.7	3.0	2.2	2.6	2.7	2.6	28.1
Gibraltar	79	4.6	4.5	4.7	2.7	1.6	.5	0	.1	1.3	3.3	6.4	5.4	35.1
Grimsey, Iceland	40	.7	.7	.6	.5	.6	.8	1.1	1.4	1.4	1.4	1.1	.8	11.1
Helsinki, Finland	71	1.8	1.5	1.4	1.4	1.8	1.8	2.2	2.9	2.5	2.6	2.5	2.0	24.4
Isanbul, Turkey	59	3.2	2.8	2.2	1.6	1.2	1.3	1.0	1.4	2.0	2.6	3.9	4.6	28.0
Lisbon, Portugal	51	3.0	3.0	3.0	2.4	2.4	.7	.2	.2	1.3	2.9	3.9	3.4	26.5
London, England	62	1.9	1.6	1.6	1.6	1.8	2.0	2.2	2.2	2.0	2.6	2.3	2.3	24.0
Madrid, Spain	71	1.2	1.4	1.6	1.6	1.7	1.4	.4	.4	1.4	1.8	2.0	1.6	16.5
Malta Island	64	3.2	2.2	1.5	.9	.4	.1	0	1	1.3	2.9	3.6	3.7	19.9
Marseille, France	60	1.6	1.4	1.9	2.1	1.7	1.1	.6	.8	2.3	3.6	2.8	2.1	22.2
Messina, Sicily (Italy)	25	3.9	3.1	2.9	2.7	1.5	.8	.5	.9	1.8	4.3	4.5	4.4	31.4
Moscow, Russia	18	1.6	1.4	1.4	1.4	1.9	2.5	3.1	2.8	2.4	2.5	1.8	1.6	24.5
Odessa, Russia	18	1.0	1.0	1.0	.9	1.0	2.0	1.6	1.0	.8	1.1	.8	1.1	13.4
Oslo, Norway	50	1.6	1.5	1.5	1.6	1.7	2.1	3.0	3.5	2.4	2.6	2.0	1.9	25.4
Paris, France	38	1.5	1.2	1.6	1.6	2.1	2.3	2.2	2.2	2.0	2.3	1.8	1.7	22.6
Prague, Czechoslovakia	70	.9	.8	1.1	1.5	2.4	2.8	2.6	2.2	1.6	1.2	1.2	.9	19.2
Reykjavik, Iceland	10	3.9	3.1	2.9	2.4	1.9	1.9	1.9	2.0	3.5	3.5	3.7	3.6	34.3
Rome, Italy	25	3.6	2.7	3.1	3.1	2.4	1.8	.8	1.0	3.0	5.3	4.5	4.1	35.5
Sofia, Bulgaria	20	1.3	1.2	1.5	2.0	3.0	3.1	2.6	2.0	2.4	2.1	2.1	1.1	24.3
Stockholm, Sweden	51	1.0	.9	1.1	1.1	1.4	1.6	2.4	2.6	1.8	2.0	1.5	1.3	18.6
Trondheim, Norway	50	3.4	2.9	2.2	1.8	1.5	1.7	2.2	3.0	3.3	3.4	3.1	2.6	31.1
Vienna, Austria	70	1.5	1.3	1.8	2.0	2.8	2.7	3.1	2.7	2.0	1.8	1.8	1.8	25.4

V. ASIA

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Aden, Arabia	50	0.3	0.2	0.4	0.2	0.1	0.1	T	0.1	0.1	0.1	0.1	0.1	1.8
Akmolinsk, Siberia	32	.6	.5	.5	.6	1.0	1.8	1.4	1.5	1.1	1.1	.7	.6	11.2
Alma-Ata, Siberia	47	1.3	1.1	2.1	3.8	3.5	2.4	1.4	1.2	1.1	1.9	1.8	1.2	22.7
Amoy, China	45	1.3	2.8	3.8	5.3	6.3	7.1	5.3	6.7	4.3	1.6	1.3	1.3	47.1
Ankara, Turkey	19	.9	1.1	1.2	1.3	2.0	1.0	.5	.3	.5	.6	.9	1.5	11.9
Aparri, Luzon	36	6.0	3.3	2.4	1.8	5.0	6.7	8.5	9.5	11.3	14.0	12.8	8.2	89.3
Arisan, Formosa	14	2.5	4.4	5.7	6.3	22.4	24.0	31.5	27.9	16.6	5.7	2.7	2.0	151.6
Ashkhabad, Siberia	17	1.0	.8	1.8	1.4	1.2	.4	.2	.1	.1	.5	.9	.7	9.1
Bagdad, Iraq	32	1.2	1.3	1.3	.9	.2	T	T	T	T	.1	.7	1.2	7.1
Bangkok, (Siam) Thailand	44	.3	.8	1.4	2.3	7.8	6.3	6.3	6.9	12.0	8.1	2.6	.2	55.0
Blagoveshchensk, Siberia	35	.1	.1	.3	.8	1.6	3.3	4.8	4.6	2.7	.8	.3	.2	19.7
Bombay, India	92	.1	.1	T	T	.6	19.8	23.9	14.1	10.6	2.1	.5	.1	72.0
Calcutta, India	110	.4	1.0	1.3	2.1	5.5	11.7	12.7	13.3	10.0	4.9	.7	.2	63.9
Canton, China	30	1.7	2.8	3.6	5.9	10.1	10.7	10.1	9.6	5.3	2.3	1.6	1.4	65.2
Cape Chelivskin, Siberia	7	.2	.1	T	1.	.1	.5	1.0	.9	.3	.3	.2	.1	3.7
Changchun, Manchuria	15	.3	.2	.7	.8	2.2	4.7	7.6	5.2	2.8	1.3	.8	.3	26.8
Chumhi, Tibet	----	.4	1.4	2.2	3.6	4.2	6.5	5.6	5.9	2.9	1.6	.2	.1	34.8
Colombo, Ceylon	71	5.3	3.5	2.2	4.4	9.8	12.4	7.7	4.7	3.7	5.4	13.7	12.2	85.1
Dairen, Manchuria	25	.5	.3	.7	1.0	1.7	1.8	6.4	5.1	4.0	1.1	1.0	.5	24.1
Davao, P. I	34	4.8	4.5	5.2	5.8	9.2	9.1	6.5	6.5	6.7	7.9	5.3	6.1	77.5
Delhi, India	50	1.0	.8	.4	.3	.6	3.2	7.7	7.5	4.6	.4	.1	.5	27.1
Hanoi, Fr. Indo-China	30	.9	1.4	1.8	3.6	8.6	10.2	13.4	13.4	10.5	4.4	2.0	1.1	71.2
Harbin, Manchuria	20	.2	.2	.5	.8	1.7	3.9	5.9	4.3	2.2	1.2	.5	.2	21.6
Hongkong, China	53	1.3	1.8	2.9	5.4	11.5	15.5	15.0	14.2	10.1	4.6	1.7	1.2	85.2
Irkutsk, Siberia	35	.4	.3	.3	.2	1.5	2.2	3.5	3.1	1.7	.8	.7	.6	15.5
Jerusalem, Palestine	54	6.4	5.1	3.6	1.7	.3	T	0	0	T	.4	2.3	5.5	25.2
Lhasa, Tibet	4	T	.1	.3	.2	5.1	6.3	25.8	17.8	7.2	.3	T	T	63.0
Mandalay, Burma	24	T	.1	.2	1.1	5.5	5.4	3.4	4.1	6.5	4.7	1.8	.3	33.3
Manila, P. I	73	1.0	.5	.7	1.2	5.1	9.9	17.0	16.6	14.4	7.7	5.6	2.5	82.2
Mukden, Manchuria	29	.2	.2	.8	1.1	2.3	3.6	6.4	6.1	3.0	1.6	.9	.3	26.6
Nanking, China	29	1.6	1.9	2.6	3.9	3.2	6.5	7.8	4.3	3.3	1.7	1.6	1.4	40.0
Novo-Mariinski, Siberia	15	.3	.3	.2	.2	.4	1.0	1.3	1.6	1.1	.5	.2	.4	7.5
Okhotsk, Siberia	20	.1	.1	.2	.4	.8	1.7	2.3	2.4	2.1	1.0	.2	.1	11.2
Olekminsk, Siberia	26	.4	.3	.2	.4	.9	1.6	1.6	2.1	1.2	.7	.7	.5	10.7
Omsk, Siberia	27	.6	.3	.3	.5	.1	2.0	2.0	1.7	1.1	.9	.7	.9	12.3
Petropavlovsk, Siberia	23	2.4	2.2	2.5	2.5	2.0	2.4	3.5	3.7	3.4	4.2	3.1	2.5	34.2
Port Arthus, Manchuria	24	.4	.3	.6	.8	1.6	1.6	6.2	5.0	3.5	1.0	1.1	.6	22.7

TABLE 136.—*Average monthly and annual precipitation (inches and tenths) at selected stations*—Continued

V. ASIA—Continued

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Rangoon, Burma	40	.1	.2	.3	1.6	12.4	18.1	21.2	19.5	15.6	7.0	2.5	.1	98.7
Shanghai, China	62	1.9	2.3	3.3	3.7	3.7	7.1	5.8	5.6	5.1	2.8	2.0	1.4	44.8
Singapore, Malay States	64	9.9	6.8	7.6	7.4	6.8	6.8	6.7	7.7	7.0	8.2	10.0	10.1	95.0
Taikyu, Iran	22	1.0	.9	1.2	3.0	2.9	5.0	8.4	6.1	5.4	1.5	1.3	.8	37.5
Tehran, Iran	25	1.6	1.1	2.0	1.4	.6	.1	.2	T	.1	.3	.9	1.2	9.5
Tianan, Formosa	30	.9	1.5	1.6	2.5	7.4	13.5	12.7	16.8	6.5	1.4	.7	.5	66.1
Tientsin, China	44	.2	.1	.4	.6	1.1	2.5	7.0	5.5	1.8	.6	.4	.2	20.2
Tobalsh, Siberia (U. S. S. R.)	35	.6	.6	.6	.7	1.5	2.3	2.9	2.7	1.7	1.3	1.1	.9	16.9
Tokyo, Japan	30	2.3	3.0	4.3	5.3	6.0	6.8	5.6	7.1	10.1	7.9	3.5	2.2	64.0
Tomsk, Siberia	38	1.2	.8	.9	.9	1.6	2.8	2.8	2.6	1.6	2.2	1.8	1.7	20.9
Turukhansk, Siberia	40	.5	.4	.4	.6	1.0	1.6	2.0	2.3	2.0	1.2	.8	.6	13.2
Tyukatin, Korea	20	.4	.4	.8	1.4	3.3	4.3	7.4	6.7	3.1	1.7	1.2	.7	31.5
Urga, Mongolia	15	T	T	.1	.2	.3	1.0	2.9	1.9	.8	.2	.2	.1	7.7
Yinkow, Manchuria	30	.2	.2	.7	1.0	1.9	2.3	6.3	6.1	2.7	1.6	.9	.3	24.1

VI. AUSTRALIA

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Adelaide	98	0.7	0.7	1.0	1.7	2.7	3.1	2.6	2.5	2.1	1.7	1.1	1.0	20.9
Alice Springs	58	1.7	1.5	1.2	.7	.6	.6	.4	.4	.4	.7	1.0	1.5	10.8
Auckland, New Zealand	67	2.5	3.0	3.0	3.3	4.4	4.7	5.2	4.2	3.6	3 6	3 3	2.8	43.7
Brisbane	83	6.5	6.4	5.7	3.9	2.8	2.7	2.2	2.0	2.0	2.5	3.8	4.9	45.4
Christchurch, New Zealand	46	2.2	1.7	2.3	2.0	2.3	2.4	2.7	2.0	1.9	1.7	2.0	2.1	25.3
Coolgardie	18	.4	.8	.6	.6	1.3	1.2	.8	1.0	.7	.7	.6	.7	9.4
Darwin	52	15.8	12.9	9.9	4.2	.7	.2	.1	.1	.5	2.2	4.9	10.4	61.7
Dunedin, New Zealand	70	3.3	2.8	3.0	2.8	3.3	3.2	3.0	3.1	2.8	3.1	3.3	3.5	37.1
Hobart, Tasmania, Australia	82	1.8	1.4	1.6	1.8	1.9	2.2	2.2	1.8	2.1	2.2	2.5	2.0	23.6
Melbourne	70	1.8	1.7	2.2	2.2	2.2	2.0	1.8	1.8	2.4	2.6	2.2	2.3	25.4
Perth	46	.3	.5	.7	1.6	4.9	6.8	6.5	5.7	3.3	2.1	.8	.6	33.9
Sydney	67	3.7	4.2	5.0	5.3	5.2	4.8	4.8	3.0	2.9	2.9	2.8	2.8	47.4
Thursday Island	46	17.6	15.7	13.7	8.0	1.7	.6	.4	.2	.1	.3	1.5	7.1	66.9
Wellington, New Zealand	69	3.3	3.2	3.3	3.8	4.8	4.9	5.6	4.4	4.0	4.2	3.4	3.3	48.1

VII. OCEANIA

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Aituoni, Hivaoa Island	3	6.7	6.5	8.5	5.4	8.2	5.9	7.2	3.0	3.1	10.1	5.5	4.1	74.0
Alofi, Tonga Islands	25	10.4	10.0	12.4	7.8	4.8	2.9	3.1	4.8	4.3	4.6	5.6	9.3	80.0
Apia, Samoa Islands	48	18.3	15.5	14.4	10.3	6.7	5.0	3.3	3.8	5.4	7.2	10.6	14.7	115.0
Avarua, Cook Islands	27	9.2	10.1	11.2	7.7	5.9	4.8	4.4	4.7	5.0	5.3	6.4	8.1	82.8
Batavia, Java	50	12.0	12.6	8.4	5.5	4.2	3.6	2.6	1.7	2.7	4.7	5.6	7.8	71.4
Buna Bay, New Guinea	26	13.0	12.3	12.6	11.5	8.9	7.5	5.1	4.3	6.3	8.4	13.3	14.8	118.0
Chatam Islands	22	2.6	3.1	6.4	3.2	4.0	3.3	4.4	3.6	2.7	2.4	3.1	2.6	41.8
Cocos Island	27	5.4	7.4	9.0	9.8	8.0	9.3	9.9	4.7	3.8	3.7	3.7	4.5	79.2
Daru, New Guinea	39	11.9	11.4	12.7	13.1	9.6	3.9	4.0	2.0	1.6	2.0	4.1	7.6	84.1
Easter Island	2	5.2	1.6	9.0	5.1	3.9	9.5	3.2	2.6	3.5	2.2	5.0	2.9	53.7
Fanning Island	25	10.3	10.3	10.8	13.5	12.5	10.1	8.4	4.6	3.2	3.7	3.1	8.5	98.9
Guam, Marianas	31	3.0	2.7	3.0	2.0	4.3	5.6	14.2	14.8	14.2	13.1	7.7	4.9	89.5
Hilo, Hawaii Island	53	12.2	10.7	15.7	13.5	9.6	7.3	10.0	12.2	10.9	10.9	13.8	13.1	140.0
Honolulu, Oahu Island	35	4.1	2.6	3.1	1.9	1.0	.7	.9	1.1	1.4	1.9	2.5	4.1	25.3
Jaluit, Marshall Islands	17	10.2	8.5	14.2	15.8	16.6	15.3	15.4	12.0	13.1	12.2	11.9	13.6	159.0
Kieta, Solomon Islands	20	10.5	10.8	11.2	11.7	9.3	9.0	10.9	9.5	8.0	9.8	9.6	9.4	119.0
Kupang, Timor (N. E. Indies)	50	15.3	14.4	8.7	2.5	1.1	.4	.2	.1	.1	.7	3.5	9.7	56.8
Malden Island	33	3.5	1.9	4.5	4.5	4.3	2.1	1.9	1.6	.8	.9	.7	.7	27.4
Manokwari, New Guinea	39	12.2	9.3	13.1	11.1	7.8	7.4	5.5	5.6	5.0	4.8	6.5	10.3	98.4
Midway Island	9	4.2	3.7	4.2	5.1	3.6	3.4	3.1	3.5	5.0	5.2	1.7	3.6	46.3
Norfolk, Island	45	3.2	4.7	3.7	4.7	5.6	5.7	6.2	5.6	3.8	4.0	2.7	3.6	53.5
Noumea, New Caledonia	52	3.7	5.1	5.7	5.2	4.4	3.7	3.6	2.6	2.5	2.0	2.4	2.6	43.5
Ocean Island, Gilbert Islands	36	11.9	8.5	7.1	5.3	4.0	3.9	5.8	4.6	3.7	3.6	5.4	8.1	71.8
Papeete, Society Islands	21	11.7	11.8	7.0	7.4	4.8	3.3	2.2	1.9	1.8	3.6	6.8	11.8	74.1
Ponape, Caroline Islands	15	11.9	8.2	11.4	19.3	19.4	16.2	16.9	15.5	16.0	16.7	14.6	17.5	184.0
Port Morsby, New Guinea	45	7.0	7.9	6.8	4.1	2.6	1.2	1.2	.9	1.2	1.2	1.9	4.3	40.1
Rabaul, New Britain	24	14.8	10.4	10.2	10.0	5.2	3.3	5.4	4.7	3.5	5.1	7.1	10.1	89.7
Sandakan, North Borneo	46	19.0	10.9	8.6	4.5	6.2	7.4	6.7	7.9	9.3	10.2	14.5	18.5	123.7
Suva, Fiji Islands	55	11.9	11.2	14.9	12.3	10.8	6.3	5.5	8.1	7.7	9.1	10.3	12.7	121.0
Tulagi, Solomon Islands	37	14.3	15.8	15.0	10.0	8.2	6.8	7.6	8.7	8.0	8.7	10.0	10.4	124.0
Vila, New Hebrides	24	10.2	11.2	11.7	9.6	5.6	4.9	3.8	3.5	3.8	4.8	6.6	7.1	82.7
Wake Island	6	.9	1.5	1.7	1.6	1.7	1.4	6.0	8.9	5.1	3.7	2.2	2.4	37.2
Yap, Caroline Islands	27	6.5	5.9	5.0	5.1	10.0	9.9	16.9	16.4	12.5	11.8	10.0	9.1	119.0

VIII. ANTARCTICA

Station	Number years record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Grytiyiken	20	3.4	4.1	5.1	5.3	5.5	5.0	5.5	5.1	3.4	2.6	3.4	2.9	51.2
Laurie Island	18	1.5	1.5	1.8	1.7	1.3	1.2	1.2	1.4	1.0	1.0	1.4	.9	15.9

TABLE 137.—*Precipitation amounts—hourly frequency*

[Summer—first week, June 22 to 28]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	358	363	374	379	372	372	362	356	360	367	369	375	366	365	359	343	347	343	340	341	346	353	355	359	8,624
T	18	15	11	4	13	11	19	30	23	14	18	17	19	13	18	29	20	24	30	25	23	19	18	21	452
0.01	4	8	5	3	5	8	10	3	9	8	7	2	5	5	4	6	10	8	9	10	6	10	8	6	159
0.02		3	2	7	3		2	3		3	3	1		2	3	4		5	1	3	5	3	1	1	55
0.03	3		3	2	3	1	1	5	2	3	1	2	2	1	3	1	2	5	3		2		3	2	50
0.04	3	4		1	1	2	1		1		1	1		2	1	3	1	3	2	1	4	2	2		36
0.05	2		1			2				1			1	1	3			1	1	4	3		1		21
0.06		1	1			1			1	1			1	2	1	2	1		3	3	2	1		1	22
0.07	1	1		1	1									2		1	1			1		1	2	1	13
0.08	2		1				1						1					1	1			3	1	1	12
0.09		1	1			1			1				1			1	2						2	2	12
0.10	2							1		1									2		1	2	2	1	12
0.11		1			1		1								1		1			2				1	8
0.12	1																	2							3
0.13																				1	1				2
0.14	2						1			1						2					1	1	1		9
0.15				1													1						1		3
0.16																	2		1	1					4
0.17	1																1								2
0.18		1													1		1				1			1	5
0.19									1																1
0.20														1		1									2
0.21							1		1																2
0.22																1	1			1					3
0.23																			1						1
0.24														1			1		1						3
0.25																2					1				3
0.26																	1								1
0.27																			1						1
0.28																									
0.29																	1			1	1		1		4
0.30																									
>0.30 (actual amounts)	0.87 1.81	0.42		0.50		0.51		0.71				0.34	0.33 .47 1.41	0.36 .47 .68 .92	0.31 .33 .39 .47 .48	0.46 .51 .53	0.33 .33 .48 .72 1.19	0.35 .38 .42 .63 .71 .74 1.54	0.42 .87 .97	0.34 .35 .39 .56 .67	0.32 .36	0.37 .44 .65 .75	0.71	0.43 .95	51
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	4.03	1.23	0.46	0.99	0.42	0.95	0.75	1.05	0.74	0.58	0.20	0.48	2.60	3.38	2.71	3.27	5.50	5.59	3.95	3.98	2.42	3.16	2.21	2.30	52.95

[Summer—second week, June 29 to July 5]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	363	357	365	371	370	372	377	375	377	379	380	373	373	371	362	354	347	338	336	339	354	349	358	356	8,696
T	15	24	12	13	14	11	14	15	13	10	10	16	18	14	17	22	21	25	30	26	18	27	16	21	422
0.01	4	6	8	3	7	4	2	3	4	4	3	3	2	2	3	5	8	9	9	5	11	7	8	5	125
0.02	4	3	4	2	2	2	3	1	2	1	1	1	1	3	1	1	2	2	3	5	2	1		2	49
0.03	1	1	1	2		4		2	1		2			2	1		5	2	3	2	1		3	1	34
0.04		1		1	1	1		1	1	1					2	1	4	2		1	3	3	2	4	29
0.05	5	1		2	2	1						1	1	1	1	2	1	4	1	3				1	27
0.06		2	2	1	2			1			1					1	3	2		3	1	2	1	1	23
0.07			1							1					1				1	2			2	1	9
0.08	1	1	2	1										1		3		1	1	1		1		1	14
0.09	2		1		1		1									1		1		1	1		1		10
0.10	1						1				2		1						1		2	1		1	10
0.11		1	1			1						1				1	1		1	1		1			10
0.12		1				1			1										2	2		1	1		9
0.13				1						1					2			1			3		1	1	10
0.14	1	1								1					1			1				2			7
0.15								1						2		1			1			1		1	7
0.16				1		1							1	1	2	1	1	2					1		11
0.17			1			1										2	1			1					6
0.18							1										1		1	2		1	1		7
0.19												1							1						2
0.20																									
0.21																			1			1			2
0.22										1				1					1						3
0.23			1															1				1			3
0.24	1														1										2
0.25																			1						1
0.26																									
0.27																	1			1				1	3
0.28																		1	1				2		4
0.29																									
0.30				1																					1
>0.30 (actual amounts)	0.43											0.33 .85 .95	0.32 .35	0.45	0.37 .46 .50 .64 .73	0.77 .80 1.00 1.25	0.34 .43 .88	0.35 .52 .55 .60 .65 .70 1.17	0.31 .36 .37 1.30	0.80 .80 .90 1.61	0.83 1.68	0.34	1.27	0.54 .56	40
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.57	0.81	1.14	1.00	0.46	0.85	0.45	0.36	0.27	0.66	0.37	2.53	1.02	1.40	3.94	5.18	3.20	6.40	4.71	6.15	3.66	2.02	3.07	2.29	53.51

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Summer—third week, July 6 to 12]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	368	375	368	370	370	377	368	365	368	371	364	361	362	358	363	357	340	352	348	349	357	358	360	370	8,699
T	16	10	17	11	15	16	20	17	17	15	16	20	24	23	17	20	26	20	25	22	16	14	18	14	429
0.01	4	2	5	5	2	2	3	7	3	5	7	6	5	4	4	5	8	4	6	7	9	11	1	5	120
0.02	2	2	2	6	2	2	2	3	1	2	1	3	1	1		1	6	4	1	7	4	3	3	5	64
0.03	1	2	2	1	2	1	1		1	1	1	1	1	3	3	4	2	3	3	2	3	1	4	1	44
0.04	2			2	4		2	1	3	1	2	1	1		2	2	1	4	2	1		3	2		36
0.05	1	2	1		1			2	1		1	1		2		2	1		1	1		1	1	1	20
0.06	1	1					2			1	2			1	2	1		1	2	1	2				17
0.07	1	1					1	1	1		1		1				1	2	2	2				1	15
0.08			1					1	1		2	1	1				1	2	1	1	2				14
0.09												1					1			1		1	1		5
0.10						1								1			1		1	1			1		6
0.11		1	1	1						1			1	1		1			1		1	1			10
0.12	1			1					2										1				1		6
0.13												1													1
0.14			1					1													1				3
0.15											1							1	1			1			4
0.16															1		1				1		1		4
0.17												1	1	1	1				1						5
0.18				1	1												2						1		5
0.19			1									1		1									1		4
0.20	1							1							1	1	1								5
0.21																						1			1
0.22															1								1		2
0.23																	1	1							2
0.24																		1			1				2
0.25		2									1						1								4
0.26																1									1
0.27																									
0.28																					1			1	2
0.29																									
0.30		1								1								1				1			4
>0.30 (actual amounts)	0.41			1.19	0.36				0.35	0.59		0.48	1.40	0.42	0.33	0.35	0.31	0.76	0.44	0.46	0.34	0.31	0.31	0.39	42
					.98									.48	.37	.58	.49	.83	.58	.50		.56	.35		
														.88	.80	.60	.56	2.12	.73	.54		.60	1.32		
															1.77	.85	.66			.74					
																	.97								
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.10	1.26	0.72	1.88	1.85	0.19	0.37	0.76	0.99	1.22	1.00	1.38	1.97	2.66	4.35	3.38	4.88	5.36	3.04	3.07	1.81	2.70	3.36	0.97	50.27

[Summer—fourth week, July 13 to 19]

0	363	364	368	366	372	368	363	365	363	364	370	362	365	360	348	349	345	341	343	339	352	356	350	354	8,590
T	16	16	7	13	14	14	27	23	19	21	14	20	23	13	16	20	22	24	21	29	23	22	23	25	465
0.01	10	4	7	9	2	6	1	2	5	4	3	4	1	3	4	3	11	14	11	8	7	5	8	6	138
0.02	1	3	5	3	4	2	1	1	4	2	5	3		3	4	5	2	1	3	4	3	2	6	7	74
0.03	2	2		1	1			1	1	2				3	4	1	1	3	2	4	3		3	2	36
0.04	2		4	1	3	1	2	1	1		1	1	1	3	2	2	2	1	4	1		1	2		36
0.05	1			2		3		2		1		3	1	1	1	3	2	2		2	1	1		1	27
0.06		1	1			1	1		1		1	1			4	2	1	2	4		1		1		22
0.07	1			1		2		1			2		1		2	1	1		1	1	1		2	1	18
0.08						1							1	1		3				2			1		9
0.09	1	1	2	1	1							2				1	1		1	1			1		13
0.10		2													1	1	1	2			1	1			9
0.11		1	2	2					1		1				1			1	1	1		1			12
0.12								1						2	1	1								1	6
0.13														1			1				1				3
0.14			1				1	1		2			1		1		1			1					9
0.15									1		1			1		1						2			6
0.16	1	1			1										1									1	5
0.17	1								1			1		1						2					6
0.18			1										1					1			1			1	5
0.19		1				1					1		1			1						1			6
0.20															1								1		2
0.21														1						1					2
0.22							1								1		1	1				1			5
0.23													1												1
0.24												1			1		1								3
0.25		1								1													1		3
0.26																1									1
0.27																				1		2			3
0.28															1				1			2			4
0.29		1																							1
0.30														1			1	1			1				4
>0.30 (actual amounts)		0.35	0.35		0.36		0.59	0.32	0.55	0.35		1.32	0.36	0.46	0.31	0.37	0.45	0.36	0.34	0.44	0.32	0.48			52
							.65		.63	.37			.36	.50	.58	.56	.71	.38	.42	1.40	.42	.51			
														.80	.65	.73	.72	.45	.51		.46				
														.84	.75	1.66	.73	.46	.51		.91				
														.86	.77		1.11	.48	.54						
																			.87						
																			2.61						
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	0.80	1.86	1.46	0.70	0.86	0.76	1.77	0.86	1.87	1.44	0.82	2.26	1.71	5.09	5.38	5.08	5.73	3.65	6.98	3.65	3.22	3.19	1.19	0.84	61.17

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Summer—fifth week, July 20 to 26]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	355	358	362	360	362	359	355	358	356	366	363	369	365	363	357	338	339	338	352	354	343	344	352	363	8,531
T	17	16	13	19	18	16	19	20	26	16	14	14	14	16	20	30	27	27	22	20	32	21	22	15	474
0.01	6	10	11	9	6	8	9	9	8	3	6	5	6	3	5	8	5	8	8	8	4	11	8	3	167
0.02	6	3			2	4	4	2		2	4	2	4	2	2	4	6	4	2	2		3	3	3	64
0.03		1	4	2	3	2	3	2	3	3	1	1	1	4	2	4	5	5		2	3	2		5	58
0.04	1	2	1			4	2			2		2	3	1	1	4		3	1	1	1	1	1	3	34
0.05		1	1	2	1	1	2	3	1	2	4	2		1	2	2	3		1	1	2	2	1		35
0.06	1		1		2			1	2			1			1		3	2	2		2	2			20
0.07	1	1	1		2		1	1		1	1				1	1		2			2		2		17
0.08	2					1	1								1	1	1		1						8
0.09				1		1				1	1				1		2	1	2	1		2		1	14
0.10	1	1		1	1		2			3	1	1	1				1	1		1			1	1	17
0.11	1	2				1								2					1		2	2			11
0.12											1							1						1	3
0.13											1						1		1	1		1	2		7
0.14	1	1	1								2				1	1	1			2	1				11
0.15	2	1		1				1											1				2	1	9
0.16		1	1				1									1	1	1			1	1	1		9
0.17																	1		1			2			4
0.18	1														1										2
0.19					1										1			1					1		4
0.20	1								1				1	2		1									6
0.21			1																						1
0.22	1			1																					2
0.23				1					1														1		3
0.24				1																					1
0.25									1																1
0.26														1					1						2
0.27																		1							1
0.28								1											1						2
0.29						1		1				1							1			1			5
0.30																				1				1	2
>0.30 (actual amounts)	0.54 1.14	0.33	0.41 .53	0.46	0.41	0.65						0.78	0.32 .36 .53 1.13	0.32 .48 .91 1.18	0.34 .46 .88	0.32 .47 .48 .85	0.43 .55 .61	0.37 .44 .70 1.20	0.85 1.09	0.33 .37 .43 .48	0.36 .42 .72 .72 .88 .95	0.36 .36 .66 1.45	0.40 .41	0.54 .87	51
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	3.44	1.49	1.90	1.74	1.20	1.65	0.95	1.19	1.02	0.80	1.16	1.53	2.93	4.05	2.78	3.31	3.20	4.33	3.66	3.04	5.10	4.64	2.42	2.53	60.0

[Summer—sixth week, July 27 to Aug. 2]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	359	367	374	369	365	365	366	364	363	372	370	373	363	357	351	353	336	340	338	346	338	340	343	351	8,563
T	17	14	13	13	16	13	15	17	22	15	15	13	18	19	24	16	30	30	26	23	26	28	24	15	462
0.01	7	8	3	3	4	5	4	2	4	4	5	4	4	7	6	9	6	8	14	8	10	12	8	11	156
0.02	4	3	2		1		2	2	3	5	2	4	3	2	4	2	3	5	5	7	3	2	3	4	71
0.03	3			1		2	2	1			3	3	1	5	1	1	1	3	3		3	1	2	3	39
0.04	3	1		2	5	4	1	2			2		2	2	3	1	2	3	4	1	2	6	4	3	53
0.05	1		2			1		4	1		1		1		1	1	4	2	3	1	2	1	4		30
0.06	2	3		1	1	1			1			1			2	2	1	1		5			2	1	24
0.07				2		2				1					1				1	1					8
0.08						1	2		1				1	1	1						3	2	1	3	16
0.09							1	1	1									1	1		1		1		7
0.10						1	1	1					1		1	1	1				1		2		11
0.11				1	2		3							2			1	1		1	2			1	14
0.12	1	1	1		1	1											2			1					8
0.13						2											1			1					4
0.14					2		1	1													1	1		2	8
0.15	1	1			1	1		3	1							1					1	1			11
0.16				1											1	1		1				1		1	6
0.17	1		1																						2
0.18			1											1	1	1	2		1	1					8
0.19			1				1			2			2			1	1								8
0.20				2									1								1		1	1	6
0.21																				1		1			2
0.22											1														1
0.23																									
0.24				1												1									2
0.25																			1						1
0.26																					1				1
0.27																									
0.28			1																			1			2
0.29														1					1						2
0.30				1	1			1								1	1								5
>0.30 (actual amounts)		0.44		0.58 .62				0.31	0.31			0.39	0.68 .95	0.34 2.11	1.12 1.26	0.32 .36 .39 .50 .53 .66 1.67	0.34 .35 .39 .45 .87 .91 .92	0.40 .50 .65	1.05	0.34 .42	0.32	.034 .50 .65 .97	0.77 1.09	0.33 .36 .68	0.33 .36 .88	45
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	0.97	1.07	1.11	2.75	1.39	1.23	1.19	1.46	1.14	0.59	0.53	0.66	2.65	3.56	3.43	6.12	6.15	2.56	2.86	2.04	4.21	3.49	2.83	3.02	57.01

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Summer—seventh week, Aug. 3 to 10]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	404	415	415	417	413	420	418	420	420	424	421	420	417	424	412	409	410	397	404	401	404	399	401	406	9,891
T	20	20	19	17	23	18	21	18	19	15	16	19	21	18	22	22	20	24	24	19	19	29	25	26	494
0.01	5	6	4	4	3	4	4	6	5	5	6	6	7	3	4	4	8	7	4	11	13	7	8	6	140
0.02	3	3	1	2	4	2	4	1	2	4	3	2	3	3	2	6	1	5	3	6	5	4	5		74
0.03	6	2	3	1	1	2	1	4	1		2	3	1	1	4	1	1	3	3		1	4	3	2	50
0.04	2	1	3	2	1	2		1	1	1	2		1	2	2	1	1	1	3	3	3	1	2	1	37
0.05	1	1	2	1	3	1	2		1				2			2	2	3	3	5	2			1	32
0.06	1	2	3	1	2	1			1	2				2	1	1	2	2	1	2		2	1		27
0.07	2	1		3	1		1	2			1	1			2	2	1	2	2		1		1	2	25
0.08	1		2		1		1				1		1			2	1		1	1		1		1	14
0.09	1			1	1	1	1	1	2							1								1	10
0.10		1		1		1						2	1			1		1	1	1	2			1	13
0.11	1		1	2				1	1			1	1	1	1	1		1			3	1			16
0.12					2											1		1		1	1	1	1		8
0.13															1		1						2		4
0.14			1	2					1	1								1						1	7
0.15						1	1					1	1											1	5
0.16	2	1					1			1					1										6
0.17	1							1		1					1			1				3	1		9
0.18				1															1				1		3
0.19			1			1													1						3
0.20	1							1	1		1							1						1	6
0.21	1					1											1			1					4
0.22					1							1							1		1	1			5
0.23																		1						1	2
0.24															1		1	1	1						4
0.25	1	1																		1					3
0.26	1																				1		1		3
0.27														1											1
0.28																								1	1
0.29																	1	1							2
0.30		1															1		1						3
>0.30 (actual amounts)	0.31 .98	0.38	0.96	0.44		0.84	0.49		1.42	0.42 .78	0.35 .54 .64			0.94	0.50 .54	0.35 .42	0.37 .39 .56 .73	0.64 .75 1.04	0.75 .77	0.34 .50 .75	0.82	0.37 .46 .63	0.31 .34 .48 .52	0.34 .44 .48 .50	42
Total frequency (hours)	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	10,944
Total amounts (inches)	3.60	1.65	2.11	1.82	1.15	1.91	1.29	0.95	2.32	1.96	2.14	0.94	0.74	1.64	2.33	1.88	3.76	4.74	3.49	3.33	2.24	2.93	3.12	3.38	55.42

[Summer—eighth week, Aug. 11 to 17]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	353	363	369	372	368	368	358	357	357	358	354	361	359	361	358	363	353	341	350	341	350	354	358	357	8,583
T	22	14	11	10	16	13	27	21	23	24	27	18	20	16	22	9	20	27	20	30	30	23	23	18	484
0.01	6	6	5	7	3	5	3	8	6	6	5	7	2	3	3	6	4	9	7	8	5	4	5	6	129
0.02	1	3	5	1	3	3	1	1	1	1		3	4	3	1	4	4	3	4	4	1	5	1	5	62
0.03	3	3	1	1	2	1	1	2	2	3	2	2		3	3	1	2	4	2	3	1		1	3	46
0.04	2	2		1	1			2		2	1		2	1	3	2	2	1	2		2	2			28
0.05	3	1		1		1	1	2	4	1	1				1	2	2	1	2		1				24
0.06	1		1	1	1	1	1	2		1	2	1	1	1	1		1	3	1	1				1	22
0.07						2	1		2	1							1		1			2		3	13
0.08		1	1			1	2	1	1				1	1	1			1		1			1		13
0.09	1		1											1	1	1				2				1	8
0.10			2	1					1		1	2		1			1	1		2	1	1	3		17
0.11		1	1		1	1	1	1	1				1	1		2		1	1		1		1		15
0.12		2	1							1		1						2			1				8
0.13				1	2	1	1				1	1	1			1			1			1			11
0.14																		1	1	1	1				4
0.15							1						1		1		1								4
0.16	1										2		1	1											5
0.17		1				1		1						1					1				1		6
0.18	2			1									1	1		1									6
0.19							1										1			1					3
0.20												1					1						1		3
0.21						1					1										1				3
0.22																1									1
0.23										1	1							1				1	1		5
0.24														1											1
0.25					1												2				1	1			5
0.26																									
0.27				1					1								1								3
0.28													1											1	2
0.29	1																								1
0.30														1						1					2
>0.30 (actual amounts)	0.35 .37 .82	0.58 .81	0.77	0.44	0.35			0.48			0.48	0.65 .68	0.31 .33 .69 .75	0.41 .50	0.33 .34 .48 .56	0.36 .56 .66 .80 .85 .93	0.42 .46 1.42	0.31 .34 .66	0.37 .48 .60 .69 1.01 1.55	0.41 .53 .90 1.57	0.66 .85 1.95	0.34 .41 .54 .67 .69	0.52 .65 1.02	0.35 .45 .78 1.15	59
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.90	2.33	1.61	1.39	1.22	1.09	1.00	1.30	1.04	0.78	1.79	2.23	3.41	2.62	2.40	5.35	4.20	2.75	5.77	4.81	4.62	3.72	3.38	3.62	65.33

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Summer—ninth week, Aug. 18 to 24]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	360	360	369	369	370	367	361	351	352	365	363	363	363	358	359	346	347	349	344	345	342	358	358	363	8,582
T	17	18	14	13	5	16	20	26	24	9	15	17	21	21	14	27	15	19	29	24	30	24	24	17	459
0.01	10	13	7	8	9	5	6	9	7	8	5	3	4	5	5	7	16	14	9	9	8	6	5	8	186
0.02	4	3	3		6	4		4	4	5	4	5	4	2	5	3	3	3	3	2	5	2	1	4	79
0.03	3	1	1	3	3	1	5	2	2		4	2	2		3	1	3		4	3	3	1	2	1	50
0.04	1	1		1	1	1		1	2	3	2	1			1	1	2	4	1	4	2	1		1	31
0.05	1				2	3	1	1		3		2	1	1	1	1	1	1		1	1		2		23
0.06	1			1								1		1		1	1		1	1	1			1	10
0.07		1	1				2	1		1	2	1		1	2		1		2		1	1	2		19
0.08	1	1	1								1		1								1	1		1	8
0.09				1			1			1				1		1		1		1					7
0.10									2		1			1	1	1					1	1	1	2	11
0.11														1		1	1	1			1		1		6
0.12							1		1						1	1	2								6
0.13					2	1							1										1		5
0.14			1		1	1								2					1	1					7
0.15				2						1					1						1	1			6
0.16																1		1	1						3
0.17			1														1								2
0.18															1	1	1								3
0.19									1	2				1		1									5
0.20			1																	1					2
0.21									1			1		1			1	1							5
0.22								1	2											1					4
0.23																									
0.24																									
0.25																1				1					2
0.26																				1					1
0.27														1											1
0.28															2								1		3
0.29							1											1		1					3
0.30																									
>0.30 (actual amounts)	0.51	1.39		0.40			0.31	0.36	0.36	0.36	0.35	0.31	0.37	0.62	0.31	0.40	0.36	0.32	0.33	0.43	1.18	0.48	0.49	0.55	47
								.40			.49	.34	.47	1.20	.63	.40	.41	.33	.34	.49		.58			
								.50				.54			2.47	.53	.42	.48	.43	1.61		.76			
																.55	.75	.49	.60						
																			.60						
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.01	1.80	0.82	1.06	0.84	0.62	1.21	1.87	1.81	1.50	1.49	1.86	1.28	3.34	4.99	3.39	3.42	2.89	2.97	4.47	2.29	2.39	1.48	1.12	49.92

[Summer—tenth week, Aug. 25 to 31]

0	360	360	355	358	362	357	354	353	354	360	358	357	364	359	359	357	355	352	340	346	341	345	346	351	8,503
T	15	18	21	16	16	23	26	26	26	22	26	22	20	15	19	21	20	19	30	22	27	22	25	23	520
0.01	7	6	5	7	3	8	6	7	4	7	5	7	4	4	6	7	7	7	13	10	8	10	7	10	165
0.02	3	5	5	6	5	2	3	3	5	1	2	3	2	7	2	3	7	8	4	2	4	1	5	3	91
0.03	6	2	1	4	4	2		2	3	3	1	1	3	4	3	1	3		4		3	2	1	2	55
0.04	1		1	2	2		2	2	3		1	1	1		2	1	1	3	1	2			1	2	29
0.05	2	1	1	1		1	1	1	1			1					1	2	1	2	1	3	1		21
0.06	1		2	1	2	1	1					3			1	1	1	3				1	4	2	24
0.07	1		1			1	1	3					2			1			2			1		1	14
0.08	1			2						2				1	1	1			2	1	1	1	1		14
0.09				2	1		2							1		1			3	4	2	1			17
0.10					1	2							1				1		1	2		1			9
0.11		2	1			1								1	1	1	1	1		1		1			11
0.12							1				1	1		1		1				1	1				7
0.13									1	1	1														3
0.14		2			2			1		1		1	1	1										1	10
0.15			1											1				1		2					5
0.16			1												1										2
0.17			1				1	1			1									1					5
0.18																				1			1		2
0.19																		1			1				2
0.20																						2			2
0.21									1	1				1							1		1		5
0.22					1		1												2						4
0.23									1																1
0.24																1			1					1	3
0.25																								1	1
0.26													1				1								2
0.27																						1			1
0.28		1																			1	1			3
0.29												1													1
0.30	1													1					1						3
>0.30 (actual amounts)	0.40	0.46	0.31			0.89				0.72	0.36	0.58		0.62	0.34	0.49	0.40	0.47	0.33	0.54	0.43	0.31	0.32	0.33	41
		.59	.41								.85			1.00	.42	.51		.55	.70	1.22	.50	.34	.60		
			.43								1.11				.54					1.28	.52	.42	1.06		
															.98							.43			
																						.82			
																						.87			
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.36	2.10	2.20	0.84	1.14	1.56	1.07	0.84	0.97	1.54	2.90	1.56	0.85	3.12	2.96	1.97	1.32	2.10	2.43	4.68	3.30	4.98	3.28	1.53	50.60

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Summer—eleventh week, Sept. 1 to 7]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	355	358	366	369	369	352	353	355	366	363	367	365	364	365	362	358	354	355	358	351	355	363	361	361	8,645
T	24	22	11	11	7	24	24	22	21	21	16	15	19	15	20	17	18	14	17	24	22	14	18	21	437
0.01	8	7	8	9	7	6	9	7	3	4	2	3	6	6	1	5	3	4	6	4	2	5	5	4	124
0.02	1	1	4	3	3	5	3	4	3	3	1		4	1	1	4	6	10	1	1	2	2	4	3	70
0.03	3	1	2	2	3	4	3	3		4	2	3	2	3		1	1	3	1	1	3	2	2	1	50
0.04	1		1	1	1				1		2	1	1	2	2	2		3	3	1		2	1	1	26
0.05		1			1	1		2				1	1	1	2			1	1		4	1	1	1	19
0.06	3			1	2		1	1			3	1		1		1			4	2		1	1		22
0.07					2					1	4	2					2			3	1	1			16
0.08	1		2			1	1			1		1	1		1	1		2	1	2				1	16
0.09					1		1		1			2					1			1	1				8
0.10		3		1		2		1				1		1	1						1		1	1	13
0.11							1	1										1		2				1	6
0.12		2							1						1		2	1				1			8
0.13			1								1				2	1					1				6
0.14								1						1		1	2				1				6
0.15		1													1		3		1			1			7
0.16						2									1				1				1		5
0.17															1	1	2		1			1			6
0.18				1			1		1				1												4
0.19			1									1								1	1		1		5
0.20										1							1	1							3
0.21														1					1						2
0.22		1														2						1			4
0.23					1											1									2
0.24	1															1									2
0.25																			1			1		1	3
0.26																							1		1
0.27											1													1	2
0.28			1		1					1										1					4
0.29			1																		1				2
0.30				1																					1
>0.30 (actual amounts)	0.53 .64	0.38 .64	0.32		0.71 1.35	0.75 1.98	0.65 .81	0.48 .57	0.45			0.47 .50 .50		0.37 .40	0.57 .88 1.39	0.35 .50 .59	0.37 .38 .74 .86	0.39 .40 .48 1.25	0.33 .92	0.39 .61 .71 1.34 2.73	0.32 .34 .44 1.06	0.40 .40 1.58	0.50 .71	0.37 .60	51
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.90	2.10	1.63	0.89	1.88	3.03	3.39	2.04	1.54	0.85	1.04	2.43	0.55	1.58	4.09	3.17	4.27	3.61	2.79	7.18	3.52	3.70	2.26	2.00	61.44

[Summer—twelfth week, Sept. 8 to 14]

0	368	369	369	367	370	366	365	367	369	367	369	374	369	369	365	367	362	358	361	361	359	360	362	361	8,774
T	14	11	14	16	13	16	18	15	14	15	16	11	11	13	16	17	15	18	15	20	22	18	15	16	369
0.01	5	9	6	5	8	6	6	4	4	5	6	4	6	7	7	3	6	6	5	4	4	7	10	11	144
0.02	2	3	1		2	4	3	2		6	3	4	2	2	2	3	2	2	4	6	5	5	4	3	70
0.03		1	2	1	1				2	1		2	3		1	3	2	2	3	1	3	2	1	4	35
0.04	2	1		2	1	1	1	2	2		2	2		2			1	3	3	1	2		1		29
0.05				1			2	1		1		1	2		1			2		1	1		2		15
0.06	1			1				1		1	1				1	3	1	1	1		1	1		1	15
0.07			2	2		1		1		1				2		1	3		2	1					16
0.08				1	1			1								1	2	1	1			1	1		10
0.09	2	1				1			3					1	1						1				10
0.10						1	1				1													1	4
0.11		1						1		1	1		1								1	1			7
0.12	1	1						1	1				1									1			6
0.13		1													2			1							4
0.14	1				1	1	1		1								1		1	1		1	1		10
0.15			1	1											1			1							4
0.16													1	1			1								3
0.17	1				1																				2
0.18					1											1									2
0.19			1				1																		2
0.20				1					1				1												3
0.21							1										1								2
0.22															1										1
0.23													1												1
0.24			1				1																		2
0.25																									
0.26		1				1								1											3
0.27								1																1	2
0.28																							1		1
0.29																	1								1
0.30																									
>0.30 (actual amounts)	0.44 1.10		0.39 .80	0.45		0.51		0.80	0.40 .46	0.37		0.87	0.52	3.01	0.37		0.39	0.32 .40 .49 .51	0.42 .45 .46	0.33 .66 1.82		0.63 1.33	0.78	0.38	29
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.38	0.93	2.05	1.29	0.76	1.35	0.90	1.96	1.77	0.86	0.47	1.18	1.63	3.85	1.34	0.69	1.82	2.52	2.09	3.30	0.62	2.70	1.63	1.10	39.19

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Summer—thirteenth week, Sept. 15 to 21]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	365	355	351	355	356	348	349	347	350	358	356	360	367	363	361	359	356	355	347	344	349	351	360	362	8,524
T	14	22	25	20	18	23	27	26	27	17	23	19	15	19	18	18	19	15	25	26	18	22	17	15	488
0.01	4	9	7	4	4	13	7	7	3	8	5	6	3	4	7	7	7	12	9	7	11	3	6	8	161
0.02	8	3	5	5	7	3	4	3	5	5	1	3	1	2	3	2	2	3	4	2	3	5	3	5	87
0.03	3		2	2	2	3	2	4	2	3	2	1	3	3	3	2		2	1	5		6	2	1	54
0.04		2	1	2	3	2	2	1	2	2				2		3			2	2	6	2	3	1	38
0.05		1	2	3	2	1	1	3	2	2	2	2			1		1	2	2	2		3	1	3	36
0.06	1		1	1		2			3		1			1	1		2	2	2	1	1		2	1	22
0.07	1		1		1		2				1	2	2	1	1	2	3		2	1	1	1	1	1	24
0.08	1		1			2	1	2	2		1			1		1			1		1			1	15
0.09							1						1	1	1		2				1	1	1		9
0.10	1			1	2					1		2				1		1		2	1				12
0.11		1						1			1	1			1										5
0.12		2		1	1			1		2							1	1		3	2	1			15
0.13				1	1			1								1	1								5
0.14		1			2		1	1					1								1				7
0.15																	1		1	1	1		1		5
0.16		1				1									1				1						4
0.17				1			1		1		1					1									5
0.18							1				2			1				1							5
0.19		1											1					1							3
0.20				1						1	1			1											4
0.21						1					2		1					1							5
0.22								1					1						1						3
0.23								1													1				2
0.24																									
0.25	1																1			1		1	1		5
0.26																									
0.27									1																1
0.28																									
0.29			2	1								1													4
0.30																						1	1		2
>0.30 (actual amounts)		0.69	0.39	0.54					0.58			0.55	0.32		0.39	0.72	0.34	0.40	0.35	0.81	0.37	0.47	0.83		26
												.96	.46			.80	.47	.54	.43	.82	.39				
													.87				.50	.60							
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	0.85	1.81	1.55	2.04	1.26	1.06	1.14	1.55	1.73	0.99	1.70	2.50	2.78	0.93	1.15	2.43	2.63	2.80	1.88	3.16	2.33	1.99	2.01	0.76	43.03

[Autumn—first week, Sept. 22 to 28]

0	363	368	371	370	366	366	362	359	356	358	362	366	366	367	369	368	369	363	360	359	365	362	366	361	8,742
T	12	14	12	16	20	18	17	17	22	20	18	14	15	15	12	13	12	13	19	18	12	11	11	17	368
0.01	10	6	5	4	3	6	5	8	3	7	7	4	9	3	6	3	2	5	4	4	1	10	6	7	128
0.02	1	2	1	3	3	2	6	2	4	4	2	3	2	5	2	4	4	2	1	3	3	2	2	3	66
0.03		2	1		2	1	1	1	3	4	2	1		1	4	3	2	3	1	1	3	1	2	2	41
0.04	4		1	1			2	3	3		1	1				2	3	1	4	2	5	4	1	1	39
0.05	1		1		1	1	2	1	3		2	1	1		1			1					2		18
0.06			1	2	1	1	3					1	1	3	2	1	1	2	1	1	2	1	3	1	28
0.07	1	1	1			2		1	1			2		1			1	2	1	3					17
0.08	1				1			1	1	2							1	1	2	3	1	1	1	1	17
0.09	1		1	1	1					1		1	2		1	1								1	11
0.10		2		1				2			2			1						1	1	1			11
0.11	1	1			1	2		1									1		1					1	9
0.12	1							1	1	1								1					1	1	7
0.13			1	1							1						1	1	1			1		1	8
0.14			1							1															2
0.15	1							1	1	1					1	1		2							8
0.16												1													1
0.17																							1		1
0.18																					1	1			2
0.19									1														1		2
0.20		1												1											2
0.21		1						1											1						3
0.22		1																1							2
0.23																							1		1
0.24													1								1	1			3
0.25																									
0.26																									
0.27																									
0.28												1								1					2
0.29							1										1		1					1	4
0.30																									
>0.30 (actual amounts)	0.43		0.36								0.43	0.33	0.65	0.39	0.46	0.42	1.11	0.41	0.38	0.44	0.32	0.31	0.47	0.32	33
	.50		.39								.63	.46	.83	.57		.58			.39	.46	.38	.33			
												.57				1.53				.63	.49	.45			
																					.87				
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.88	1.17	1.43	0.58	0.54	0.60	0.85	1.26	1.08	0.93	1.70	2.31	2.14	1.67	1.09	3.11	2.13	1.79	2.05	2.63	3.14	2.21	1.74	1.43	39.46

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Autumn—second week, Sept. 29 to Oct. 5]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	351	354	346	352	353	352	350	341	343	345	354	350	350	346	349	350	353	347	349	347	352	359	352	353	8,398
T	24	21	28	15	15	18	22	29	28	24	19	23	23	27	22	20	24	24	20	23	19	17	23	17	525
0.01	4	8	11	11	11	7	8	10	8	12	6	9	6	6	7	10	4	6	12	9	6	5	7	8	191
0.02	4	2	3	5	3	11	4	3	4	3	3	3	3	3	5	4	4	3	3	1	4	2	4	4	88
0.03	4	2		3	4	3	6	3	5	1	2	3	3	2	4	1	2	5	1	1		3	2	3	63
0.04	2	3	2	1				1	1	1	3	1	3	4	3	5	3	2		2		1	2	1	41
0.05	2		1	2	1	2		2		1	2		1	1	2		2	1	1	3	5		1	3	33
0.06	1	2		3	1			3		2		1	1	2	2	1		1	3	1	1		1	1	27
0.07	1	2	2	1	2	1		1	1	1	2	1	1	3		2	1		1	2	3	1			29
0.08			2	2	2				1	1	3	1	1				2	1	1			2		2	21
0.09	1				1	1			1	1	1		1	2	2			1		2	2	1			17
0.10	2		1	1							1	2					1	3	3	2	2			2	20
0.11					1		2	1				1			1	1					1	2		1	11
0.12	1					1	1								1	1		1		1					7
0.13		1		1	1		1		1			1	2			1		1					1		11
0.14	1				1		1			1								1		2		2			9
0.15						1	2	1				1		1					1				1	1	9
0.16						1		2		1		1							1						6
0.17													1		1	1	1		1						5
0.18									1									1					1		3
0.19														1							1				2
0.20			1	1			1																		3
0.21	1							1			1									1		1			5
0.22		1								1						1									3
0.23									2				1				1								4
0.24					1								1												2
0.25					1																		1	1	3
0.26			1							1	1														3
0.27		1					1					1		1											4
0.28								1											1	1				1	4
0.29				1																	1				2
0.30			1							1			1												3
>0.30 (actual amounts)		0.37 .51			0.31	0.38			0.34 .45 .49	0.42 .57	0.40					0.36	0.71	0.38	0.54	0.84	0.61 .77	0.37 .48 .85	0.44 .55 1.14	0.32	24
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.31	2.06	1.46	1.57	1.97	1.45	1.72	1.71	2.64	2.73	1.84	1.51	1.88	1.51	1.21	1.72	1.84	1.88	2.19	2.68	3.01	2.95	3.24	1.97	48.05

[Autumn—third week, Oct. 6 to 12]

0	366	366	366	362	361	365	364	362	354	354	362	369	368	372	370	373	367	363	361	362	361	364	361	362	8,735
T	12	13	18	21	19	13	15	21	24	25	11	5	12	8	12	18	20	19	21	16	22	15	18	16	394
0.01	7	7	6	6	9	7	8	6	5	2	5	4	2	3	3	1	4	7	4	6	5	6	5	7	125
0.02	3	3	2	5	2	4	2	1	3	3	5		1	6	5		1	1	4	1	2	3	5	3	65
0.03	1				1	2		1	4	1	3	3	3	4	4	1	2	2		5		2	2	2	43
0.04			3		2	2		2		1	2	3	2	2			1	2	1	1	2	2	1	1	30
0.05	3	1			2	4		1	2	1		2	1	1	2	2			2	1		1		1	27
0.06	1	1							2	2	3	5	3	1	1		1	1	1	2	1	1	1		27
0.07		1					3	1	1		1		1			1						3		2	14
0.08	2									3		1	2				1	1		1	1	1	2		15
0.09				2		1			1	1	1	2	1		1						2		1	1	14
0.10			1		2					1								1							5
0.11				2	1					1		1	1		1	1				1	1				10
0.12	1	1		1			1		1	1		1				1								1	9
0.13	1	1									2	1				1		1	1	1	1				10
0.14			1				1					1	1	1					1					1	7
0.15		1	1					1			1						1						1		6
0.16										1								1							2
0.17							2							1									1		4
0.18									1		2	1													4
0.19			1																				1		2
0.20							1	1														1			3
0.21								1		1															2
0.22		1																	1						2
0.23		1																							1
0.24																	1								1
0.25																					1				1
0.26							1																		1
0.27																								1	1
0.28																									
0.29						1													1						2
0.30							1																		1
>0.30 (actual amounts)	0.31 .36	0.31 .50						0.43	0.45	0.34	0.37		0.48						0.31	0.37 .85				0.34	13
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.45	1.97	0.80	0.68	0.65	0.87	1.69	1.30	1.36	1.69	1.80	1.59	1.49	0.77	0.61	0.57	0.69	0.76	1.41	1.98	0.98	0.86	1.07	1.38	28.42

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

Autumn—fourth week, Oct. 13 to 19

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	354	355	355	356	355	347	342	337	340	350	347	351	356	351	354	349	346	344	347	345	352	355	355	357	8,401
T	24	19	16	13	14	26	27	31	35	26	24	26	19	24	21	20	21	26	24	23	14	18	19	18	528
0.01	3	9	7	13	12	6	10	11	10	7	8	6	8	7	8	10	8	8	5	11	10	8	9	7	201
0.02	4	----	4	3	4	7	2	12	2	3	3	3	3	4	3	4	4	5	5	5	4	2	4	3	93
0.03	1	1	3	2	9	3	5	2	3	4	3	1	4	3	4	1	6	2	3	2	2	6	2	1	73
0.04	4	3	3	1	----	4	3	1	2	2	4	----	1	3	1	3	2	1	1	----	3	2	2	2	48
0.05	1	----	2	1	----	----	2	1	1	1	----	2	1	1	4	3	1	----	1	1	4	3	1	3	31
0.06	----	----	1	3	1	----	3	----	1	1	3	1	2	1	1	2	1	2	1	2	3	1	----	1	31
0.07	----	1	2	2	----	----	----	----	----	----	----	1	1	----	----	----	1	2	2	----	----	1	2	2	17
0.08	2	----	1	1	----	1	----	----	----	----	----	1	----	----	----	----	2	2	----	1	----	----	----	1	12
0.09	----	----	1	----	3	----	----	----	----	----	2	----	----	2	----	----	1	1	3	2	1	1	----	1	18
0.10	----	1	----	1	----	----	----	----	----	1	1	1	1	1	----	----	----	2	----	1	1	1	1	----	13
0.11	----	1	1	----	----	----	----	----	2	----	----	----	1	1	----	1	1	2	----	----	----	1	1	----	12
0.12	1	----	----	1	----	1	----	----	----	1	----	1	----	----	----	----	----	----	1	1	----	----	----	----	7
0.13	----	1	----	----	----	----	2	1	1	----	----	----	1	1	----	1	----	----	2	----	----	----	----	----	10
0.14	----	1	----	----	----	----	----	----	----	----	----	1	----	----	1	3	----	----	----	----	1	----	1	----	8
0.15	1	1	----	----	----	----	----	----	----	1	----	----	----	----	1	----	2	----	----	1	----	----	----	----	7
0.16	----	----	----	----	----	1	1	----	----	1	1	----	----	----	----	----	----	----	1	----	----	1	----	----	6
0.17	----	----	----	----	----	1	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	1	3
0.18	----	2	1	----	----	----	----	----	1	----	----	1	1	----	----	----	----	----	1	----	----	----	1	1	9
0.19	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	1	----	----	----	2
0.20	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1
0.21	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	1	----	3
0.22	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	1	1	1	1	----	1	----	----	----	6
0.23	----	1	----	1	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	1	----	----	4
0.24	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
0.25	1	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2
0.26	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	2
0.27	----	----	----	----	----	1	----	----	1	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	4
0.28	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
0.29	----	----	1	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2
0.30	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1
>0.30 (actual amounts)	0.36 .77	0.34 .36 .36	2.29				0.45	0.44 .47			0.63	0.32 .63					0.35	0.35	0.38	0.31 .55 1.54	0.65 .75	0.40		0.39	22
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.46	2.59	3.70	1.45	1.09	1.45	1.77	1.79	1.22	1.24	2.14	2.12	1.06	0.99	1.07	1.67	2.04	1.78	2.12	3.73	2.88	1.60	1.24	1.50	44.70

Autumn—fifth week, Oct. 20 to 26

0	359	359	356	356	359	353	355	349	347	349	347	355	359	358	355	358	352	354	355	350	356	355	357	353	8,506
T	23	14	18	16	10	16	14	20	29	27	25	12	16	14	20	16	19	14	18	27	16	20	16	19	439
0.01	2	10	10	6	7	10	10	9	7	6	8	10	9	5	5	6	7	7	13	5	11	3	8	5	179
0.02	----	2	1	3	----	6	6	3	3	3	3	4	4	6	4	7	6	10	----	6	2	7	4	6	96
0.03	----	4	3	4	7	4	----	1	2	3	1	4	1	1	4	1	4	1	1	2	2	3	3	5	61
0.04	3	1	2	2	3	1	2	3	2	3	2	5	3	5	3	2	3	1	2	2	1	----	1	----	52
0.05	1	----	----	2	1	1	1	----	1	2	1	2	2	3	1	----	----	1	1	----	----	2	----	1	23
0.06	2	1	----	2	2	1	1	4	1	----	1	----	1	2	----	----	----	1	----	1	3	2	----	3	28
0.07	----	2	----	1	1	3	----	2	----	----	----	----	----	----	2	3	----	3	----	1	1	----	1	1	21
0.08	1	----	3	1	3	----	5	----	1	2	3	2	----	----	1	1	1	3	----	----	1	1	3	----	32
0.09	----	----	1	----	2	----	----	----	----	----	1	----	1	----	----	----	2	----	3	----	----	----	----	2	12
0.10	1	2	----	1	----	2	----	----	----	2	----	1	----	1	1	2	----	----	2	----	2	----	----	----	17
0.11	2	----	1	----	----	----	1	1	----	----	1	----	1	----	----	----	----	----	----	1	----	----	----	----	8
0.12	1	----	----	----	1	----	----	----	1	----	1	----	----	1	----	1	----	----	----	1	----	----	----	----	7
0.13	----	1	1	1	----	----	1	----	----	----	1	----	----	----	1	----	1	1	----	----	----	----	----	----	8
0.14	----	----	----	----	----	1	1	1	----	----	1	1	1	----	----	1	----	1	2	1	----	----	----	----	11
0.15	2	----	----	1	1	----	----	----	1	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	6
0.16	----	----	----	----	----	----	----	2	----	----	----	----	----	1	----	----	1	----	1	----	1	----	----	----	6
0.17	----	----	----	----	----	----	----	----	1	----	----	----	----	----	1	----	1	----	1	1	----	----	----	----	5
0.18	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	1	3
0.19	1	----	1	----	----	----	----	1	----	----	----	----	1	1	----	----	1	----	----	----	1	----	1	----	8
0.20	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	2
0.21	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	1	----	----	----	1	----	----	3
0.22	----	----	1	----	----	----	----	1	----	----	----	1	----	----	----	----	----	----	----	----	1	----	----	----	4
0.23	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1
0.24	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
0.25	----	----	----	1	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	1	----	----	3
0.26	----	----	----	1	----	----	1	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	3
0.27	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
0.28	----	----	----	----	----	----	----	----	----	1	----	1	----	----	----	----	----	----	----	----	----	----	1	----	3
0.29	----	----	----	----	1	----	----	----	1	----	1	----	----	----	----	----	----	----	----	----	----	----	1	----	4
0.30	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
>0.30 (actual amounts)	0.51	0.33	0.45	0.42	0.71	0.33	----	0.43	0.51 .64	0.37	0.38 .58	----	----	0.37	0.36	0.32	0.36	----	----	----	0.35	0.46 10.3	0.34 .36 .38	0.31 .36 .54	25
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.83	1.57	1.72	2.00	2.33	1.37	1.65	2.30	2.34	1.44	2.44	1.75	1.01	1.61	1.40	1.38	1.70	1.64	1.37	1.13	1.70	2.89	2.44	2.19	43.20

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Autumn—sixth week, Oct. 27 to Nov. 2]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	363	363	362	363	363	360	362	361	352	359	358	359	360	359	359	358	359	363	353	356	357	362	360	365	8,636
T	11	11	16	12	11	15	18	18	24	15	15	18	13	17	20	16	20	15	20	21	19	13	19	18	395
0.01	6	8	4	5	10	12	6	7	8	8	6	4	11	8	8	8	5	8	10	7	7	7	6	2	171
0.02	4	3	5	5	4	4	3	4	3	5	4	2	5	6	2	5	3	1	3	5	4	3	4	3	90
0.03	2		3	4		1	4	4		2	1	1	1	3				2	2	3	3	2	1	1	40
0.04			1		1	1	2	1	3	3	3	4	1	2	3	1	2	3	3		2	1			37
0.05	1	2	2	1	2	1			1		3	2	3			1	2	1	1	1	2	2	2	1	31
0.06	1	1		1	2	2	2	1			3	3			2	2	3	1	1	1	1		3	2	32
0.07		3	1	1	3			1	2	3			1	1		1	1	4	1					3	26
0.08	2	1		2		1					2	1	2			1	1		1	1		4	2		21
0.09	3	1			2	1									1	1					1			1	11
0.10	1									1		1				1						1		1	6
0.11				1	1					2	2	2				1		1							10
0.12	2			1								1		1		1	1		1						8
0.13		1	1	1								1							1					1	6
0.14	1			1									1												3
0.15	1						1				1			1							1				5
0.16									1						1				1			1			4
0.17		1	1	1			1							1	1										6
0.18		1									1											1	1		4
0.19																									
0.20			1			1									1										3
0.21									1																1
0.22		1											1			1			1	1	1	1			7
0.23									2																2
0.24															1		1								2
0.25		1							1																2
0.26	1																				1				2
0.27																						1			1
0.28																									
0.29			1																	1					2
0.30									1																1
>0.30 (actual amounts)		0.44	0.39					0.32		0.45						0.32	0.71			0.36			0.33	0.31	11
								.56												.49					
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.63	2.07	1.62	1.28	0.94	0.81	0.76	1.32	1.83	1.34	1.33	1.20	1.02	0.88	1.22	1.50	1.69	0.78	1.23	1.81	1.20	1.58	1.12	1.12	31.2

[Autumn—seventh week, Nov. 3 to 9]

0	348	352	352	357	355	355	353	349	348	359	361	362	359	356	360	361	356	351	351	347	348	354	352	350	8,496
T	24	18	20	18	22	22	20	23	23	16	13	12	18	19	20	20	20	22	25	29	24	24	20	21	493
0.01	16	11	10	10	8	7	9	8	6	7	7	8	6	9	2	6	7	10	4	6	8	7	11	8	191
0.02	3	5	3	6	3	5	4	3	9	5	4	2	4	1	3	2	5	6	2	4	5	2	5	7	98
0.03	1	2	3	1	8	3	5	3	1	1	3	3	2	2	5	2	3	1	4	3	2	1	4		63
0.04	2	3	1			2		1	1	4	5	1	1	2	2	1		1	3	3	1	5	3	3	45
0.05		1	2	3		1	1	1	2	1	1	2			4	2	1	1	2	1	2	1		2	31
0.06	1	4	2				1	4		1	2			2	2			1	1	1		1			23
0.07	2	1		1		1	1	2	1	1		2	1	1			1	1	1		3	1		1	22
0.08		1		1	1				2		2	1	1	2			1	1			3			2	18
0.09	1					1	1		2			1		2				1				1			10
0.10			1				1	1		2			1	1				1		1			1		10
0.11			1					1	1	1						1			1				1	2	9
0.12		1	1		1		1	2				1				1		1						1	10
0.13																1									1
0.14							1				1	1	2	1			1		1						8
0.15			1					1													1	1	1	1	6
0.16									1			1					1	1		1					5
0.17										1		1					2		1						5
0.18						1			1					1					1					1	5
0.19			2										1								1	1	1		6
0.20													2												2
0.21	1				1																				2
0.22																									
0.23																									
0.24							1																		1
0.25				1												1	1								3
0.26																									
0.27																				1					1
0.28																									
0.29						1			1																2
0.30																									
>0.30 (actual amounts)				0.41								0.31	0.45		0.74	0.42			0.33	0.37	0.47				10
																			1.39	.63					
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	0.83	0.95	1.37	1.21	0.79	1.02	1.19	1.30	1.56	1.02	0.91	1.56	1.81	1.20	1.37	1.33	1.35	1.02	2.87	2.00	1.64	0.95	1.00	1.34	31.59

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Autumn—eighth week, Nov. 10 to 16]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	349	353	346	348	343	342	348	346	346	349	350	345	341	343	343	345	346	346	346	344	346	350	351	345	8,311
T	22	17	21	19	26	23	20	22	30	21	19	22	27	21	23	23	21	31	26	32	24	24	23	27	564
0.01	9	10	7	12	13	15	14	11	5	8	6	9	7	12	8	9	10	9	10	9	9	4	5	8	219
0.02	8	4	12	10	4	4	5	8	1	2	4	4	5	5	4	7	4	2	5	2	3	5	6	5	119
0.03	1	4	2		5	4	1	1	1	3	4	4	2	1	6	4	7	1	2	4	2	2	5	1	67
0.04	2	4	2	3	2	1	3	3	3		3	4	3	4		3			1		2	2	2	3	50
0.05	1	1	3	1	3	2		3	1	1		1	5	2	2	2		1	1	1	1	2		4	38
0.06		1		2	1	3	1		3	4	4	1		1	1				1	1	4	1	2	1	32
0.07	1	1		1			3	1	2	1	1	1	3	2	3		1		1	1	2	2	2	1	30
0.08	1		2	1		2		2	1	2	2	1	2		1		3	2		1				1	24
0.09	3			1			1		3	1				1			1		1		1	1			14
0.10							1					1	1	2			2						1	1	9
0.11						1				1		1		1	2		1	2			1	1			11
0.12	1									1	1	2		1		1			2	1	1				11
0.13	1	1							1	1				1	1	2	1			1					10
0.14			2						1		1	1			1			1							7
0.15		1									1							1				1			4
0.16															1	1	1	2		1	1			1	8
0.17																						2			2
0.18										1	1											1			3
0.19							1		1		1							1							4
0.20								1				1	2	1								1			6
0.21								1		2									1		1			1	6
0.22						1									1										2
0.23														1											1
0.24			1																						1
0.25																							1		1
0.26					1		1														1		1		4
0.27																									
0.28																									
0.29		1																							1
0.30																									
>0.30 (actual amounts)		0.35	0.44	0.33	0.31	0.38				0.49	0.31	0.36	0.56		0.45 .69	0.32 .59	0.43		0.33 .37	0.43					17
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.08	1.56	1.72	1.18	1.22	1.54	1.30	1.21	1.40	2.27	1.94	1.86	2.03	1.79	2.80	2.02	1.82	1.39	1.72	1.35	1.67	1.65	1.27	1.21	39.00

[Autumn—ninth week, Nov. 17 to 23]

0	360	360	360	359	361	359	358	354	357	364	361	356	361	357	349	357	354	350	349	351	354	359	359	364	8,573
T	14	12	15	12	14	15	12	22	22	15	19	25	16	18	25	17	24	26	33	27	20	21	19	15	458
0.01	7	11	9	9	7	7	8	10	4	7	7		6	6	11	10	8	8	5	5	11	9	3	6	174
0.02	2	4	1	7	7	3	4	4	6	6	3	6	5	6	4	4	2	4	3	3	4	1	6	2	97
0.03	3	3	2	2	2	1	3		4	2	1	1	2	1	3	4	2	3	1	3	2		3	2	50
0.04	2		2			1	3	3	1	2	2	3	2	1	3		1		1	1	2	1			31
0.05	2	2		1	1	1			2		1	2	2	2	1		1	1		1				3	23
0.06	2				1	2	1	1	1					1	1	1	1			1	1	1	3	1	19
0.07		1	2	2	1		3					2	2			3	2			1		1		3	23
0.08	1		2	1	1	1		1				1		1			1	2		1			2	2	17
0.09		1		1			1											1	1		1	1			7
0.10	1		1			2	1	1		1						1			1		1				10
0.11		2			1	1		2	1	1				1	1				1	3		1			15
0.12	1	1	1	1	1		3	1			1		1	3		1	1		1	1					18
0.13	2		1	1		1						1				1			1						8
0.14				1		2						1	1					1	1		1		1		9
0.15			2	1		1								1							1	2			8
0.16																		1				1	2		4
0.17		1					2																1		4
0.18					1	1					1				1										4
0.19			1											1						1				1	4
0.20						1																1			2
0.21				1																					1
0.22																									
0.23									1		1														2
0.24											1										1				2
0.25		1								1								1							3
0.26																			1						1
0.27																		1							1
0.28																									
0.29					1																				1
0.30																									
>0.30 (actual amounts)	0.33 .42										0.36	0.36	0.40				0.34 .45								7
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.81	1.30	1.39	1.40	1.23	1.70	1.53	0.88	0.82	0.79	1.42	1.22	1.20	1.30	0.80	0.92	1.46	1.37	1.13	1.14	1.11	1.14	1.21	0.93	29.20

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Autumn—tenth week, Nov. 24 to 30]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	347	354	351	351	355	346	344	340	340	344	351	348	343	350	351	346	345	343	350	342	337	348	343	349	8,318
T	20	12	16	19	18	24	25	26	32	30	26	28	29	21	20	24	18	22	15	31	29	27	24	17	553
0.01	8	12	8	15	11	14	16	18	13	11	10	7	7	5	5	9	14	9	11	8	16	7	6	8	248
0.02	6	6	8	3	4	4	2	3	6	4	3	4	4	5	5	10	7	5	8	5	2	3	6	8	121
0.03	5	2	5	2	4	2	2	1	2	3	1	1	3	2	3	2	4	4	1	2	4	1	5	5	66
0.04	2	4		2		2	1	2	1	1	2	2	4	3	3	1	2	3	4	3	3	1	5	3	54
0.05	1	4	2	3		2	3	1	2					4	2	1	2	3	3	1	2	2	1	2	41
0.06	1		1	2	3	2		3	1	1	1			1	3	2	1	4			1	2	2		31
0.07	3		1	1	3				1		1	1	1	3			2		3	1	3	1	1	1	27
0.08		1	3			2	1	1				2	2	1	1	2	1	3		1		1	1	2	25
0.09	1						1						1		1		1		2	2	1			2	12
0.10	2		1	1				2		1			2									2	2		13
0.11					1		1			1	1	2		2				1						1	10
0.12		1						1		3	1		2		1		1		1			1	1		13
0.13							1					1	1	1				1							5
0.14			1								1	1			2	1									6
0.15						1						1										1			3
0.16		1					1										1						1		4
0.17									1							1							1		3
0.18			1																	1					2
0.19		1	1																1						3
0.20														1											1
0.21															1					1					2
0.22		1					1														1	1			4
0.23																									
0.24																						1		1	2
0.25															1										1
0.26																									
0.27																									
0.28																									
0.29																									
0.30																									
>0.30 (actual amounts)	0.33 .36 .65							0.33			0.62	0.32						0.35		0.35					8
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.38	1.43	1.47	0.79	0.81	0.89	1.24	1.31	0.75	0.95	1.39	1.45	1.29	1.43	1.67	1.03	1.23	1.65	1.31	1.48	1.22	1.50	1.50	1.37	31.44

[Autumn—eleventh week, Dec. 1 to 7]

0	341	346	347	346	343	341	340	338	335	337	337	339	344	343	347	341	337	334	341	347	346	345	345	343	8,203
T	25	22	19	21	24	23	28	25	28	27	22	18	22	19	24	22	21	27	24	24	26	22	21	22	556
0.01	7	9	9	9	8	9	7	14	13	7	12	15	6	8	5	12	13	11	12	8	7	11	10	12	234
0.02	4	4	6	6	8	10	6	4	8	9	4	5	2	7	4	4	6	6	3	5	3	2	6	5	127
0.03	5	5	4	3	4	4	2	4	2	8	9	5	4	5	2	5	6	3	3	3	4	4	2	4	100
0.04		1	3	3	4	5	2	2	2	1	4	5	3	2	5	3	4	2	1	1	1	2	2	4	62
0.05	2	1	3	1	2	2	3	2	4	1	2	2	3		2	6	3	4	2	2	2	2	3	2	56
0.06		2				1	3	2	1	1	1	6	5	5	3	3	3	1	2	1	2	2	1	1	46
0.07	2	2		1	2	1			1	2			1	2	2		1	2	1	3	1	3	2		29
0.08	1	1	1	2		1	2		1	3		1	4	1		1	2	2	1	1	1	1	2	2	31
0.09	4		2	3	1			1			2			1	3			2	1				1	1	22
0.10	2										1			2	1		1		1	1		1		1	11
0.11	1	1	1				2				1				1	1				1	1	1	1		12
0.12	1	1		1			2		1			1	1				1	1	1		1	1	1	2	16
0.13	1	1											1					1	3		2		1		10
0.14			1			1	1				1	1	2	2			1	1				1			12
0.15			1		1		1	1								1			1						6
0.16	1	1								1	1										1				5
0.17								1						1					1						3
0.18																		1	1						2
0.19	1					1																1			3
0.20			1	1				1										1							4
0.21	1	1											1												3
0.22					1			1												1					3
0.23		1							1	1															3
0.24								2																	2
0.25									1					1											2
0.26																			1						1
0.27																									
0.28					1																				1
0.29																									
0.30				1					1		1														3
>0.30 (actual amounts)			0.34	0.35				0.50		0.31	0.58	0.32									0.39		0.38		8
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.10	1.71	1.80	1.94	1.50	1.25	1.57	2.45	1.74	1.72	2.36	1.72	1.92	1.96	1.29	1.29	1.51	1.91	1.88	1.45	1.70	1.52	1.70	1.25	41.24

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Autumn—twelfth week, Dec. 8 to 14]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	70 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	343	332	341	342	343	339	339	332	324	333	332	336	341	344	338	336	337	342	345	348	343	338	335	338	8,121
T	23	30	25	24	22	29	26	35	34	31	32	27	26	24	24	28	29	27	26	15	24	27	32	27	647
0.01	12	13	13	10	8	13	12	10	12	11	13	11	5	4	9	10	11	10	7	12	10	14	11	9	250
0.02	3	5	4	6	7	2	6	3	5	4	6	5	10	6	6	4	2	4	6	7	8	2	5	4	121
0.03	5	5	6	8	8	6	5	5	7	7	3	4	2	1	3	2	5	1		4	2	5	4	3	101
0.04	1	3	4	3	1	3	3	5	3	3	1	3	4	6	7	4	4	4	5	4	3	3	2	4	83
0.05	4	2	1	1	2	3	3		3	1	1	3		1	2	2	4	6	3	1	2	1	1	1	48
0.06		1	2	2	4	1	1	1	2		1	5	3	2	3	2	1	1	1	1	1	2	1	2	40
0.07			1	1	1	1		1	3	3	2	2	2	3	1	3	1	1		1		2	2	3	34
0.08	1	1	1	1		1	1			1	2					1			2		1	1	2	1	17
0.09	1						1	1	2		1		1	1	1	1	1		1	2		2		1	17
0.10		2		1	2	1					1			2	1	2	1	1		1			1		16
0.11	1							2	1		1		1	1	1	1					1			1	11
0.12	1									2	1		1	2		1		1	1		1		1		12
0.13	1	1						1										1	2				1		6
0.14		2			1		1								1	2									7
0.15		1										1								1				2	5
0.16	1								2	1			1				1								6
0.17																					2				2
0.18								1							1			1		1		1			5
0.19									1																1
0.20								1									1								2
0.21																	1								1
0.22																									
0.23																								1	1
0.24											1										1				2
0.25																									
0.26																									
0.27																								1	1
0.28																									
0.29			1																						1
0.30										1	1														2
>0.30 (actual amounts)	0.35 .42	0.41					0.33	0.33		0.39		0.31 .37	0.36 .55	0.49		0.35				0.35		0.47	0.34	0.32	16
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.03	1.91	1.16	1.00	1.25	0.93	1.36	1.79	1.83	1.95	1.75	1.87	2.18	2.08	1.69	1.80	1.55	1.20	1.23	1.68	1.49	1.67	1.51	2.20	39.11

[Autumn—thirteenth week, Dec, 15 to 21]

0	346	347	344	345	348	351	352	348	347	349	346	351	350	347	348	349	347	350	351	353	343	341	346	345	8,344
T	26	21	20	24	16	16	13	21	17	21	24	19	17	25	25	24	29	22	24	18	26	26	26	26	526
0.01	6	9	11	6	14	10	8	3	12	4	9	8	12	10	7	9	7	9	6	11	11	13	10	13	218
0.02	3	5	9	6	6	5	4	7	4	2	5	2	3	5	3	4	3	4	6	6	8	9	8	4	121
0.03	5	5	1	7	2	4	3	4	4	5	2	4	4	4	5	3	3	3	1	3	6	4	2	2	86
0.04	2		3	1	2		7	2	1	3	4	2	4	2	1	1	2	5	2	3	4	1	1	1	54
0.05	2	4	2	1	5	1	2	1	1	2	2	3		1	2	2	1	2	2	2		1	1	2	42
0.06	4	1	1	1			2	2		2		3	3		1	1	1	1	3			2	2	2	32
0.07	3	1	1	1	3	3	2	3	2	2	2		1	1	2	1			1	1		1	1	1	33
0.08	1	1	1	1	1		1	1	2	2	1			1	1	1	1		1	1				1	19
0.09		1				4	1	1			2	2		2	1										14
0.10			1				1		2	1			1						1		1				8
0.11					1		1	3	1	2			1			2		1					1		13
0.12		1		1		3			2	1					1		1	2		1			1		14
0.13				2								1													3
0.14										1		1	1	1	1		1							1	7
0.15							1		2	1		1													5
0.16						1					1	1	1												4
0.17			1														1								2
0.18			2		1			1				1				1									6
0.19							1	1		1															3
0.20																	1							1	2
0.21			1																						1
0.22						1		1																	2
0.23																									
0.24				1															1						2
0.25				1					1																2
0.26											1														1
0.27		1															1								2
0.28																									
0.29																						1			1
0.30	1								1																2
>0.30 (actual amounts)	.56	0.36	0.34	0.36									0.35		0.31	0.33									7
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.28	2.16	1.93	1.92	1.23	1.68	1.61	1.84	2.11	1.79	1.33	1.59	1.57	0.92	1.36	1.34	1.39	0.97	1.06	0.81	0.71	1.00	0.83	1.02	33.45

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Winter—first week, Dec. 22 to 28]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	340	335	335	343	342	341	344	345	340	335	339	338	339	345	341	343	344	337	344	342	345	343	346	346	8,192
T	22	23	23	19	25	20	23	22	27	29	28	26	25	19	18	24	18	25	19	19	18	17	20	19	528
0.01	8	11	15	12	7	11	5	11	10	12	5	5	8	7	9	9	11	10	10	13	14	15	7	7	232
0.02	6	8	4	4	6	7	4	3	5	3	10	5	7	7	8	4	7	6	5	1	1	4	5	5	125
0.03	9	5	6	4	4	5		3	2	6	5	7	3	3	6	3	3	5	5	7	2	5	4	1	103
0.04	2	3	6	1	3	2	3	2	6	6	3	4	4	6	2	2	2	4	4	4	2	2	1	2	76
0.05	3	2	1	6	2	3	3	1	2	3	2	3	1	3	3	1	1	3	1	2	7		3	5	61
0.06		1	1	3	3	2	4	2		2	2	3	3	2	3		3	1	4	7	1	2		3	52
0.07		4	2	1	2	1	2		1	1		1	2			2	2	1	2	2	2	1	2	3	34
0.08	2		1	2	1	2	2	1	2	1			2		3	2	1				3		1		26
0.09	1	2		1	1	2	1		1		2	1		2			1	2		1		1	1	1	21
0.10	1	1					1	3			1		2				4	1	1			1	1	1	18
0.11	2		1				2	1	1	1	1	1	1	1		2		1			1	1	2	3	22
0.12	2		2	2		1	2	1			1					1		1				1			14
0.13	1							1				1				1			1			1	1		7
0.14		1						1				1		1		1			1	1		1	1	1	10
0.15							1					1		1	1						2		1	1	8
0.16		1			1		1	1						1		1							1		7
0.17					1												2	1				1	1		6
0.18									1						2										3
0.19								1							1	1						1			4
0.20						1																			1
0.21																						1			1
0.22			1											1											2
0.23				1			1															1			3
0.24									1						1									1	3
0.25												1													1
0.26																									
0.27																									
0.28																			1						1
0.29																1					1				2
0.30			1												1										2
>0.30 (actual amounts)		0.31 .32			0.35	0.34						0.54	0.32 .37			0.33		0.34	0.31				0.37		11
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.64	2.19	1.85	1.63	1.70	1.82	2.13	1.74	1.45	1.13	1.25	2.33	2.00	1.77	2.32	2.27	1.70	1.83	1.90	1.41	1.79	2.14	2.23	1.97	44.19

[Winter—second week, Dec. 29 to Jan. 4]

0	344	340	336	342	339	334	334	330	330	326	330	332	339	337	339	343	346	352	347	343	339	339	336	341	8,118
T	17	20	21	16	19	26	25	27	28	28	24	25	25	20	22	21	23	17	24	29	21	23	24	18	543
0.01	13	12	14	14	14	7	11	13	9	12	18	14	10	13	13	15	11	8	5	7	11	10	13	14	281
0.02	3	7	7	9	6	11	7	3	2	9	3	7	9	14	10	7	3	6	4	3	10	9	6	11	166
0.03	6	3	4	2	3	2	5	4	2	2	2	3	3	2	2	3	3	3	2	2	5	3	2	3	71
0.04	1	2	4	2	3	3	2	2	4	1	3	1	2	3	2	1	2		3	2	4	6	5	3	61
0.05	3	1	3	5	2	6	5	5	2	1	1	3		2	1	3	3	1	3	4	1	4		1	60
0.06	3	1			2	1	1	2	5	2	4	1	2		3	3	1	1	4	3	1	1	4	4	49
0.07	2	4	4		1			4	1		1			3	1	1	2	1	3	1	1		3		33
0.08		3	2		1		2	1	1	4	3	2	1	1	2			3	1		1	2	1	1	32
0.09					2	2		1	2	1		4					2			1		1	1		17
0.10		1	1	1	3	2	1	1	1	2	1	1	2	1	1			1		1	2	1	2		26
0.11	1			1				1	3			1	1	1	1	1	1		1		1				14
0.12	1	2	2	3	1	1		1	1		2		2								1		1		18
0.13				1	1	1		1		3		1		1			1	1						1	12
0.14	2	1	1		1		1		3	1	1	2	1					1		1	1				17
0.15		2		1	1		3		2		2	1			1		1	1							15
0.16	2										1		1						1				1		6
0.17							1	1		1	1							1							5
0.18									1	1								1							3
0.19									1	2				1						1				1	6
0.20						1				1						1									3
0.21				1				1																	2
0.22																		1							1
0.23	1					1				1	1														4
0.24											1														1
0.25										1					1										2
0.26								1																1	2
0.27				1								1	1												3
0.28																									
0.29																									
0.30									1																1
>0.30 (actual amounts)						0.53	0.31												0.33	0.39					4
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.94	1.84	1.63	2.04	1.86	2.42	2.12	2.31	3.02	3.12	2.60	2.18	1.77	1.51	1.54	1.13	1.26	1.80	1.59	1.63	1.45	1.22	1.61	1.52	45.11

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Winter—third week, Jan. 5 to 11]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	337	336	338	339	338	340	338	335	321	329	335	332	332	334	327	337	331	331	329	324	330	331	330	332	7,986
T	32	30	26	18	23	24	27	29	42	36	30	28	27	26	32	21	29	33	33	34	25	29	29	21	684
0.01	10	12	8	12	14	10	13	11	16	8	12	13	12	8	14	11	16	11	11	10	17	11	12	14	286
0.02	3	6	6	7	6	9	1	6	3	5	4	8	4	7	6	5	4	7	6	6	8	7	8	12	144
0.03	3		7	7	4	5	6	2	3	2	4	2	2	6	4	6	7	2	3	4	2	7	3	5	96
0.04	2	3	3	2	3	1	2	2		5	4	2	5	2	4	7	2	4	2	3	4	3	3	3	71
0.05	1	2		6	5	1	1	2	3	3	1	4	5	2	1	2	2	3	4	3	3	2	3		59
0.06	2	1	3	2	1	2	1	2	2	2	1	3	2	3	3	2	3	1	3	5	2	1	3	2	52
0.07	1	2	1	1	1		4	2		2		1	1	3		2		1	3	1	1	1		2	30
0.08		1	1			2	1	2	3					1	2			3		1	3	1	2		23
0.09	1		1			1	1	3	1	2	2	2		1	1				2	3	1	1	2		25
0.10		2	2			2	1		1	1		1	2	1				1		2		2			18
0.11		1		2	1		1	1	1				3	2		2							1		15
0.12	2	1	1	1	1				1		2		1		1	1	2	1	1						16
0.13	2			1					1		1		1								1			2	9
0.14		1			1	1													1		1		1	1	7
0.15										2			1	1	3				1				2	1	11
0.16							1		1							2				1		1			6
0.17			1		1							1									1	1		1	6
0.18	2															1	1								4
0.19											1	1			1		2								5
0.20						1							1											1	3
0.21										1				1											2
0.22		1									1				1									1	4
0.23	1									1															2
0.24							1																		1
0.25												1								2		1			4
0.26																									
0.27																								1	1
0.28																		1							1
0.29			1					1																	2
0.30								1																	1
>0.30 (actual amounts)				0.37							0.35														2
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.75	1.53	1.73	1.88	1.42	1.43	1.58	1.86	1.53	1.87	1.90	1.77	2.03	2.01	1.81	1.87	1.61	1.49	1.58	2.19	1.66	1.76	1.71	2.32	42.29

[Winter—fourth week, Jan. 12 to 18]

O	330	332	331	328	332	328	328	326	323	328	328	337	337	340	335	334	338	337	342	333	340	340	343	341	8,011
T	24	30	33	34	24	34	34	36	37	27	37	25	31	31	37	34	23	30	28	37	29	24	29	24	732
0.01	20	12	11	16	16	11	13	11	11	12	12	11	10	5	8	14	16	7	12	7	11	14	9	14	283
0.02	4	3	6	4	8	5	1	3	6	10	5	5	2	6	8	12	5	9	2	7	5	5	5	3	129
0.03	2	2	2	2	3		3	1	4	7	3	4	5	5	2		5	5	5	5	5		1	5	76
0.04	1	2	2	3	5	7	6	1	7	3	2	3	4	5	1	1	1	4	1	3	2	5	6	2	77
0.05	4	1	2	2	2	2	2	2	1	2	1	1	1	1			3	2		1	3	3	2	4	42
0.06	2	2	3		2	3	1	1	1	1	1	1	2		2				1	5	2	2		2	34
0.07	2	3	1	3	1	1	1	1	2	3	5	1	2	1			1	1	3			4	1	1	38
0.08	2	3	1		3	1		5	1			1	1	1	2		1	3	1		1	2	2		31
0.09	2	2	1	2		1	2	2	1	1		1	1	1		1		1	2		1			1	23
0.10	1	1	1	1	1	3		4			2	1		1	1			1							18
0.11	1	1	1				1		1			3		1					2				1		12
0.12		1	1	3	1		1	2									2								11
0.13		1	1			2	2	1		1	1	2						1							12
0.14	1				1								1		1					1				1	6
0.15				1				1	1			1			2										6
0.16							1			1							1								3
0.17		1					1	1	1	1		1	1			1	1							1	10
0.18	1		1				1		1				1												5
0.19														1		1									2
0.20											1	1													2
0.21						1			1		1														3
0.22							1																		1
0.23																									
0.24																									
0.25	1																								1
0.26										1									1						2
0.27	1																								1
0.28																									
0.29																									
0.30		1	1																						2
>0.30 (actual amounts)		0.40						0.44		0.39															3
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.23	2.45	1.83	1.52	1.50	1.78	2.11	2.58	1.87	2.22	1.59	2.01	1.42	1.21	1.16	0.95	1.48	1.13	1.28	0.97	0.88	1.15	0.90	1.22	37.44

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Winter—fifth week, Jan. 19 to 25]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	339	339	338	341	343	338	332	327	329	329	340	340	342	347	339	335	341	336	331	326	321	331	336	341	8,061
T	29	27	19	21	22	22	23	32	29	37	23	22	26	17	27	25	21	25	20	36	41	32	30	19	625
0.01	4	10	17	8	7	10	14	13	11	5	14	13	7	8	6	10	9	10	13	11	11	12	11	14	248
0.02	8	7	8	8	7	4	8	3	9	10	5	6	5	7	6	7	10	8	10	7	7	6	5	6	167
0.03	5	3	1	5	1	4	4	9	5	2	3	3	6	4	3	4	5	4	7	3	6	3	1	1	92
0.04	3	4	5	3	3	6	4	3	3	4	3	5	1	3	1	2	3	8	1	1	2		2	1	71
0.05	1	2	2	1	2	6	4	4	2	1	1		2	2	3	5	2		6	1	2	3	2	3	57
0.06	4	4	1	1	3	3	4	1	2		2	1	2	2	3	3		1	2	3	1	1	2	2	48
0.07	1	1		2	3	1	1	1	3		1	1	2	1	4	1	2	2	1	2	1		4	3	38
0.08			1	3	1	1		1			1			1	2	3	1	1	2	2		4	1	1	26
0.09		1	1		2	2	2	2	2	1				3			1		1		2	1		2	23
0.10				3		2		2		4	1	1		1				2	1	2		1		1	21
0.11	2									3	1	2		1	1		1								11
0.12			1	1	1		1		1	1	2	2		1		1			1		2	2	1	1	19
0.13			1																	1					2
0.14			1				1						1		1	1				1			1		7
0.15					1				3										1			1			6
0.16	1				1																				2
0.17	1	1											1			1	1							1	6
0.18			1									1	2		1							1	1		7
0.19										1					1						1				3
0.20			1									1						1		1	1			2	7
0.21					1		1	1			1														4
0.22				1															1						2
0.23													1				1		1					1	4
0.24											1								1						2
0.25	1											1					1								3
0.26																		1				1			2
0.27				1						1													1		3
0.28																									
0.29																			1						1
0.30																							1		1
>0.30 (actual amounts)			0.34		0.39								0.36	0.32	0.37	0.33					0.54				7
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.63	1.16	2.00	1.91	2.14	1.55	1.74	1.58	1.74	1.92	1.67	1.86	2.01	1.75	2.07	1.94	1.73	1.64	2.20	2.05	2.09	1.88	1.91	2.09	44.26

[Winter—sixth week, Jan. 26 to Feb. 1]

O	334	329	334	332	331	333	333	330	327	324	327	322	321	325	332	334	337	341	336	331	329	333	340	337	7,952
T	19	29	28	29	23	27	25	30	28	26	27	32	30	29	28	35	29	25	33	27	30	27	18	19	663
0.01	15	12	14	17	9	13	13	9	10	16	13	11	17	14	13	7	10	9	2	9	11	11	15	14	284
0.02	4	9	4	3	6	7	6	5	9	7	10	6	5	8	7	4	6	3	10	13	8	7	5	7	159
0.03	4	3	1	4	2	1	5	4	5	5	6	8	7	3	3	1	5	5	2	1	2	5	4	6	92
0.04	7	4	6	2	3	2	5	5	3	4	4	5	5	8	4	8	4	6	4	4	4	4	5	1	107
0.05		1	5	4	4	2	4	1	4	4	2	1	3	4	2	1	1	1	1	4	2	2	1	2	56
0.06	1	2	1		2	2	2	4	2	4	2	3		2	4	1		1	2	2	3	2	1		43
0.07	3	4	1	2	2	3	1	3	4	2	1	1	3	2	1	2		1	2	1	2	3	3	6	53
0.08	3		2	1	3	3	2	2	3	2	2	2	4	2			3	3	2	1		1	3	2	46
0.09	4	2	1		1	2	1	1	2		1	1	2	2	4	2	1	1	4	2	3	1	2	1	41
0.10						3				1		1	1			1		1		1	1				10
0.11								2		1	1	1				1					3	1		1	11
0.12	1	1		1	1						1	1					1					1		2	10
0.13			2		1															1					4
0.14				2			1			1													2		6
0.15				1							1														2
0.16		1		1	1			1		1								2			1				8
0.17	1	1					1					1					2		1			1			8
0.18	1								1		1	2													
0.19															1									1	2
0.20						1				1						1									3
0.21																									
0.22																1									1
0.23								1																	1
0.24																									
0.25																									
0.26								1				1													2
0.27													1							1					2
0.28		1																							1
0.29																									
0.30																									
>0.30 (actual amounts)	0.34 .35								0.32											0.31					4
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.66	1.91	1.38	1.56	1.59	1.73	1.55	2.13	2.07	2.06	1.77	2.34	1.91	1.51	1.48	1.56	1.37	1.47	1.44	2.00	1.77	1.56	1.59	1.81	42 22

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Winter—seventh week, Feb. 2 to 8]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	344	338	332	330	333	340	337	337	322	323	336	337	337	336	340	339	332	341	344	338	334	337	342	346	8,075
T	16	23	25	23	29	20	22	18	34	28	22	19	27	26	26	28	31	21	22	25	27	29	19	14	574
0.01	14	12	10	20	7	12	13	16	14	14	10	14	8	13	6	8	10	13	5	9	8	7	9	10	262
0.02	4	4	10	6	5	6	10	4	9	7	5	7	6	5	7	3	7	1	5	3	8	2	7	7	138
0.03	5	4	9	3	4	5	1	6	1	3	3	1	1	5	4	2	2	6	3	5	4	7	1	2	87
0.04	2	4	6	5	4	1	2	2	3	7	8	3	4	2	2	3	4	1	4	3	3	2	5	7	87
0.05	5	2	2	3	2	3	2	2	5	3	1	2	6	1	1	3	2	2	4	6	1	3	4		65
0.06	2	3	2	4	4	1	1	6	3	1	2	2	1		3	3		3	4	4	1	1	2	3	56
0.07	2	1		1	3	2	2			4	2		2	1	3	1	1	4	2	1	5	3	2	1	43
0.08			1	1	3	2		4	2	1	2		1	3		3	1	1	2	2		3			32
0.09	2					2	2			1	1	2	1	3	3	2	2	1	1	1	2				26
0.10		2		2		1	1	1					1	1		2	1	2			1	2	1	1	19
0.11		1	1		1	1				1	2	4		2	2		3					1	3	2	24
0.12	2	1			2		2		1	1	1	1				1		1			1		1		15
0.13		2	1		1		1		1		1		1				1						1	2	12
0.14									1	2		3					1		1						8
0.15	1									2	1		1		1		1	1					1	2	11
0.16				1			2	2	1			1	1								1			1	10
0.17						2									1				1						4
0.18		1																							1
0.19											1							1				2			4
0.20		1			1							2		1										1	6
0.21						1			1											1					3
0.22												1								1					2
0.23										1								1	1	1					4
0.24																									
0.25																									
0.26								1								1									2
0.27									1																1
0.28							1																		1
0.29													1							1					2
0.30																							1		1
>0.30 (actual amounts)											0.52														1
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.53	1.90	1.35	1.51	1.92	1.88	1.99	1.96	2.09	2.35	2.50	2.59	1.89	1.61	1.65	1.72	1.74	1.76	1.77	1.80	2.16	1.75	2.05	2.07	45.54

[Winter—eighth week, Feb. 9 to 15]

0	335	343	342	339	335	331	336	334	337	338	344	336	334	333	329	341	347	347	341	333	331	332	329	335	8,082
T	30	25	21	17	14	22	22	28	25	25	24	25	23	21	32	22	17	18	20	29	32	29	30	24	575
0.01	8	9	11	12	17	15	10	11	8	7	5	8	10	10	8	9	10	12	15	13	14	11	10	17	260
0.02	9	2	4	7	8	9	10	6	13	6	7	4	7	6	7	7	6	6	5	10	4	8	6	6	163
0.03	2	2	3	5	8	4	3	5	3	4	5	6	2	5	6	6	2	3	4	4	4	4	6	4	100
0.04	3	3	2	2	4	5	5	3	3	3	2	4	4	7	5	4	4	3	5	4	4	5	3	1	88
0.05	2	3	5	2	4	3	4		2	4		2	2	6	1	2	2	5	4	2	3	2	3	3	66
0.06	2	3	1	2	1	4		4	1	3	1	2	5	2	3	2	3		1	1	2	1	4	4	50
0.07		1		1	2		1	1	2	2	3	3	3	2	3	1			2		1				28
0.08	3	2	3	2		1	1	1	1	2	2	1	1	3	1		2			1	1	3	1		32
0.09	1	2		1	1	2	1	1		1			1	1	1	1	1	1	1	1			2	1	21
0.10		1	3	2	2			1				1	3	2	1	2	2							2	22
0.11					2	1			1		1	2			1			1				1		2	12
0.12	1		1			1		2	1	1		2	1					1				1	1		13
0.13			1	5	1				1	1			1				1		1						12
0.14		1		2			1	1				1			1		1	1							9
0.15	1	1	1				1				1			1		1		1							8
0.16								1		1												1	1		4
0.17			1				1		1		4		1								1		1	1	11
0.18	1	1					1					1													4
0.19	1																					1	1		3
0.20										1						1									2
0.21							1														1				2
0.22													1								1				2
0.23												1													1
0.24																									
0.25																									
0.26																								1	1
0.27							1																		1
0.28																									
0.29																				1					1
0.30																									
>0.30 (actual amounts)						0.32												0.39					0.37		3
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.63	1.62	1.78	2.16	1.77	1.85	2.15	1.62	1.46	1.81	1.79	2.12	2.18	1.89	1.56	1.50	1.83	1.31	1.19	1.23	1.52	1.57	2.18	1.66	41.38

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Winter—ninth week, Feb. 16 to 22]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	332	342	345	344	344	338	349	346	339	347	341	347	340	334	338	335	336	334	333	332	337	337	331	330	8,131
T	21	14	15	20	15	22	17	19	26	17	29	24	30	31	25	28	30	27	26	25	21	25	33	29	569
0.01	16	9	6	9	9	12	6	12	9	11	5	5	7	11	9	13	5	10	16	15	15	11	7	5	233
0.02	7	11	11	10	9	9	6		6	6	1	6	6	3	6	4	3	7	8	7	4	7	7	14	158
0.03	5	4	6	1	3	5	4	5	3	2	4	4	4	6	5	3	6	2	2	3	5	1	2	3	88
0.04	4	4	3	1	7	2	5	5	3	6	7	5	4	5	4	3	4	1	2	5	5	3	4	2	94
0.05	2	4	2	5	6	2	4	1	5	5	4	3	2		1	2	2	2			2	2	2	3	61
0.06	2	1	4	2	1	2	1	1	2	2	4			2	3	2	5	4	1	2		4	2	5	52
0.07	1	3	3	1		1	1	4	3			2	2	3	2	1	2	3	2	2	2		3		41
0.08	2	2		1	1	1	1	1	1	1	1	1		1		1	2	1	1	1		1	1	1	23
0.09	3			1		1		3		1	1		2	1	3	2	1	2			1	1		1	24
0.10		2	1		1	1					2						1	3	1	1	2	1	1	2	19
0.11		1		1					2							2			1		1		2	1	11
0.12	1	1			1					1					2			1	1	2	1	1		1	13
0.13			1	1	1		2					1	1			1			2	1			2		13
0.14			1											1								1			3
0.15	1			1				1											1		1				5
0.16			1			1		1																	3
0.17							1											1			1	1			4
0.18						1																1	1	1	4
0.19						1	1							1					1			1			5
0.20					1								1							1					3
0.21															1							1			2
0.22																			1	1					2
0.23	1											1						1		1					4
0.24							1									1									2
0.25				1												1					1				3
0.26		1																						1	2
0.27																	1								1
0.28																									
0.29																									
0.30																									
>0.30 (actual amounts)	0.36																0.36						0.44		3
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.19	1.91	1.66	1.61	.63	1.62	1.77	1.52	1.30	1.19	1.28	1.22	1.22	1.38	1.61	1.81	1.97	1.97	1.89	2.04	1.91	2.02	2.14	1.99	40.85

[Winter—tenth week, Feb. 23 to Mar. 1]

0	337	342	345	344	346	346	343	338	324	330	329	333	343	343	344	337	340	337	340	343	336	334	344	339	8,137
T	25	26	26	20	22	25	28	32	34	22	28	26	18	17	15	21	22	18	24	27	31	30	18	23	578
0.01	11	11	7	10	8	9	6	8	10	14	10	13	15	10	9	7	7	19	13	12	11	8	13	15	256
0.02	9	4	7	6	5	9	7	6	6	7	9	7	4	8	10	9	9	4	8	2	4	3	3	13	159
0.03	2	6	3	6	4	2	6	4	8	4	3	4	4	4	9	5	4	9	3	1	1	7	7	2	108
0.04	5	1	4	1	3		2	2	2	1	4	2	5	3	1	4	2	2	3	4	2	5	2		60
0.05	3	1		2	2	3	1	1	3	4	3	2	4	5	2	1	5	1	2	1	3		2	2	53
0.06	3	5	3	1	1	2	3		1	1	2	2	2	3		2	1	1	2	3	3	3	2		46
0.07	1		1	2	1					1	1	2	3		2	4		1	3		3	2	3		30
0.08	1	1	1			2		1	2	2	1	1		1		2	1	2		1	2	1	1	2	25
0.09	1				1			2			1	2	1	1	4		1			2	1	1		1	19
0.10			1	4	1	1		1	1	4	1			1	2		2			1		1			21
0.11	1	1		1	1		1	1	1	1	1	1				1	1	1		1				1	15
0.12								1						1		1	1	1					1		6
0.13				1	2		1			1	2	1		1								2			11
0.14				1			1	1	1	2		2						1							9
0.15					1			1			1			1		3		1	1	1					10
0.16									2							2						1	1		6
0.17					1				1		1													1	4
0.18			1						1	2												1			5
0.19									1			1					1	1							4
0.20															1										1
0.21											1												1		2
0.22																							1		1
0.23										1															1
0.24																									
0.25																					1				1
0.26																	1								1
0.27																									
0.28																		1							1
0.29									1																1
0.30																									
>0.30 (actual amounts)	9.32									0.34 .52	0.39						0.43								5
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.23	1.27	1.07	1.52	1.53	0.86	1.07	1.33	2.41	3.30	2.43	1.80	1.17	1.60	1.60	2.17	2.24	1.80	1.08	1.20	1.49	1.74	1.70	1.10	38.71

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Winter—eleventh week, Mar. 2 to 8]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	331	334	333	340	339	335	333	327	311	325	326	323	325	329	330	325	330	335	335	334	330	332	325	333	7,920
T	24	22	21	11	16	19	23	28	54	33	32	35	30	22	24	30	34	21	24	29	26	21	30	22	631
0.01	13	16	6	17	8	12	11	15	6	9	10	10	12	16	12	17	8	18	12	12	11	15	9	14	289
0.02	6	4	13	4	5	3	6	9	4	6	10	9	7	9	8	9	4	9	11	6	12	10	11	5	180
0.03	5	8	5	5	10	6	4	5	6	2	6	8	9	6	8	2	7	1	2	4	4	2	6	6	127
0.04	4	2	6	5	2	5	4	2	4	5	3	2	4	3	3	5	3	5	5	3	5	4	1	2	87
0.05	1	2	5	3	4	3	5	3	3	5	2	4	4	3	4	3	1	3		2	1	2	4	3	70
0.06	4	4	1	3	1	3	1	2	3	2	3	2		2	3		2		2	2	1	1	3	2	47
0.07	2	2	1	3	4	1	3	2		2	1		1	3		3	2	1	3			2	2	2	40
0.08	2	1	2		2	3	2		2	2	4				4	2	2	1				1	2	1	33
0.09	1		3	5	2	2	1	1		1		1	1	1			1	2	2	1	2	1	1	2	31
0.10	1	1	1			1			2	3			1		1		3		1			1		2	18
0.11	1		1		1	1	2					3	1	2		1	1			1	1	3			19
0.12		1		1	3	1		1	1	2	1	1		1		1		2			1		1		18
0.13				1					1	1												1	1		5
0.14					1	1		1	1										1			2		1	8
0.15						1			1				1								4				7
0.16	1						1	2						1						1			1	2	9
0.17	2						2													1					5
0.18							1								1	1									3
0.19		1	1		1																1	1			5
0.20				1						1										1		1			4
0.21	1					1						1	1												4
0.22																	1								1
0.23																									
0.24													1												1
0.25								1			1														2
0.26						1							1												2
0.27														1										1	2
0.28																									
0.29																									
0.30																									
>0.30 (actual amounts)		0.38													0.31			0.39	0.39	0.32			0.32	0.34	8
																				.36					
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.16	1.91	1.92	2.04	2.24	2.47	2.18	1.89	1.71	2.10	1.64	1.67	2.12	1.98	1.93	1.54	1.68	1.70	1.74	2.11	1.98	2.07	2.23	2.44	47.45

[Winter—twelfth week, Mar. 9 to 15]

0	342	346	337	336	325	332	322	314	307	316	316	314	310	319	320	318	324	325	327	327	336	340	344	337	7,834
T	23	22	30	27	34	23	33	39	46	33	32	22	33	32	32	34	26	30	31	33	25	27	28	22	717
0.01	11	8	10	15	14	15	15	10	7	15	12	18	21	17	14	12	15	8	10	4	10	9	9	15	294
0.02	5	8	6	3	9	5	5	11	5	5	8	9	8	4	5	4	5	10	7	5	6	4	3	8	148
0.03	5	3	4	4	3	3	4	2	5	4	3	8	5	5	8	6	7	2	3	6	5	5		3	103
0.04	1	4	2	2	3	6	4	6	3	3	6	6	3	4	5	7	1	2	1	3	1	1	7	3	84
0.05	3	1	6	1	2	1	2	3	4	4	3	3	2		4	2	4	2	3	3	4	3	2	1	63
0.06	1	1	1	4		1	2	3	3	5	4	4	4	4	2	4	1	3	2	4		2	1	2	58
0.07	1	2		1	1	4	3	1	6	2	6	3	5	4	3	6	3	3	2	3				1	60
0.08	1		1	1	2	1	1	3	5			4	2	2		1	2	1	3	4	1	1		1	37
0.09				1		1	2	1	1	1	3	2	2	2	2		2	1	1	1	2				25
0.10	2	1					2			2	1	2		1		1	2	4	2	1	2		1	1	25
0.11				1	2	2	1		2	2				1	1		2	1	1	2		1			19
0.12				2	1	1		2	2	1		1	2	1	1			2	1	2	2	1			22
0.13		1			2	2		1		2	2					1		1	1		1			1	15
0.14				1			1			1	1							1				1	1	1	8
0.15							1		1			1	1				2	1							7
0.16	1		1			2		1	1		1	1		1			1	1			2		1		14
0.17	1									1							1		1		1	1	1		7
0.18					1			1		1						1	1								5
0.19	1															1						1		1	4
0.20																							1		1
0.21										1															1
0.22												1		1										1	3
0.23								1	1				1									2			5
0.24														1											1
0.25	1																								1
0.26															1			1	2	1					5
0.27		1					1																		2
0.28			1																						1
0.29															1										1
0.30											1													1	2
>0.30 (actual amounts)		0.40														0.52			0.33		0.47				4
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.73	1.64	1.30	1.43	1.64	2.06	2.09	2.29	2.73	2.72	2.65	2.79	2.29	2.37	2.17	2.62	2.54	2.67	2.69	2.27	2.40	1.90	1.36	1.92	52.27

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Winter—thirteenth week, Mar. 16 to 22]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	328	332	336	333	332	325	327	323	323	331	331	339	348	340	338	341	339	338	330	334	338	341	340	339	8,026
T	28	29	22	29	21	25	23	34	37	38	39	31	17	24	28	27	27	27	36	36	25	23	21	26	673
0.01	18	7	12	9	12	14	15	11	10	8	9	8	7	13	10	4	10	11	10	9	9	8	9	10	243
0.02	6	9	6	4	8	10	3	3	10	5	7	7	5	4	9	9	4	9	11	5	9	6	11	3	163
0.03	5	6	6	5	8	7	4	7	3	6	4	6	4	5	4	6	6	3	2	4	10	3	4	5	123
0.04	3	3	4	5	4	2	7	3	1	2	3	1	8	6	4	3	6	4	3	2	4	2		4	84
0.05	1	2	2	2	5	2	4	2	3	2	1	1	2	1	1	1	3	3	2	3		2	3	1	49
0.06	2	1		2	2	2	1	4	3	2	1		2	1			1	2	1	1		3	1	3	35
0.07	1	3	2	1		2	3	1	1	1	1		3		1	4			1	1		1	1	2	30
0.08			1	1			1	1	3			1							1	1	1	1	3	1	16
0.09	2	1		2		1		2	2	1	1			1		1					2	2		1	19
0.10	3	1		2			1				1	1	2		1										12
0.11		1	1		1		1			2		1		1		3				1		1	2		15
0.12			3	1	1	2	2					1										2		1	13
0.13	1	1	1		1		1	1	1					1			1	1	1			1	1	1	14
0.14	1	1					2	1							1		1				1		1		9
0.15					1			1												1					3
0.16				2			2								1							1		1	7
0.17						3								1									1		5
0.18						2		1		1													1	1	6
0.19						1			1					1											3
0.20					1				1				1									1			4
0.21		1																				1			2
0.22																									1
0.23							1				1							1							3
0.24			1					1									1		1						4
0.25																									
0.26			1	1								1													3
0.27																									
0.28						1																			1
0.29								1																	1
0.30			1									1													2
>0.30 (actual amounts)		0.35			0.35		0.38	0.42							0.42					0.45					7
								65																	
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.56	2.05	2.30	1.97	2.33	2.66	2.95	3.37	1.77	1.22	1.07	1.46	1.44	1.40	1.50	1.27	1.32	1.17	1.18	1.46	1.13	2.03	1.78	1.60	42.00

[Spring—first week, Mar. 23 to 29]

0	343	343	348	354	342	342	345	331	333	344	354	350	350	348	345	350	343	330	333	339	338	344	345	348	8,242
T	22	25	19	14	28	22	18	26	29	21	12	20	25	19	28	26	26	38	30	21	26	26	28	22	571
0.01	11	13	11	8	5	10	7	16	9	7	9	7	7	9	9	9	12	11	10	17	16	10	6	8	237
0.02	5	2	6	8	4	4	7	1	1	7	4	7	5	7	3	4	4	6	7	4	4	4	7	3	114
0.03	6	2	4	2	5	4	5	2	5	5	8	3	3	2	5	1	3	4	4		3	2	3	7	88
0.04	2	4		3	2	4	3	6	9	3	1	3	3	1	3	2	3	3	4	4	1	1	2	3	70
0.05	1	4	2	3	2	2	6	5	2	1	4	1		5	2	1		2	3	3	1	2	1		53
0.06					2	3	2	4	1	1	1		1	3		1	1	1	1	3	1	2	3		31
0.07	3		1	1	2	2	2	1	2	2	4	2	1	1	1		1	1		1	1	1	2	2	34
0.08		1		1		1	1	2	4	1	1			2					2		1	1		2	20
0.09	1	1		1		1		1	1	1		1	2		1				1		2	2		1	17
0.10	1		1		1		1	1				1				2	2	1	1	1					13
0.11	1									4				1		2	1	1	1		2				13
0.12						1		1	1						1					1		1			6
0.13						1	2				1	1				1			1						7
0.14	1		1	1				1	1				1					1		1			1	9
0.15					1							1					1			1		1	1	7
0.16			1	1	1	1				1		1											1		7
0.17			1																						1
0.18			2		1																	1			4
0.19	1					1											1				1				4
0.20																							1		1
0.21																									1
0.22				1	1				1						1										4
0.23		1	1																		1				3
0.24																			1						1
0.25																					1				1
0.26		1																							1
0.27																	1								1
0.28																									
0.29												1													1
0.30	1				1																				2
>0.30 (actual amounts)		0.38	0.44	0.36	0.37			0.35		0.43			0.50	0.32						0.32					12
		.59																		.36					
																				.92					
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.66	2.22	2.12	1.69	2.20	1.65	1.48	2.00	1.81	1.93	1.20	1.53	1.33	1.42	1.02	.94	1.46	1.05	1.56	2.92	1.70	1.49	1.05	1.35	3.878

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Spring—second week, Mar. 30 to Apr. 5]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	346	348	343	337	338	338	336	335	332	335	340	338	335	339	338	332	330	334	334	335	340	345	346	348	8,122
T	27	24	26	27	25	23	27	23	31	31	22	30	31	26	26	34	29	27	34	31	33	19	25	21	652
0.01	7	10	11	12	12	13	11	10	9	11	12	10	8	9	12	7	12	11	8	13	7	15	10	12	252
0.02	5	3	4	2	4	5	3	5	6	8	7	3	5	5	4	2	8	8	4	7	5	5	4	5	117
0.03	7	2	1	2	4	4	7	7	6	1	3	5	5	2	4	7	3	4	3	2	3	1	6		89
0.04	1	1	2	6	2	2	1	1	1	2	2	2	3	7	3	5	4		2	2		1	1	4	55
0.05		1	2	3		2	3	3		3	4	2	1	2		2	2	5	2	1		2	1	2	43
0.06	1		1	2	2	1	1	6	5	2	1		4	2	5		3		1		3	1		1	42
0.07	2	2	2	1	2	3	1	1	2		3	2	3	2	2	1	4	2	2	2	1	1		3	44
0.08		2	2		1	1	1	1	4		1		1	2		2	1	2	3	3	1	1		1	30
0.09	1	2	1		1	1	2	2			1	2			2			2	1		1			1	20
0.10				3	1	3	2		1		2		1	1				1	2			1			18
0.11		2		1	1		1	1		1					1						1	1	2		12
0.12			1		2			1		1		1	2			1		1		1	1		2		14
0.13						1			1	1		1			1					1			1		7
0.14			1					1								1	1	1		1					6
0.15						1										1						1			3
0.16	1		1											1		1	1				1	1			7
0.17				1					1	1													1		4
0.18											1	1													2
0.19					1	1	1														1				4
0.20				1	1			1																	3
0.21		1												1					1					1	4
0.22	1									1						1						1			4
0.23							1									1	1	1							4
0.24										1															1
0.25								1																	1
0.26												1				1						1			3
0.27															1										1
0.28			1																						1
0.29					1			1																	2
0.30					1																	1			2
>0.30 (actual amounts)		0.31		0.38								0.32							0.38 0.51		0.35	0.32			7
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.09	1.53	1.55	1.96	2.26	1.74	1.94	2.15	1.59	1.64	1.45	1.82	1.37	1.52	1.57	2.13	1.70	1.71	2.26	1.23	1.61	2.25	1.21	1.13	40.41

[Spring—third week, Apr. 6 to 12]

0	319	319	323	326	332	330	325	319	320	323	328	321	326	336	332	334	329	327	328	322	317	323	330	323	7,812
T	35	34	27	28	28	28	26	37	39	32	28	34	25	21	25	23	26	26	35	36	35	35	27	33	723
0.01	18	14	20	18	12	11	13	13	12	7	7	9	15	10	11	15	9	8	6	7	14	15	11	13	288
0.02	8	8	6	3	4	8	9	4	3	7	4	6	12	6	5	2	6	7	5	8	8	5	10	10	154
0.03	4	8	6	3	4	2	4	5	2	7	6	7	4	7	4	3	5	4	4	7	6	4	5	2	113
0.04	2	3	7	3		1	5	4	4	5	2	5	2	2	1	3		7	4	2	4	3	2	4	75
0.05	2			1	5	2	3	1	4	1	4	4	1	1	2	2	4		2	2	2	5	1	3	52
0.06	1	3	1	2	4	4	4	3	2	1	2	2	2	2	3		3	4	3	1	3			2	52
0.07	4	2	1	5	2	2	2	4	1		5	2	2	1	1	1	5	3			3	3	3	3	55
0.08	3	2	1	2	1	1	2		2	3	2	2		1	2		1	1	2	2	1	1	2	1	35
0.09				3	1	2		4	1	1	3	1	1	1	4	5		3		1	2	3	1		37
0.10				1		1	1	1	1		1		1	3		1				1	1				13
0.11		1	1	1		1	2		3	1		1	2		1	1	2	3	1	2	1		1		25
0.12	1		2	1				1		2	1	2		1	3	1	1	1	2		2		2	1	24
0.13			1		1	1				3	2	1	1	1		1	1			1			2		16
0.14	1	1	1			1	1	2	2	1	1		1	2	1	2	1	1		1		1		1	22
0.15						1		1					1		1		1			1					6
0.16		2			1	1	1							1	1								1	1	9
0.17		1							1				1	1								1	1	1	7
0.18		1					1		1	1		1		1		1			2						9
0.19			1							1						1									3
0.20				1											1		1		1						4
0.21					1								1												2
0.22					1								1			1			1	1					9
0.23	1																								2
0.24					1				1	1						1	1								1
0.25						1																			5
0.26			1												1										1
0.27																								1	1
0.28																									
0.29																	1	1							2
0.30						1														1					2
>0.30 (actual amounts)				0.36	0.43					0.31 .36	0.31 .34 .51	0.39		0.33		0.32	0.52 .69	0.31 .37 .52	0.41 .44 .50	0.31 .36 .43						21
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.71	2.06	2.06	2.29	2.51	2.45	2.12	2.04	2.34	3.22	3.29	2.38	2.33	2.59	2.62	2.91	3.87	3.50	3.36	3.29	1.84	1.61	1.99	1.97	60.35

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Spring—fourth week, Apr. 13 to 19]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	334	342	336	335	344	342	334	328	318	330	331	336	336	338	338	337	339	343	335	334	341	336	336	340	8,063
T	31	25	24	26	16	20	27	26	43	31	32	28	30	28	25	28	28	25	28	35	30	29	29	29	673
0.01	11	10	8	12	10	8	10	13	10	10	9	9	11	10	12	10	7	4	11	11	12	8	10	8	234
0.02	5	4	8	10	8	3	2	5	4	4	7	7	4	5	3	5	4	7	8	3		9	9	5	129
0.03	4	2	5	5	6	9	4	3	5	5	4	5	3	5	1	6	4	6	2	5	7	4	3	3	106
0.04	2	2	3		2	2	5	9	6	6	5	4	1	1	3	1	2	5	5	3	2	3	3	5	80
0.05		3	2	1		2	5	1	5	4	3	1	1	1	2	2			1	2	1		2	2	41
0.06	2	2	2	1	2	3	3	7	3	1	1	2	3	1	3	1	3	1	2	2	2	1	2		50
0.07	2				2	2	1		2	3	1		1	1	1	1	4	1	2	1		1	1		27
0.08	2	2	2	1	1	1	1	2		1		1	1	1	3	1	2			2	1				25
0.09	1		2	1	1	1	1				2		2	1		3	1	1				3		3	23
0.10		1	1	1		2	1			1	2	1			1	1		1				1			14
0.11	1	1		1	2	1			1				2	2	2		1	1	1	1	2	1			20
0.12	1	1	2	1	1		1		1	2	1							2						2	15
0.13						1		1		1				2	1		1						1	1	9
0.14						1		1					1	2		2		1	1		1				10
0.15				1	1			1	1			1	1		1								1		8
0.16		1				1						2	2		1		1								8
0.17	2		1											1			2		1			1		1	9
0.18																			1			1			2
0.19		2	1		2											1									6
0.20					1							1										1			3
0.21																									
0.22				1			1																		2
0.23			1	1				1															1		4
0.24	1																		1				1		3
0.25							1																		1
0.26								1																	1
0.27																									
0.28																									
0.29		1																							1
0.30							1																		1
>0.30 (actual amounts)			0.45	0.38			0.38				0.35	0.31			0.38			0.37							8
															.38										
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.73	1.91	2.45	2.06	2.02	1.82	2.50	2.22	1.52	1.59	1.68	1.87	1.71	1.67	2.44	1.57	1.80	1.74	1.68	1.00	1.02	1.66	1.53	1.38	42.57

[Spring—fifth week, Apr. 20 to 26]

0	347	352	355	346	351	351	351	342	339	349	348	350	342	339	335	331	329	334	333	334	334	333	343	344	8,212
T	23	20	14	23	19	23	21	31	32	25	27	21	29	23	28	37	40	30	36	36	29	28	20	27	642
0.01	11	4	12	11	8	6	9	8	6	4	6	6	6	8	9	7	14	12	7	6	10	12	16	8	206
0.02	3	5	4	6	4	4	6	4	3	4	7	9	5	7	3	5	6	2	5	3	4	6	3	4	112
0.03	1	5	2	4	4	3	3	2	4	2		3	5	7	4	1	1	5	5	2	5	4	3		75
0.04	5	2	3	3	1	4	2		1	2	2		2	4	4	7		3		5	1	2	1	2	56
0.05		1	2	1	3	2		3	1		3	1	2	4	2	1	1	1	1	2	1	3			35
0.06	2	1			2		1	1	2			1	3	1	3	1	1	2	2	2	2	1		2	30
0.07	1	2	1	1		1	1	2		3		2	1	1			2		1		2	1	2	3	27
0.08		2		1	1	1				1				1	1	2	1		1	2	3		2	1	20
0.09		1		1	1		1		2		1	2		2	2	1	1	1	1	2	2	1	1		23
0.10			2	1	2			2	1	2				1	3	1			1		1			2	19
0.11	1		1		1	1				1				1		1	1			1	1		1	2	13
0.12						1		2	1				1			2		1	1			3		2	14
0.13			1						1						1				1			2	2		8
0.14	1			1	1			1	1	2	2	1	1			1					1				13
0.15										2	1		1					1			1	1			7
0.16		1	1									1	1					1	2	2					9
0.17	1	1					1		2						1						1				7
0.18																							2		2
0.19							1				1							1							3
0.20							1	1													1				3
0.21												1								1					2
0.22									1																1
0.23											1												1	1	3
0.24									1									1	1			1			2
0.25	1														1										4
0.26																	1	1							2
0.27										1															1
0.28						1										1									2
0.29																	1								1
0.30	1						1		1																3
>0.30 (actual amounts)	0.42	0.35	0.37		0.32	0.34				0.32		0.41			0.37			0.40	0.39	0.34		0.40	0.31	0.31	19
		.54													.45			.57					.51		
																		.66							
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.98	2.09	1.52	1.00	1.53	1.49	1.46	1.35	2.22	2.03	1.37	1.68	1.31	1.39	2.64	1.71	1.37	3.44	2.03	1.92	1.97	2.22	2.52	1.85	44.09

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Spring—sixth week, Apr. 27 to May 3]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	351	349	350	351	355	357	352	344	347	348	345	351	352	347	351	351	347	343	346	342	346	355	354	353	8,387
T	21	25	22	26	21	25	21	32	30	25	29	21	21	27	22	20	28	29	28	26	24	16	19	19	577
0.01	7	9	17	7	6	6	6	8	10	8	5	12	8	10	9	11	5	11	5	5	6	10	8	9	198
0.02	7	5	1	4	6	4	6	3	2	4	7	2	4	6	4	6	2	4	4	4	6	1	3	6	101
0.03	3	2	2	5	1	1	2	4	2	3	3	2	2	2	3	1	3	3	5	4	5	2	4	2	66
0.04	2	1	1		4	1	5		1	3	2	3	2		3		3	2	1	2	2	1	2	1	42
0.05	1		2	1	1		3	2			2	1	2		1		3			2	1	5	2	3	32
0.06	1		3		1	2	1						1	1	2				2	1	2	2	1	2	22
0.07		2		1				1		1		2	2	2		1		1	1	1					15
0.08		2			1			1			3	1	2	1	1	1	1	3	2				1		20
0.09	2		1			1			3	1						2	1			1				1	13
0.10		1		1				1		2						2	2			1	1	2			14
0.11		1				1									2	1	2				2	1			10
0.12	1			1	1		1	1	1	1		1	1	1	1				1				1	1	14
0.13					1			1	1											1	1	1			6
0.14													1					1		1					3
0.15											1								1	1	1				4
0.16				1						1											1				3
0.17	1															1									2
0.18					1		1					1		1									1		5
0.19		1									1								1				1		4
0.20									1					1				1		1				1	5
0.21		1										1							1						3
0.22																1								1	2
0.23												1										1			2
0.24																									
0.25	1																			1					2
0.26													1				1								2
0.27																				1					1
0.28									1														1		2
0.29																			1						1
0.30																						1			1
>0.30 (actual amounts)	0.47			0.31			0.31	0.43		0.38	0.40					0.86	0.74	0.36		0.32	0.31		0.54		17
										.56										.33	.44				
																				.43					
																				.46					
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.68	1.20	0.66	1.11	0.99	0.63	1.26	1.29	1.24	1.95	1.44	1.35	1.28	1.06	0.97	2.15	2.04	1.37	1.63	3.43	1.93	1.72	1.89	1.21	35.48

[Spring—seventh week, May 4 to 10]

0	341	333	336	343	344	337	344	346	343	348	352	356	354	359	350	352	350	347	343	346	340	337	340	349	8,290
T	25	27	25	15	18	31	24	23	37	29	23	19	19	22	30	27	24	22	30	27	37	30	28	23	615
0.01	10	9	16	13	10	7	9	10	5	6	7	9	10	5	3	3	3	9	7	7	8	7	10	5	188
0.02	1	6	5	9	6	3	5	4	5	4	5	2	1	4	1	3	5	4	4	4	5	9	6	4	105
0.03	4	10	3	4	2	5	5	5	2	3	2	5	2	1	4	4	1	3	1	1		3			70
0.04	4	3	2	3	1	2	4	1	1	2		2	3		2		4	1	2	3	3	2	1	2	48
0.05	3	2	4	3	6	3	1	1	3		2		3	2	1	1		1	2		1	2	3	2	46
0.06	2	1		1	1	3	1	1		1			1	1	2		1	3	1	1	1		2	2	26
0.07		2	2		2	1		2			1			1		1		1	1					1	15
0.08	1				2	2	2		1		1	1			1	1	2	2	2	1			1	3	23
0.09	1		1	2		1		1		2	2	1		1	1	2		1	1			2	1	1	21
0.10	1	2	2				1			1		1					1			1	1	1		1	13
0.11	1											1	1	1							1				5
0.12	2	1		1	1	1	1	2					1		1		2	1	1	1					16
0.13				3				2			1		1	1	2				1						11
0.14	1		1		2															1				1	6
0.15			2			1													1	1					5
0.16	1				1				1		1														4
0.17								1				1										1			3
0.18				1		1						1					1						2	1	7
0.19						1				1	1												1	1	5
0.20					1											1	1			1			1		5
0.21		1																1		1		1		2	6
0.22										2				1									1		4
0.23													1			1								1	3
0.24		1			1																1	1			4
0.25											1		1				1			2					5
0.26							1										2	1							4
0.27					1																				1
0.28		1																							1
0.29	1						1												1						3
0.30																									
>0.30 (actual amounts)				0.43					0.45				0.34		0.33	0.32	0.41	0.32	0.33	0.56	0.50	0.32	0.37		18
																.44		.95				.33	.61		
																.45						.37			
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.88	1.98	1.50	2.06	2.25	1.65	1.54	1.38	1.09	1.28	1.39	1.09	1.69	0.94	1.30	2.23	2.44	2.71	1.76	2.42	1.36	2.44	2.65	2.09	43.12

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Spring—eighth week, May 11 to 17]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	342	346	342	342	345	346	341	336	334	338	344	351	346	347	346	344	341	343	337	324	329	326	330	334	8,154
T	26	21	22	23	22	27	33	32	31	28	25	22	23	27	21	30	30	26	25	33	26	36	30	30	649
0.01	13	14	19	16	11	11	8	9	5	8	9	6	10	7	8	8	7	6	10	12	12	11	13	9	242
0.02	6	4	4	5	5	3	2	9	9	10	7	4	3	6	4	2	3	1	5	3	8	10	8	7	128
0.03	4	3	1	2	3	2	3	2	8	3	2	4	4	2	5	2	1	5	5	5	4	1	8	4	83
0.04		1	5	2	3	3	5	1	3	2	1	1	2	2	2	1	3	3	2	3	4	2	2	3	56
0.05	2	2		1	3		3	4	3	2	1	1	2	2	1	2	1	3	2	2	1		1	2	41
0.06					1	2	1				2	3		1	1		4	1	3	2	2	2		1	26
0.07		2	1	1	1	1	1	1		1	1	1		1		1	1			2	4		2		22
0.08				1		1			3	1	1				2	1			1	1	1	2		2	17
0.09								1			1					1	2	3		1	1	3			13
0.10								1	1	2	1	1	1		2	2				1	1				13
0.11	1					1						1	1				1	1		1	1				8
0.12	1						1			1	1		2	1	1					1	2	2	2	1	16
0.13		1	2					1				1	1			1	1		1	2					11
0.14				1	1				1	2							1			1			1	1	9
0.15			2					1							1			4	1						9
0.16	1	1		1					1	1					1			1	2			1			10
0.17		1				1									1				1	1				1	6
0.18																			1						1
0.19					1								1			1									3
0.20																								1	1
0.21					1		1	1			1				1										5
0.22				1	1								1	1			1								5
0.23																			1				1		2
0.24																				1	1			1	3
0.25			1																	1					2
0.26		1												1			1	1				1			5
0.27															1					1	1	1	1		5
0.28				1																				1	2
0.29	1			1																					2
0.30												2													2
>0.30 (Actual amounts)	0.42 .57	0.49 .56		0.36	0.39	0.48					0.52 .53	0.43	0.31 .39	0.55	0.32	0.36 .44 .83	0.33	0.44	0.34 .36 .60		0.43	0.40		0.37	25
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	2.14	2.36	1.38	2.05	1.85	1.38	1.02	1.32	1.38	1.46	2.22	1.97	2.15	1.71	2.26	2.71	2.01	2.40	3.12	2.79	2.57	2.30	1.68	2.31	48.54

[Spring—ninth week, May 18 to 24]

0	350	355	351	355	360	361	357	352	353	362	361	358	348	349	343	337	337	343	341	333	332	345	345	342	8,370
T	26	21	22	14	14	23	27	27	27	22	23	21	27	23	25	33	22	25	24	30	28	22	23	29	578
0.01	7	7	7	12	9	3	3	8	6	3	4	10	5	9	5	4	6	9	10	10	10	9	8	9	173
0.02	4	6	6	1	1	4	5	4	1	2	4	2	7	5	4	3	4	3	5	3	5	4	2	3	88
0.03	3		2	2	2	1	1		2		2	1	2	3	3	1	6	3	4	2	3	1	1	2	47
0.04	1	1	1	2	2	1	1	1		4		2	2	2	3	2	1	2	1	2	2	1	5	2	41
0.05	5	2	1	2		2	1	1	4	1	1	1		2	2	3	1		1	3	3	2	2	3	43
0.06			2	2	1			1	1	1	1	1		1	1	2	2		3		1	1	2	1	24
0.07		1	1		2	1	1		1			1				1	2	2		1	2	2		2	20
0.08			3	1							1		1		4		3	1			1	1	1		17
0.09	1		1		1				1	1			1		2	2	1	1				1		1	14
0.10				2									1		3	1	2			1	1	1		2	14
0.11		1			1			3				1								2			3	1	12
0.12			1	1	1	1	1						1	1					1				1	2	11
0.13				2		2	1		1	1	1			1			1		1	1					12
0.14				1	1											1									3
0.15	1				1											1				1	1	2	1		8
0.16		1																	2	2					5
0.17					1					1													1		3
0.18		3		1					1									1	3						9
0.19				1	1								1	1		1	1								7
0.20																1	2	1	1	1		2			8
0.21		1							1	1								2			1		1		7
0.22													1				1		1			1			4
0.23																									0
0.24														1			1				1	1			4
0.25																					2		1		3
0.26												1				1				2		1			5
0.27								1							2						1	1			5
0.28																1			1						2
0.29																						1			1
0.30																					1				1
>0.30 (Actual amounts)	0.52		1.32		0.66		0.40	0.32			0.42		0.48 .81	0.33	0.36 .58	0.37 .38 .77 1.11	0.32 .38 .40 .50 .56 .80	0.33 .35 .38 .54 .70	0.42 .38 .43 .44	0.35 .38 .43 .63	0.33 .44 .52		0.32 .39		37
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.29	1.42	2.30	1.67	2.08	0.73	0.97	1.23	1.08	0.94	0.92	0.80	2.42	1.53	2.78	4.68	5.34	3.92	2.54	4.04	4.49	2.79	2.59	1.28	53.83

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Spring—tenth week, May 25 to 31]

Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	352	350	357	351	348	358	351	349	349	357	360	359	354	356	353	343	337	339	329	334	338	332	345	353	8,354
T	20	17	13	22	27	16	33	30	32	25	26	26	31	27	24	24	27	20	35	28	29	36	19	19	606
0.01	5	11	8	9	9	8	5	10	6	7	7	3	2	4	4	6	10	9	7	10	8	13	16	5	182
0.02	4	2	8	3	2	6	1	1	2	4		5	3	3	3	7	5	2	6	5	7	3	3	4	89
0.03	3	4	2	5	3	3	1		2		1	1	1	3	2	3	1	5	4	4	3	4	2	2	59
0.04	1	4	2		1	2	1	1		3	1	1	2		4	2	4	2	4	5	4		1	1	46
0.05	4	2	1	1	1						1			2	4	1	1	3	3		1	2	1	1	29
0.06	2	1	1	2	1	1		3	4	1		1		1		2	1	2	1		2	1	2	2	31
0.07	1	2	1	1	2		2			1	1		3		2		2	1		2			2		23
0.08	1		1	2		1		1	1			1		1		1		2	1					2	15
0.09	1			2	2			1	2	1							1			1	1		1	1	14
0.10	1		2			1	2					2	1	1	1	1	2	1	1	1			1	2	20
0.11	1	2					1	1	1								1	1	1	1	1	1			12
0.12		1	1								1		1			1				1					6
0.13					1										1		1		1	1	1				7
0.14	1				2															1	1				6
0.15							1															1	1		3
0.16			1														2	1		1			1	1	7
0.17	1															2							1	2	6
0.18																		1						1	2
0.19								1											1	1			1		4
0.20						2												1				1			4
0.21			1				1							1		1						1	1		6
0.22							1													1				1	3
0.23	1			1							1												1		4
0.24		1														1		1							3
0.25																									0
0.26						1													1		1				3
0.27																		1		1					2
0.28																					1				1
0.29																			1						1
0.30		1														1									2
>0.30 (Actual amounts)		0.39											0.37		0.47	0.39 .46 .48	0.34 .36 .47 1.14	0.31 .32 .35 .42 .47 .49 .79	0.42 .46 .67	0.66	0.53 .71	0.36		0.31 .42	26
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.57	2.00	1.33	1.11	1.10	1.27	0.96	1.02	0.77	0.49	0.61	0.54	0.99	0.74	1.36	3.26	3.80	5.27	3.39	2.85	2.61	2.05	1.93	2.48	43.50

[Spring—eleventh week, June 1 to 7]

0	359	351	359	358	356	351	352	343	346	354	363	354	358	363	355	364	351	344	343	336	334	343	344	348	8,429
T	18	18	23	20	22	24	26	37	33	29	19	27	15	18	16	8	23	27	25	24	29	24	25	24	554
0.01	7	12	4	10	8	12	8	5	3	2	4	8	9	3	7	2	4	3	9	9	8	8	8	9	162
0.02	2	3	1	2	2	3	5	3	5	3	2	2	7		1	5	4	3	3	3	7	4	3	5	78
0.03		4	3	2	1	3	3	2	3	1	2	1		1	3	5	2	3	2	8	2	2	6	2	61
0.04	1		1	1				1			3	2		2	3	3	4	3	3	3	2	2	2	3	39
0.05	3	1	1		4			1	2		1		2	1	3	1		2	2	4	3	1	1	1	34
0.06	1		2		1	1	1	1	1	1			2			1			1	1	1	2	1		18
0.07		1	1	1	2	1			1				2		1	1	1	2	1	2		1	1		19
0.08	1		1		1	1	1	1		2		1		1			1	1	2	1		1	1		17
0.09	1			1				2		1	1		2	1	1	1	1	2			1	1	1	1	18
0.10		1	1				1							1	1	1	2				2	2			12
0.11	2	2	1							1			1	1					2	1		1	2		14
0.12				1							1	1		1	1	1		2		1		2			11
0.13	1			1			1	1			1	1			1							1		1	9
0.14									1	1											1	1	1	1	6
0.15	1						1			1				1				1		2	1	1			9
0.16		1				2									1			2							6
0.17						1			1										1		1				4
0.18				1						1							1			2		1			6
0.19									1							2			1						4
0.20									1					1		1					2			2	7
0.21											1	1				1							1		4
0.22																					1				1
0.23		1									1		1			1									4
0.24					1			1		1					1		1		1		1	1	1		9
0.25		1							1									2						1	5
0.26								1					1								1				3
0.27		1			1																				2
0.28											1														1
0.29																	1								1
0.30				1										1											2
>0.30 (Actual amounts)	0.33 .39	0.31 .36	0.33							0.32				0.51 .83	0.32 .55 .58 .82	0.40 2.53	0.38 .48	0.34 .60	0.33 .36 1.14	0.35 .41	0.53 .67		0.65	0.44	27
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9,576
Total amounts (inches)	1.75	2.32	1.05	1.13	1.14	0.97	0.79	1.21	1.40	1.56	1.14	1.00	1.14	2.91	3.63	4.60	2.58	2.95	3.37	2.64	3.64	2.10	2.21	1.87	49.10

TABLE 137.—*Precipitation amounts—hourly frequency*—Continued

[Spring: twelfth week, June 8 to 14]

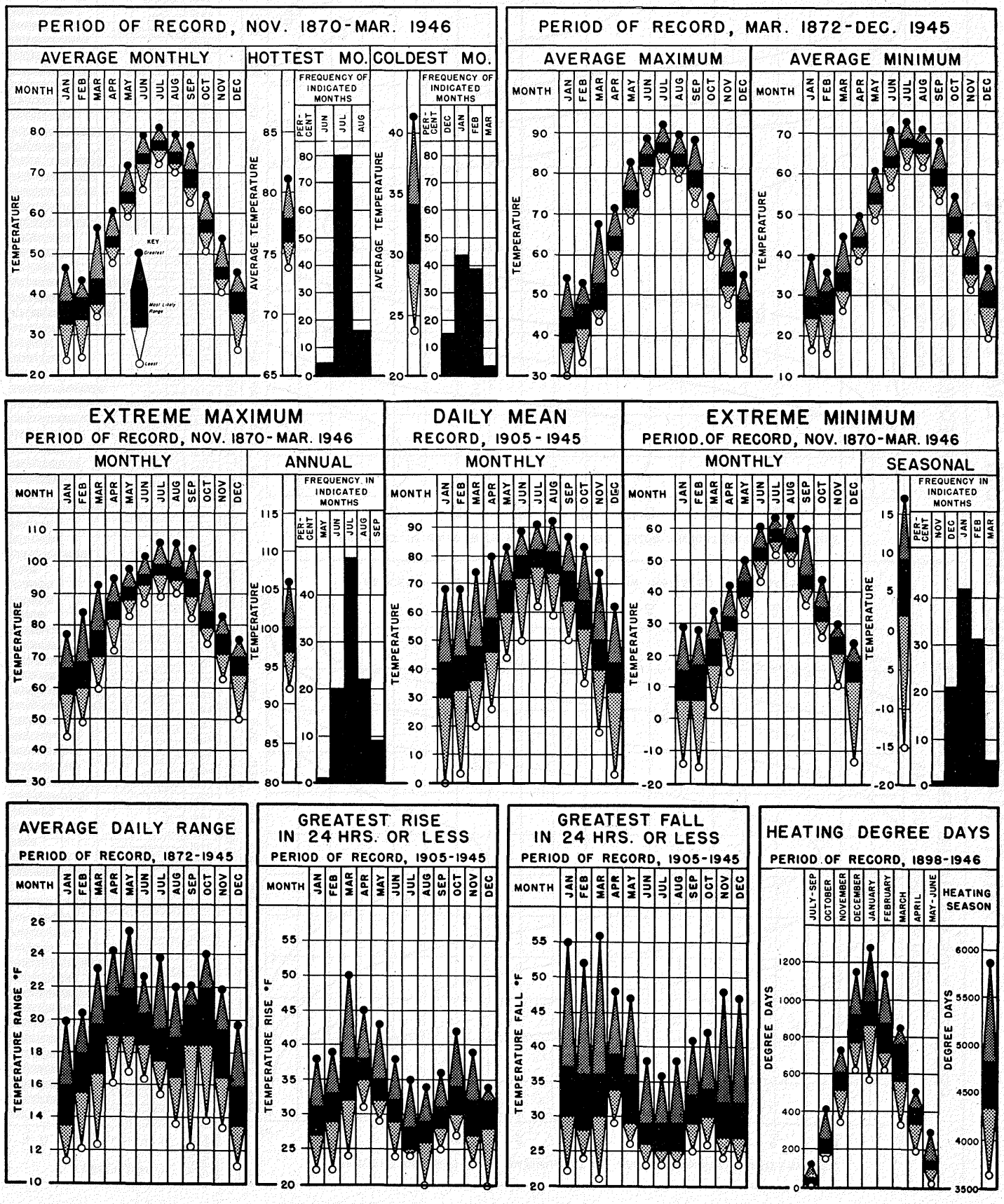
Interval (Inches)	0001 to 0100	0101 to 0200	0201 to 0300	0301 to 0400	0401 to 0500	0501 to 0600	0601 to 0700	0701 to 0800	0801 to 0900	0901 to 1000	1001 to 1100	1101 to 1200	1201 to 1300	1301 to 1400	1401 to 1500	1501 to 1600	1601 to 1700	1701 to 1800	1801 to 1900	1901 to 2000	2001 to 2100	2101 to 2200	2201 to 2300	2301 to 2400	Total hours
0	353	356	362	354	353	357	351	348	344	357	363	358	358	358	344	344	341	333	333	332	333	337	342	354	8, 367
T	16	21	17	24	25	20	26	29	36	22	17	23	23	22	29	23	27	32	32	25	31	28	23	17	588
0.01	12	10	4	7	9	14	8	6	4	6	9	4	7	6	9	8	8	7	8	12	4	8	7	6	183
0.02	4	4	5	2	3	1	2	2	4	2	2	2	1	2	2	4	5	5	2	7	4	4	7	3	79
0.03		1	1	3	2		3	1	4	4		2	3	1	3	4	4	2	3	3	2	4	5	6	61
0.04	3	1	1		1	2	1		1	2	2	2	1	1	1	1	1	2	2	3	4	2	1	2	37
0.05	1	1				1	1	3	1	1		2	2	3		2	5	2	5	3	1	1			35
0.06	1	1	1	1			1	3	1	1					1			1		1	1		1		15
0.07		2		1				2			1		1		2	4	1	1	1	1	3	2	3		25
0.08	1		1			2	2			1	1	1			1	1		2			2		1	1	17
0.09	2		1	1	1	1	1					1	1		1	1	1	2	1	2	1	1	1	1	21
0.10			2	1			1	1	1	1		1		1		1		2					2	1	15
0.11	2		1	1	1						1		1						1	2	1				11
0.12	1		1					1	2	1				1			2	2	1		2	1		1	16
0.13								1			1								2	1				1	6
0.14		1	2	1	1	1											1				1		2	1	11
0.15																				1		1			2
0.16				1														1							2
0.17												1			1				1						3
0.18					1		1	1	1							1									5
0.19				1						1	1				1								1		5
0.20																1		1	1	1		1			5
0.21					1		1								1					1		1			5
0.22	1																				1	2	1	1	6
0.23															1				1						2
0.24																					1	1			2
0.25																			1						1
0.26																									0
0.27																									0
0.28					1									1				1					2		5
0.29				1							1										1	1			4
0.30	1															1		1							3
>0.30 (Actual amounts)	0.67	0.67						0.31				0.33	0.92	0.48	0.63	0.63	0.31	0.31	0.43	0.31	0.38	0.33		0.34	41
												.49		1.28	2.55	.70	.40	1.06	.44	.36	.44	.38		.35	
														1.59		.85	.69		.57	1.18	.49	.49		.38	
																			.85	1.86	.54	.53		.55	
																					.83				
																					1.67				
Total frequency (hours)	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	399	9, 576
Total amounts (inches)	2. 22	1. 31	1. 15	1. 41	1. 26	0. 68	1. 10	1. 44	0. 91	0. 90	1. 08	1. 58	1. 51	4. 17	4. 61	3. 83	2. 53	3. 63	4. 33	5. 55	6. 50	4. 02	2. 29	2. 88	60. 89

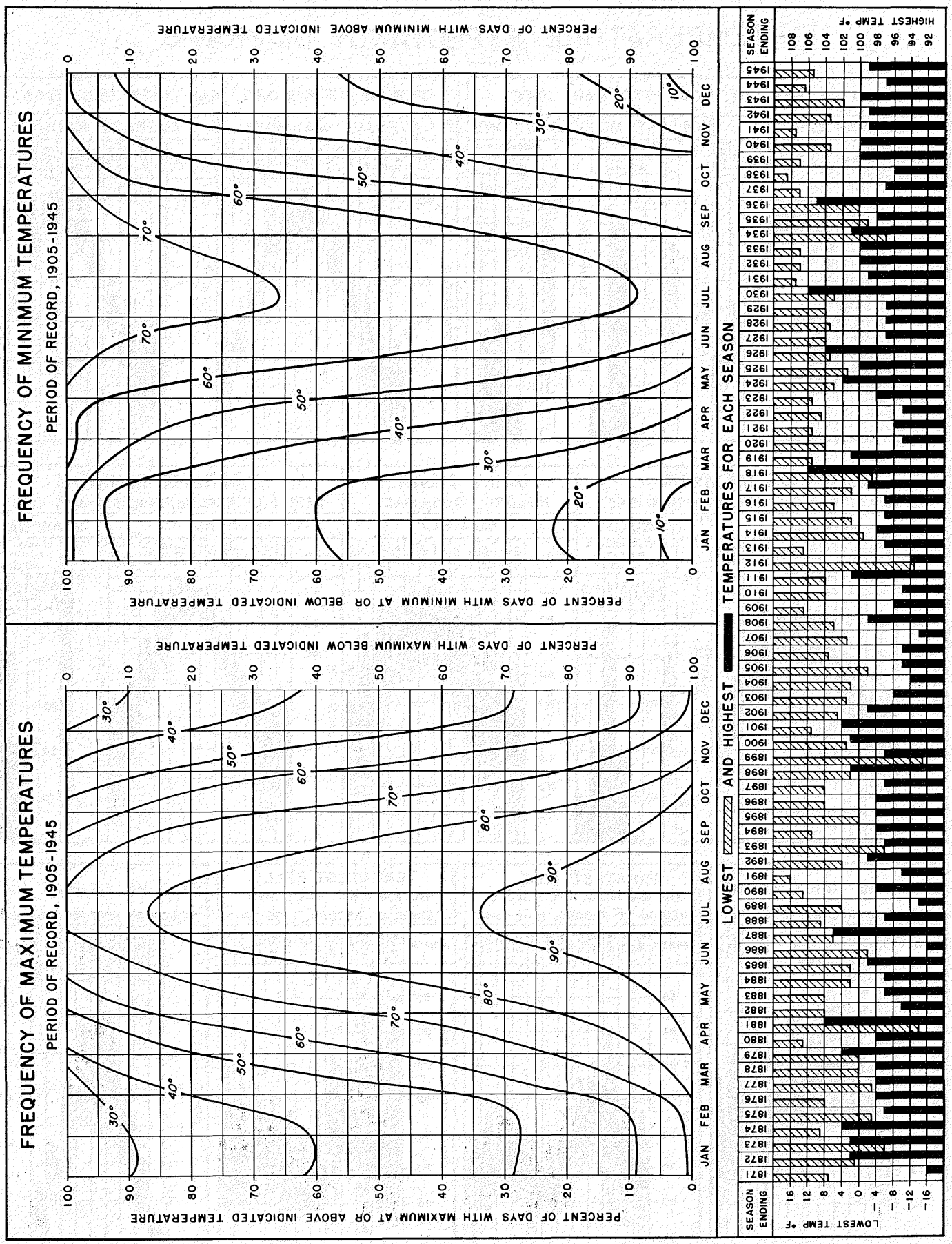
[Spring—thirteenth week, June 15 to 21]

0	361	372	385	386	383	382	376	364	368	378	381	380	379	378	373	370	359	363	363	351	353	344	360	365	8, 874
T	26	17	12	15	15	19	20	34	33	22	20	18	18	17	18	21	26	21	20	25	23	31	24	17	512
0.01	8	3	4	4	5	2	5	6	5	4	3	4	5	4	5	5	7	8	8	9	5	10	8	8	135
0.02	2	10	2	1	6			4	2	3	3	4	3	5		2	4	3	4	7	5	6	4	9	89
0.03	4		1	1		2	7	3	1	1	1	1		3	3	3	1	2	1	2	1	5	3	3	49
0.04	4	1	1		1	2	1		2	1	1	2		3		1			3	4	6	2	2	1	38
0.05	3	2	2		1	1				1	1		1		1	3	2	2	1	4	3	3	2	1	34
0.06						1		1	1				1		3		1			2	1	1	1	1	14
0.07	1	1	1							2		1					4			1	3	1		1	16
0.08	1	1	1	1		2		1			1	1					1				1			2	13
0.09			1	1			1				1	1	2	1	3	3		1		2	1	1			19
0.10	2	1								1	1								2						7
0.11	1					1							1			2	2		1			1	2		11
0.12		1		1											1			1		1	1		1		7
0.13		2												1		1		1	1		1			1	8
0.14		1				1												1	1		1				5
0.15		1											1	1	1		1				1	1	1	1	9
0.16			1									1						1		1	1		1		6
0.17			1																		1				2
0.18							1										1								2
0.19					1												1	1	1				1		5
0.20				1															1	1	1		1		5
0.21				1																		1			2
0.22																									0
0.23																									0
0.24													1												1
0.25									1												2				3
0.26																						1		1	2
0.27															1									1	2
0.28					1														1		1				3
0.29							1																		1
0.30																									
>0.30 (Actual amounts)			0.41	0.41			0.56						0.47		0.40	0.37	0.51	0.37	0.35	0.49	0.51	0.35	0.34		38
															.43	.82	.63	.45	.47	.75	.58	.36	.37		
															.58		.74	.50	.57	1.08		.43	.43		
															.70			.51	.59			.82			
																		.51	.65						
																		.55							
																		.58							
																		.85							
Total frequency (hours)	413	413	413	143	413	413	413	413	413	413	413	413	413	413	413	413	413	413	413	413	413	413	413	413	9 912
Total amounts (inches)	1. 01	1. 39	1. 23	1. 20	0. 73	0. 68	1. 42	0. 37	0. 51	0. 46	0. 48	0. 63	1. 37	0. 72	3. 29	2. 18	3. 32	5. 45	4. 24	3. 82	3. 79	3. 67	2. 51	1. 70	46. 07

CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

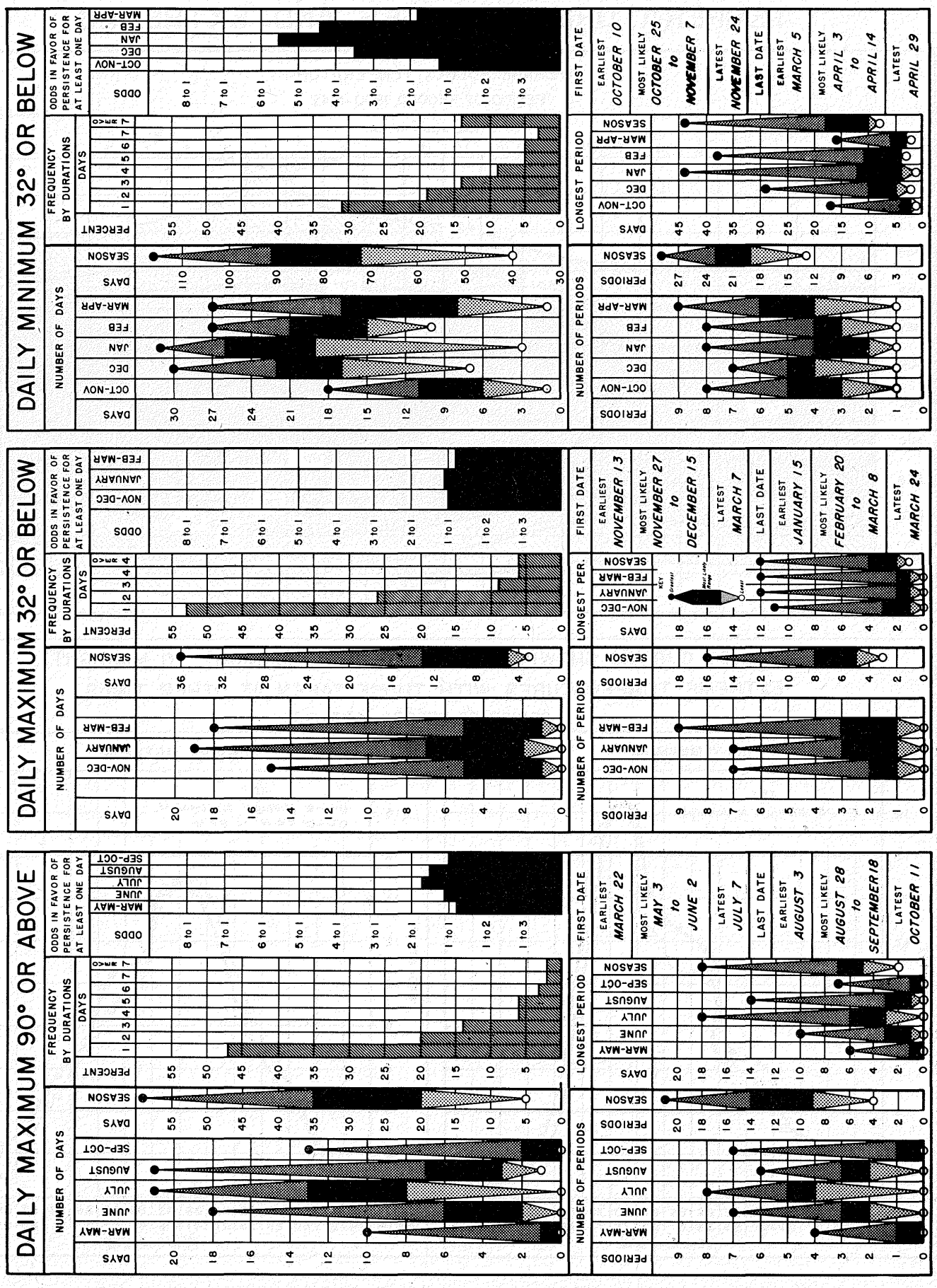
TEMPERATURE EXPECTANCY DIAGRAMS




CLIMATIC HANDBOOK FOR WASHINGTON, D. C.
DAILY MAXIMUM AND MINIMUM TEMPERATURES
FREQUENCY OF MINIMUM TEMPERATURES
PERIOD OF RECORD, 1905-1945
PERCENT OF DAYS WITH MINIMUM AT OR BELOW INDICATED TEMPERATURE
PERCENT OF DAYS WITH MINIMUM ABOVE INDICATED TEMPERATURE
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
10° 20° 30° 40° 50° 60° 70°
FREQUENCY OF MAXIMUM TEMPERATURES
PERIOD OF RECORD, 1905-1945
PERCENT OF DAYS WITH MAXIMUM AT OR ABOVE INDICATED TEMPERATURE
PERCENT OF DAYS WITH MAXIMUM BELOW INDICATED TEMPERATURE
30° 40° 50° 60° 70° 80° 90°
LOWEST AND HIGHEST TEMPERATURES FOR EACH SEASON
SEASON ENDING
LOWEST TEMP °F
HIGHEST TEMP °F

EXPECTANCY CHARTS FOR SELECTED VALUES OF TEMPERATURE

PERIOD OF RECORD, 1872-1945

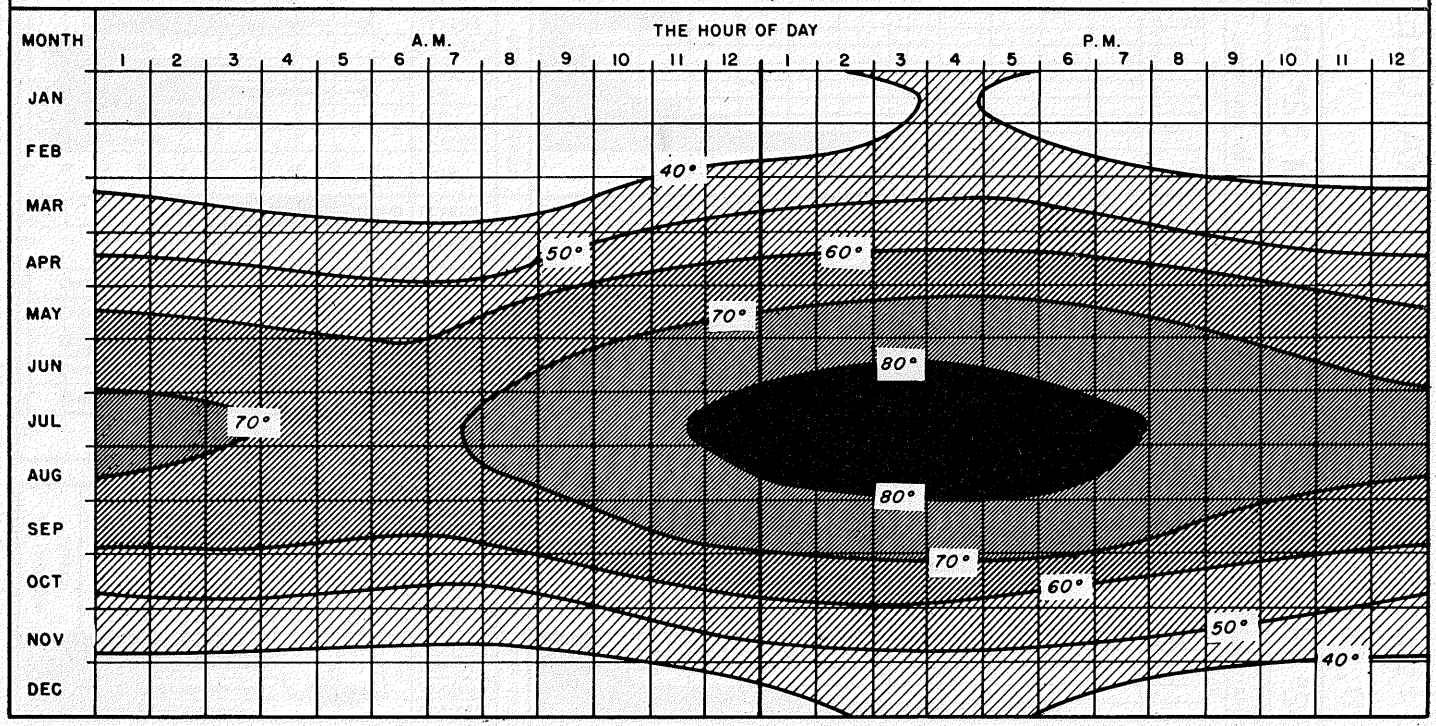


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

TEMPERATURE AVERAGES AND EXTREMES

AVERAGE HOURLY TEMPERATURE

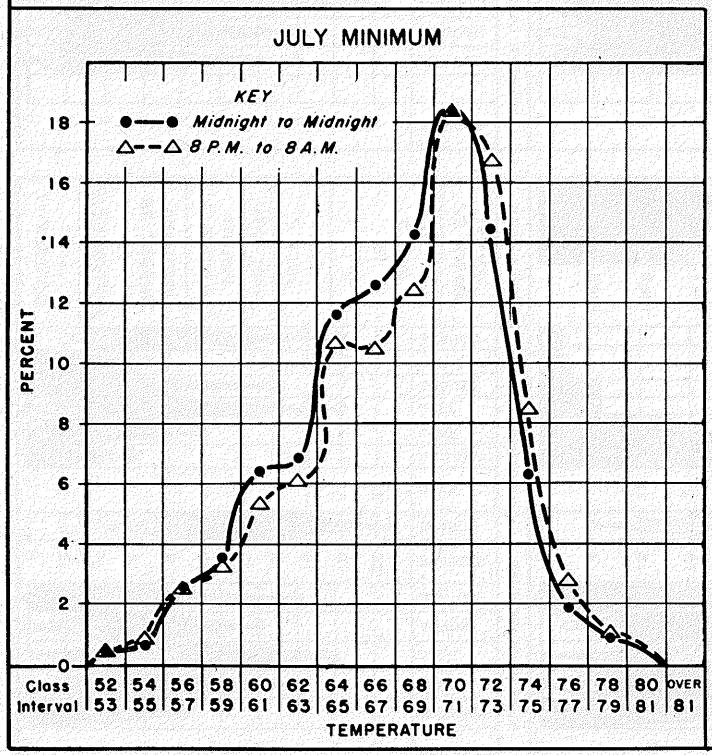
PERIOD OF RECORD, 1890-1942



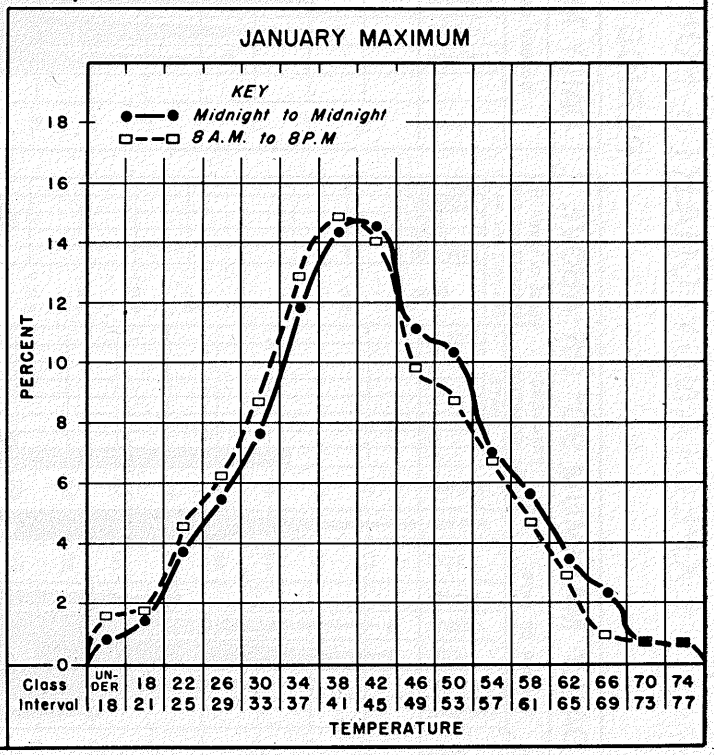
FREQUENCY CURVES SHOWING COMPARISON OF "MIDNIGHT TO MIDNIGHT" EXTREME TEMPERATURES WITH THOSE TAKEN AT OTHER TIMES

PERIOD OF RECORD, 1905-1938

JULY MINIMUM



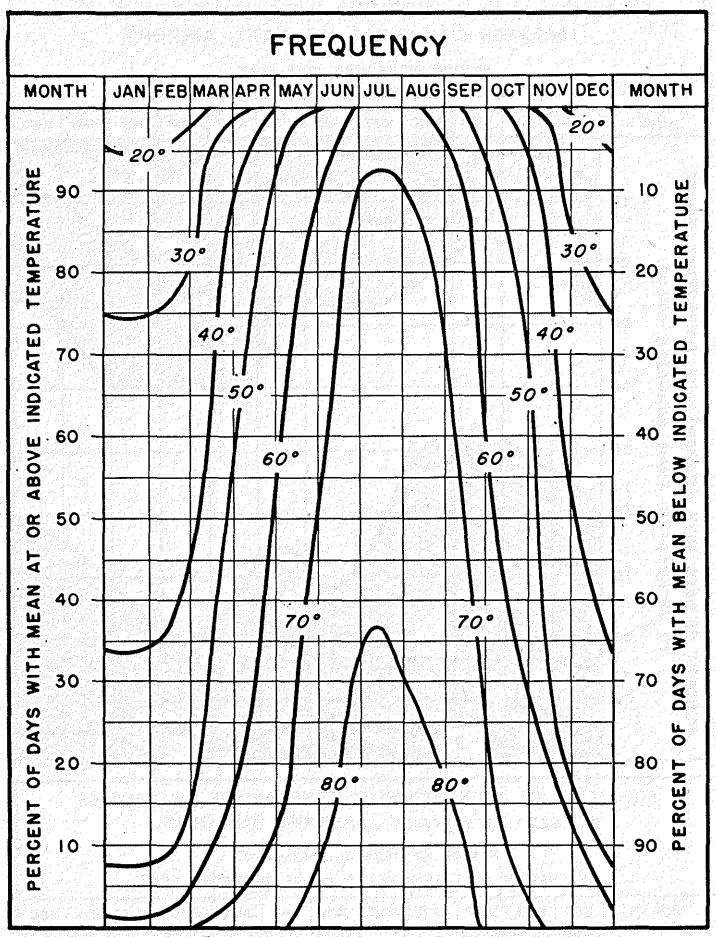
JANUARY MAXIMUM

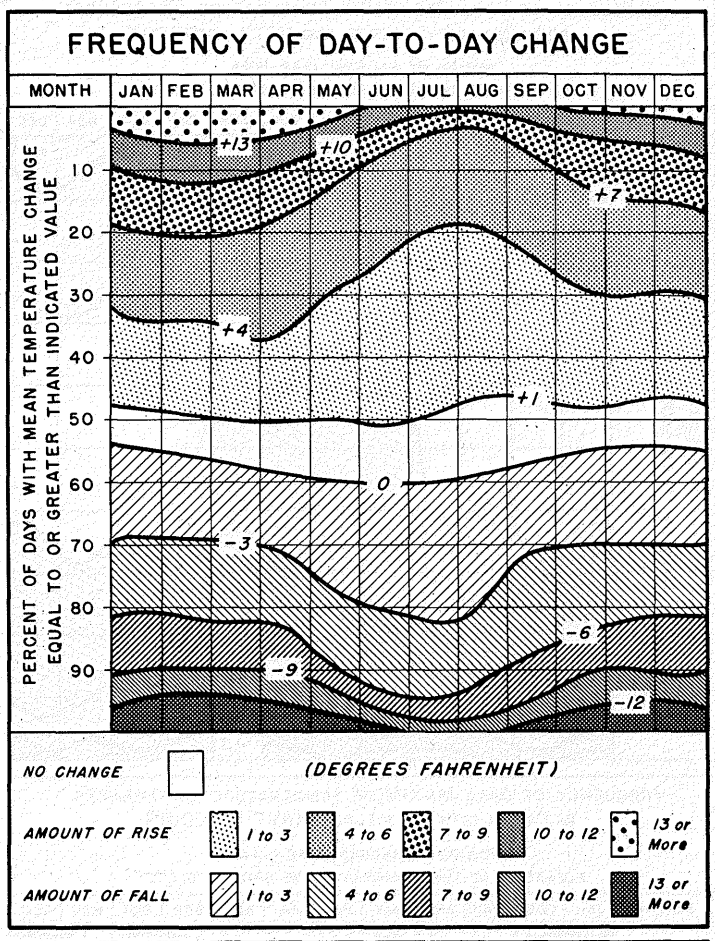


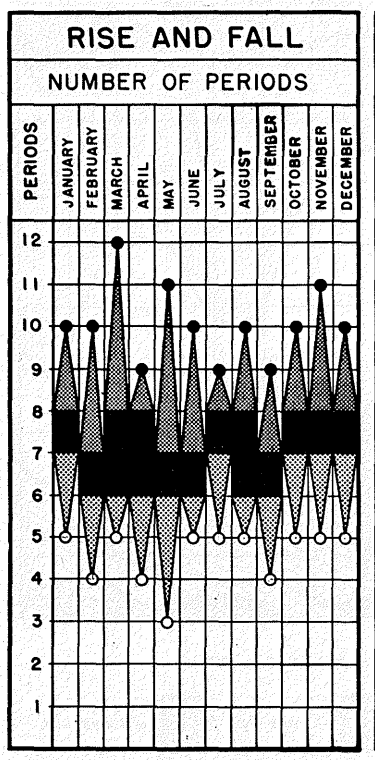
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

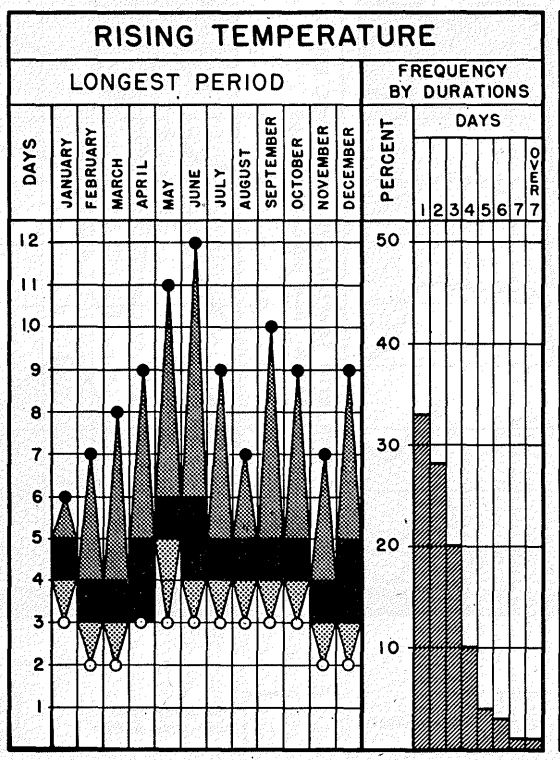
DAILY MEAN TEMPERATURE

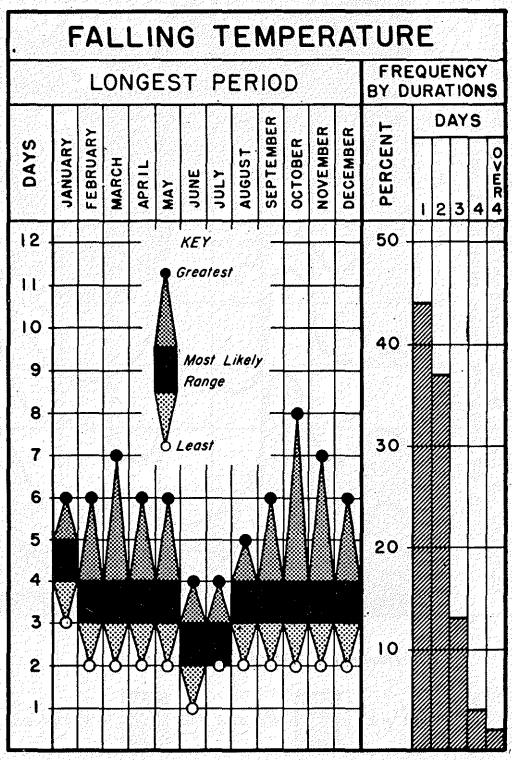
PERIOD OF RECORD, 1905-1945





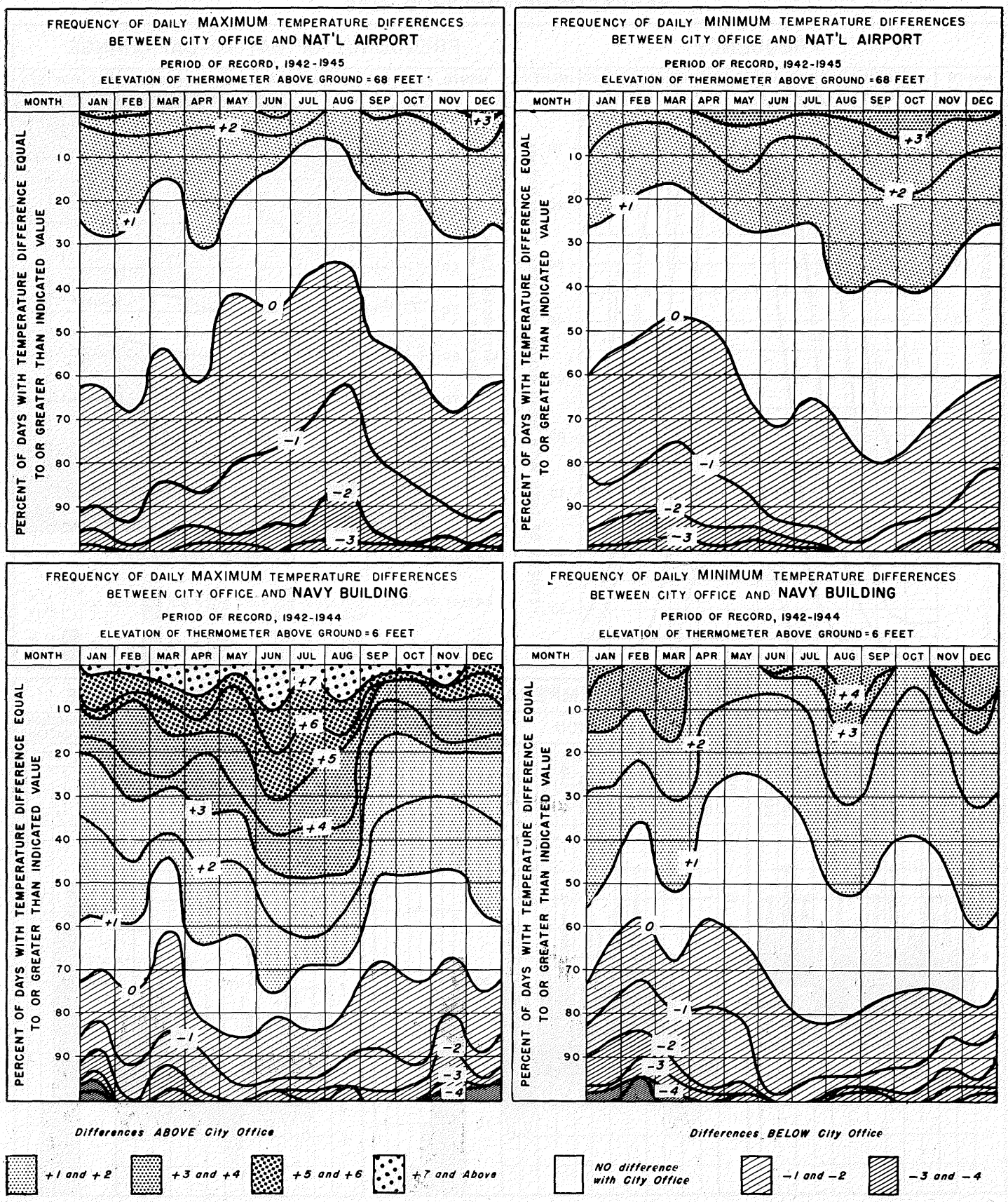






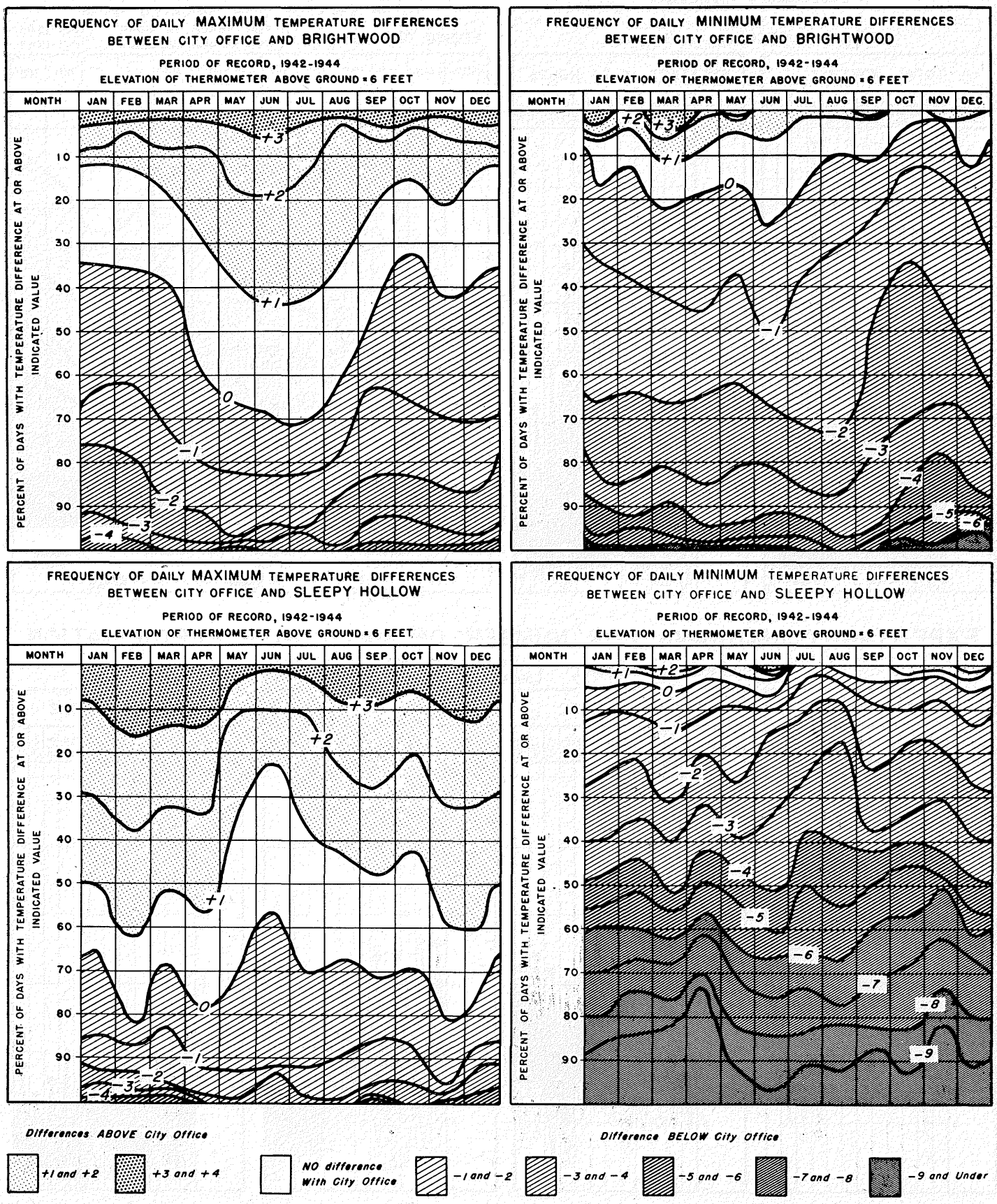
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

TEMPERATURE DIFFERENCES AT NEARBY STATIONS



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

TEMPERATURE DIFFERENCES AT NEARBY STATIONS

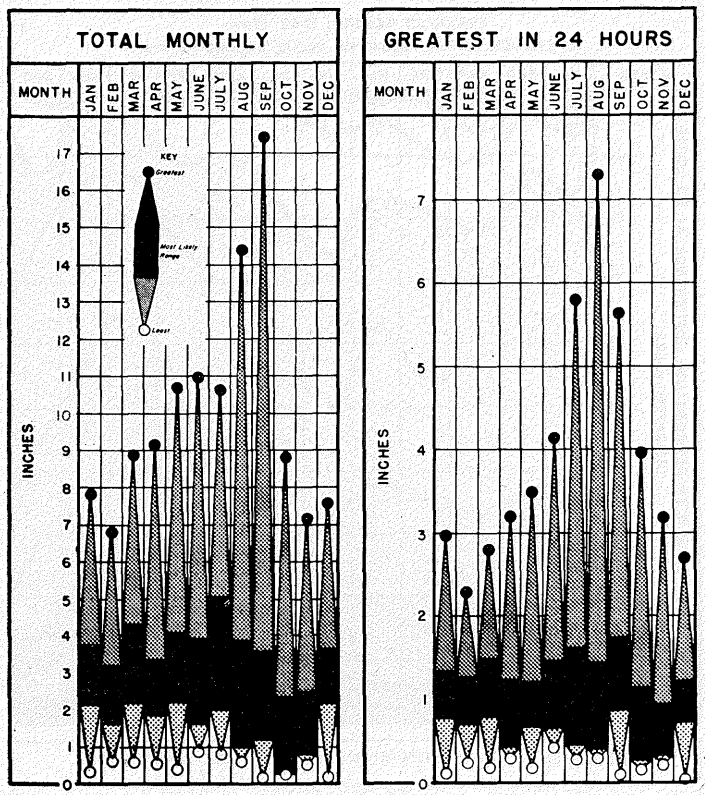


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

AMOUNTS OF PRECIPITATION

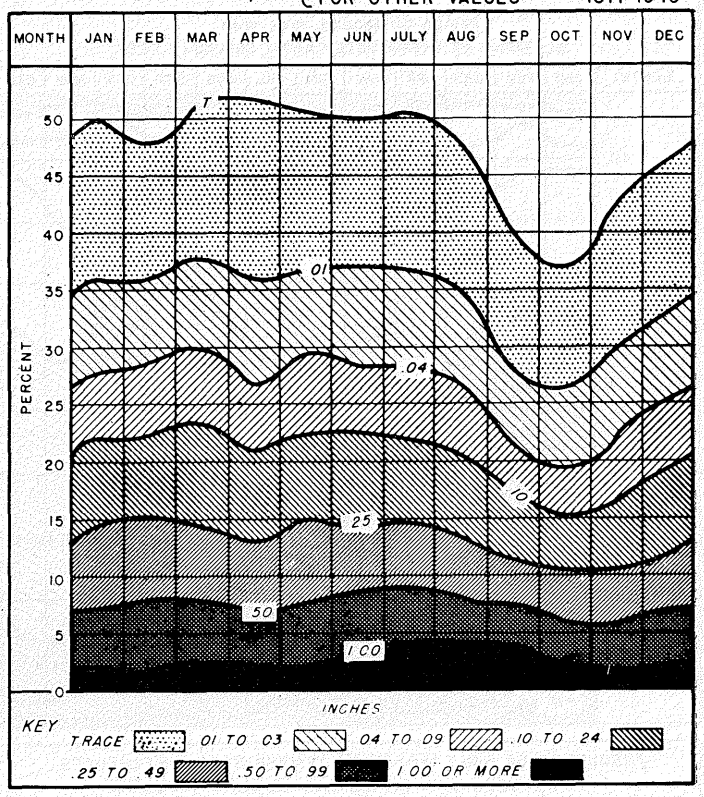
EXPECTANCY DIAGRAMS

PERIOD OF RECORD, 1871-1945



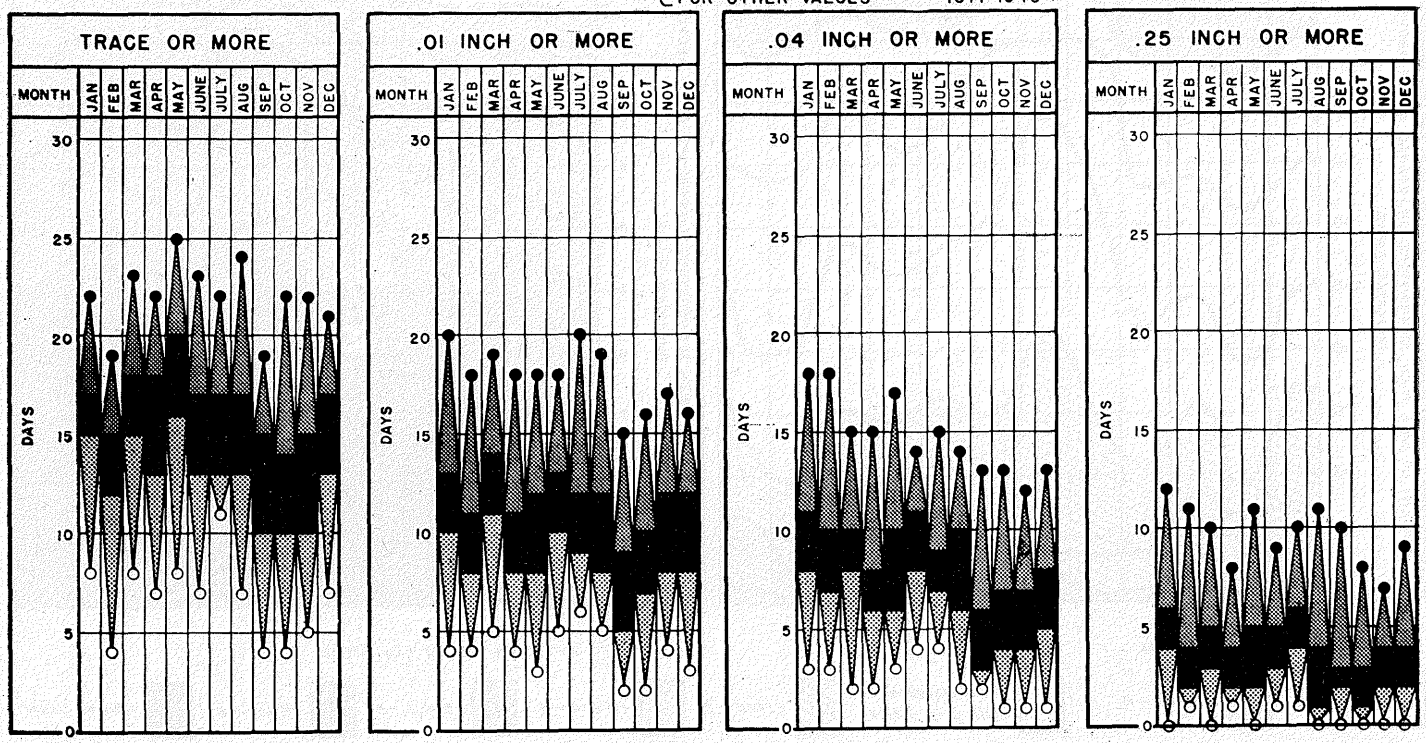
FREQUENCY OF DAYS WITH PRECIPITATION EQUAL TO OR GREATER THAN INDICATED VALUE

PERIOD OF RECORD, { FOR TRACE OR MORE 1881-1945 / FOR OTHER VALUES 1871-1945



EXPECTANCY DIAGRAMS FOR NUMBER OF DAYS WITH PRECIPITATION

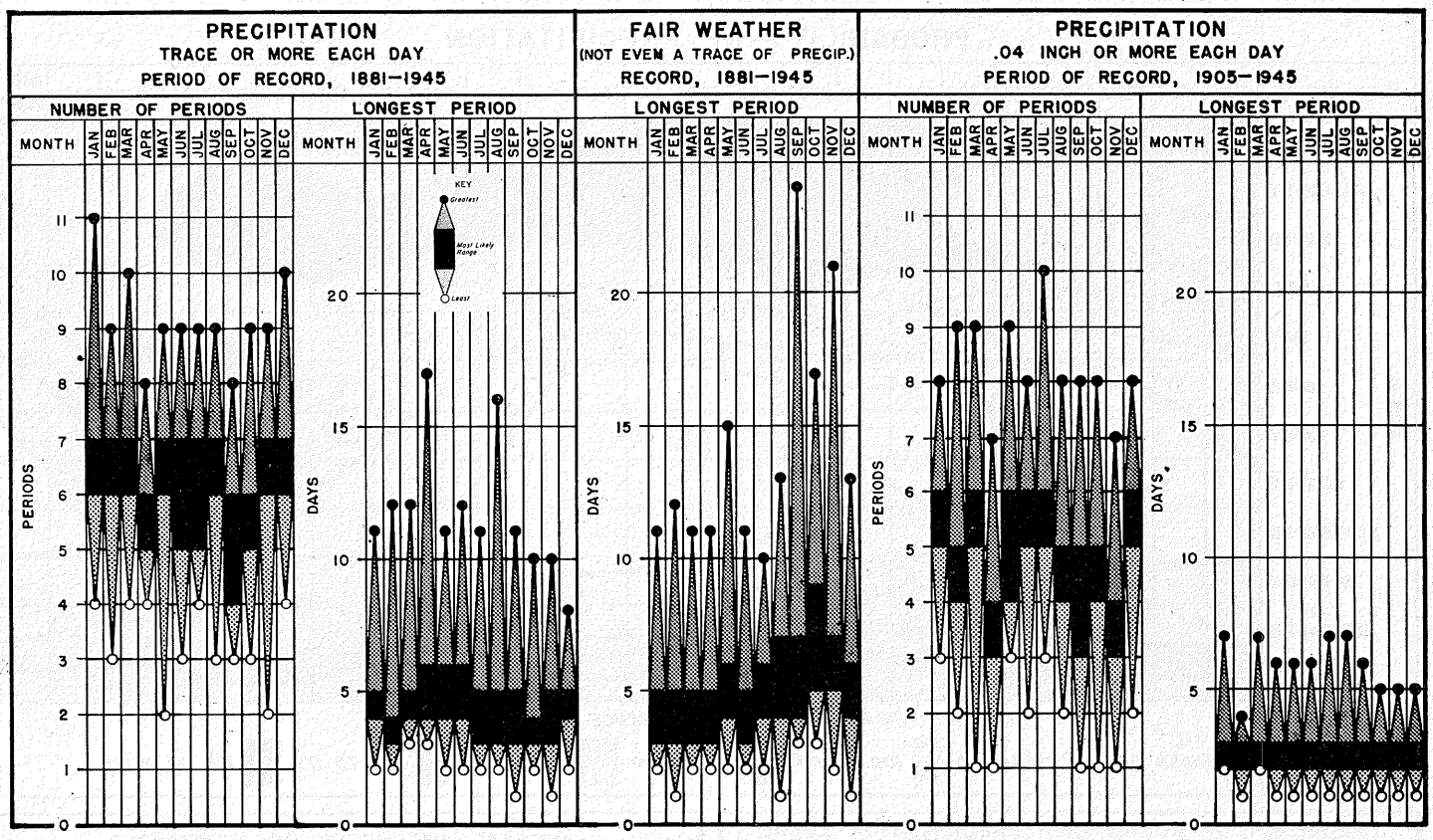
PERIOD OF RECORD, { FOR TRACE OR MORE 1881-1945 / FOR OTHER VALUES 1871-1945



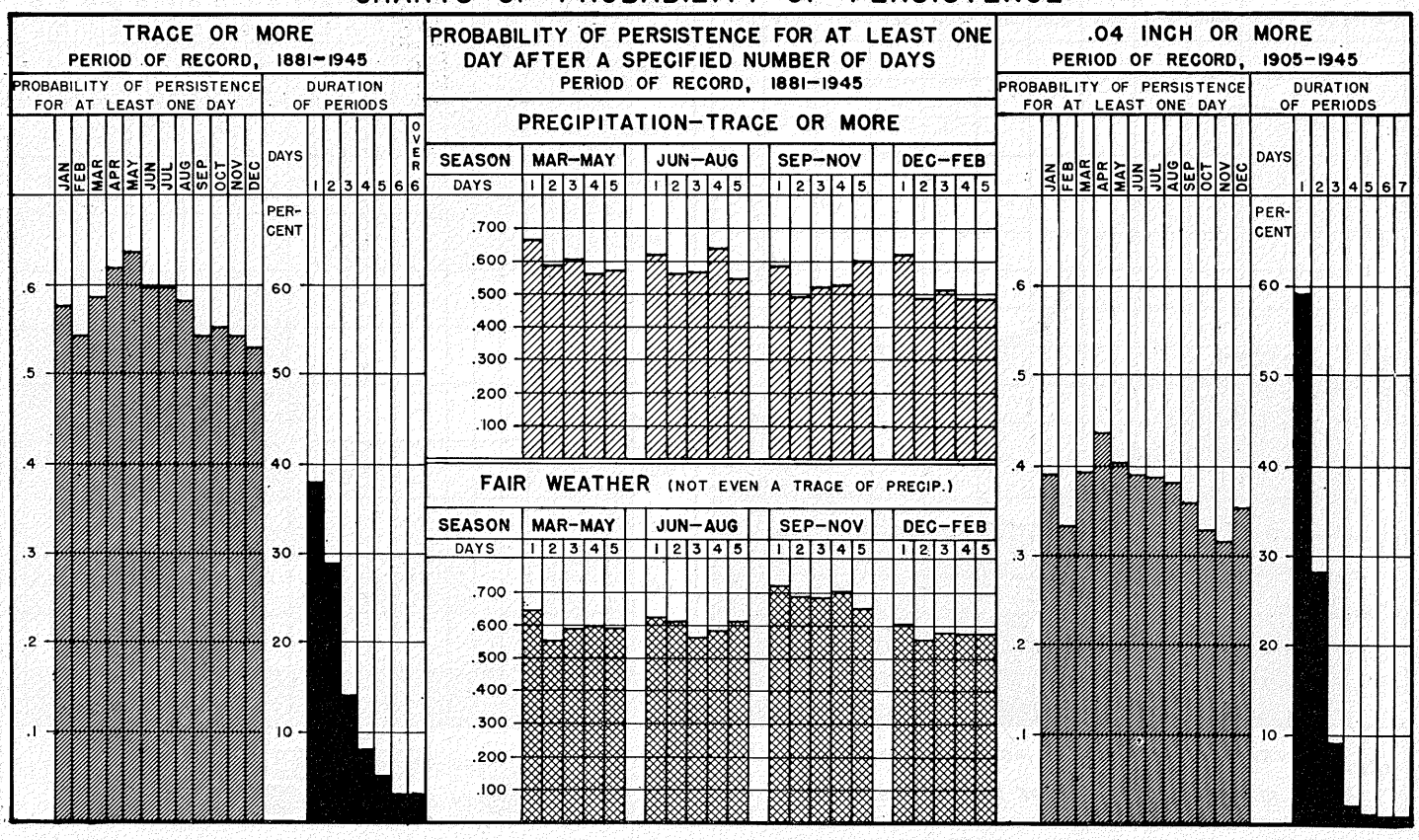
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

PRECIPITATION PERIODS

EXPECTANCY DIAGRAMS



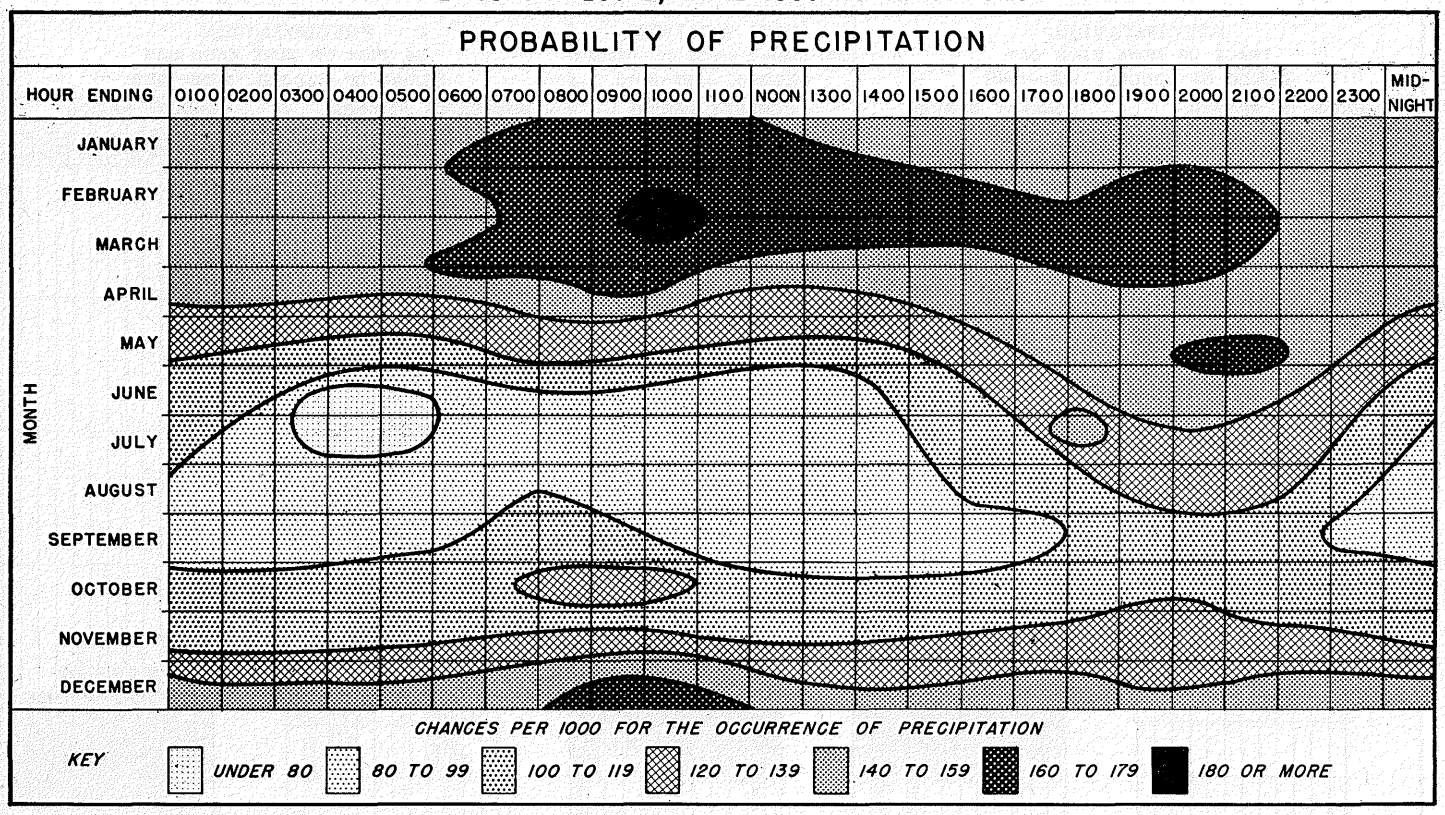
CHARTS OF PROBABILITY OF PERSISTENCE

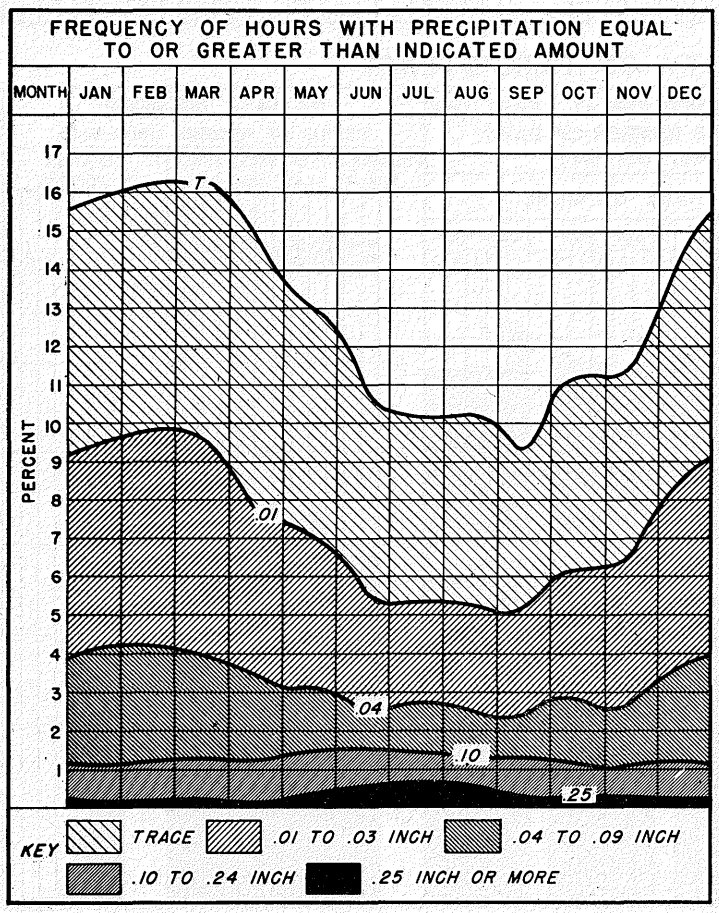


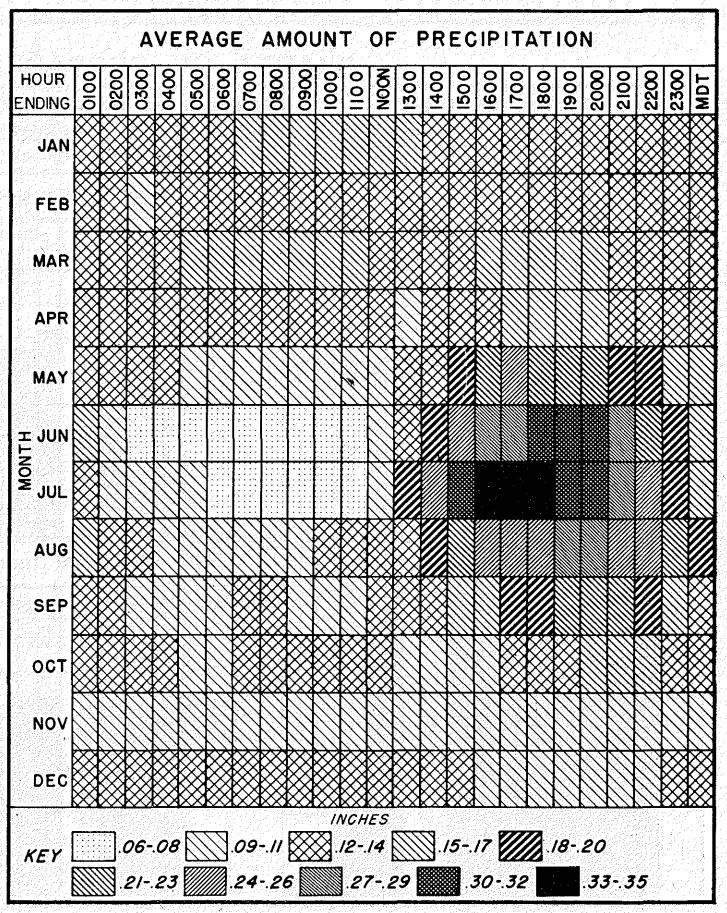
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

HOURLY PRECIPITATION

PERIOD OF RECORD, APRIL 1889 TO MARCH 1946



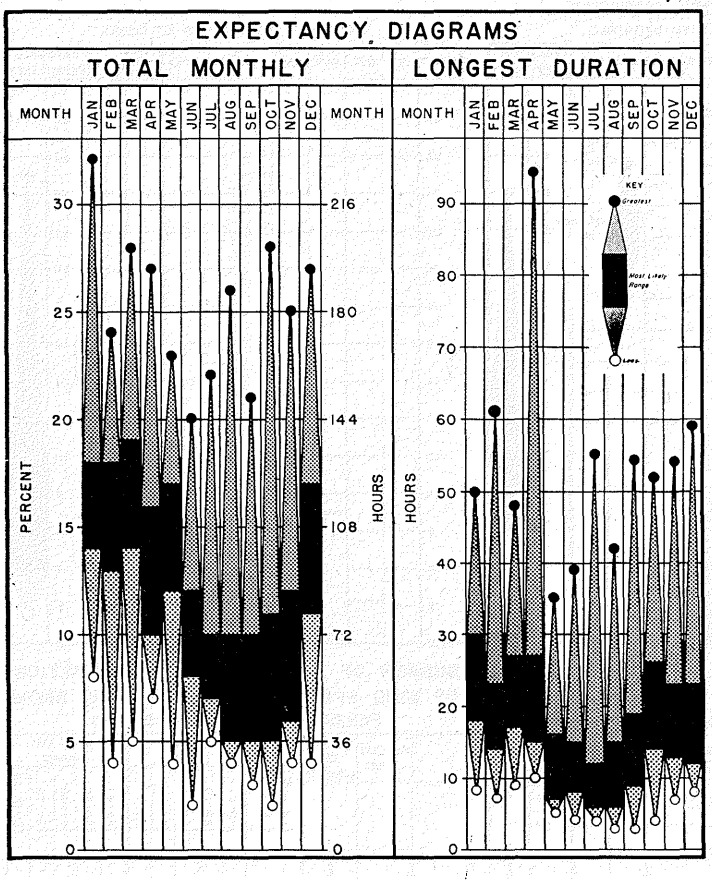


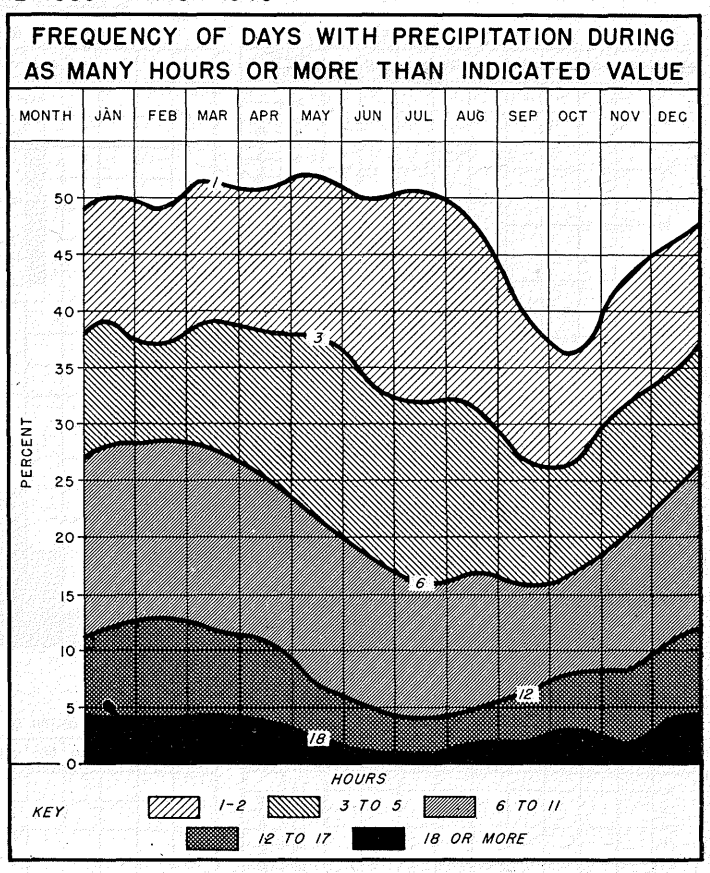


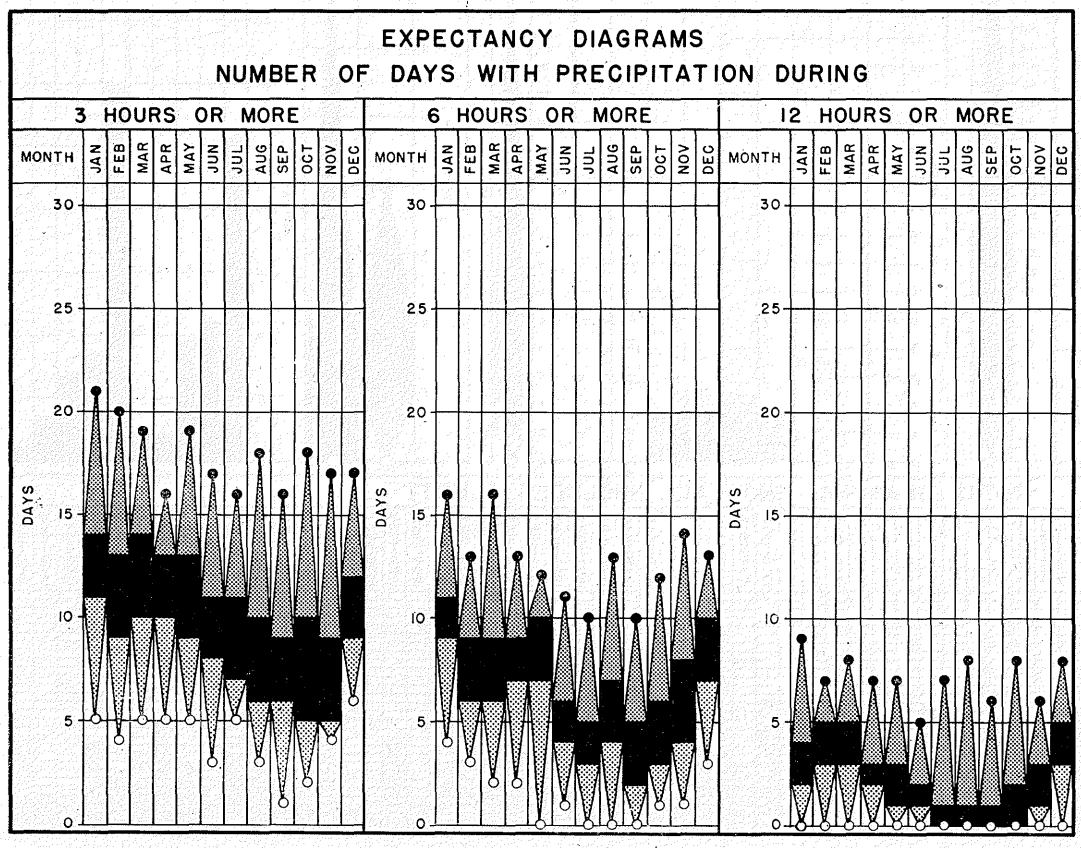
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

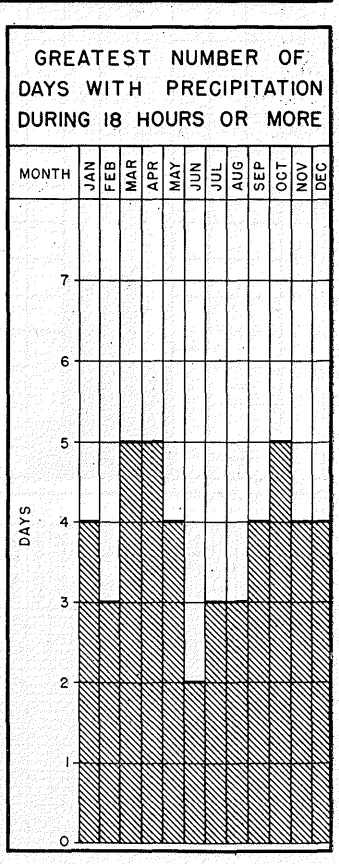
DURATION OF PRECIPITATION

PERIOD OF RECORD, APRIL 1889—MARCH 1946









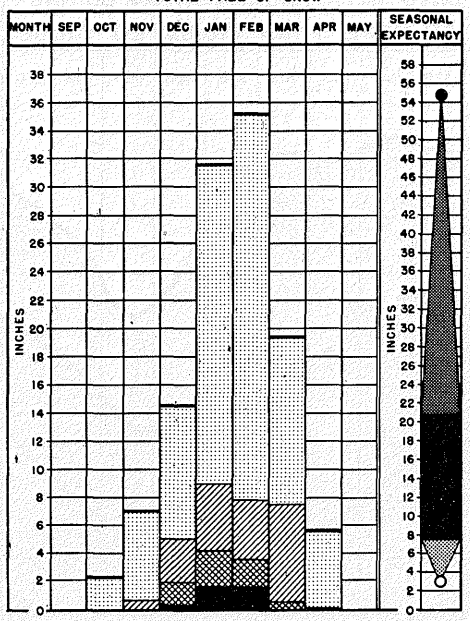
CLIMATIC HANDBOOK FOR WASHINGTON, D C

SNOW

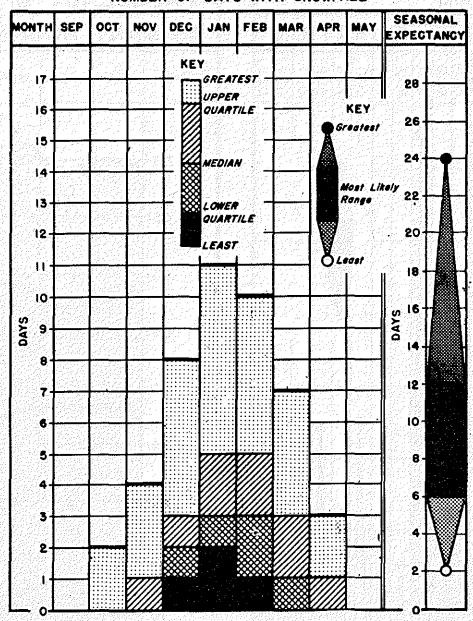
QUARTILE DIAGRAMS

PERIOD OF RECORD, 1888–1946

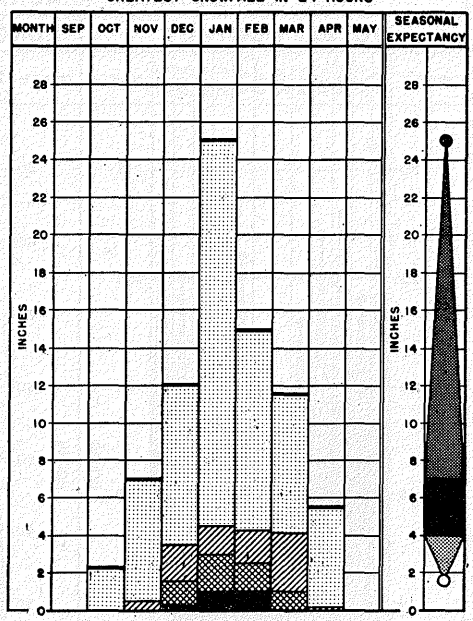
TOTAL FALL OF SNOW



NUMBER OF DAYS WITH SNOWFALL



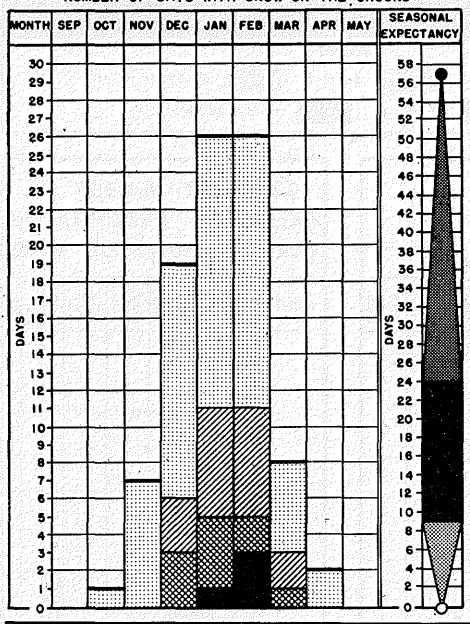
GREATEST SNOWFALL IN 24 HOURS



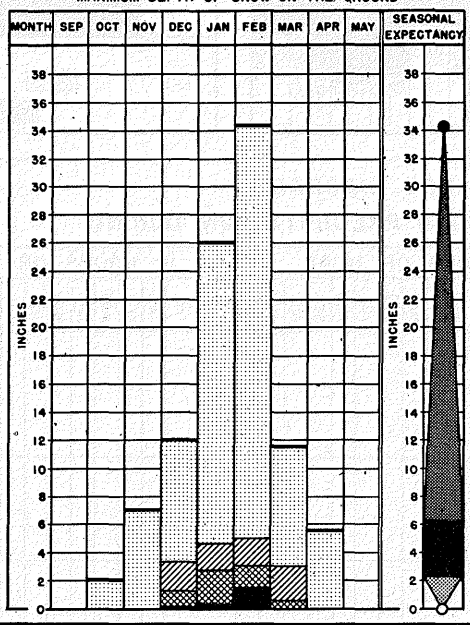
QUARTILE DIAGRAMS

PERIOD OF RECORD, 1893–1946

NUMBER OF DAYS WITH SNOW ON THE GROUND

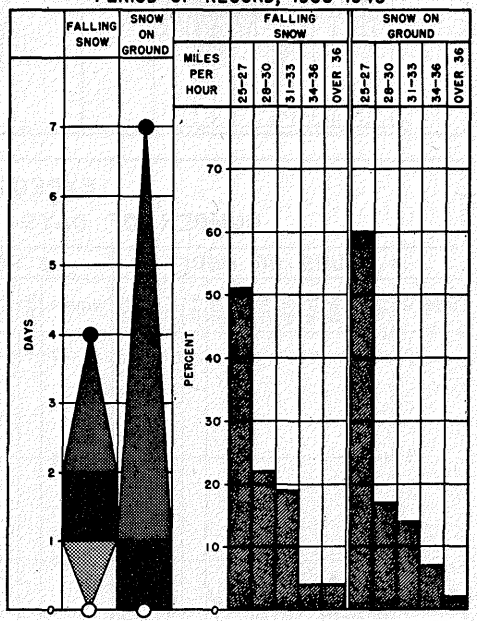


MAXIMUM DEPTH OF SNOW ON THE GROUND

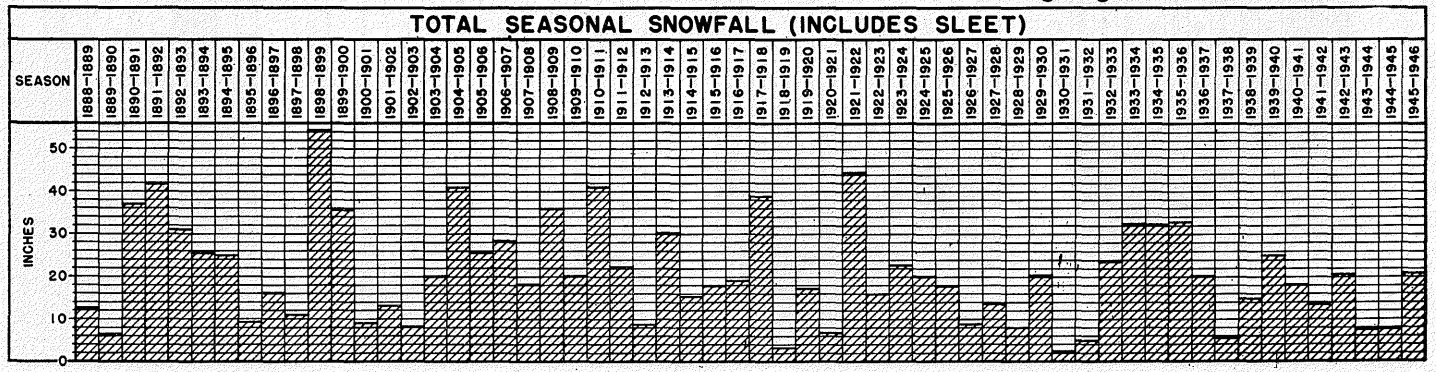


NUMBER OF DAYS WITH THE COMBINATION OF WIND SPEED OVER 24 MPH AND SNOW

PERIOD OF RECORD, 1905–1945



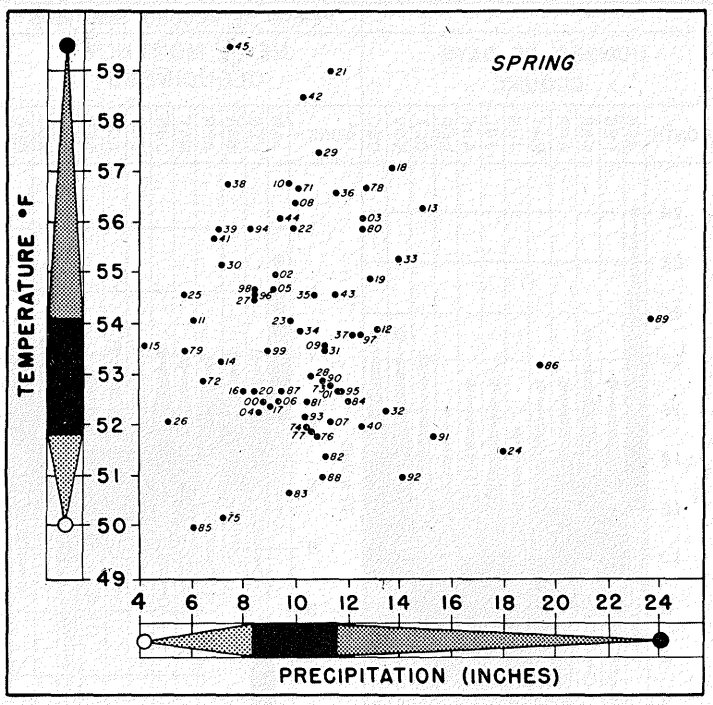
TOTAL SEASONAL SNOWFALL (INCLUDES SLEET)

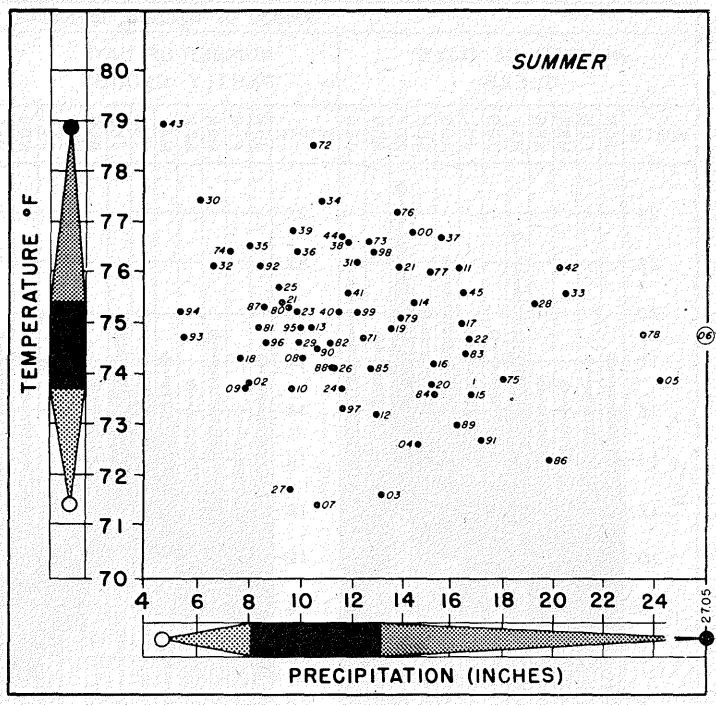


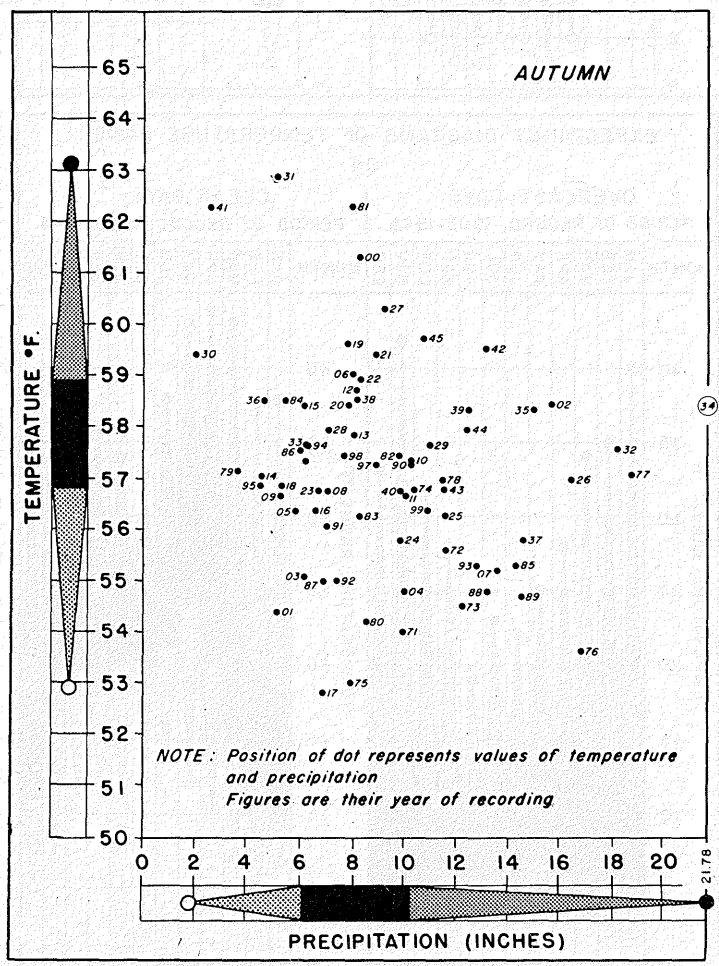
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

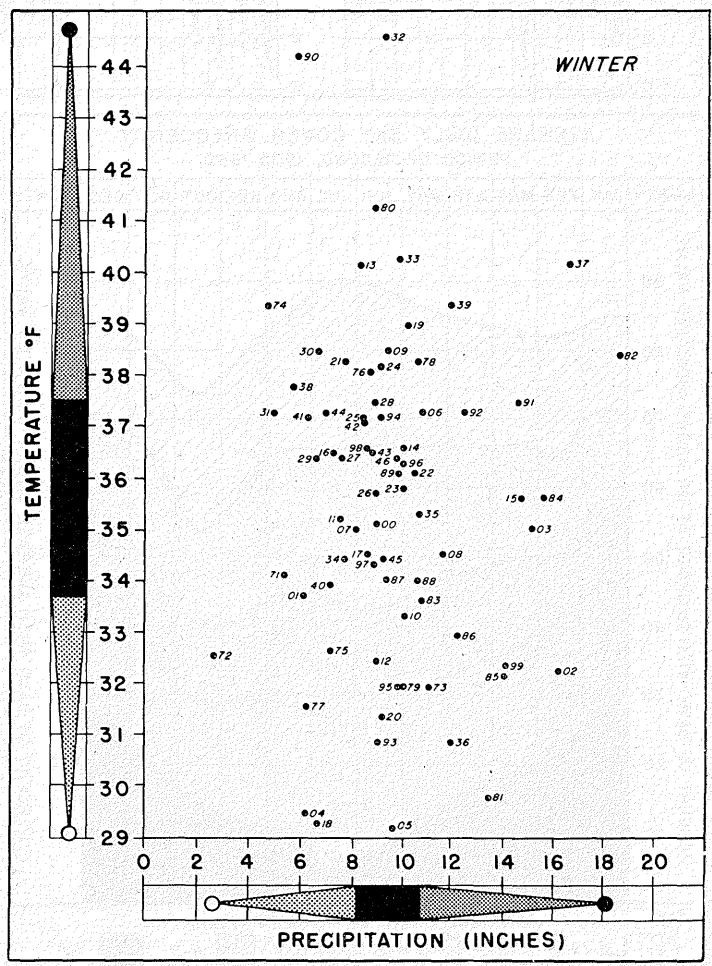
AVERAGE TEMPERATURE AND TOTAL PRECIPITATION BY SEASONS

PERIOD OF RECORD, DEC. 1870-FEB. 1946









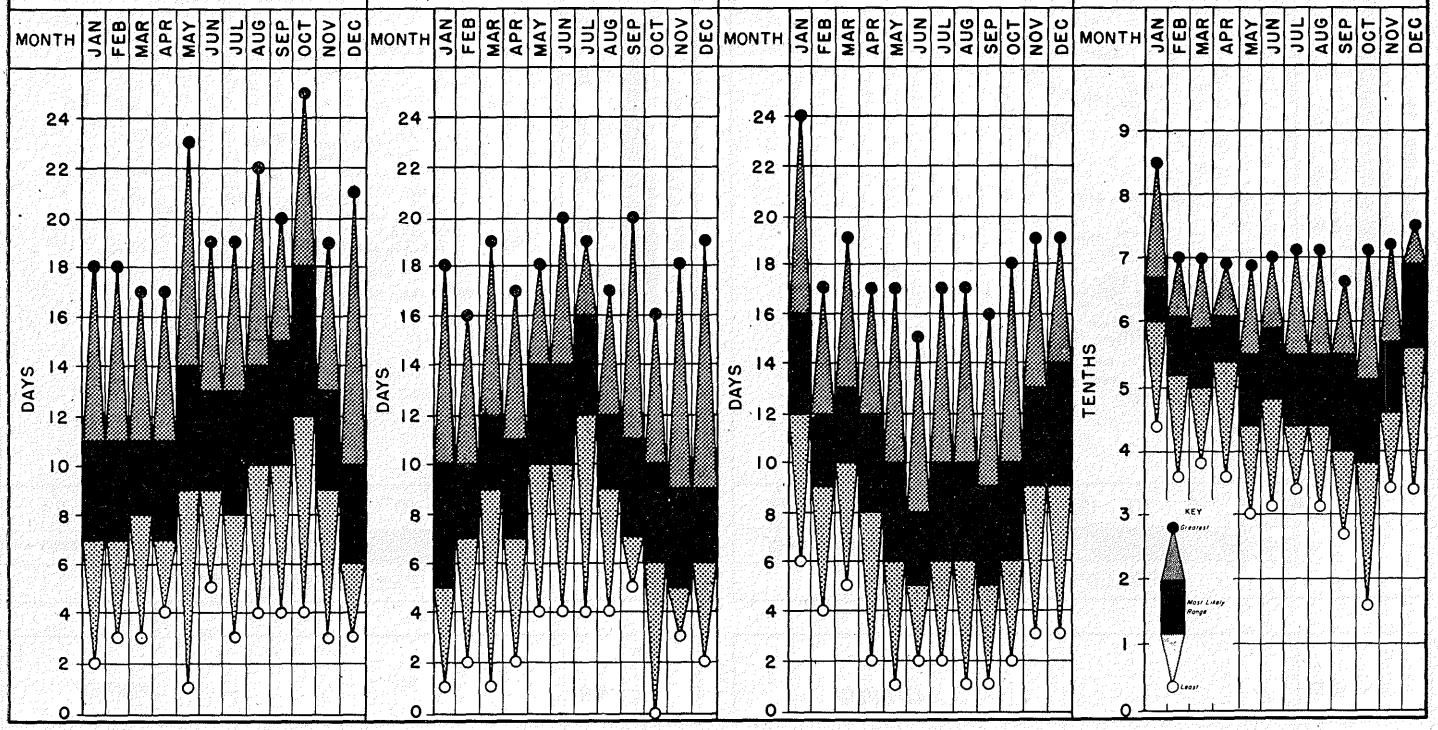
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SKY COVER FREQUENCIES AND COMBINATIONS

EXPECTANCY DIAGRAMS

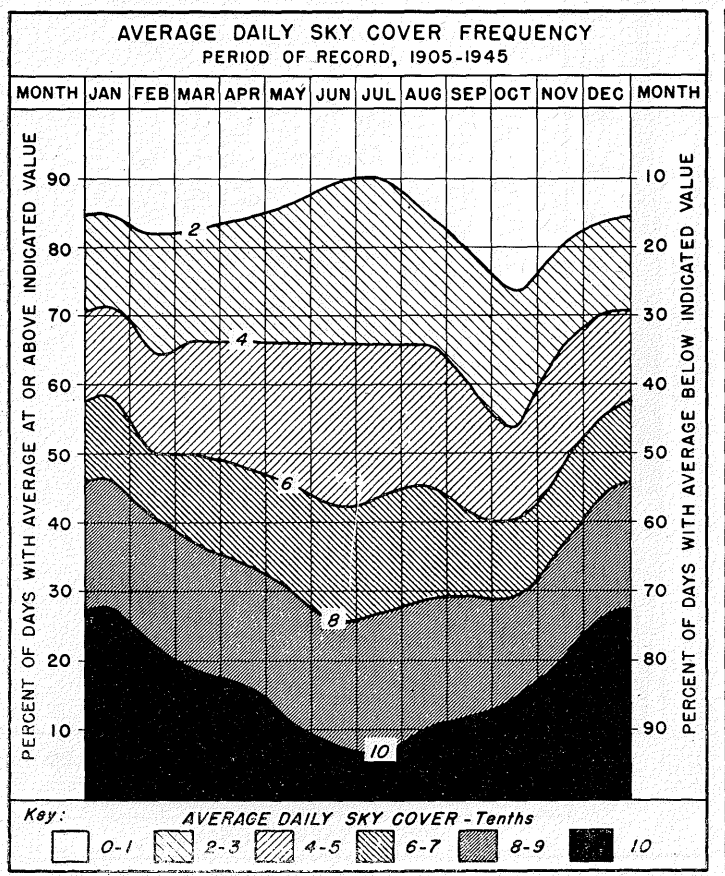
PERIOD OF RECORD, 1871-1945

PERIOD OF RECORD, 1889-1945

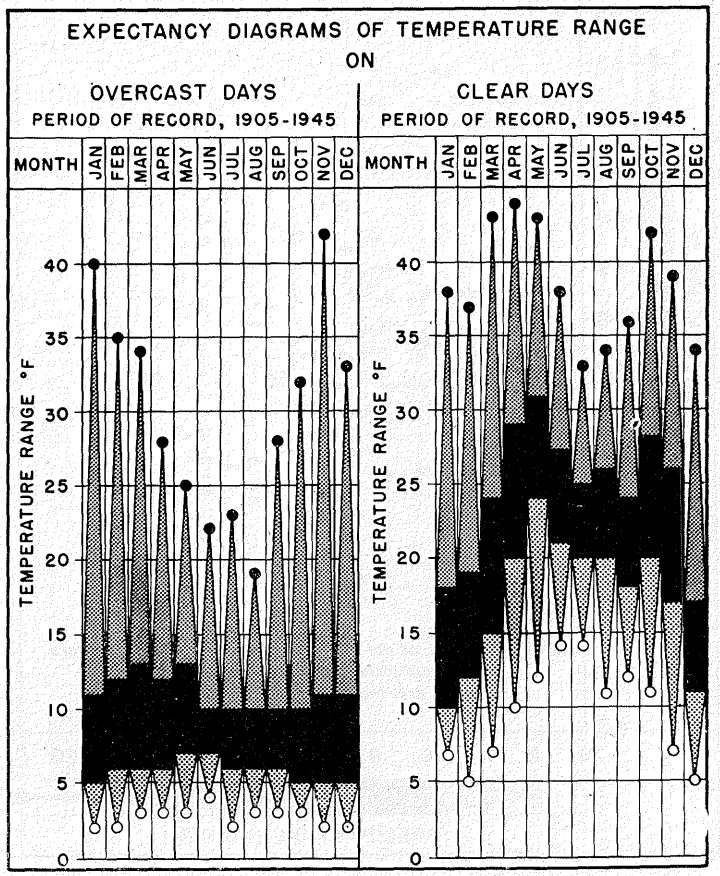


AVERAGE DAILY SKY COVER FREQUENCY

PERIOD OF RECORD, 1905-1945



EXPECTANCY DIAGRAMS OF TEMPERATURE RANGE ON

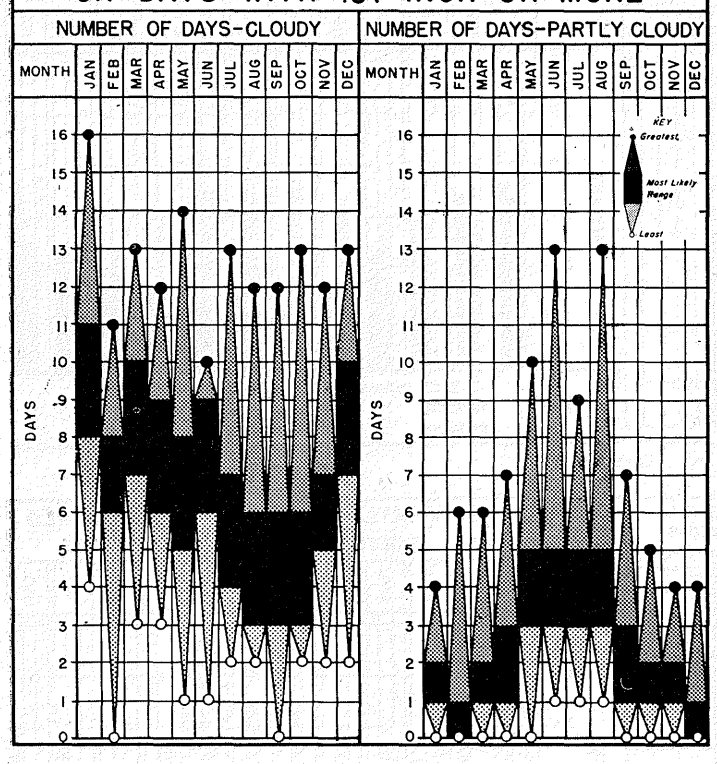


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

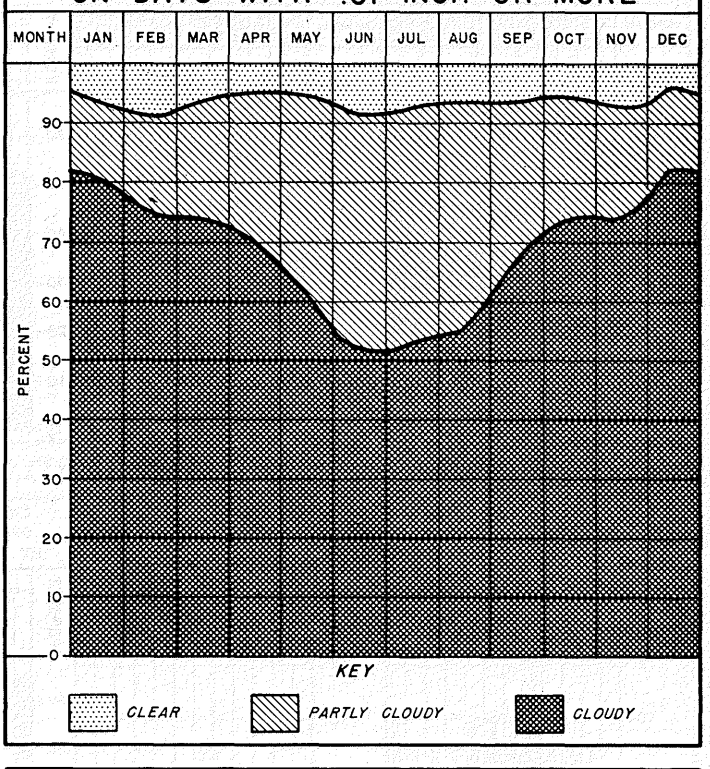
SKY COVER AND TEMPERATURE ON DAYS WITH PRECIPITATION

PERIOD OF RECORD, 1905–1945

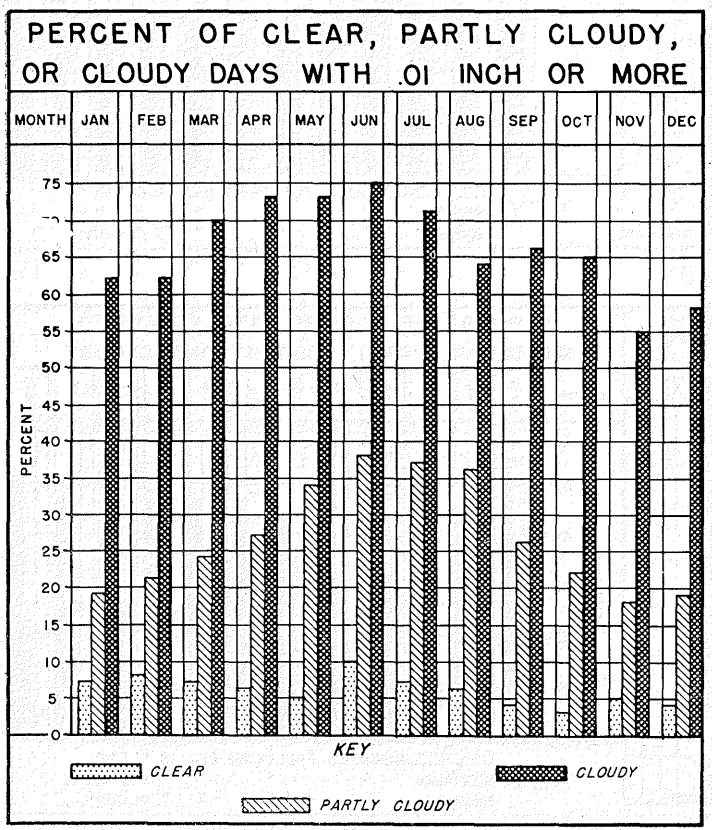
EXPECTANCY DIAGRAMS ON DAYS WITH .01 INCH OR MORE



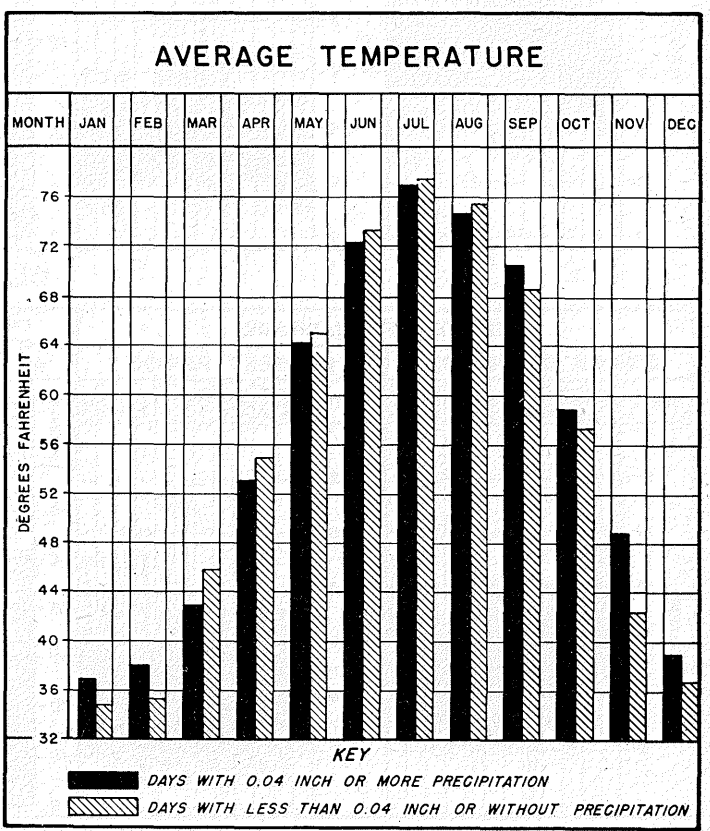
CHARACTER OF SKY COVER ON DAYS WITH .01 INCH OR MORE



PERCENT OF CLEAR, PARTLY CLOUDY, OR CLOUDY DAYS WITH .01 INCH OR MORE



AVERAGE TEMPERATURE

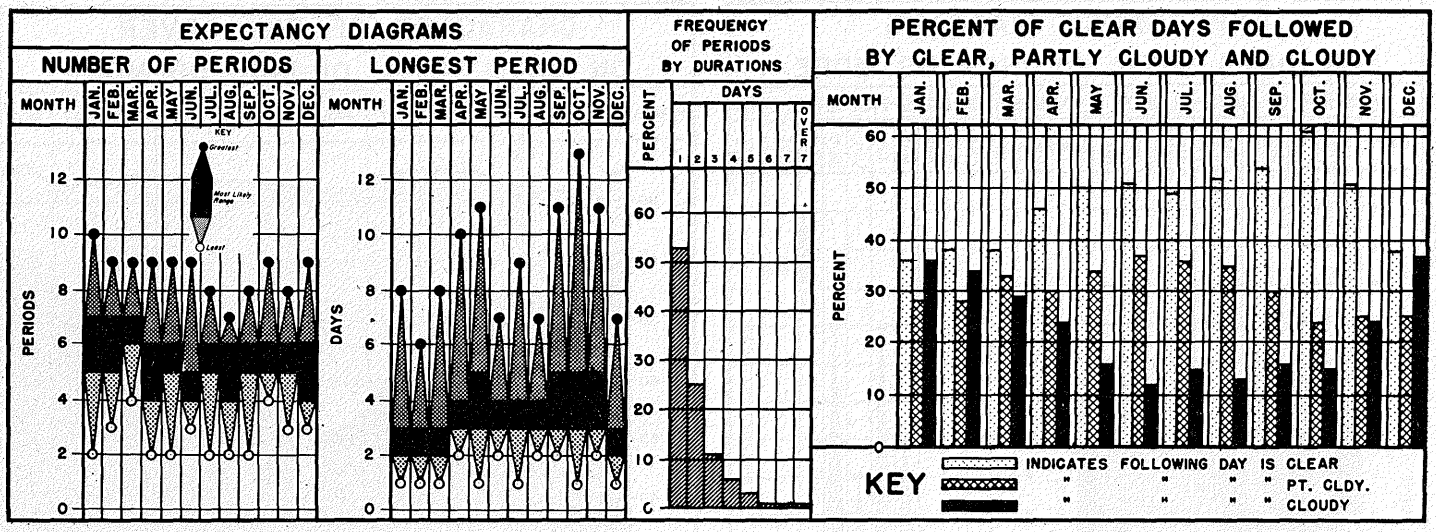


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

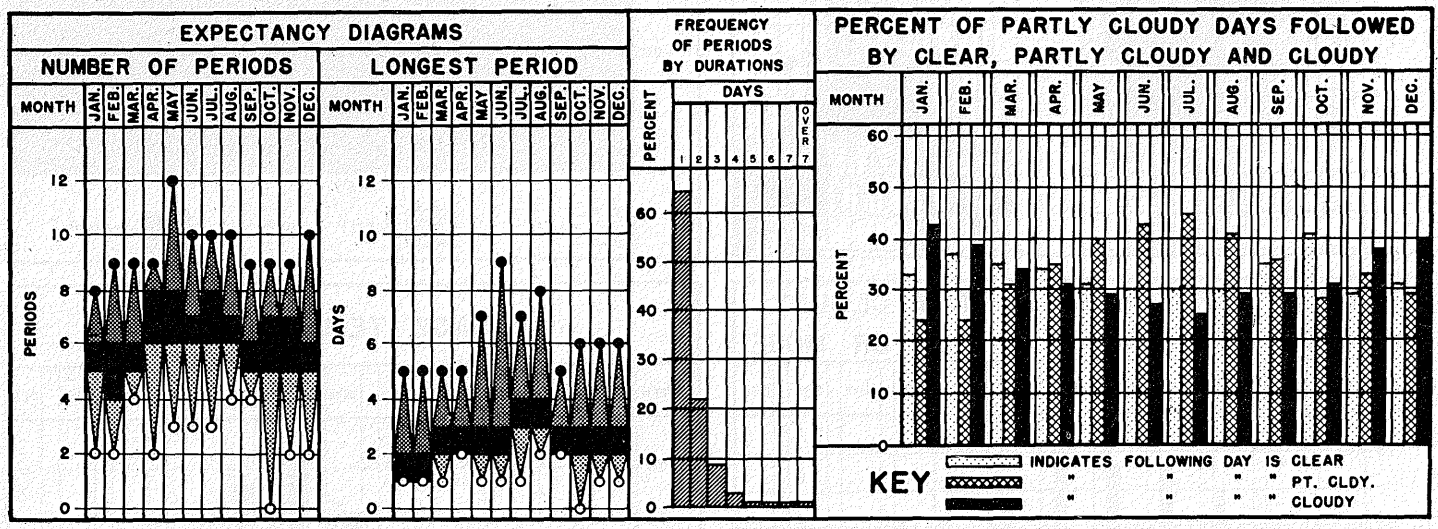
SKY COVER PERIODS

PERIOD OF RECORD, 1905-1945

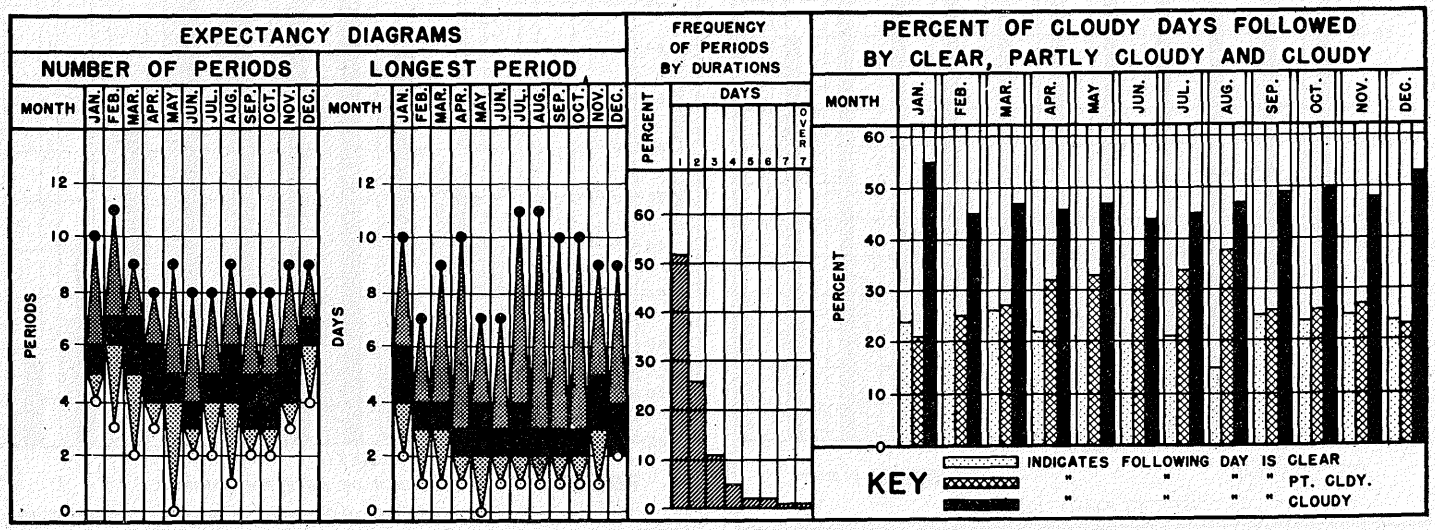
CLEAR



PARTLY CLOUDY



CLOUDY

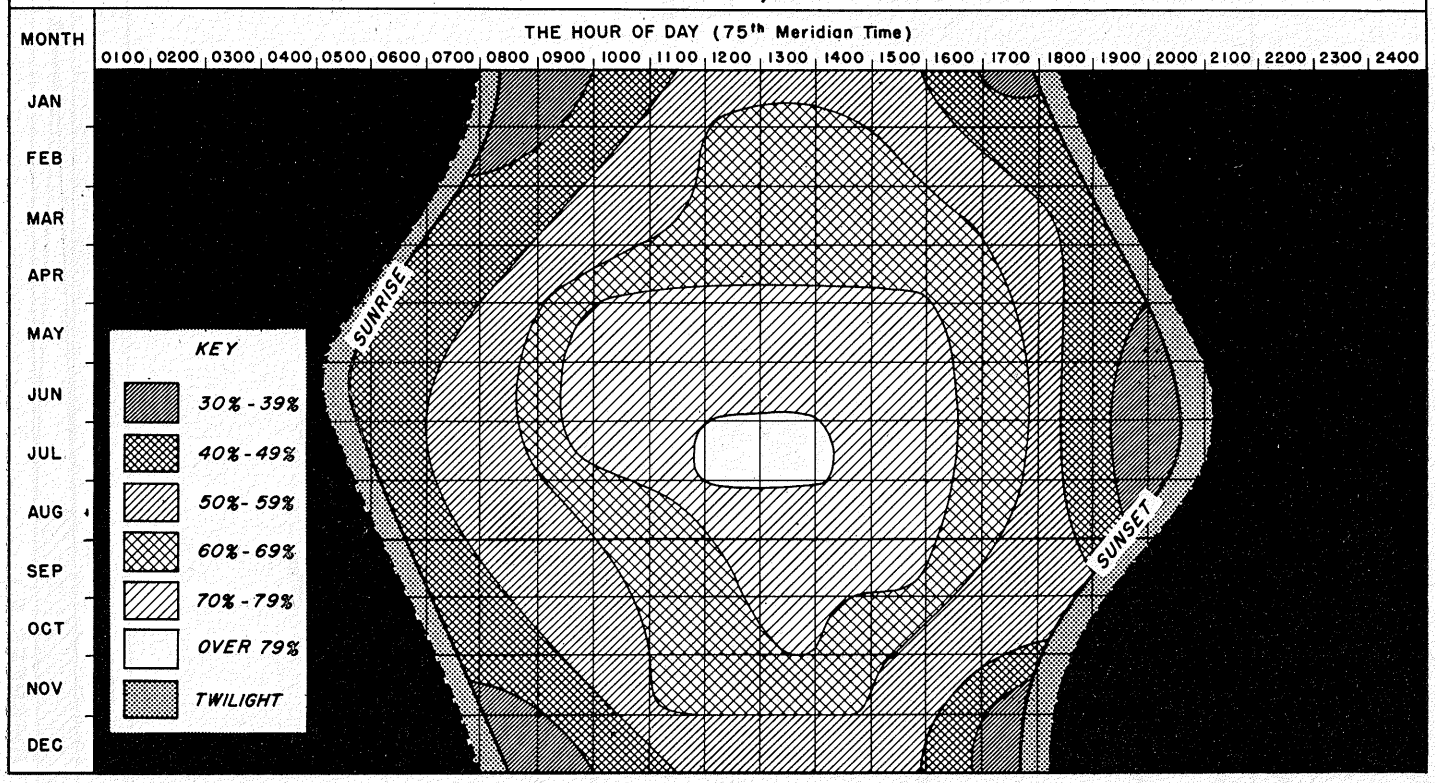


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SUNSHINE

AVERAGE HOURLY SUNSHINE

PERIOD OF RECORD, 1890-1942

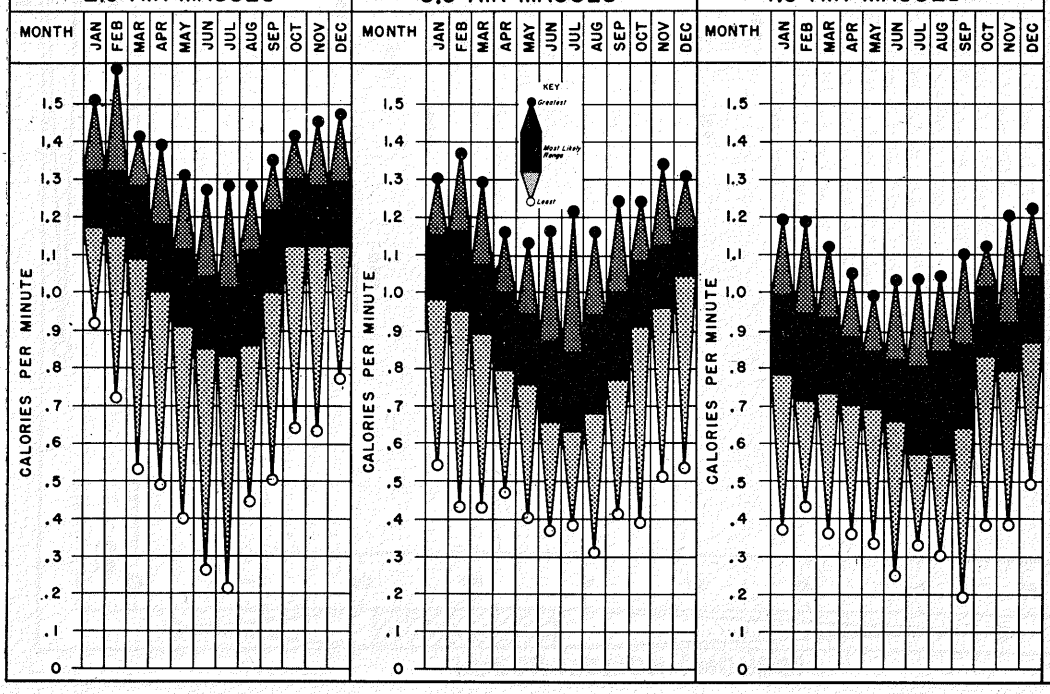


EXPECTANCY DIAGRAMS

INTENSITY OF SOLAR RADIATION WHEN SKY IS CLOUDLESS

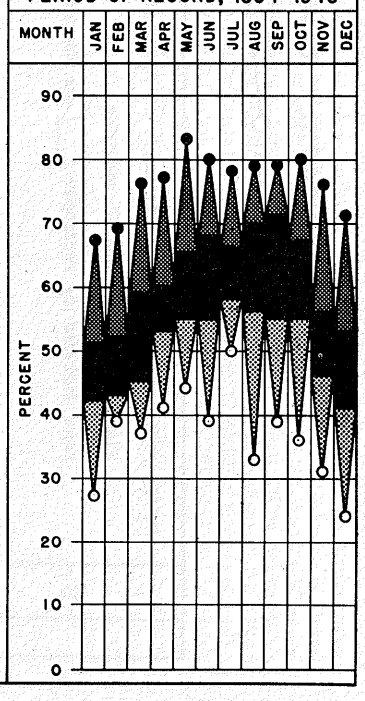
PERIOD OF RECORD, 1916-1940

ELEVATION OF PYRHELIOMETER 397 FEET, M.S.L.



PERCENT OF POSSIBLE SUNSHINE

PERIOD OF RECORD, 1894-1945

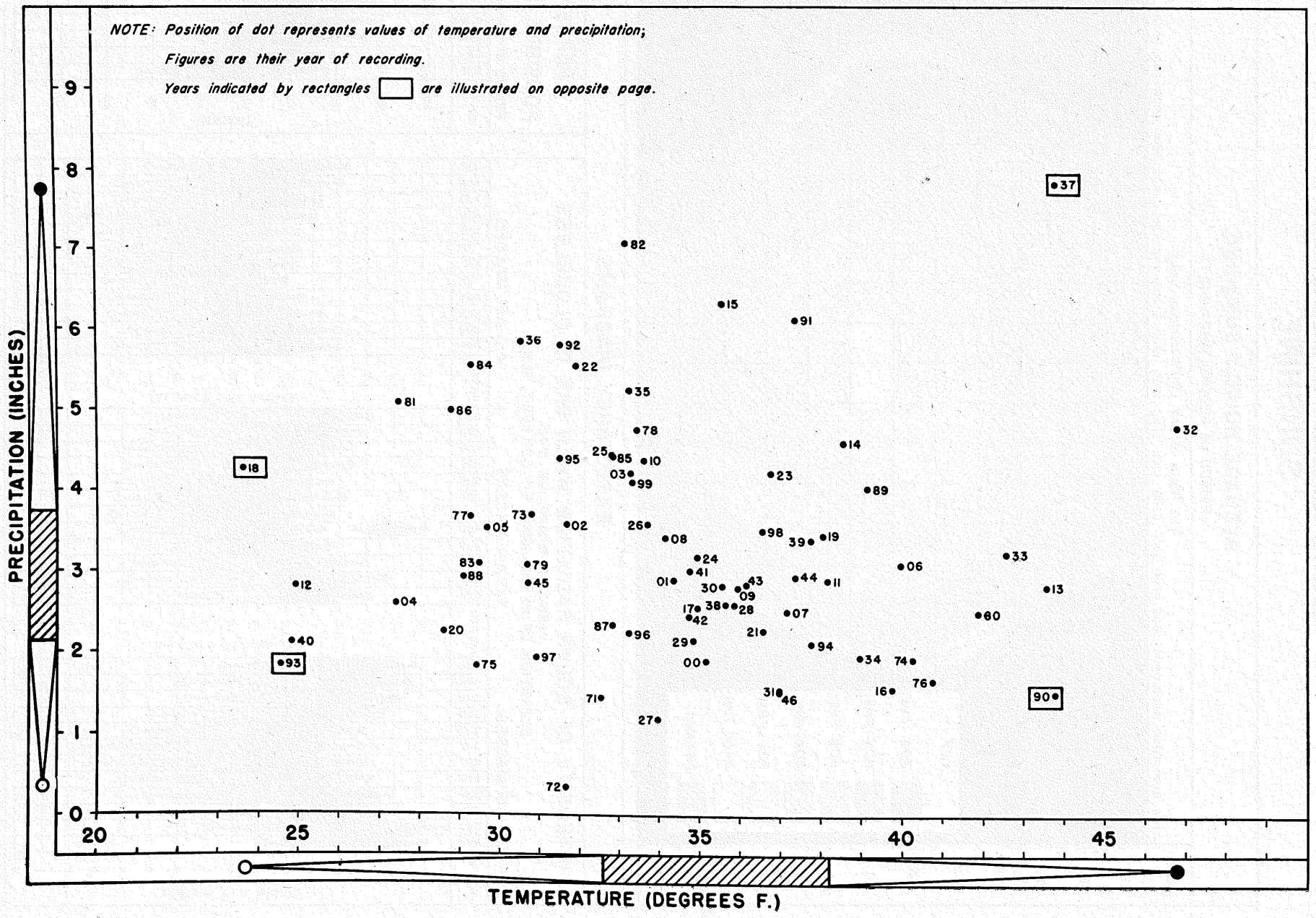


WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

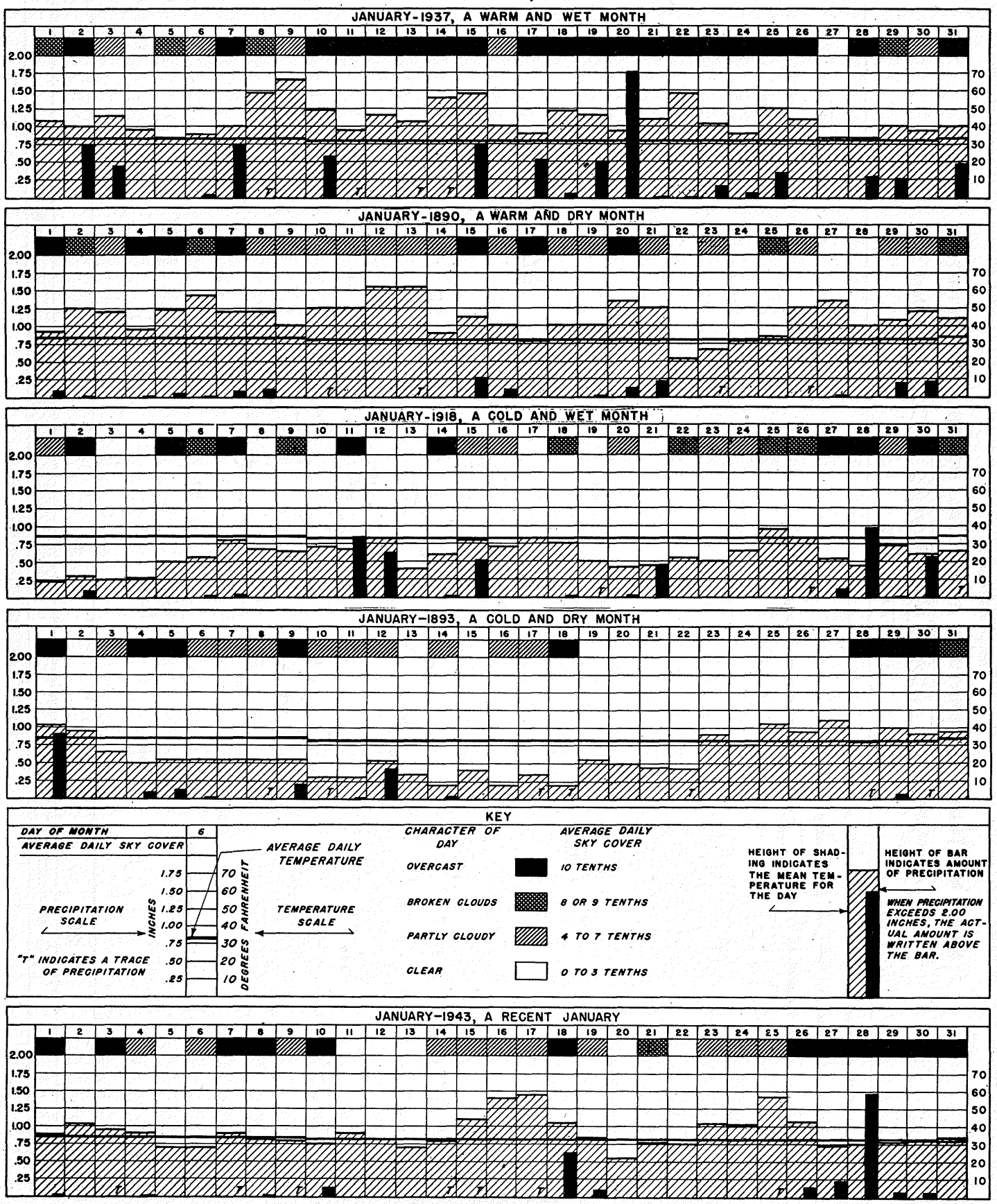
JANUARY



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS — JANUARY

PERIOD OF RECORD, 1889-1945

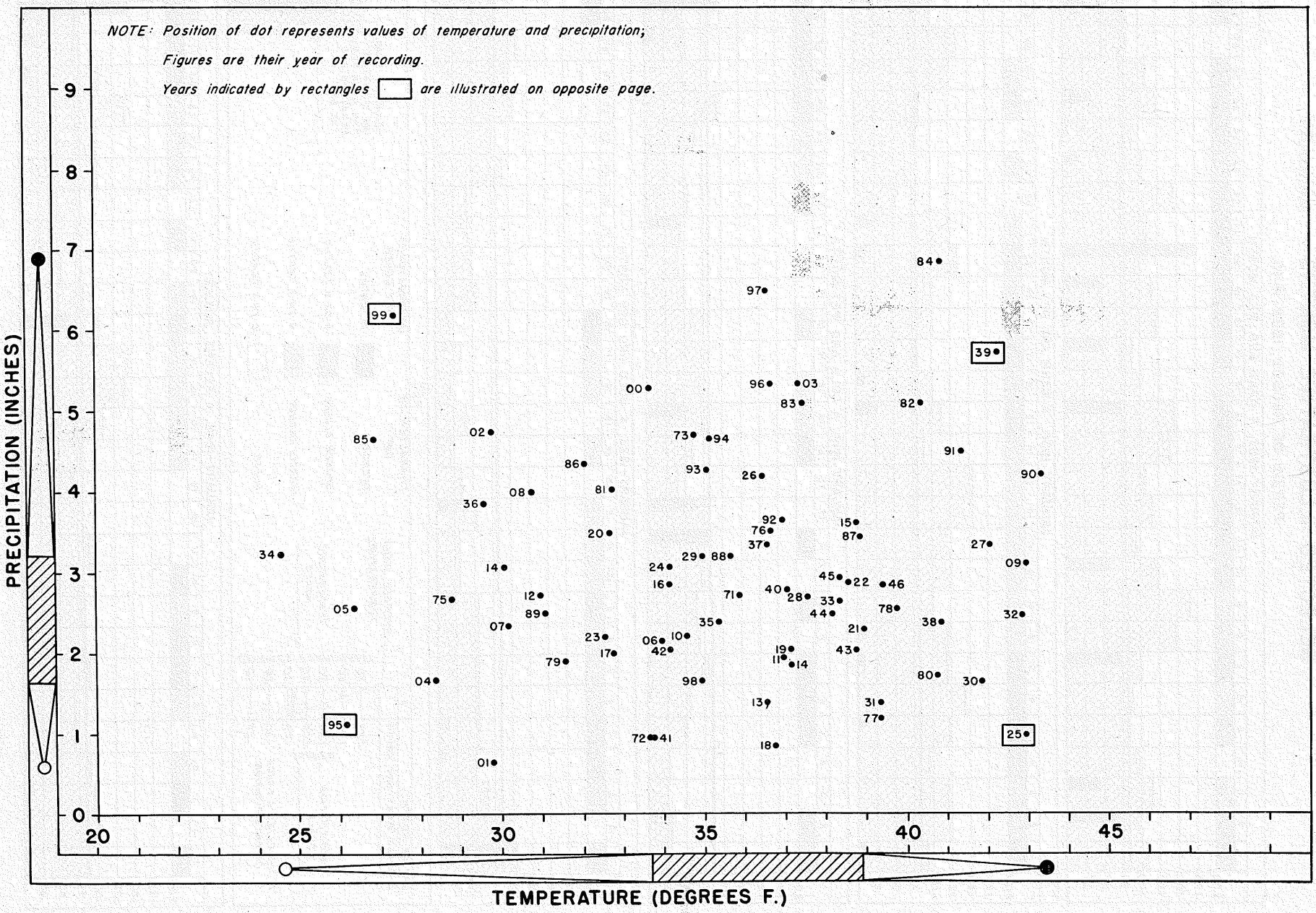


WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

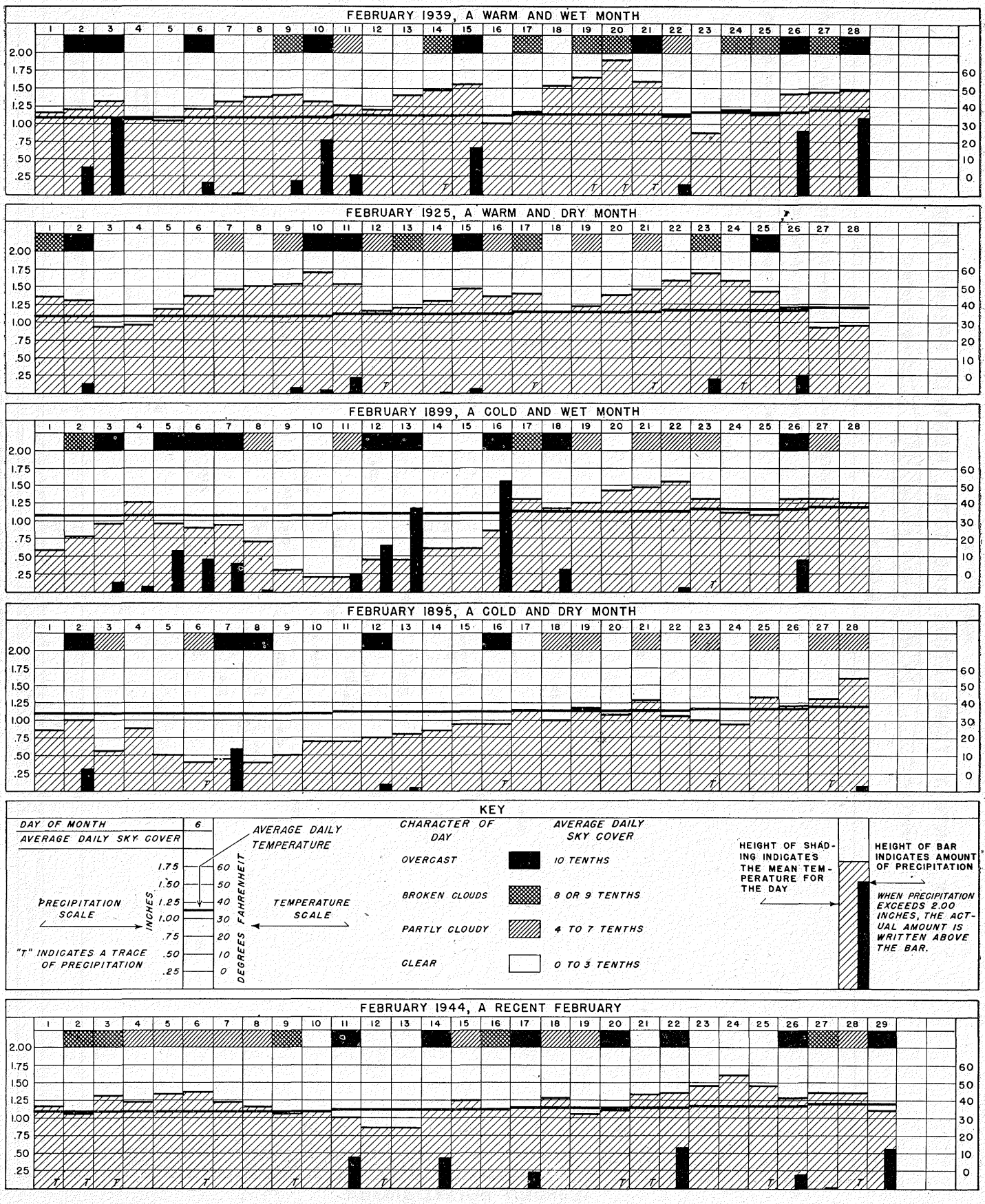
FEBRUARY



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS——FEBRUARY

PERIOD OF RECORD, 1889-1945



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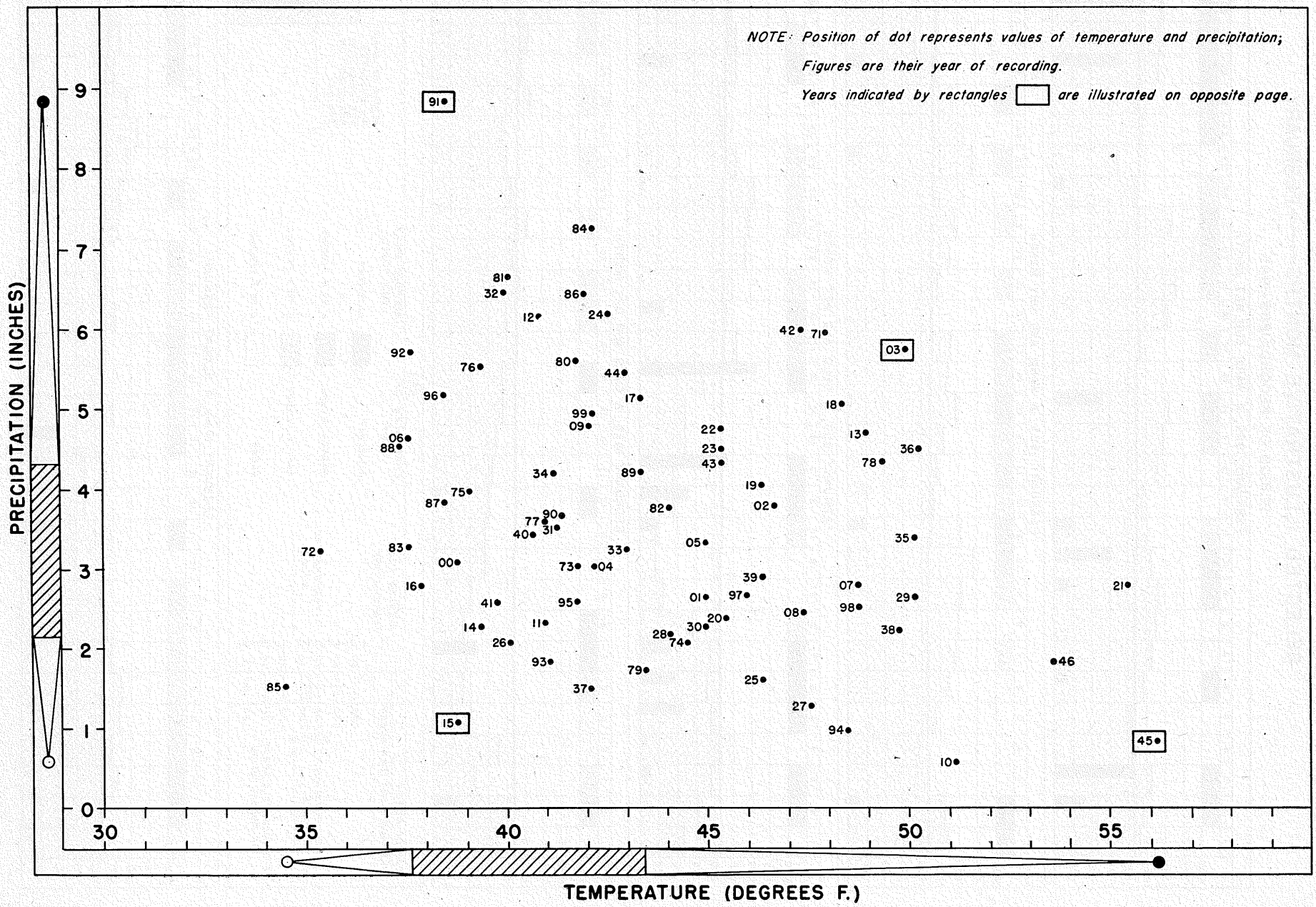
WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

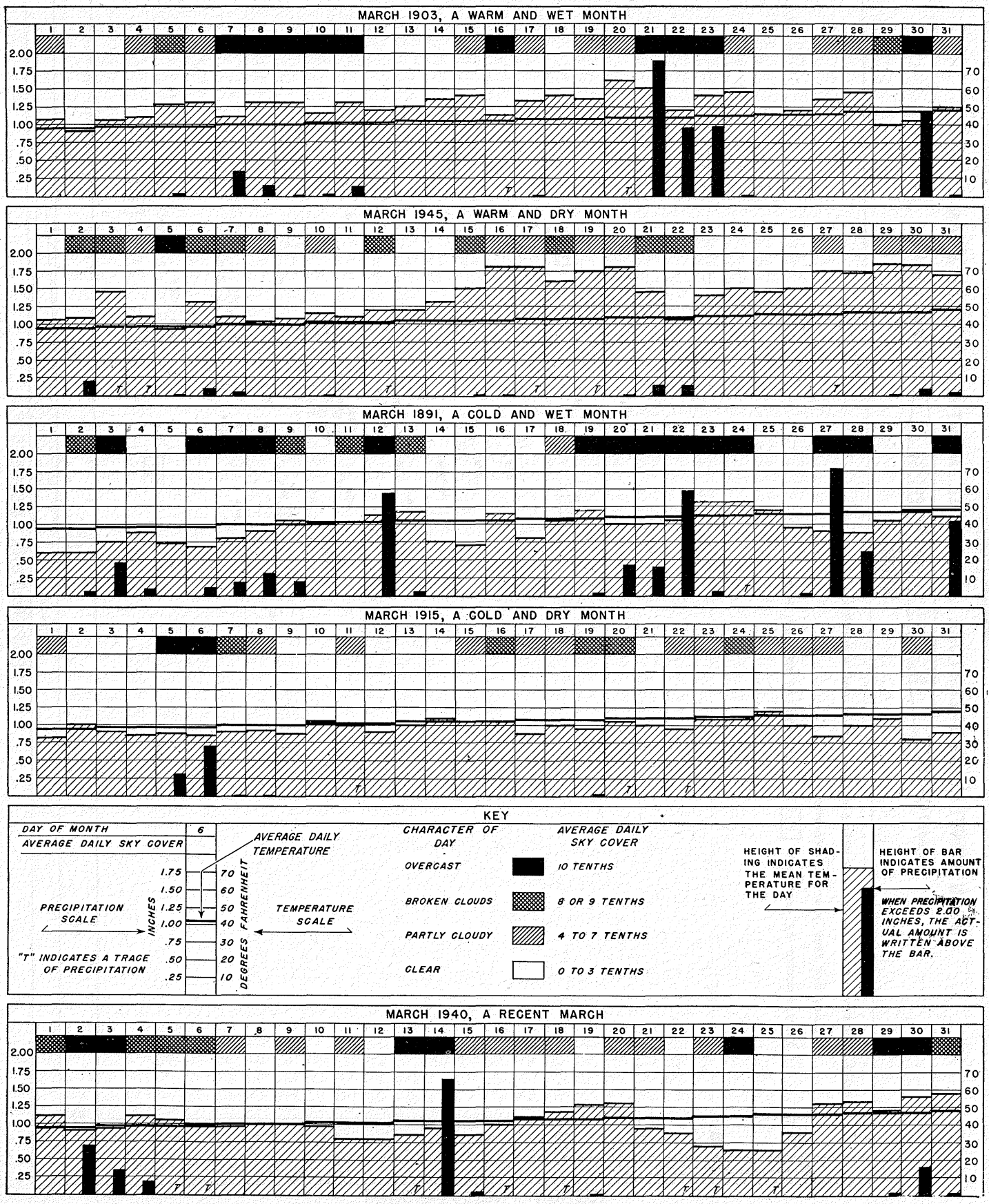
MARCH



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS—MARCH

PERIOD OF RECORD, 1889-1945

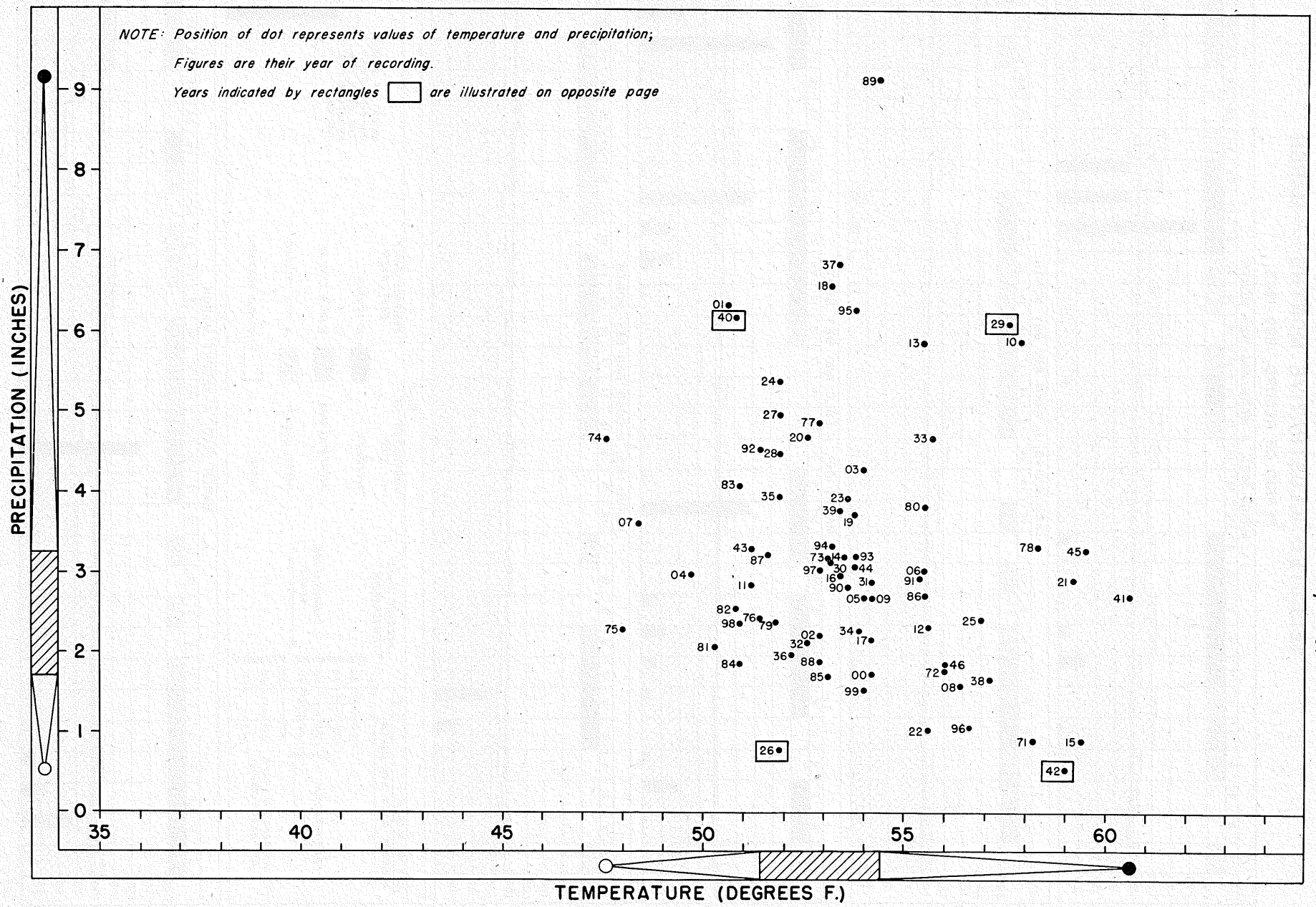


WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

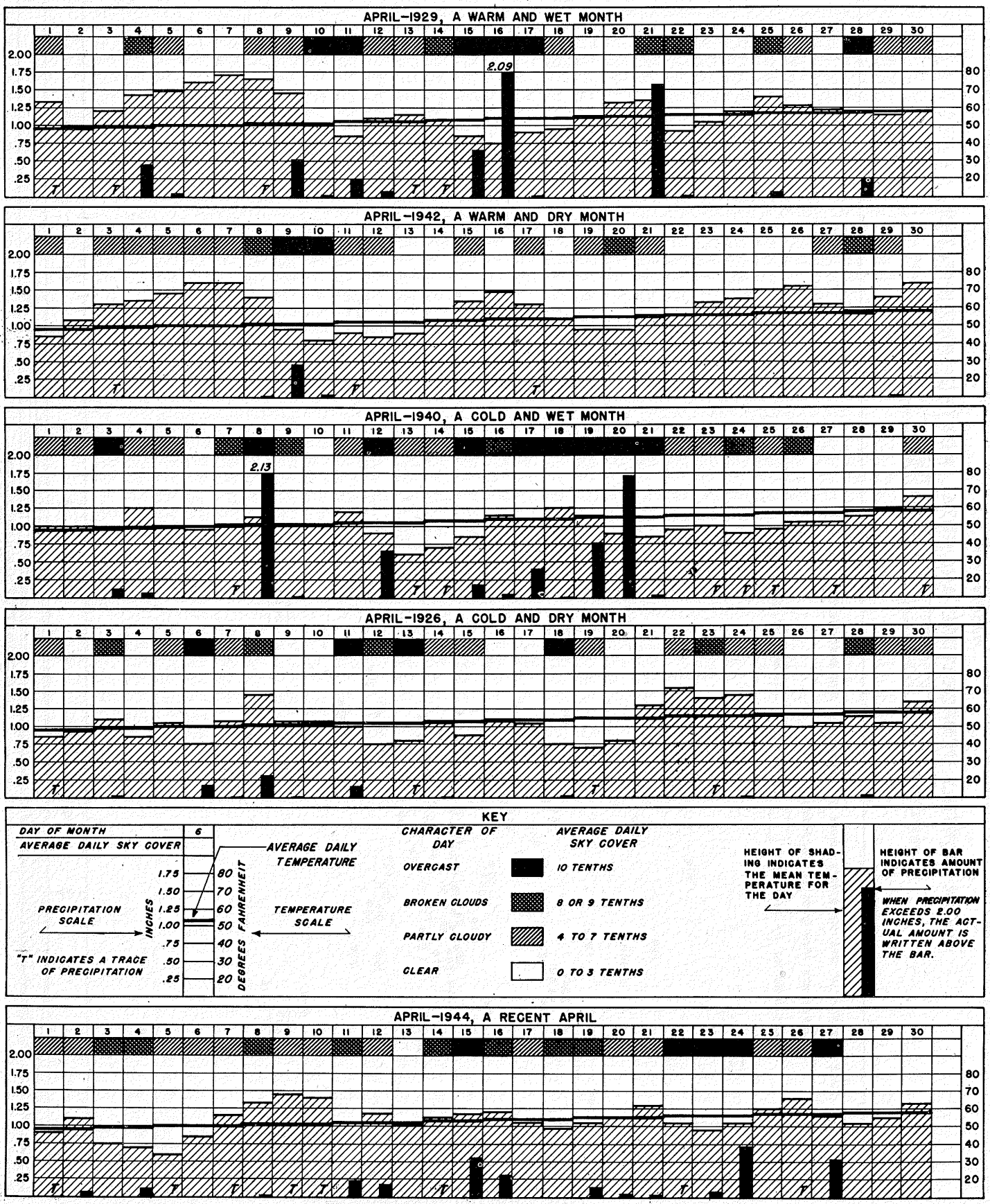
APRIL



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS — APRIL

PERIOD OF RECORD, 1889-1945

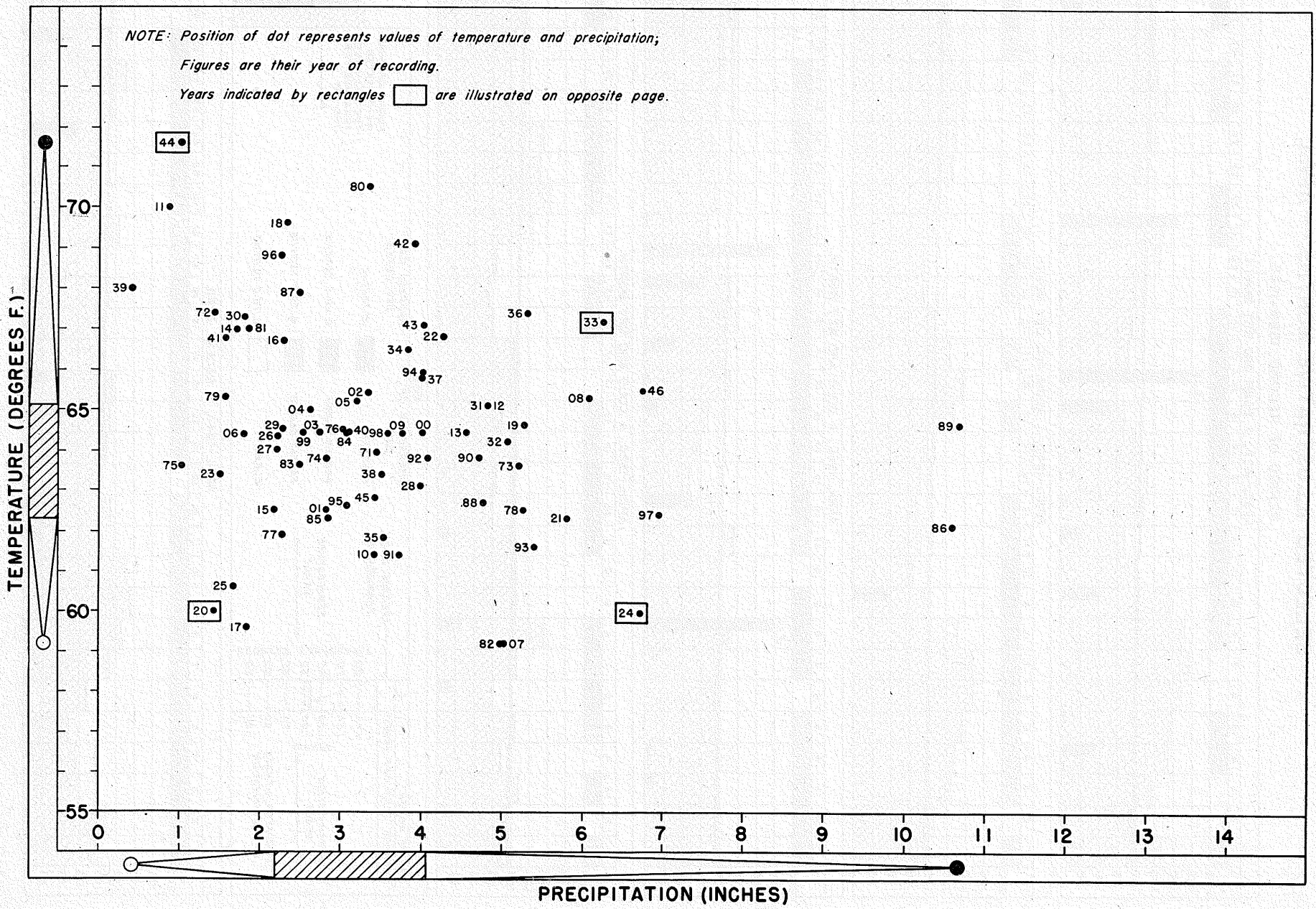


WASHINGTON, D.C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

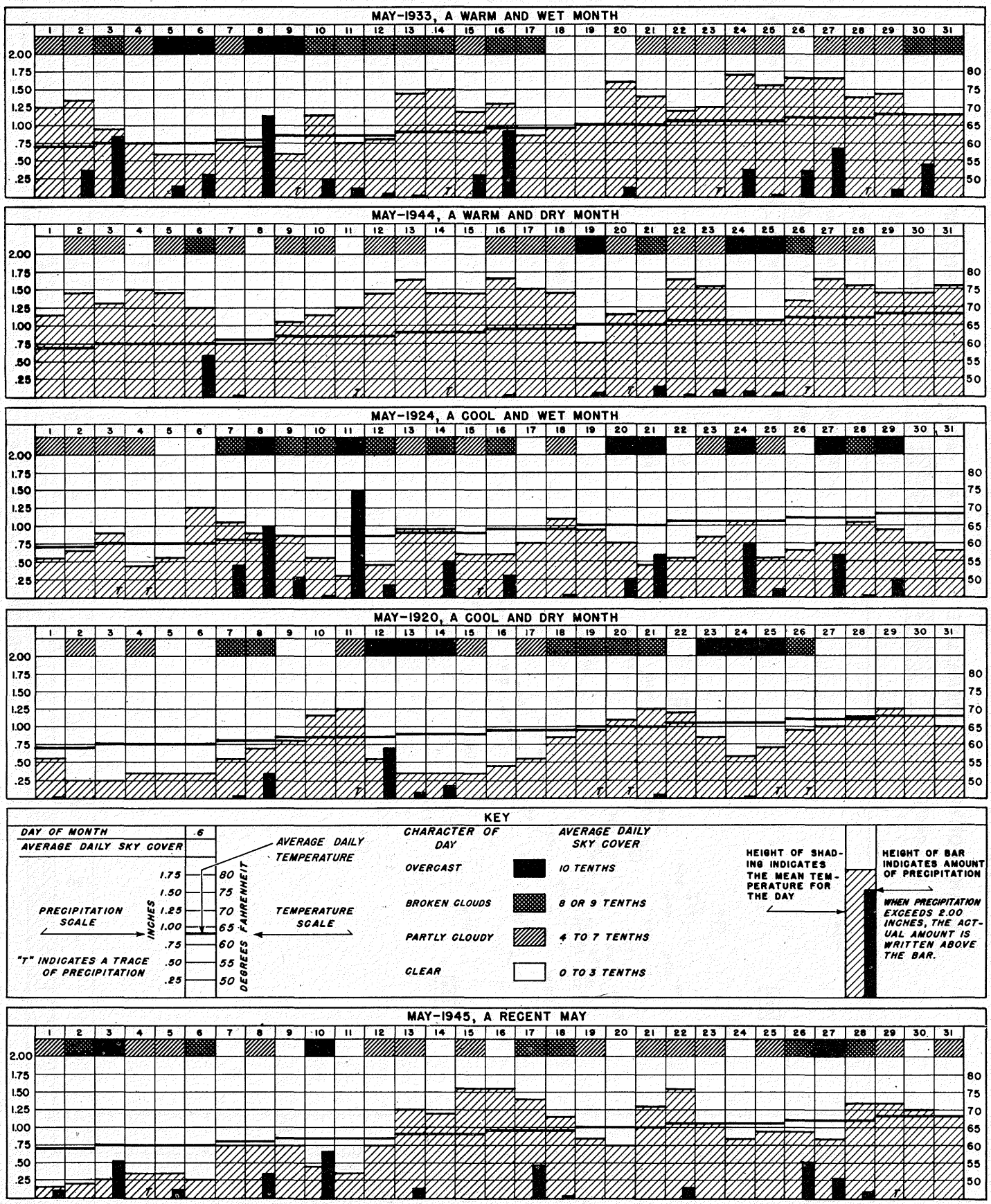
MAY



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS —— MAY

PERIOD OF RECORD, 1889-1945

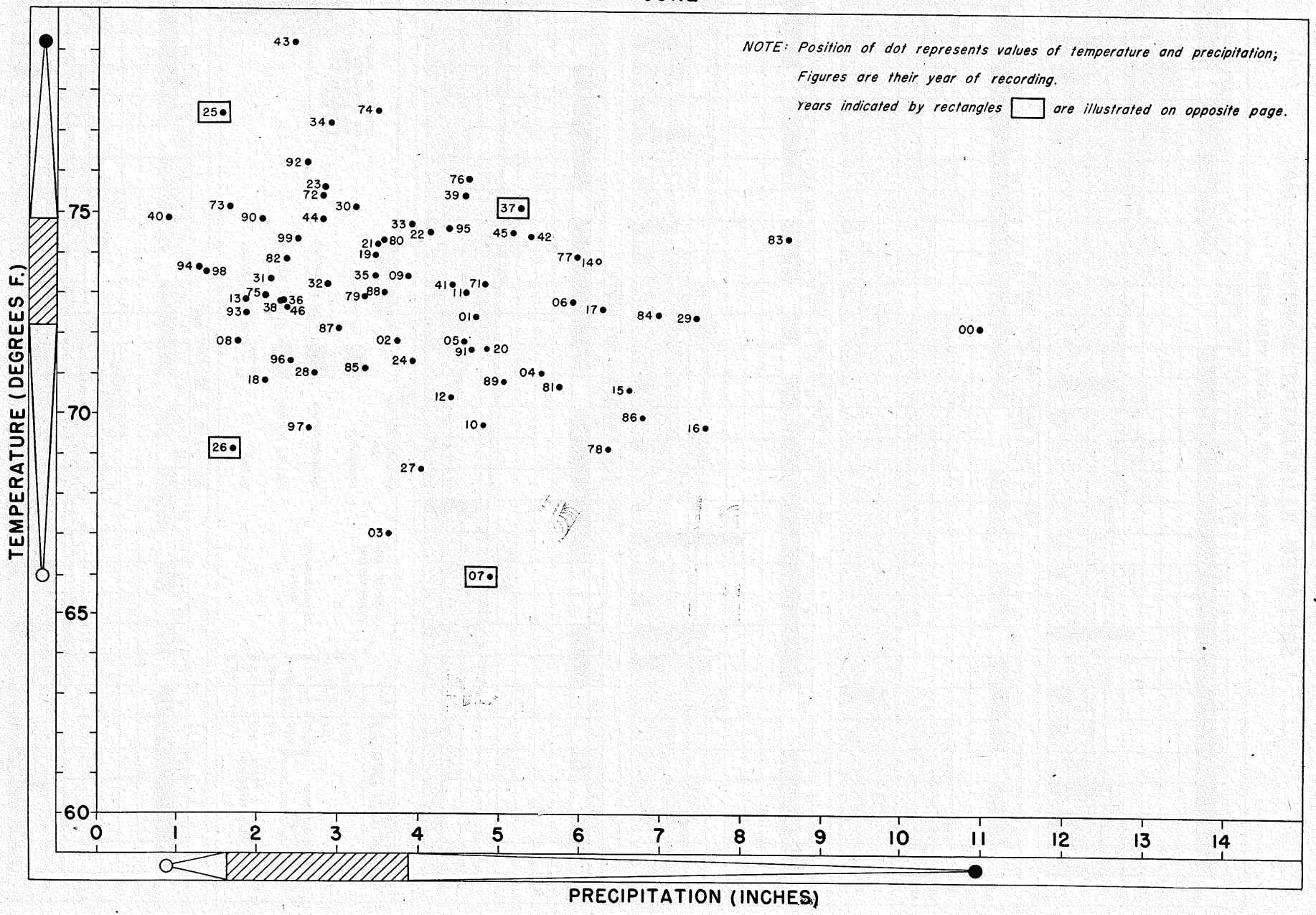


WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least ○ — Most Likely Range — ● Greatest

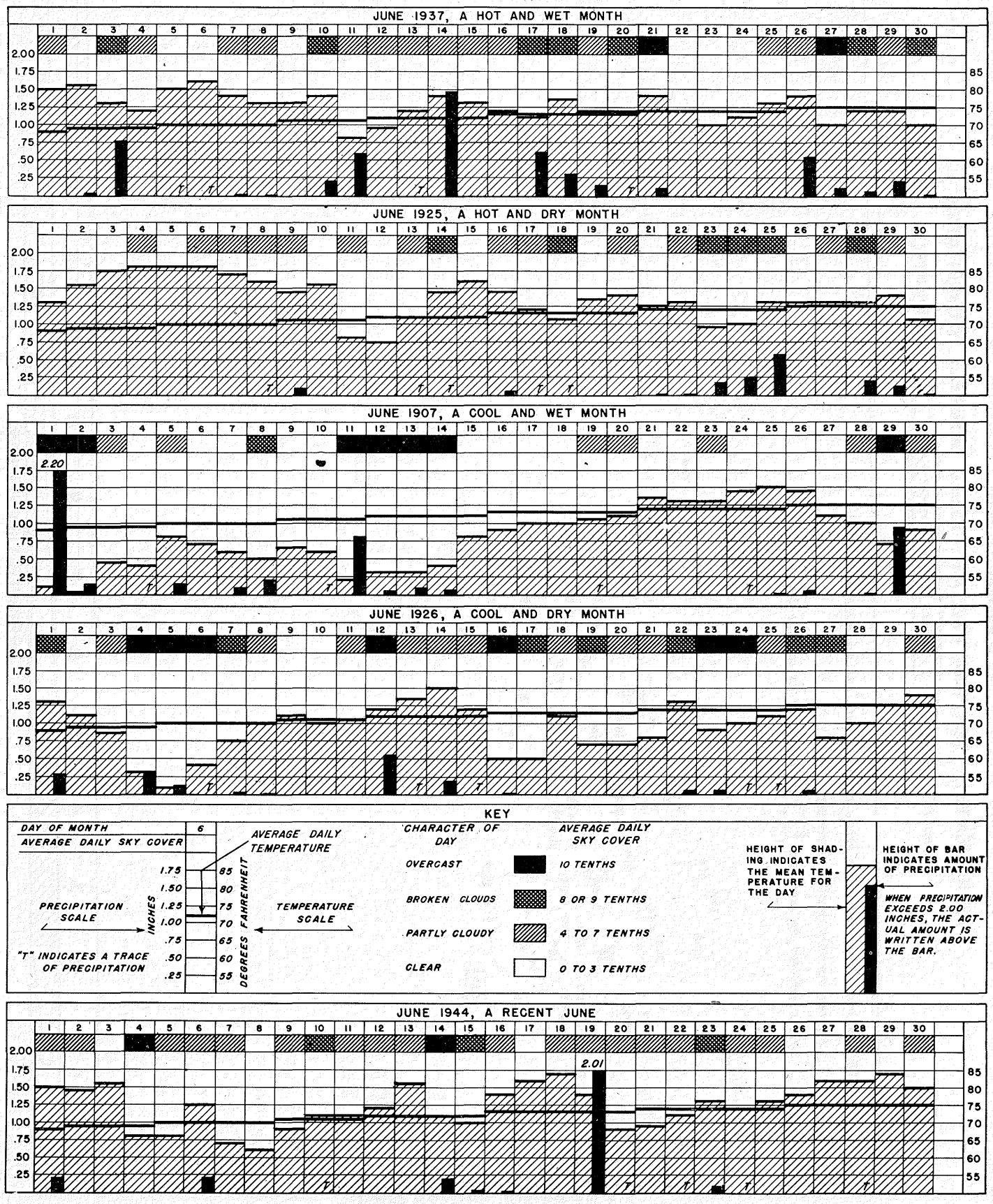
JUNE



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS—JUNE

PERIOD OF RECORD, 1889-1945



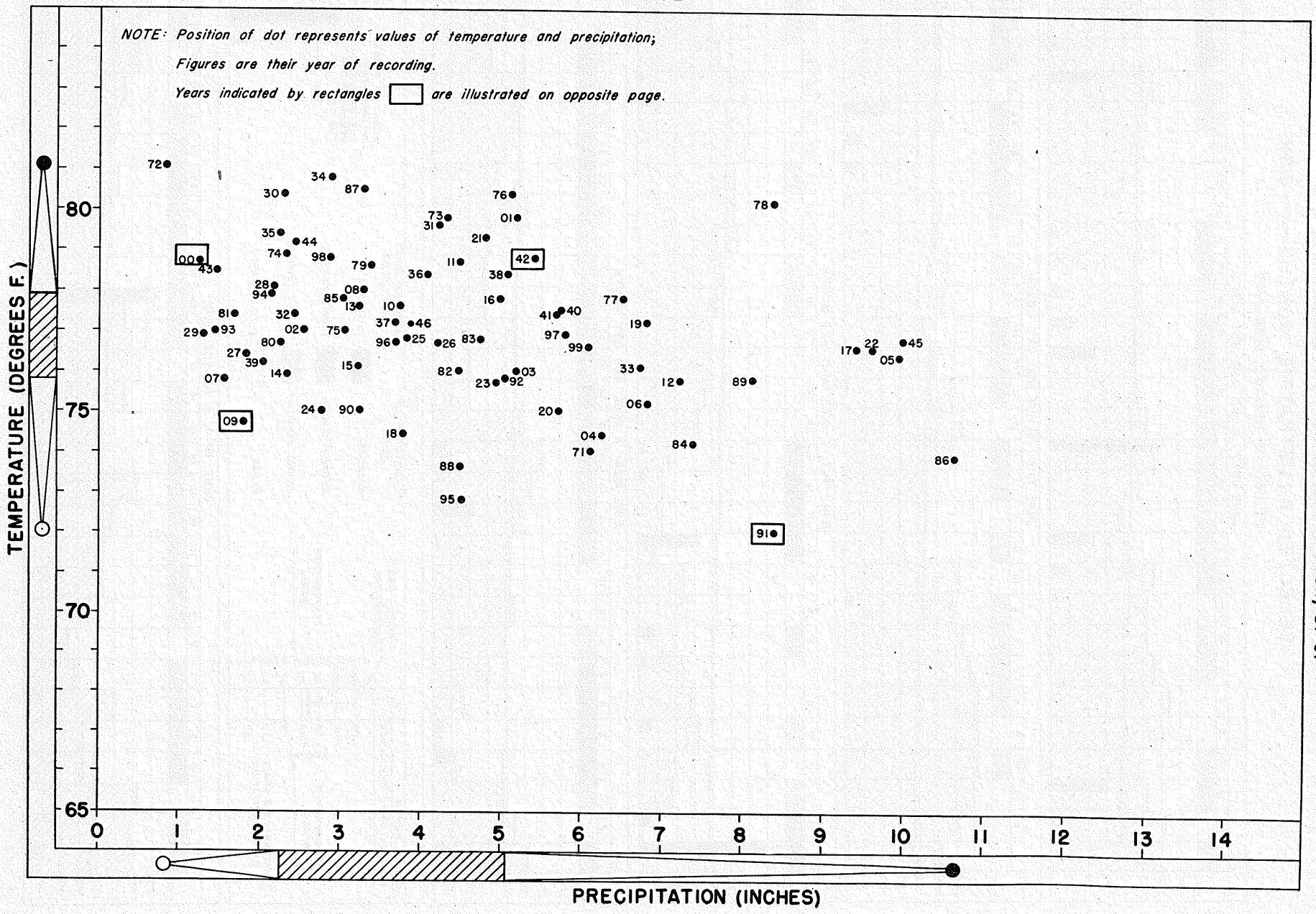
791252—49——12

WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

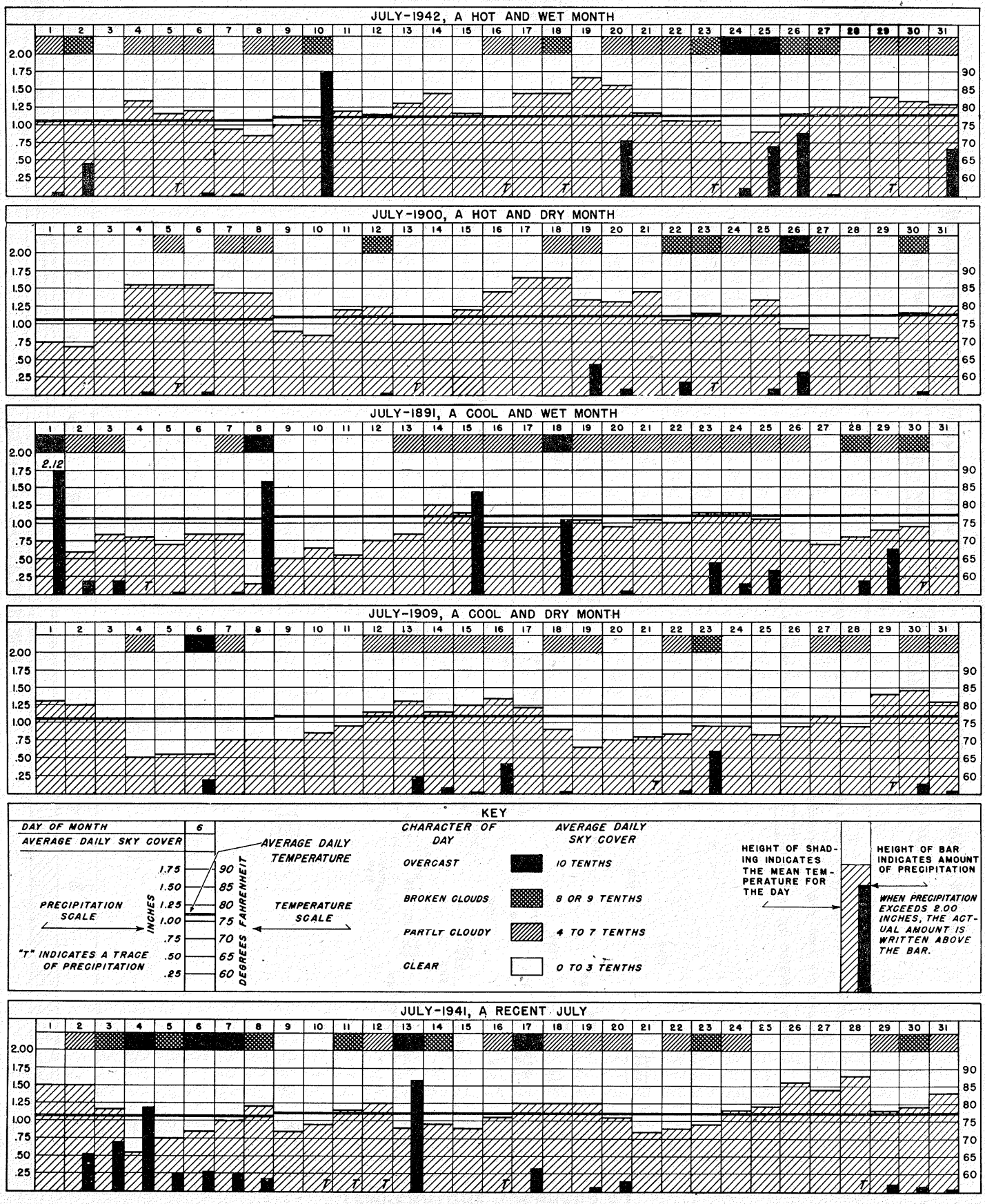
JULY



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS — JULY

PERIOD OF RECORD, 1889-1945

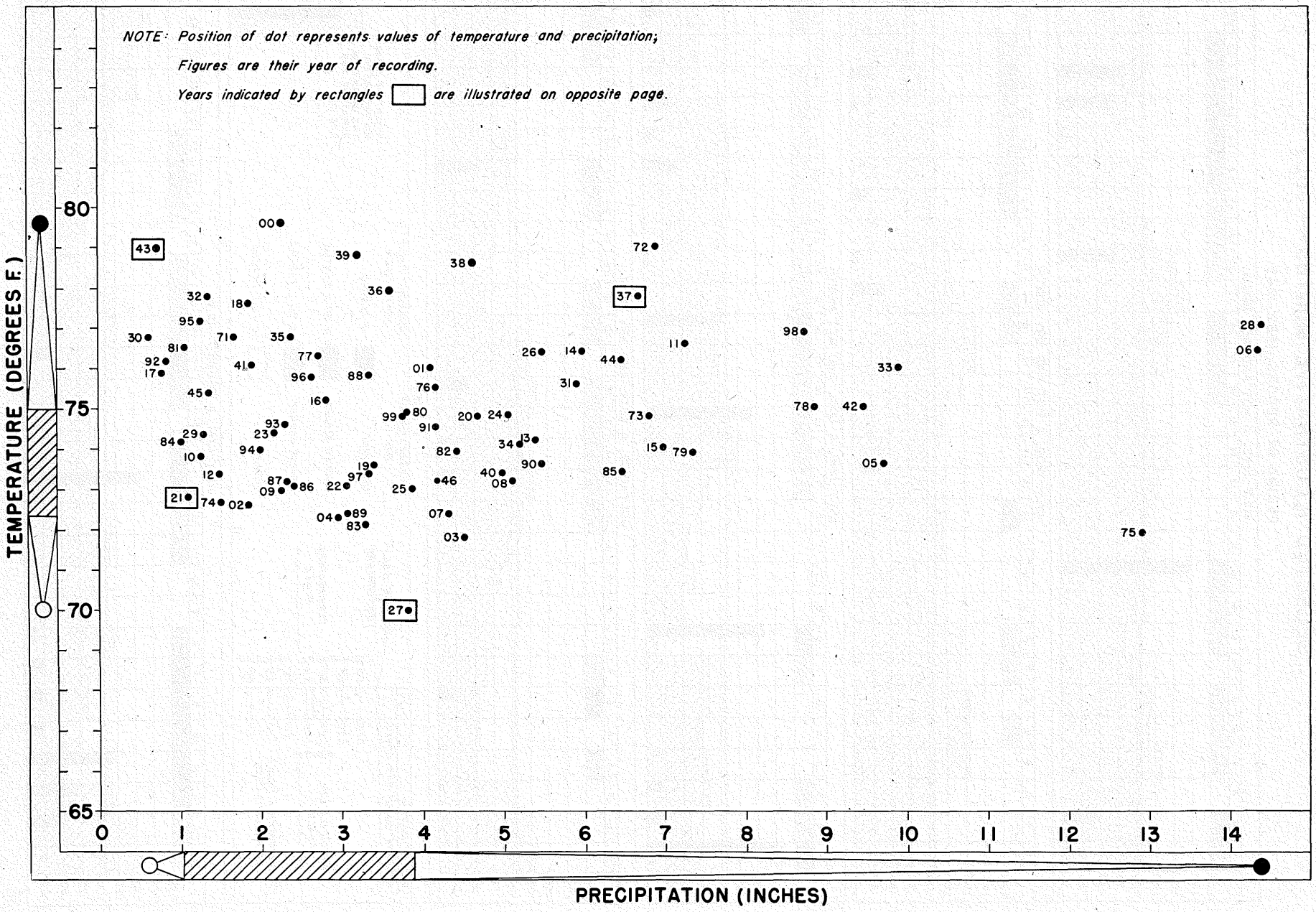


WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

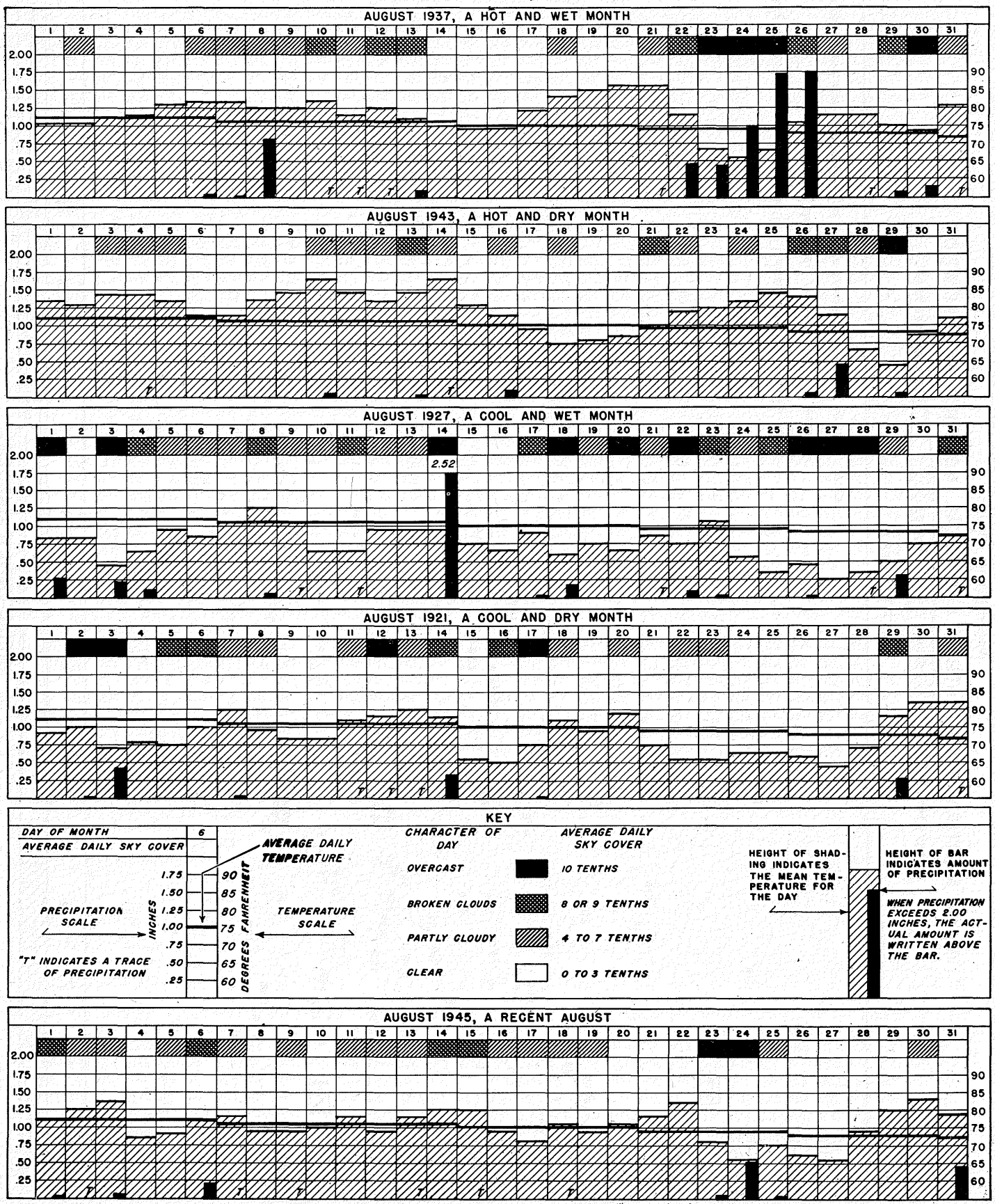
AUGUST



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS——AUGUST

PERIOD OF RECORD, 1889-1945

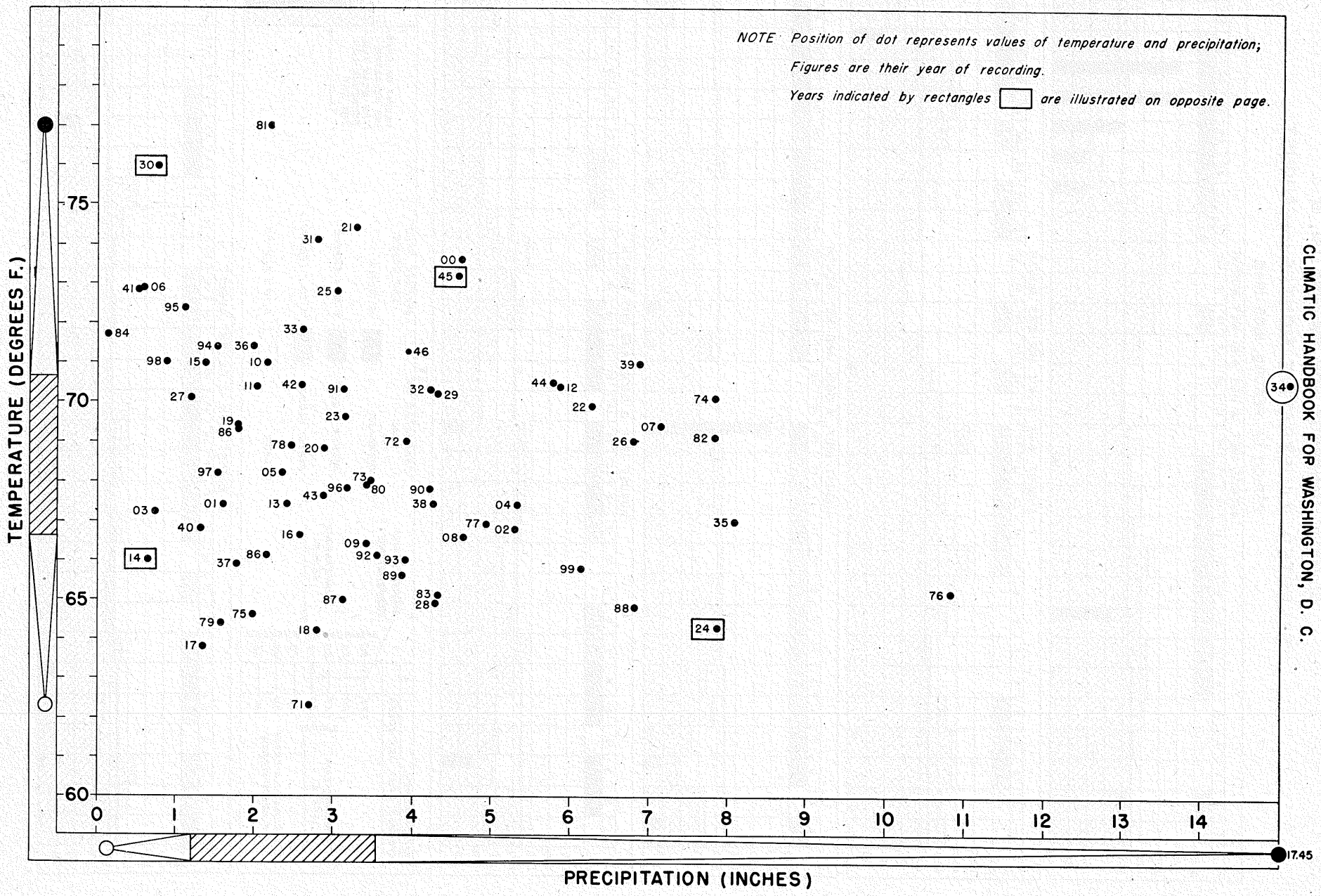


WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

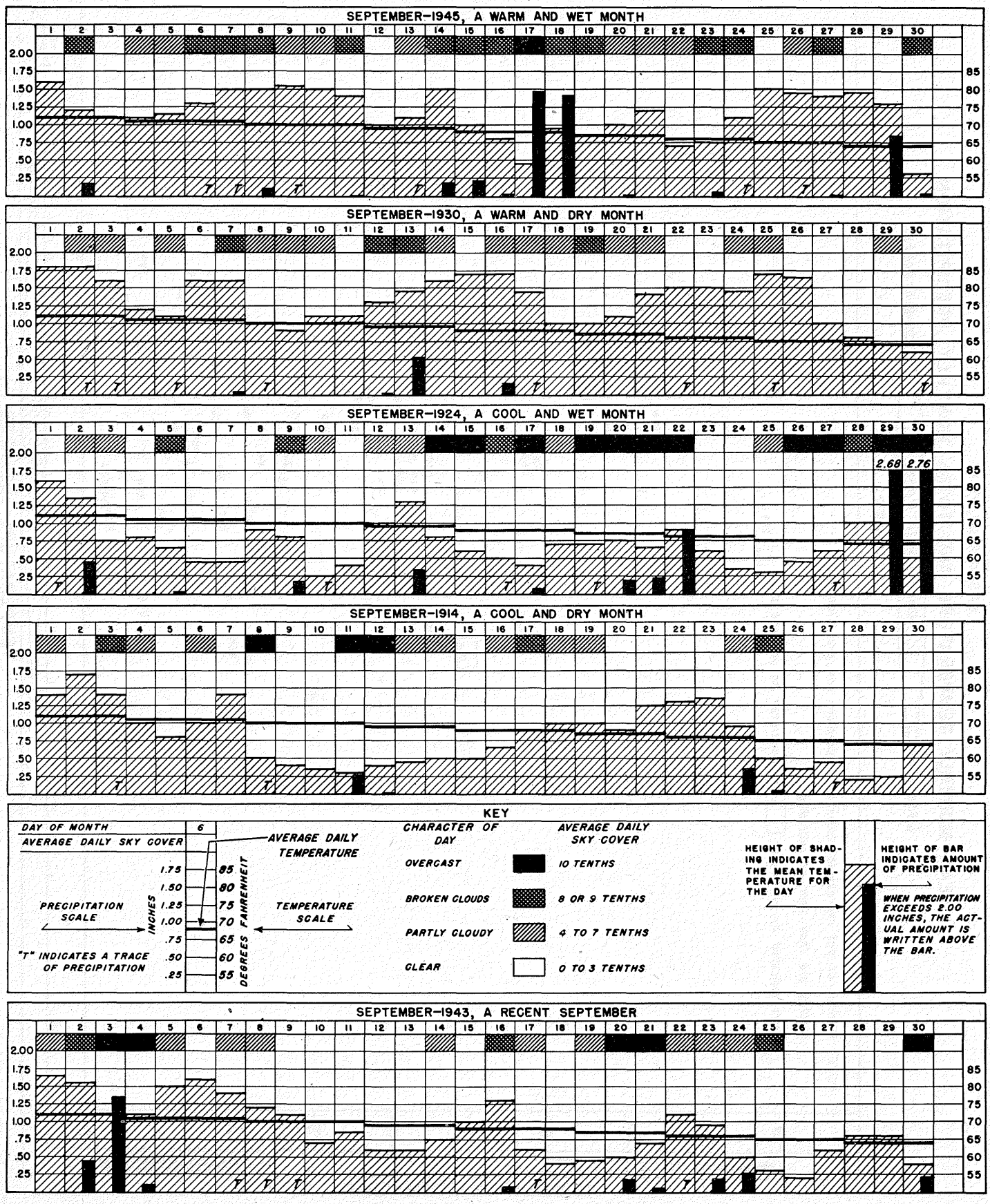
SEPTEMBER



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS — SEPTEMBER

PERIOD OF RECORD, 1889-1945

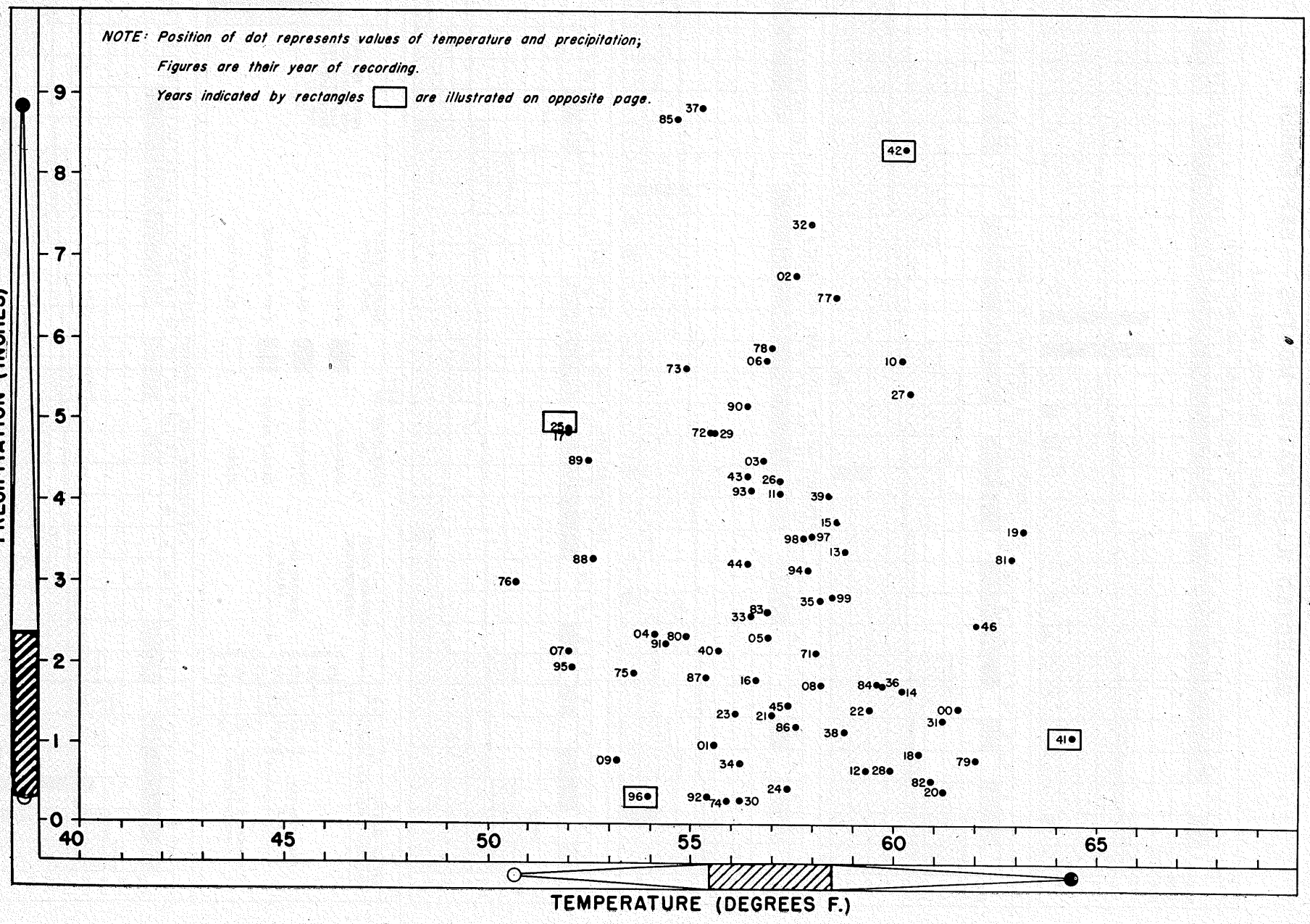


WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

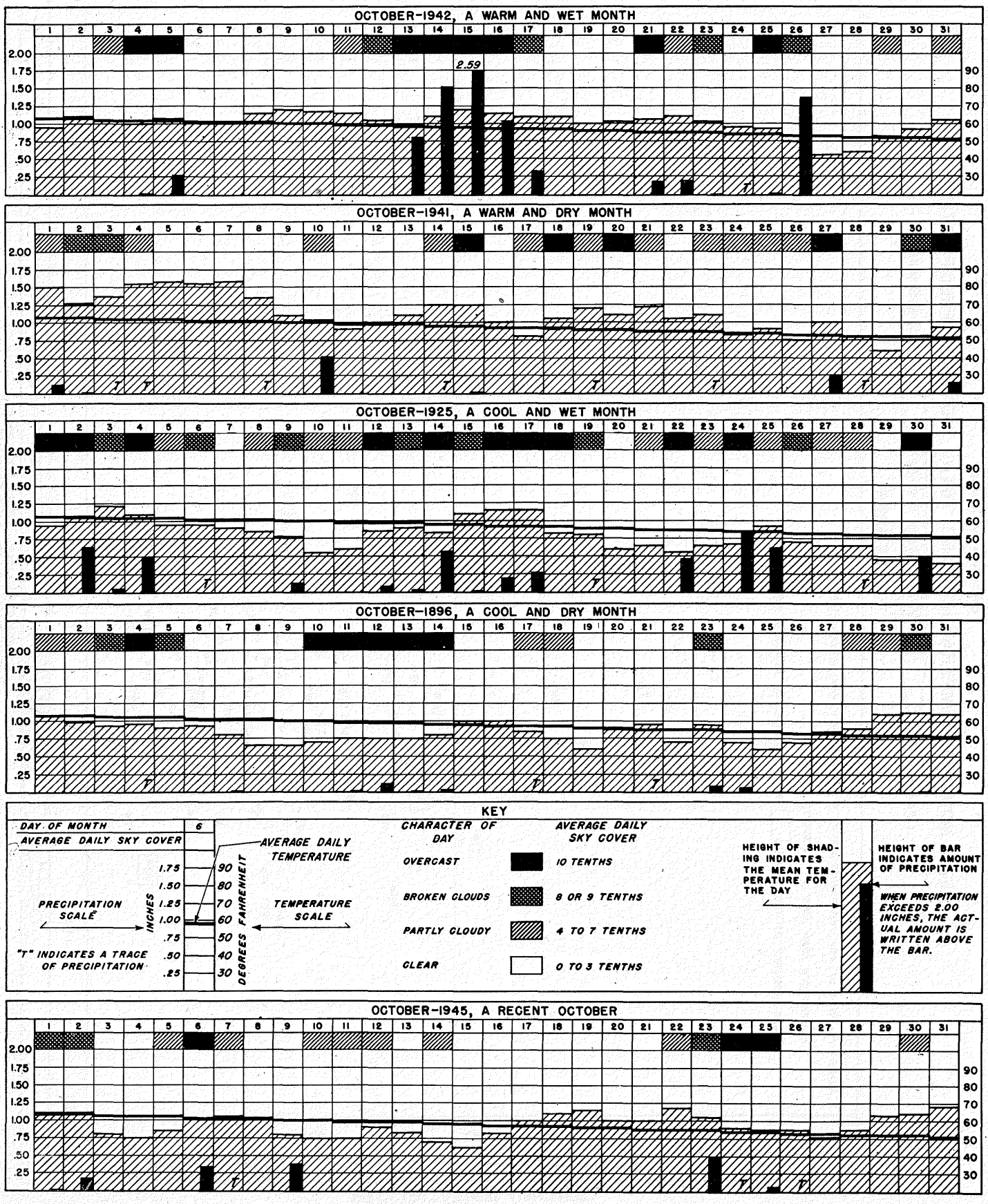
OCTOBER



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS—OCTOBER

PERIOD OF RECORD, 1889-1945



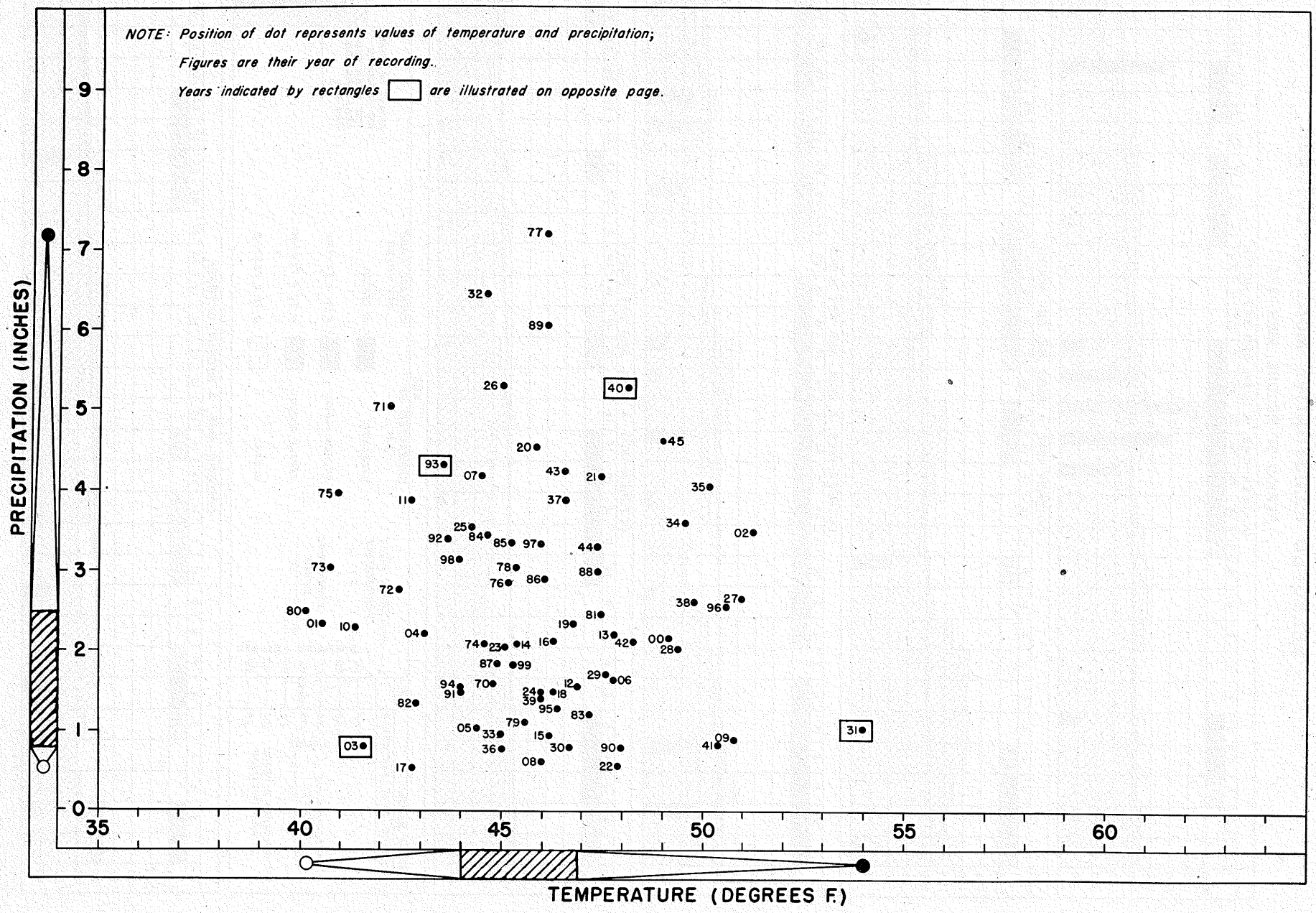
791252—49——12

WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

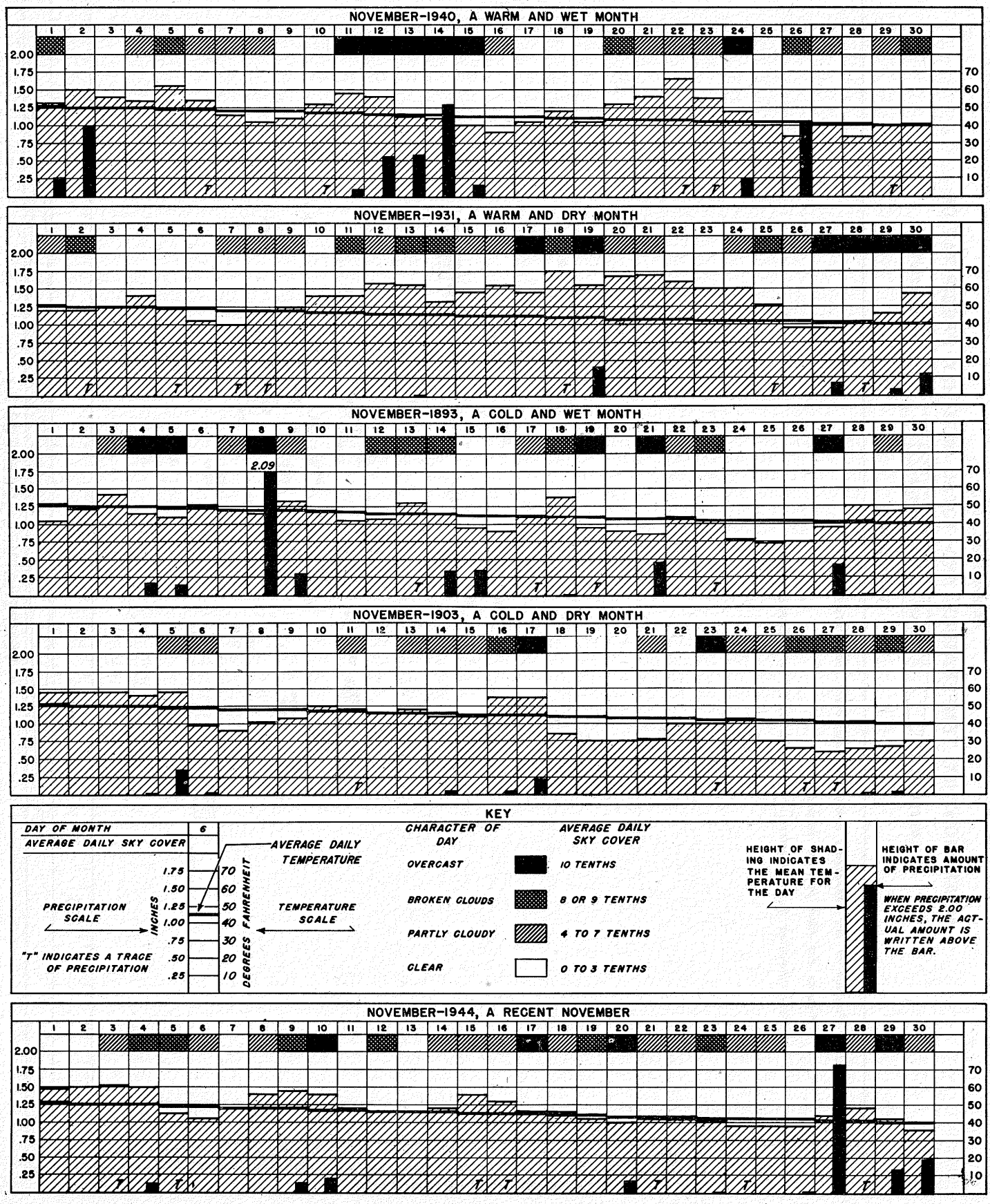
NOVEMBER



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS — NOVEMBER

PERIOD OF RECORD, 1889-1945

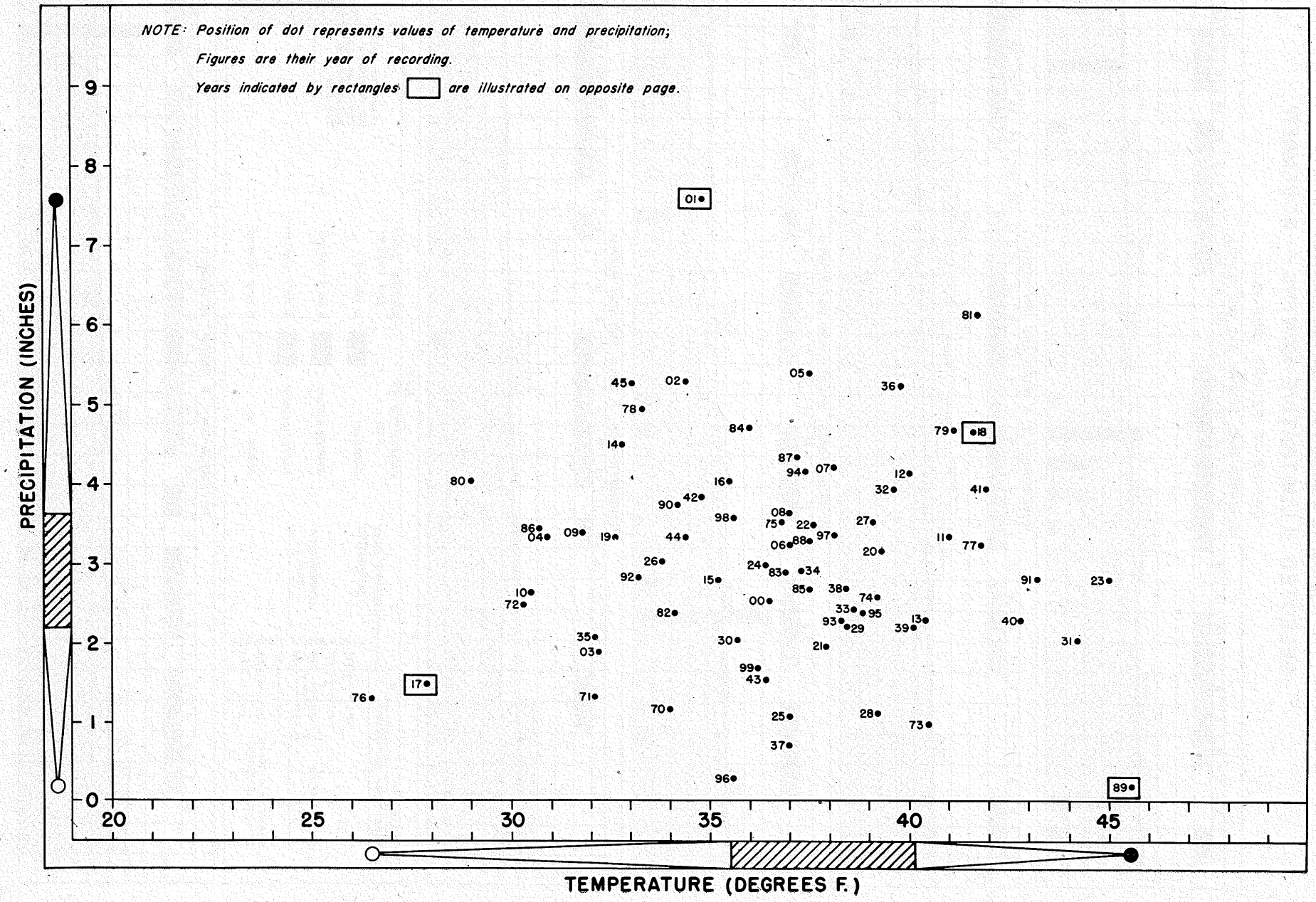


WASHINGTON, D. C.

MEAN MONTHLY TEMPERATURE AND TOTAL MONTHLY PRECIPITATION

Least — Most Likely Range — Greatest

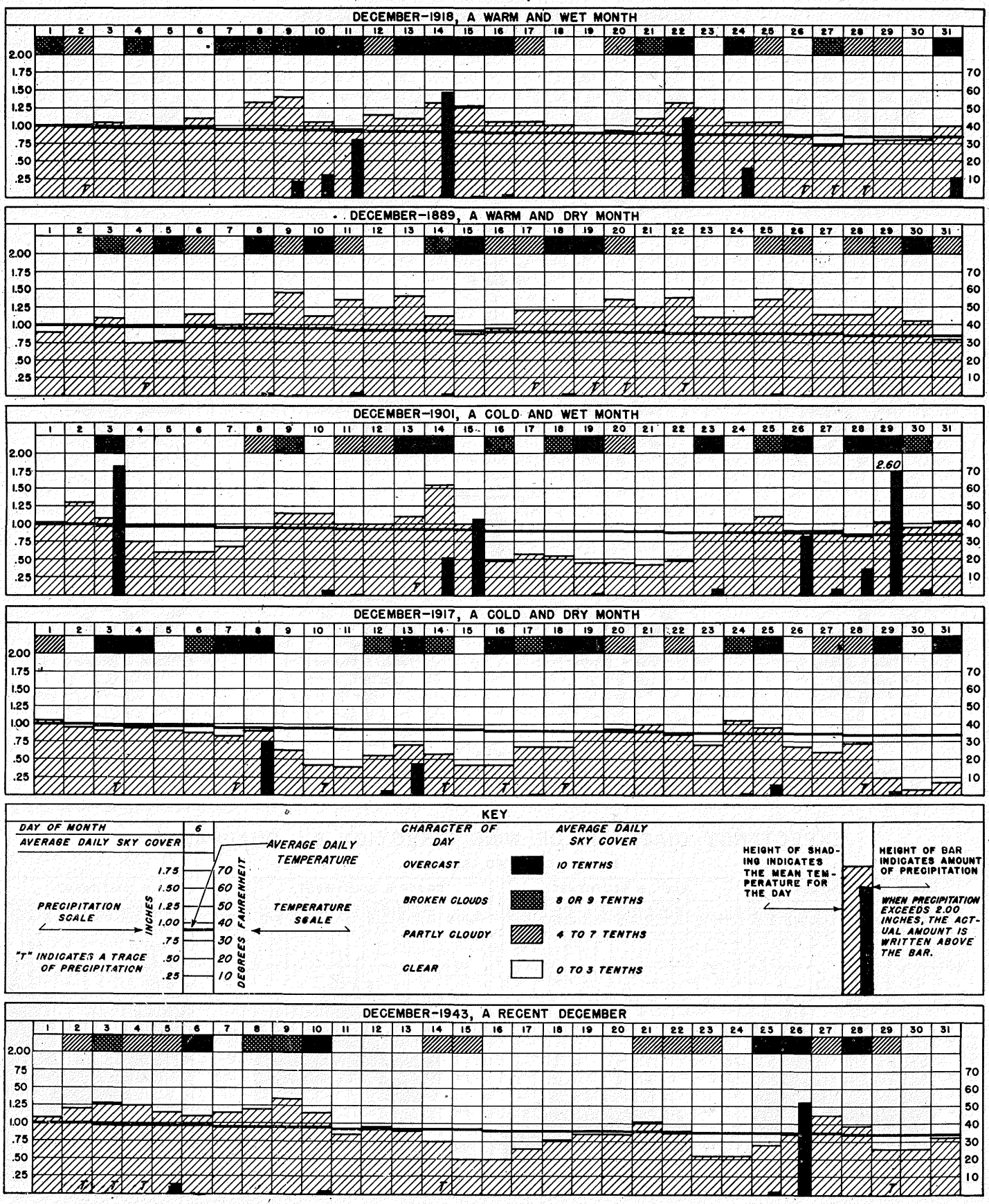
DECEMBER



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED ILLUSTRATIVE MONTHS — DECEMBER

PERIOD OF RECORD, 1889-1945

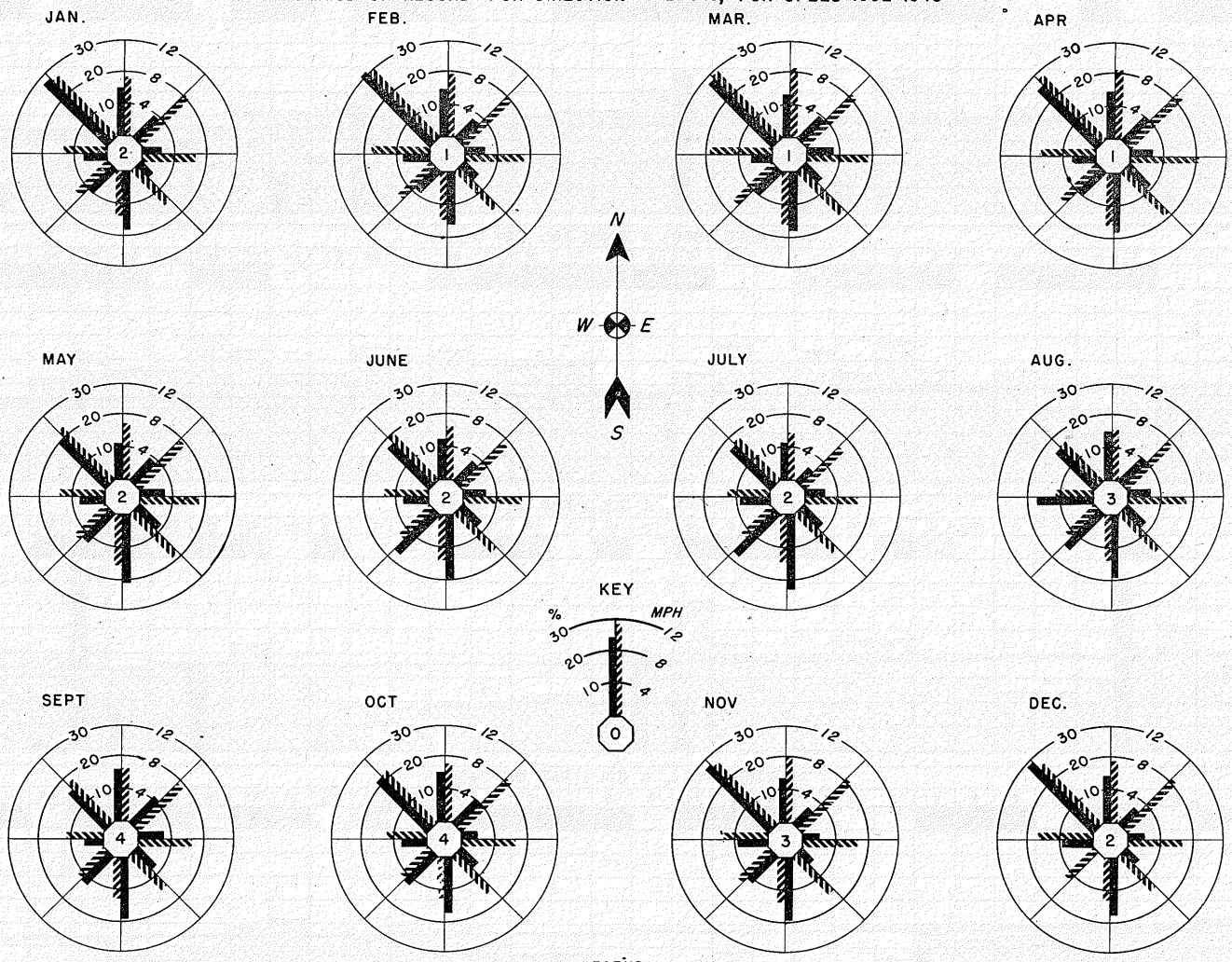


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

WIND DIRECTION

SURFACE WIND ROSES BY MONTHS

PERIOD OF RECORD FOR DIRECTION 1892-1945, FOR SPEED 1932-1945

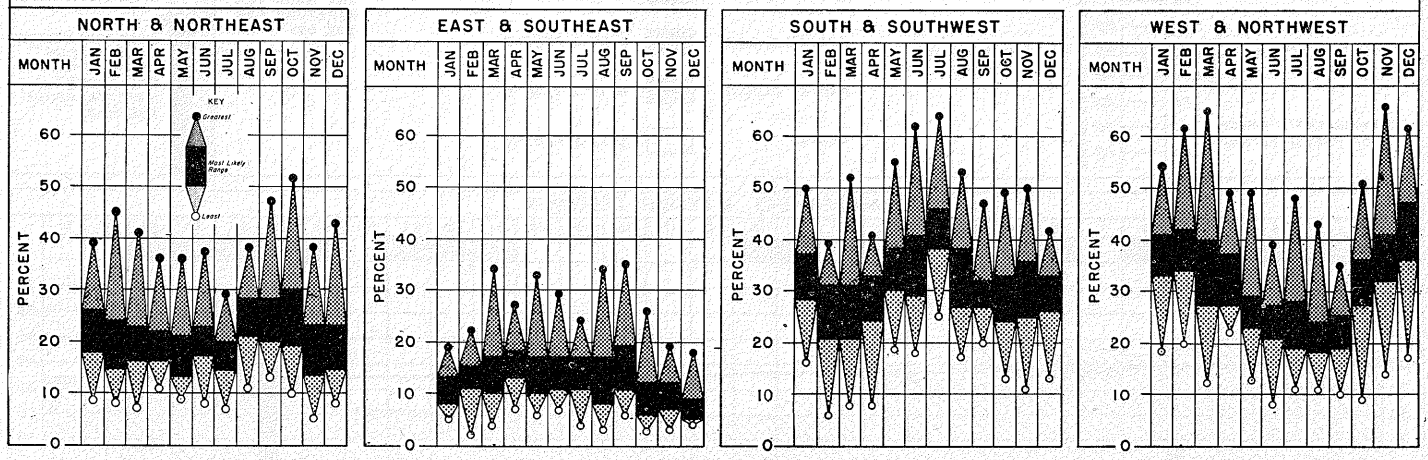


LEGEND

The solid radial bars: ▬ show the average percentage of time the wind blows from each direction; the figure in the center shows the average percent of time the wind is calm. The hatched radial bars: ▨ show the average wind speed from each direction, in miles per hour

EXPECTANCY DIAGRAMS OF WIND DIRECTION BY QUADRANTS

PERIOD OF RECORD, 1892-1945

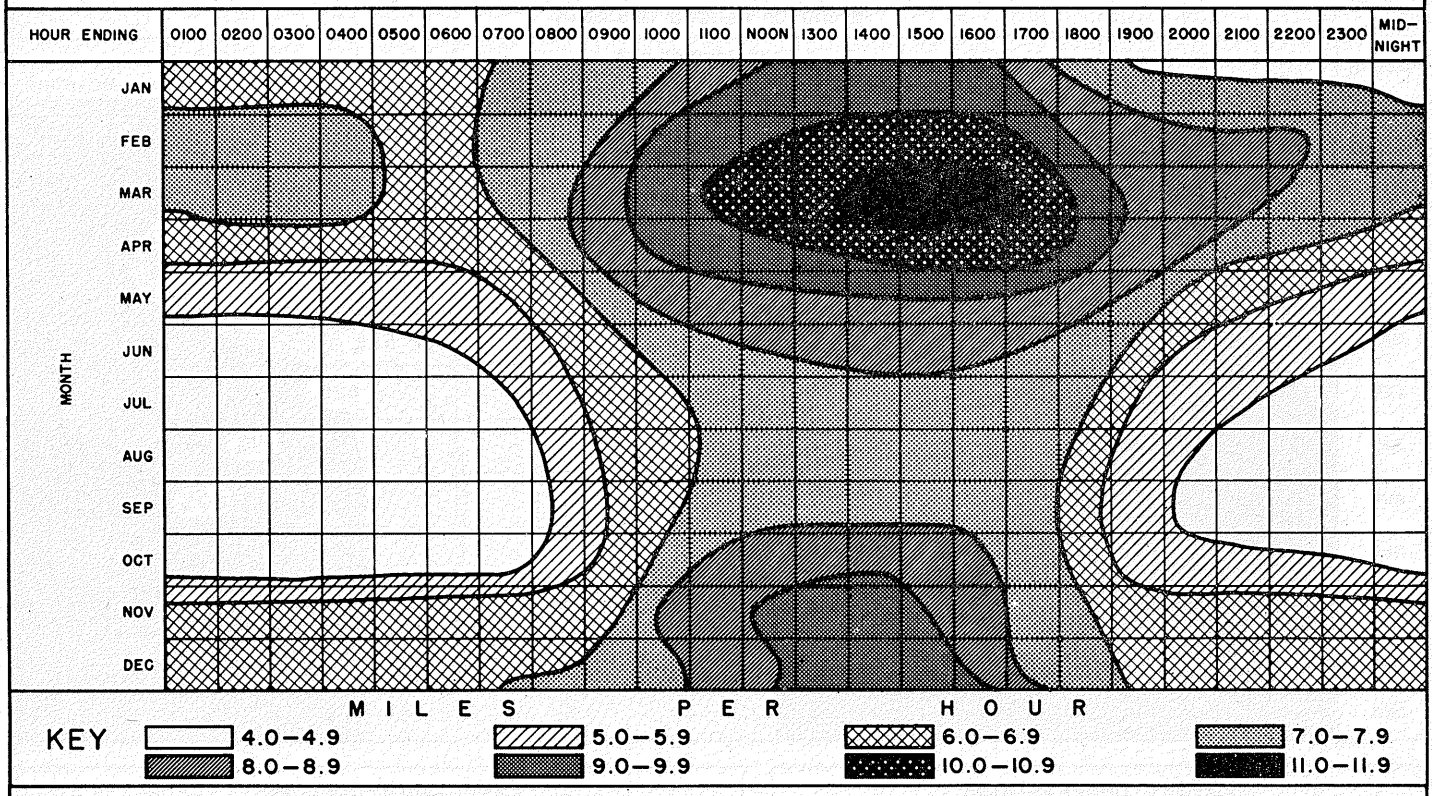


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

WIND SPEED

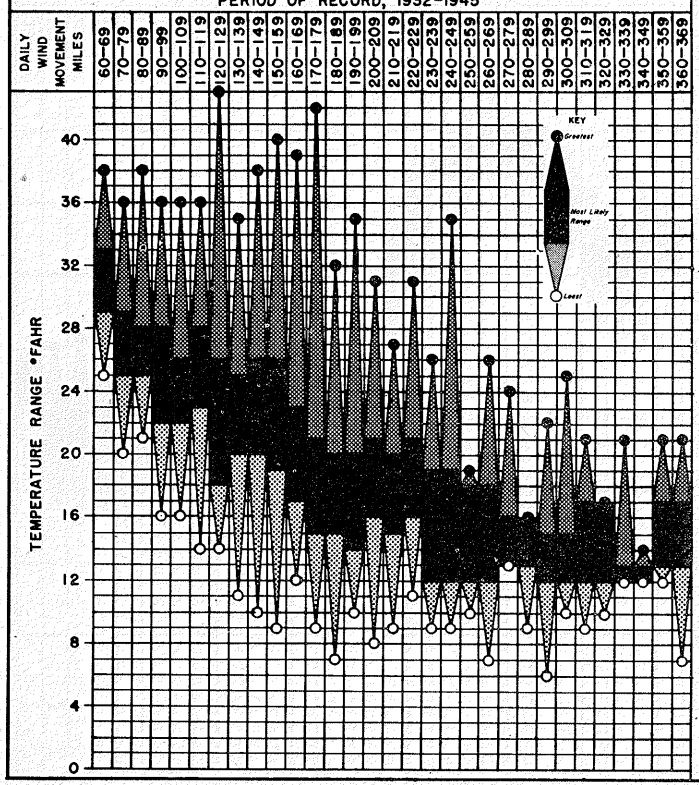
AVERAGE HOURLY WIND MOVEMENT

PERIOD OF RECORD, 1932–1942



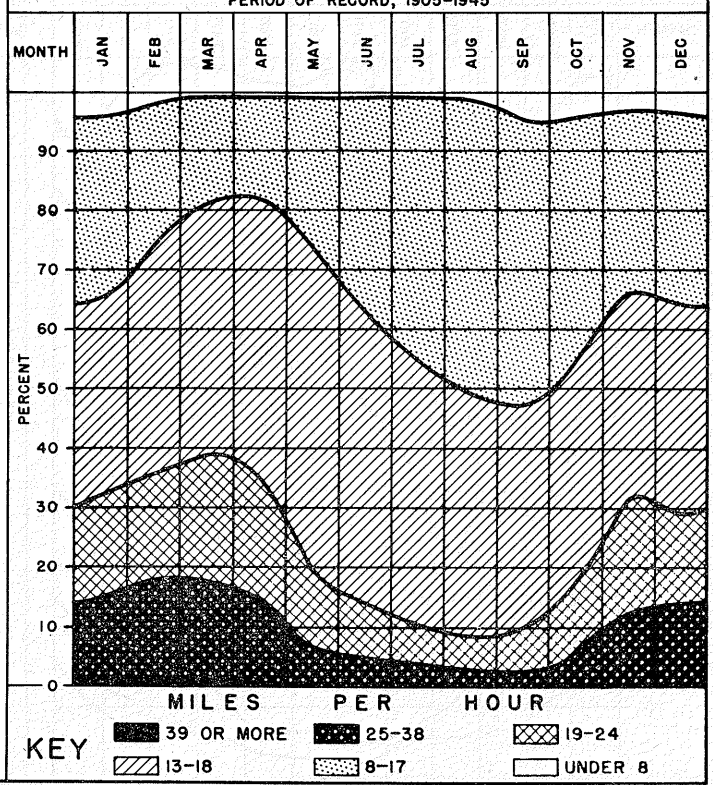
WIND SPEED AND TEMPERATURE RANGE ON CLEAR DAYS EXPECTANCY DIAGRAMS (ENTIRE YEAR)

PERIOD OF RECORD, 1932–1945



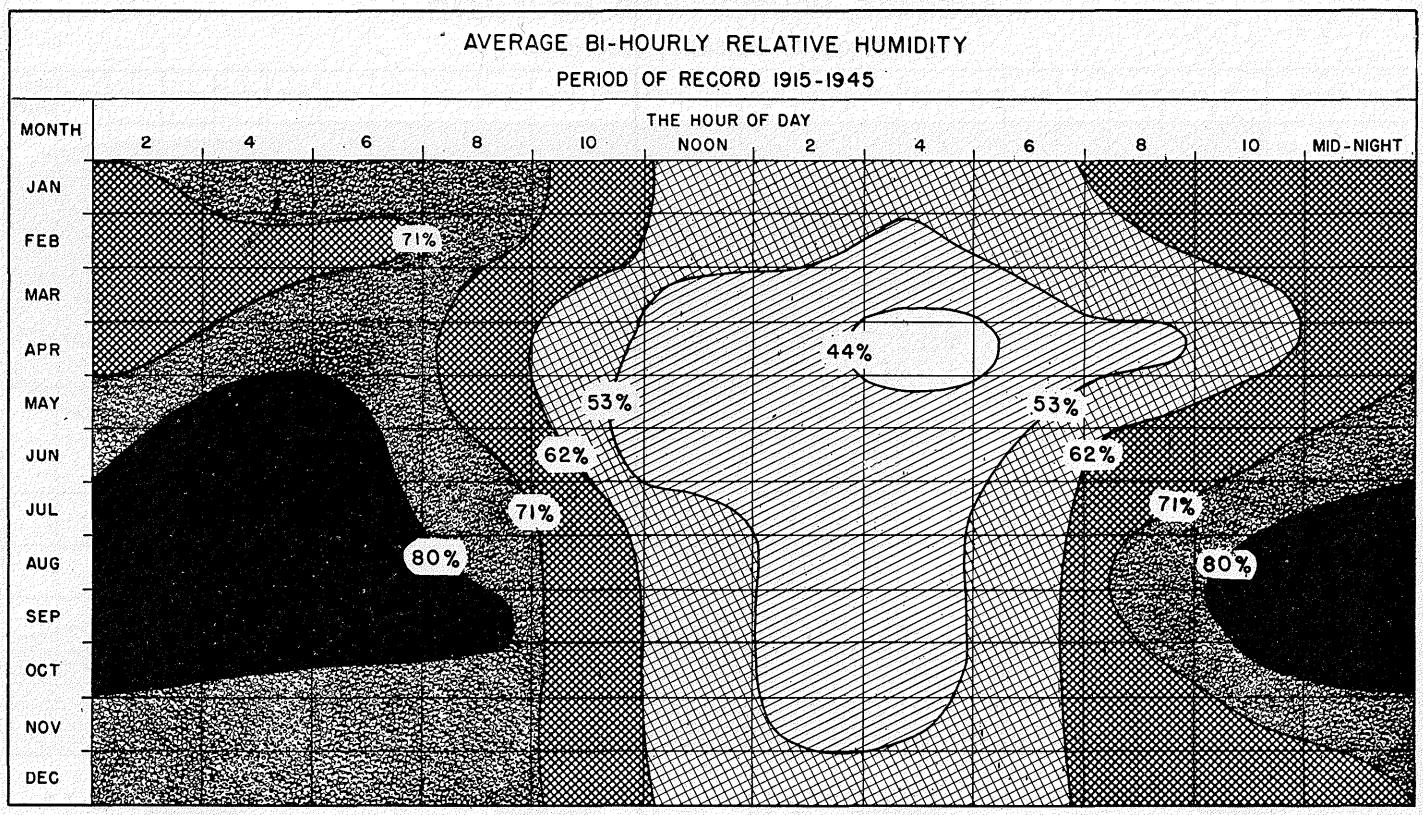
FREQUENCY OF DAYS WITH MAXIMUM (5-MIN) WIND SPEED EQUAL TO OR MORE THAN INDICATED VALUE

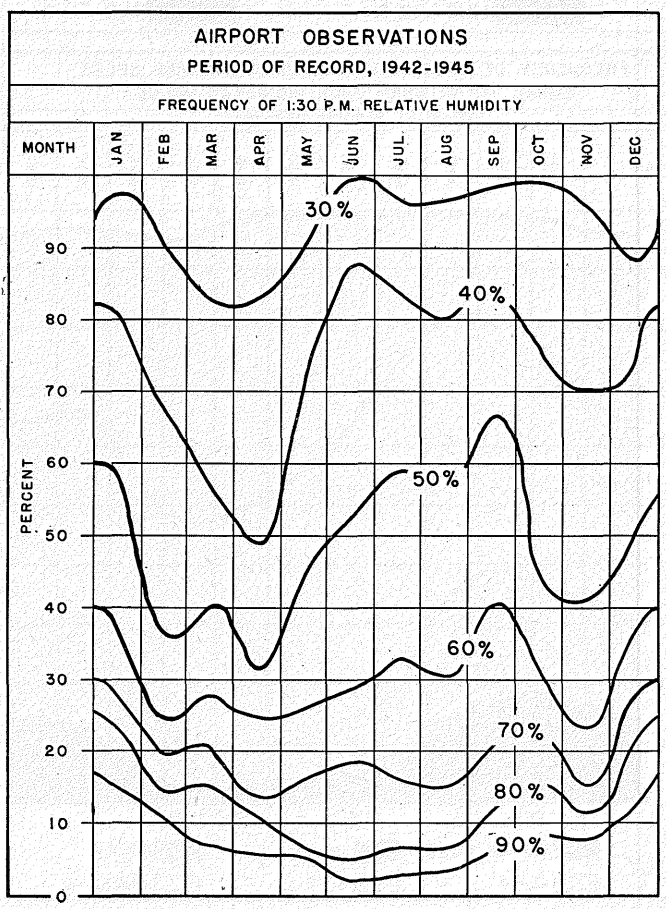
PERIOD OF RECORD, 1905–1945

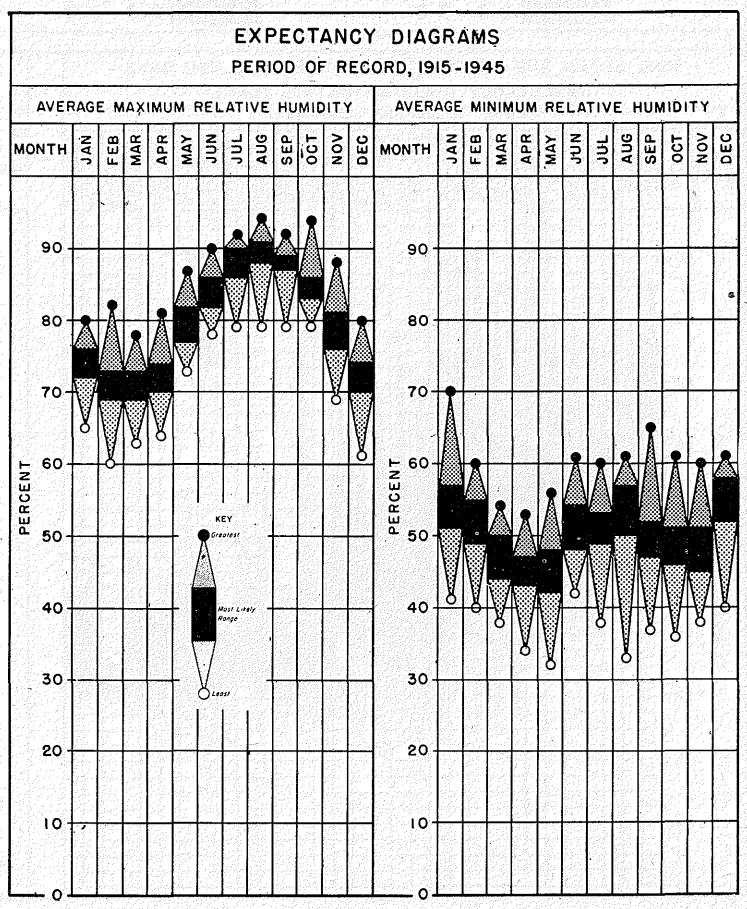


CLIMATIC HANDBOOK FOR WASHINGTON, D. C

RELATIVE HUMIDITY





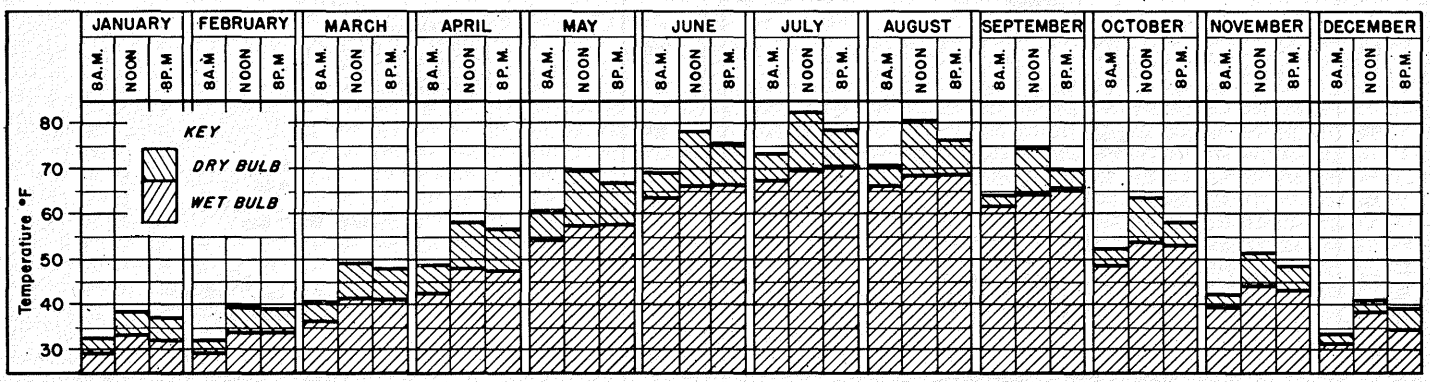


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

DEW POINT AND WET BULB TEMPERATURES

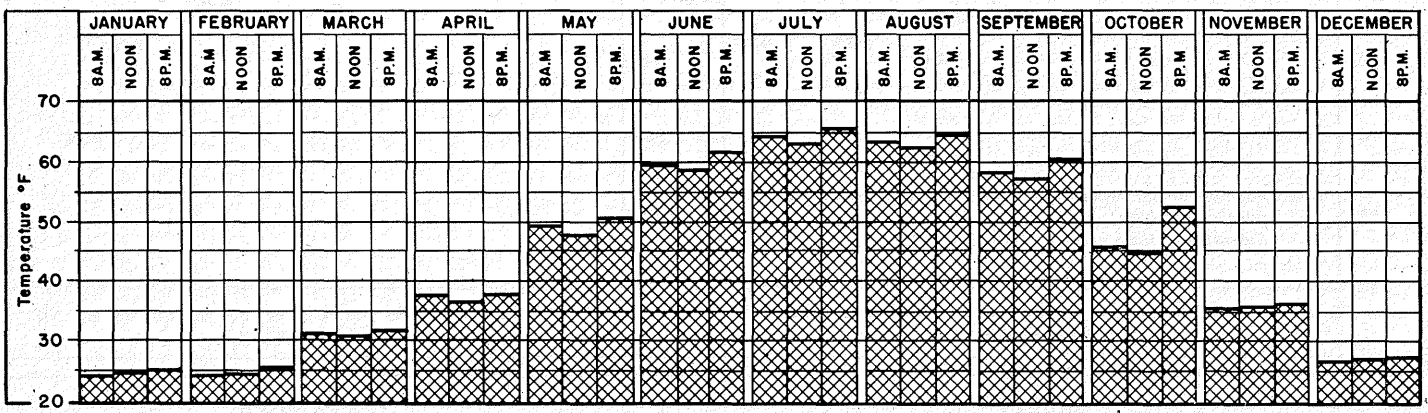
AVERAGE WET AND DRY BULB TEMPERATURES AT SELECTED HOURS

PERIOD OF RECORD 1918-1939



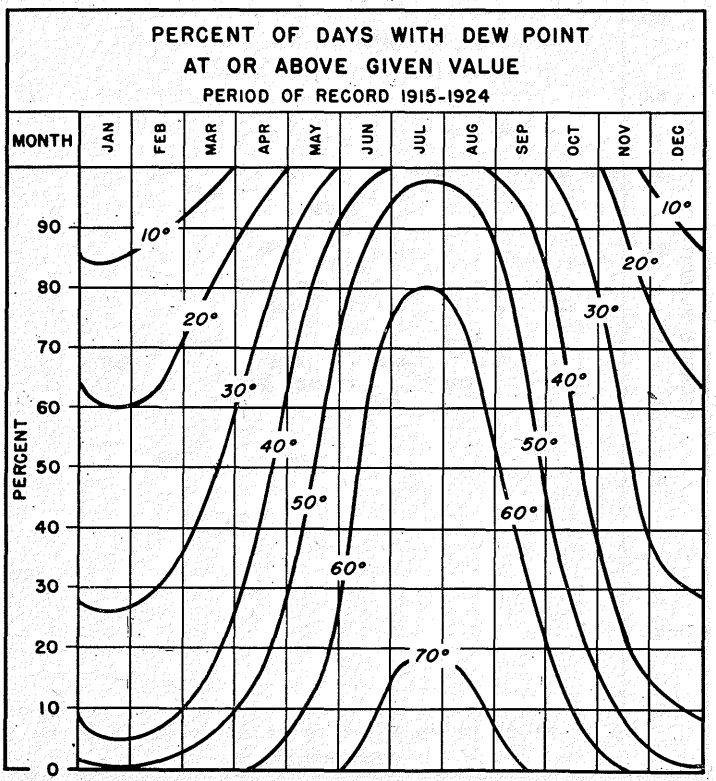
AVERAGE DEW POINT AT SELECTED HOURS

PERIOD OF RECORD 1918-1939



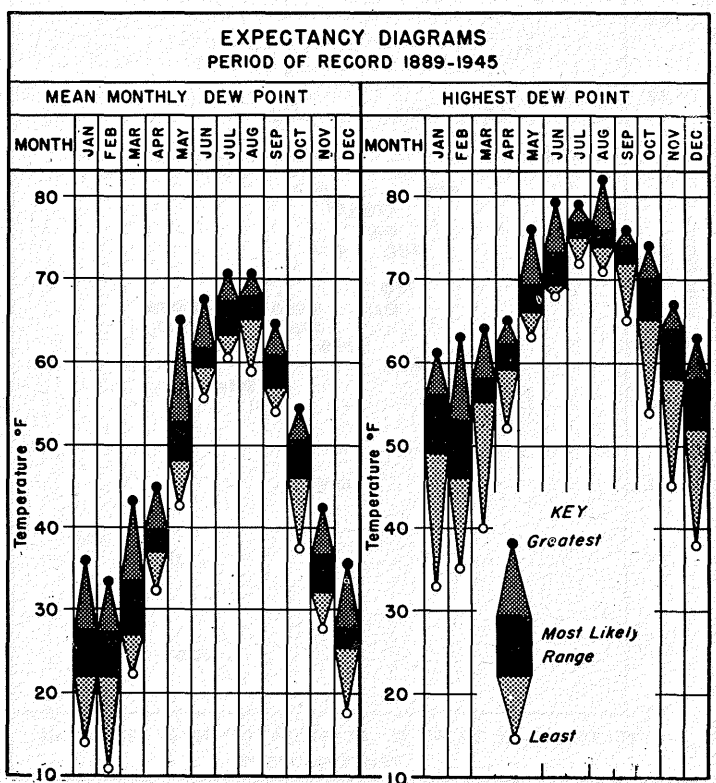
PERCENT OF DAYS WITH DEW POINT AT OR ABOVE GIVEN VALUE

PERIOD OF RECORD 1915-1924



EXPECTANCY DIAGRAMS

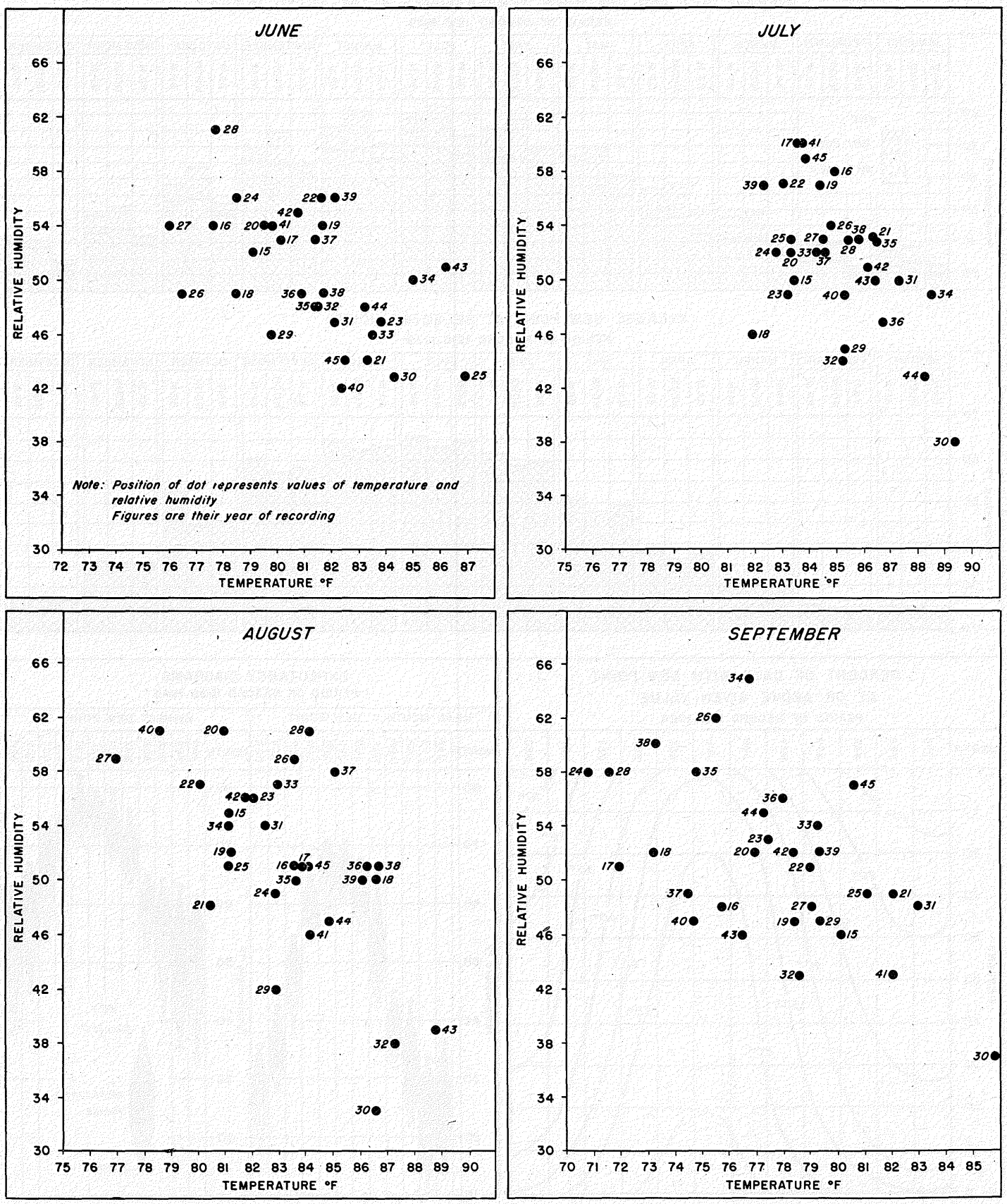
PERIOD OF RECORD 1889-1945



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

AVERAGE HOURLY MAXIMUM TEMPERATURE AND MINIMUM RELATIVE HUMIDITY

PERIOD OF RECORD, 1915 - 1945



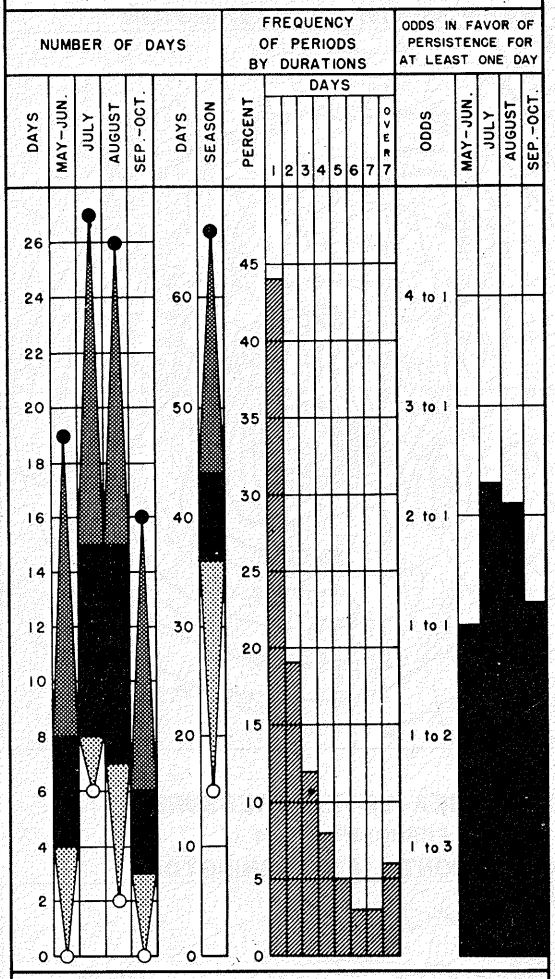
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

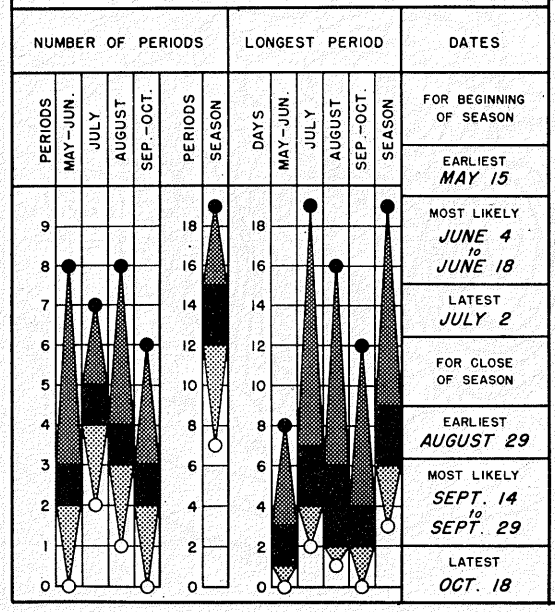
DEW POINT PERIODS AND COMBINATIONS

PERIOD OF RECORD, JULY 1889–DEC. 1945

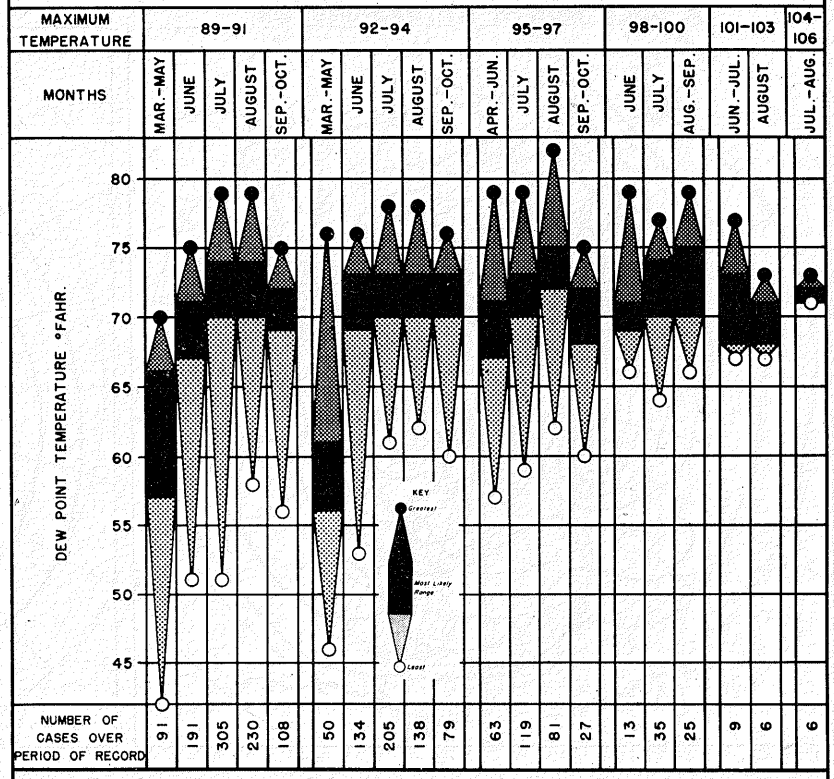
PERIODS

70° OR HIGHER EACH DAY

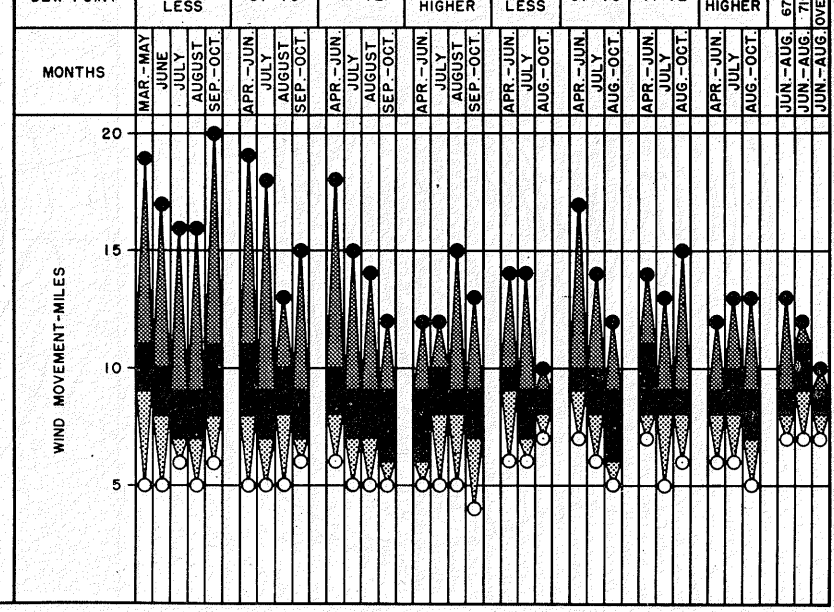




EXPECTANCY DIAGRAMS FOR DEW POINT ON DAYS WITH A SPECIFIED MAXIMUM TEMPERATURE



GREATEST HOURLY WIND MOVEMENT ON DAYS WITH A SPECIFIED MAXIMUM TEMPERATURE AND DEW POINT

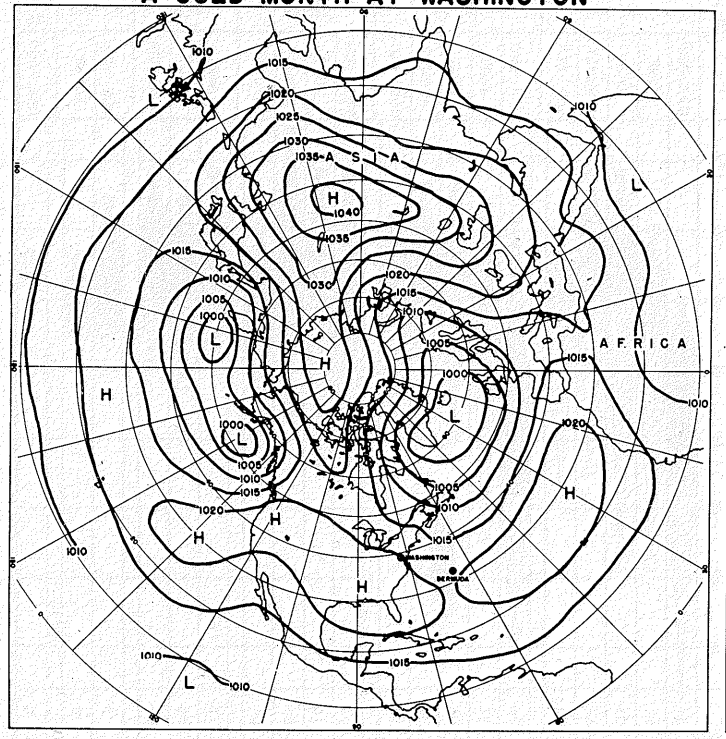


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

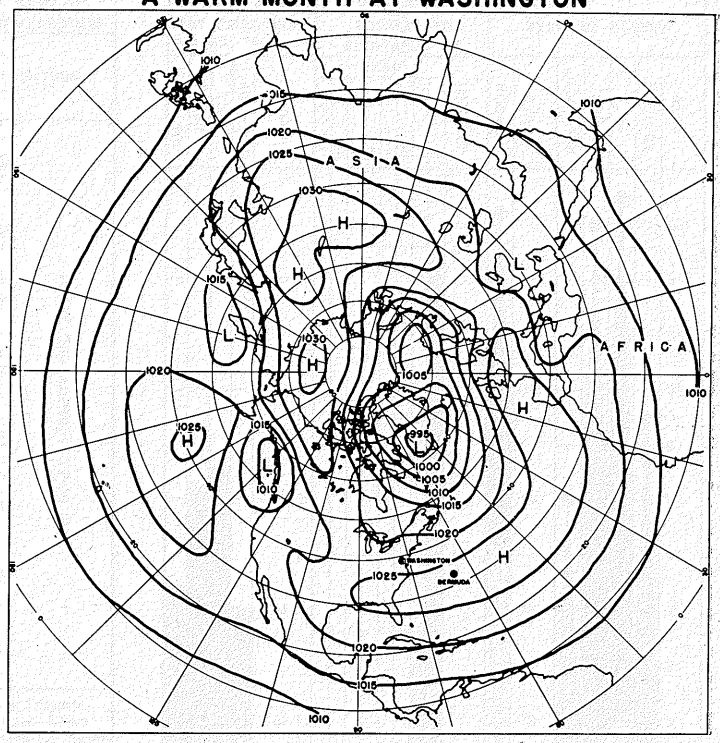
SELECTED SEA LEVEL PRESSURE CHARTS

NORTHERN HEMISPHERE

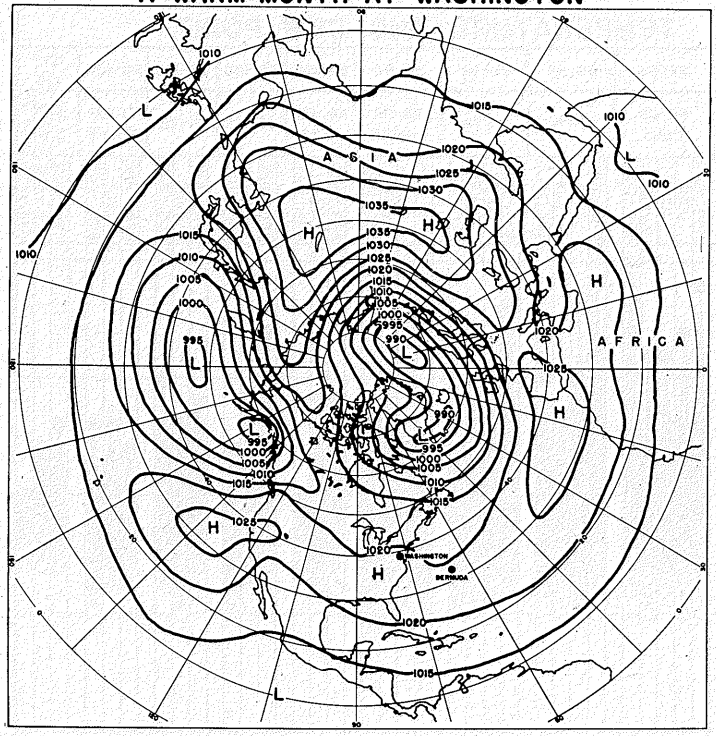
MEAN SEA LEVEL PRESSURE
DECEMBER, 1910
A COLD MONTH AT WASHINGTON



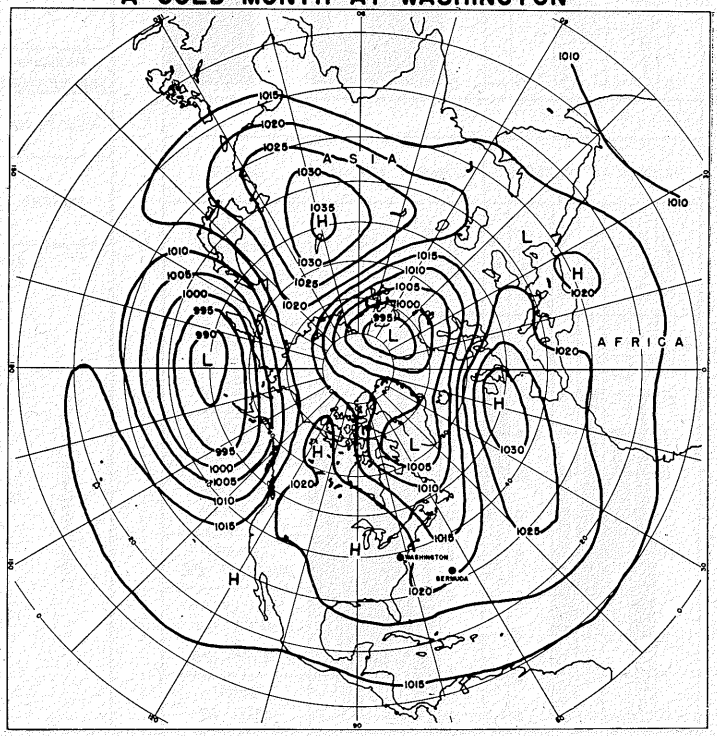
MEAN SEA LEVEL PRESSURE
JANUARY, 1911
A WARM MONTH AT WASHINGTON



MEAN SEA LEVEL PRESSURE
JANUARY, 1934
A WARM MONTH AT WASHINGTON



MEAN SEA LEVEL PRESSURE
FEBRUARY, 1934
A COLD MONTH AT WASHINGTON

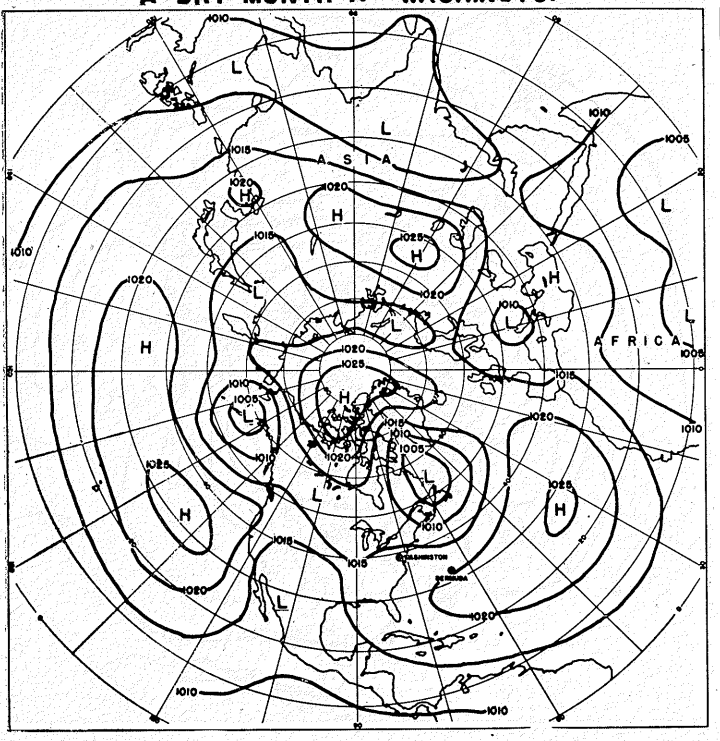


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

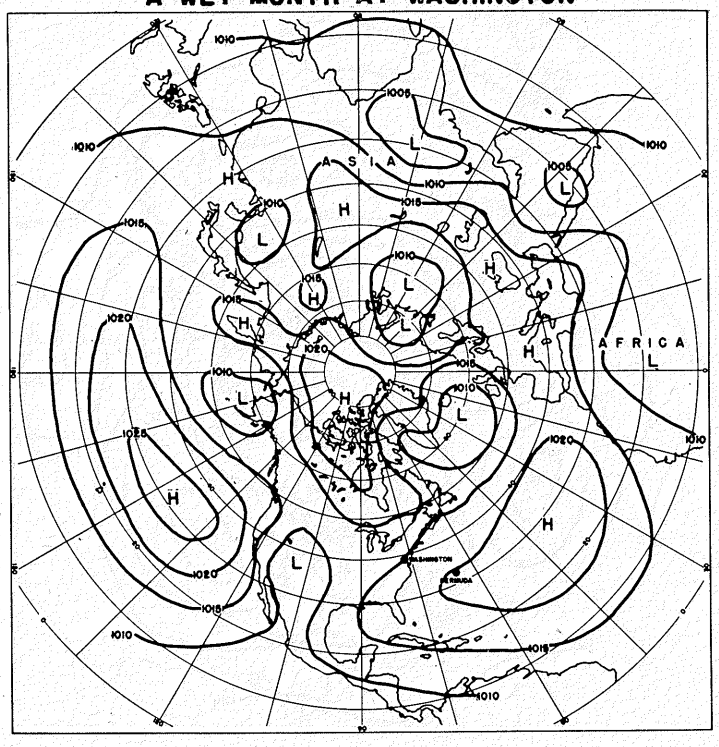
SELECTED SEA LEVEL PRESSURE CHARTS

NORTHERN HEMISPHERE

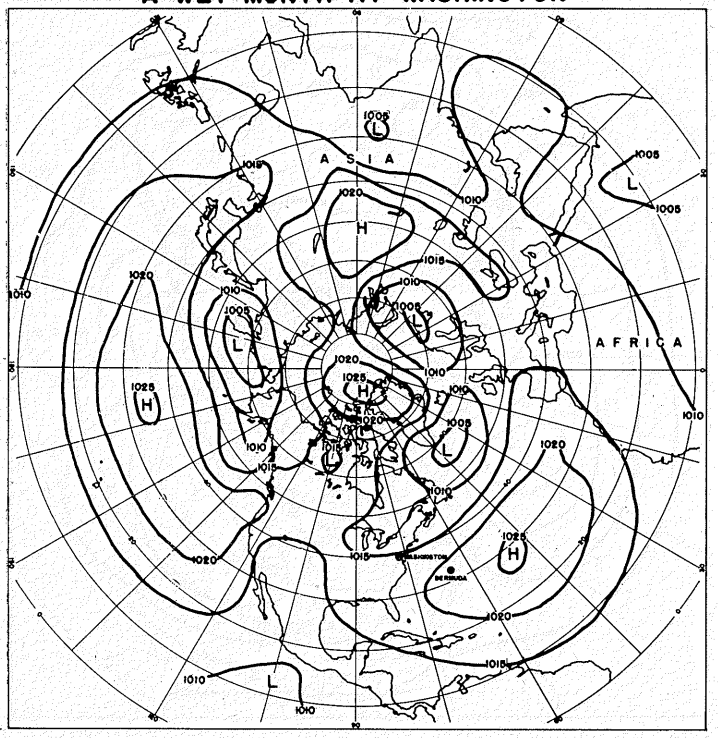
MEAN SEA LEVEL PRESSURE
APRIL, 1908
A DRY MONTH AT WASHINGTON



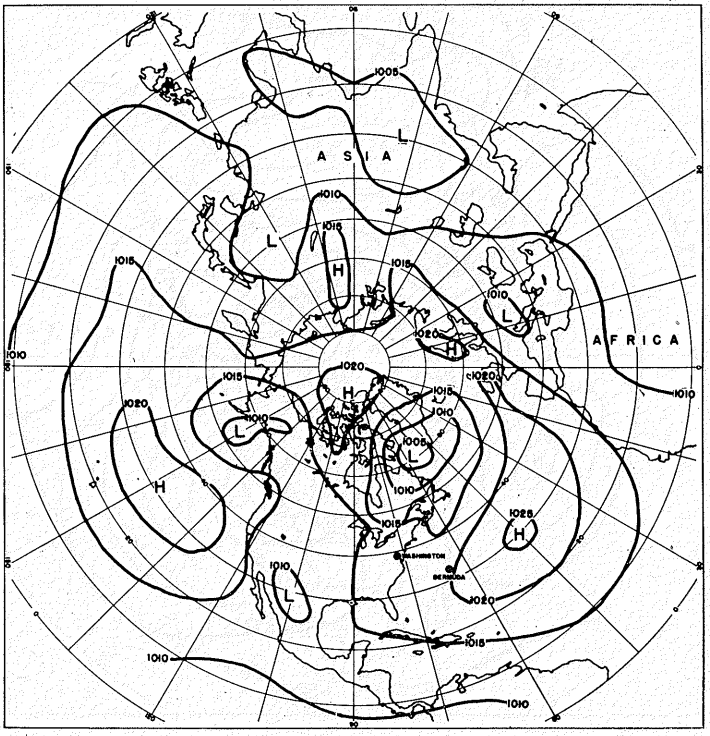
MEAN SEA LEVEL PRESSURE
MAY, 1908
A WET MONTH AT WASHINGTON



MEAN SEA LEVEL PRESSURE
APRIL, 1939
A WET MONTH AT WASHINGTON



MEAN SEA LEVEL PRESSURE
MAY, 1939
A DRY MONTH AT WASHINGTON

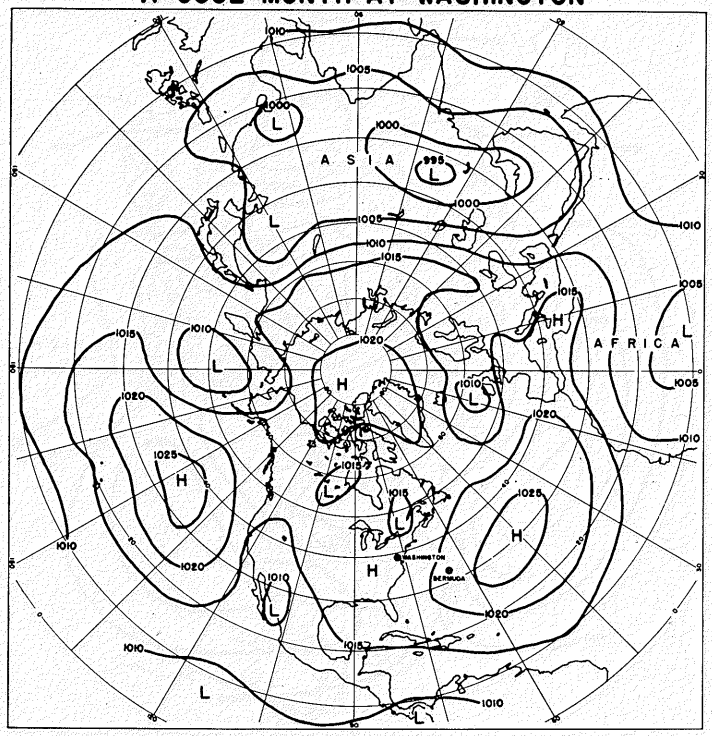


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

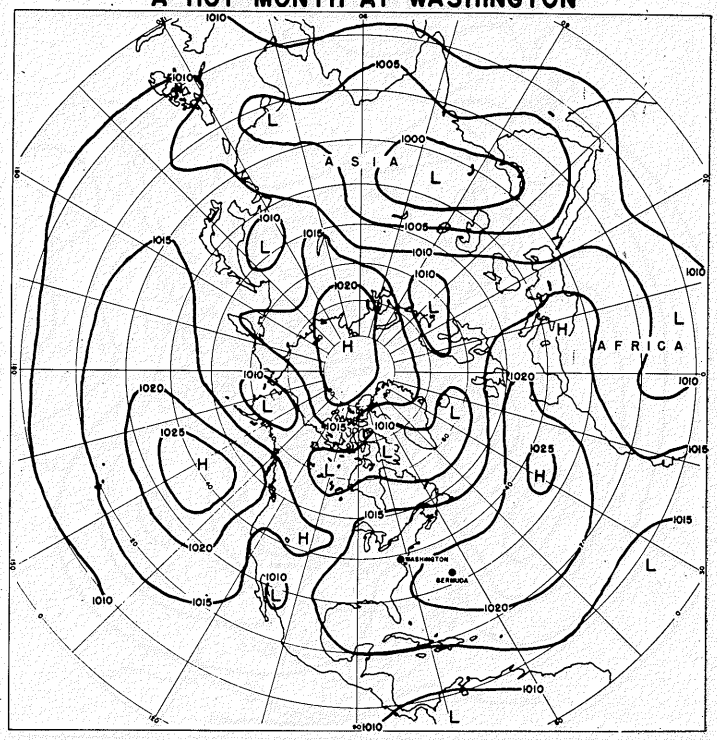
SELECTED SEA LEVEL PRESSURE CHARTS

NORTHERN HEMISPHERE

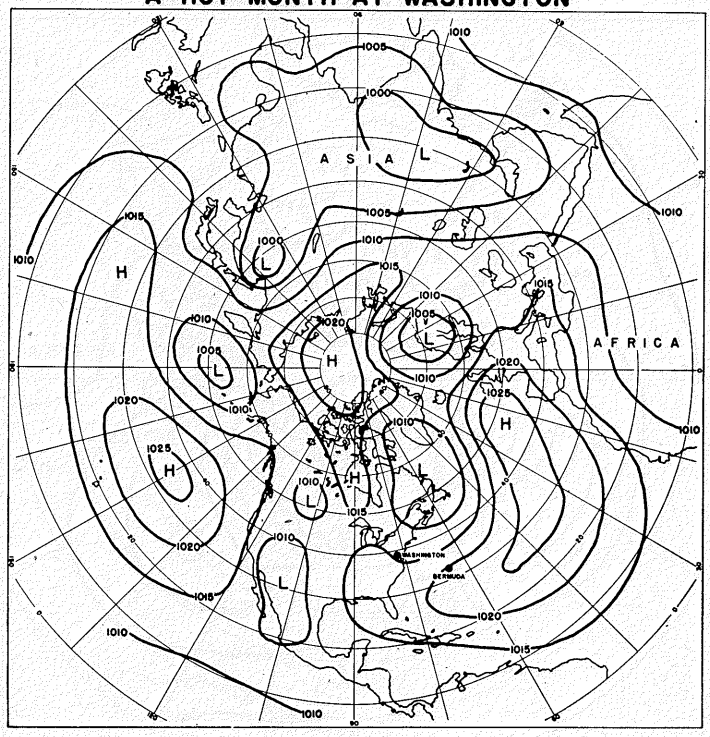
MEAN SEA LEVEL PRESSURE
JULY, 1918
A COOL MONTH AT WASHINGTON



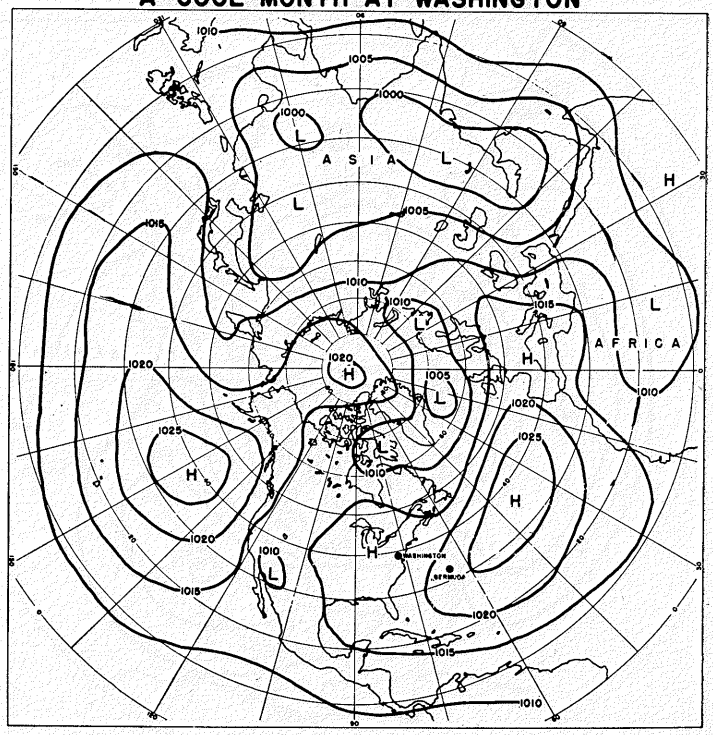
MEAN SEA LEVEL PRESSURE
AUGUST, 1918
A HOT MONTH AT WASHINGTON



MEAN SEA LEVEL PRESSURE
JUNE, 1923
A HOT MONTH AT WASHINGTON



MEAN SEA LEVEL PRESSURE
JULY, 1923
A COOL MONTH AT WASHINGTON

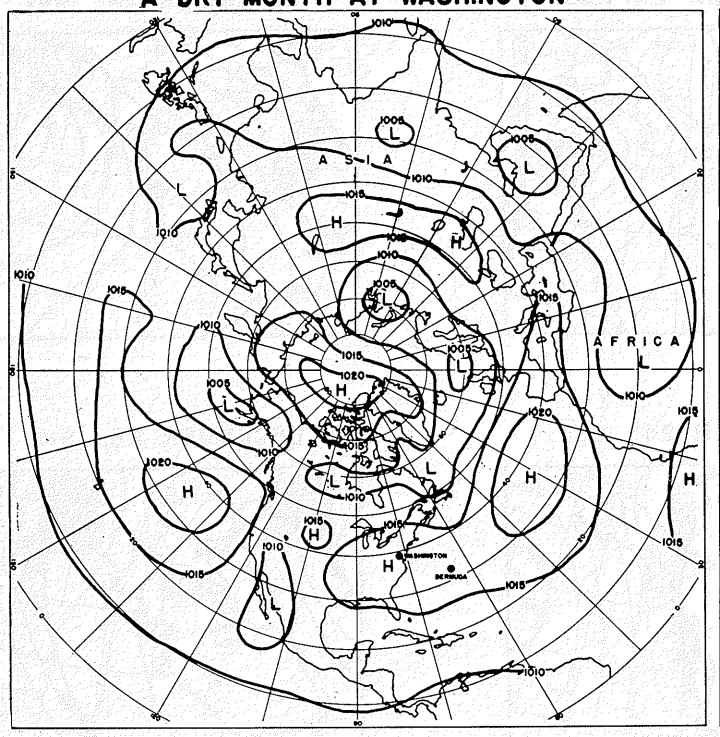


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

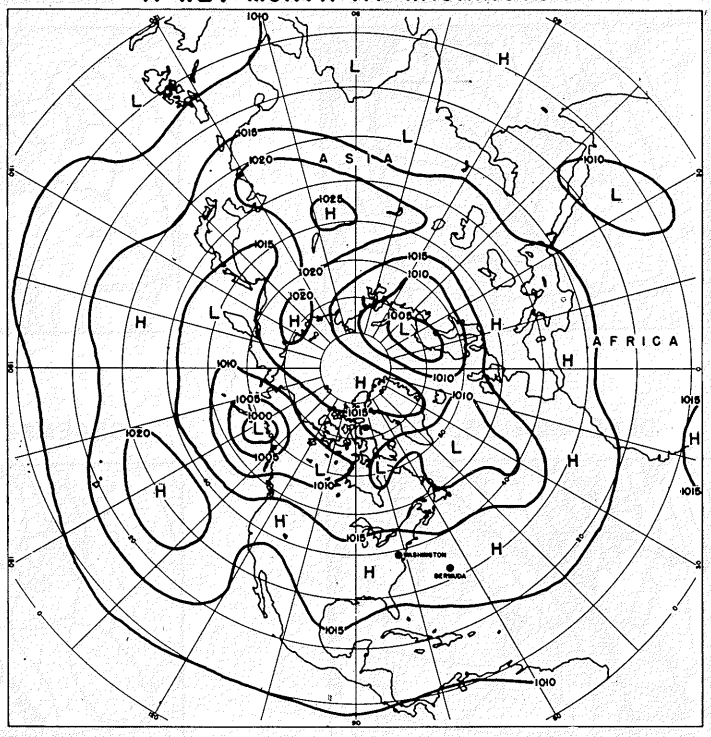
SELECTED SEA LEVEL PRESSURE CHARTS

NORTHERN HEMISPHERE

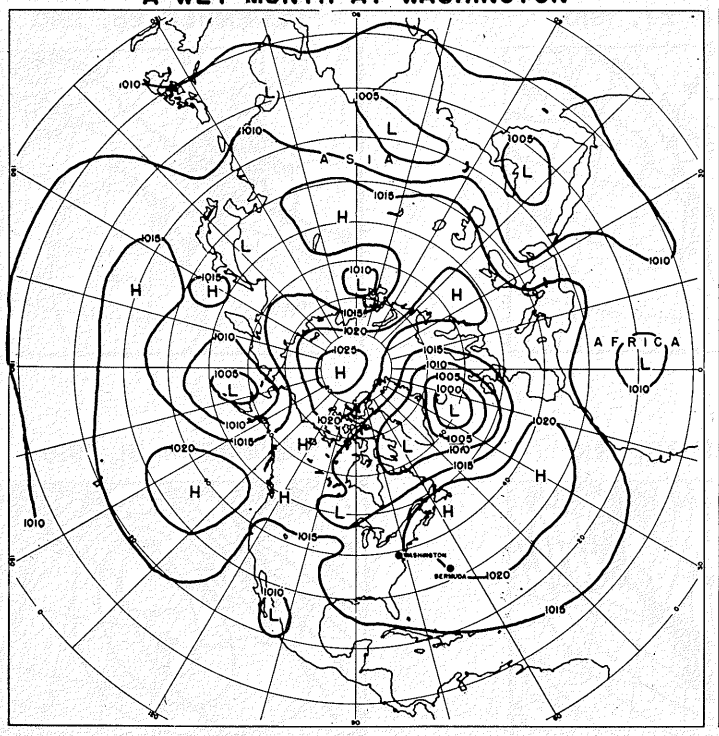
MEAN SEA LEVEL PRESSURE
SEPTEMBER, 1927
A DRY MONTH AT WASHINGTON



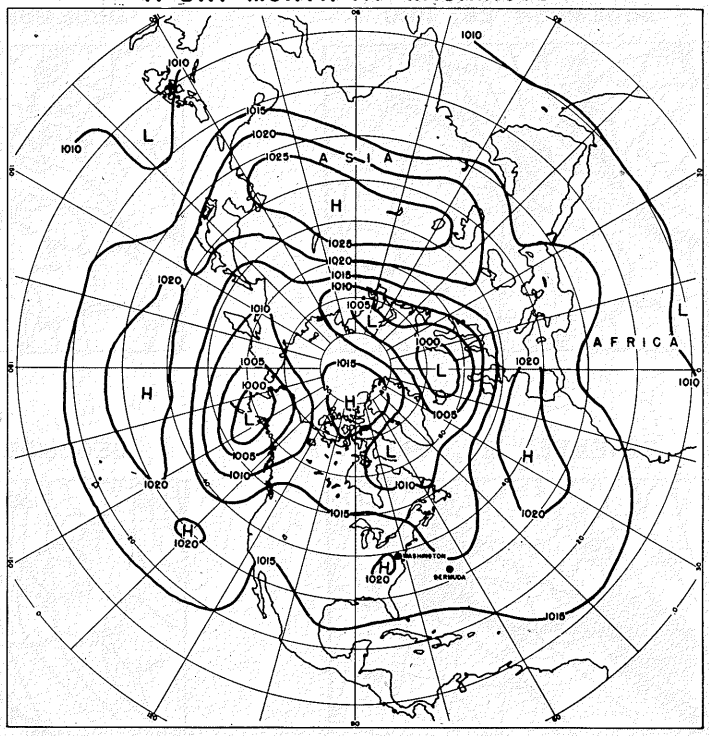
MEAN SEA LEVEL PRESSURE
OCTOBER, 1927
A WET MONTH AT WASHINGTON



MEAN SEA LEVEL PRESSURE
SEPTEMBER, 1934
A WET MONTH AT WASHINGTON



MEAN SEA LEVEL PRESSURE
OCTOBER, 1934
A DRY MONTH AT WASHINGTON

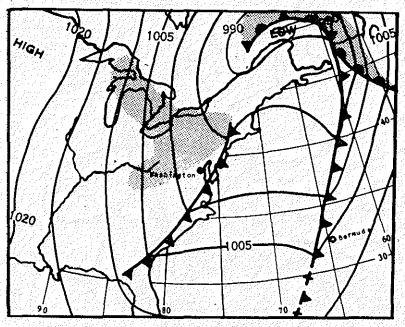


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

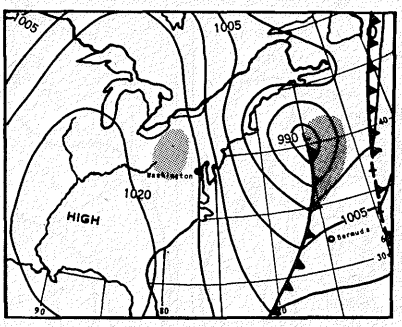
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

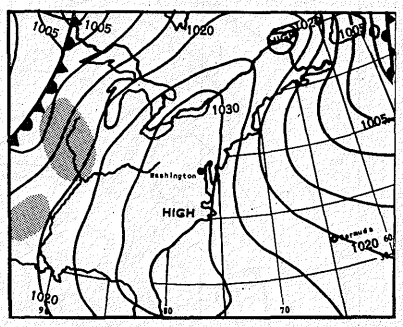
DECEMBER 20, 1910



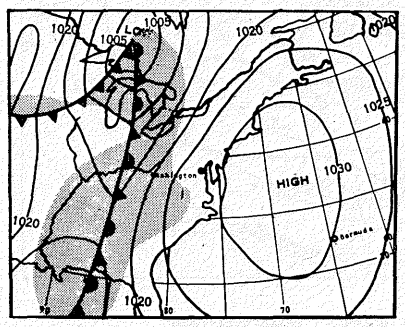
DECEMBER 21, 1910



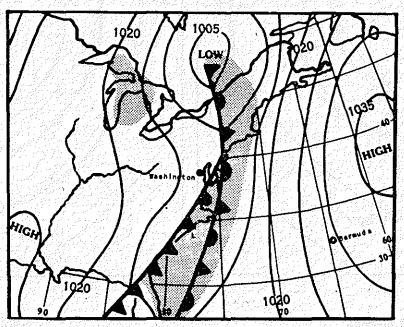
DECEMBER 22, 1910



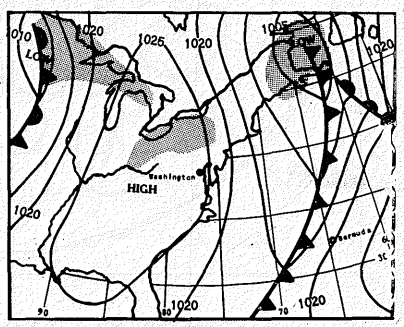
DECEMBER 23, 1910



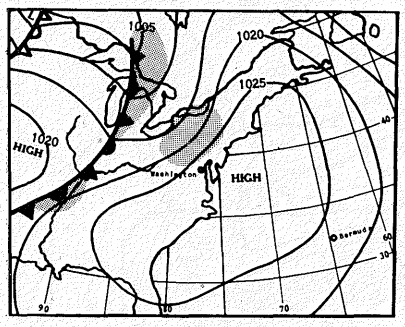
DECEMBER 24, 1910



DECEMBER 25, 1910



DECEMBER 26, 1910



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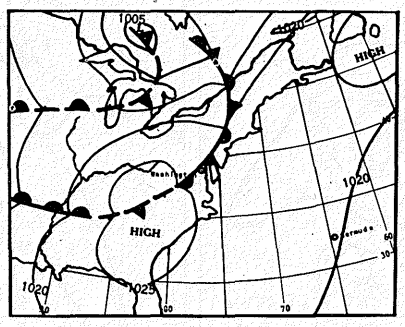

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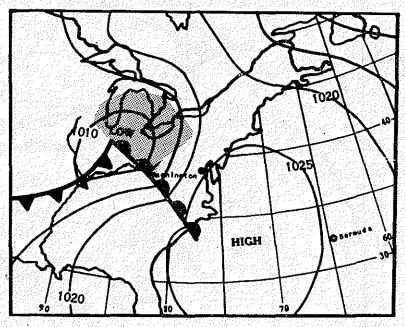

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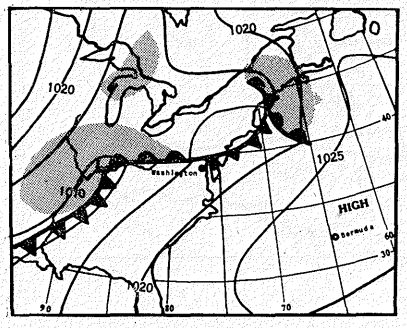
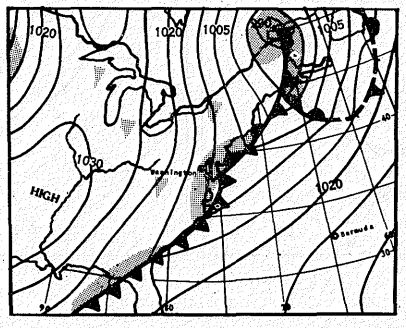
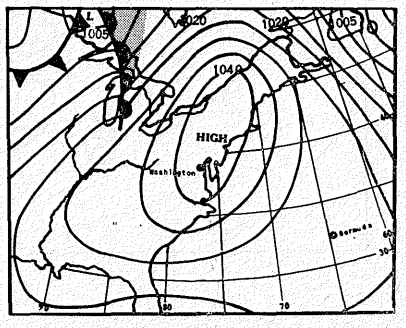


DECEMBER 30, 1910



DECEMBER 31, 1910

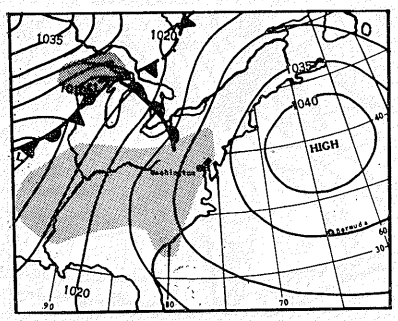


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

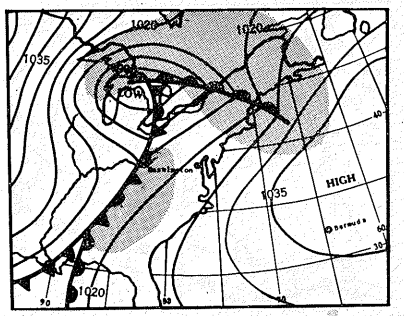
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

JANUARY 1, 1911



JANUARY 2, 1911



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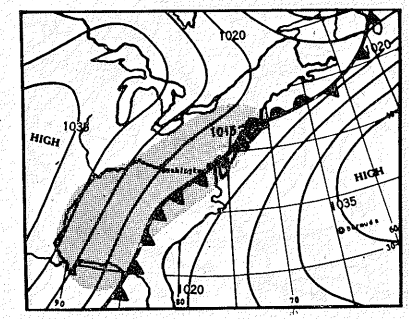

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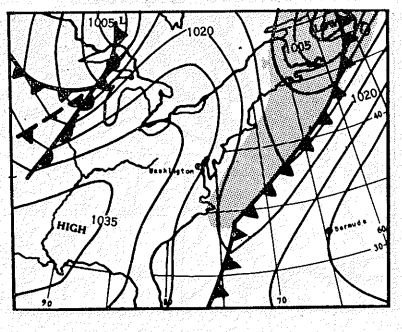

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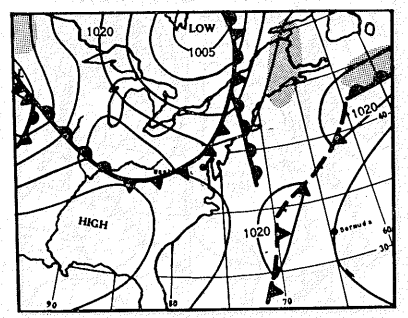

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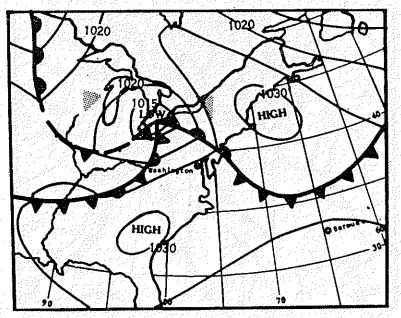

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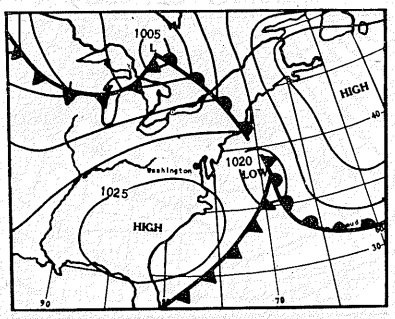

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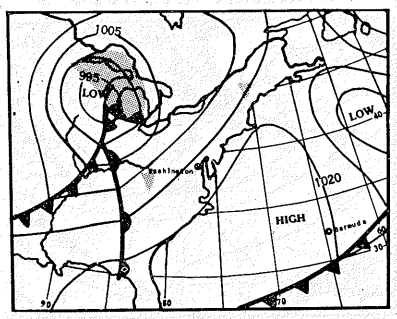

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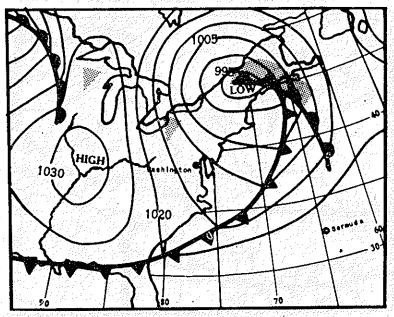

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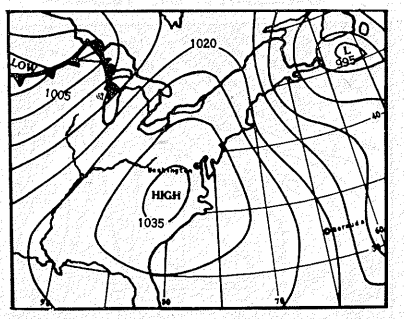

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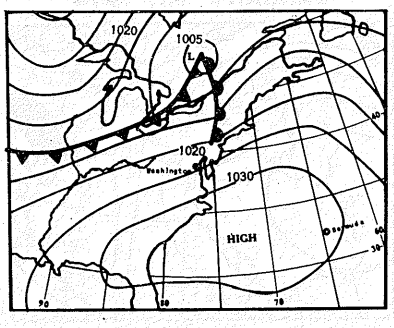

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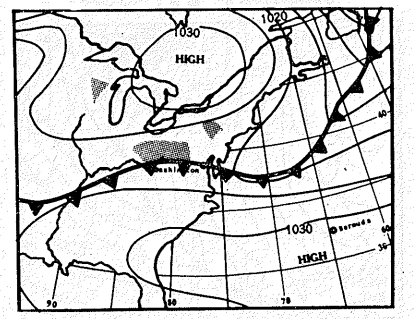

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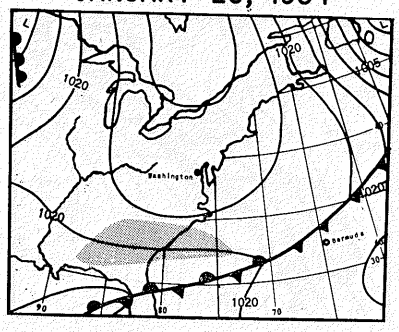
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

JANUARY 20, 1934



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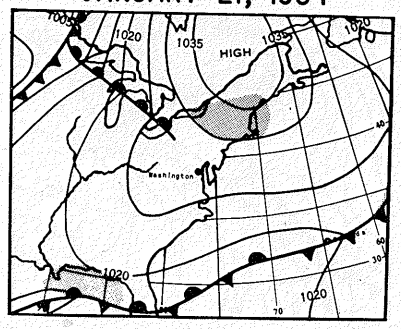

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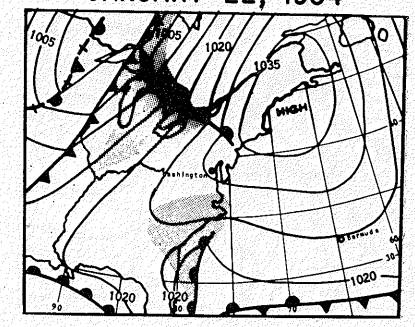

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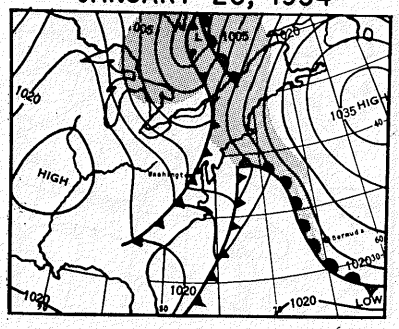

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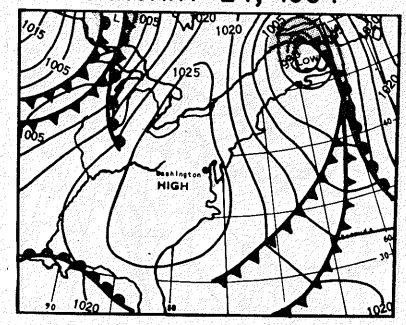

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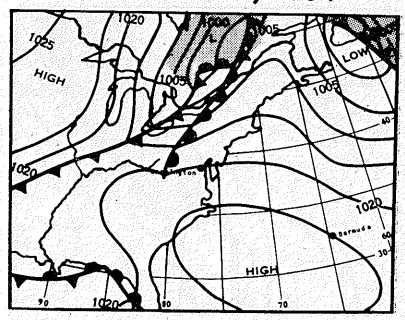

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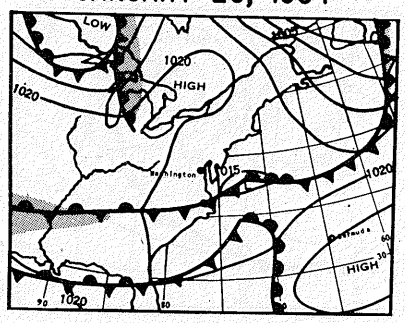

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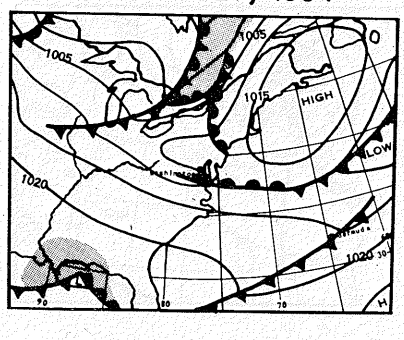

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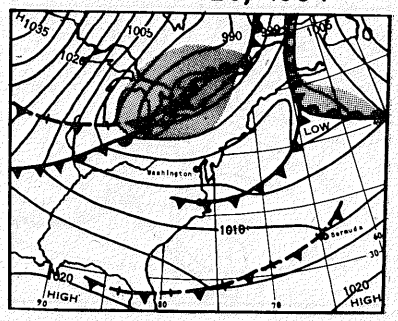

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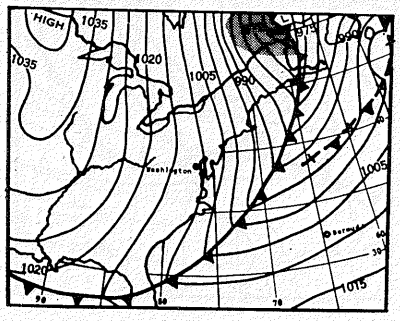

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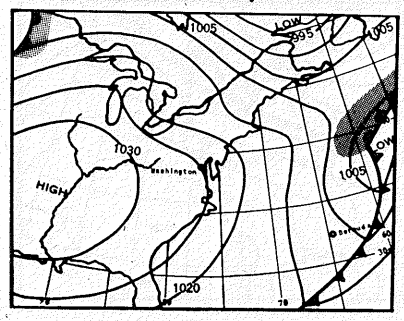

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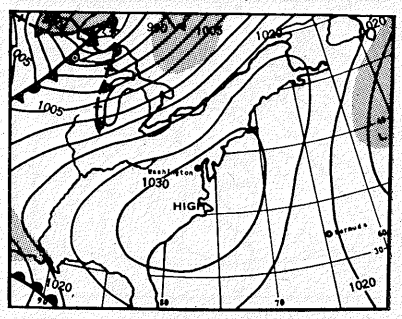
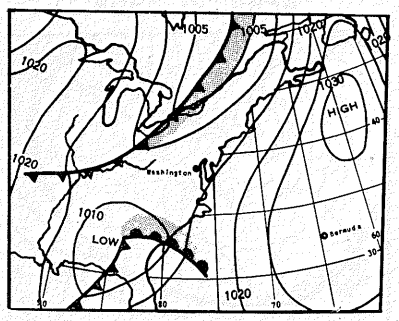


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

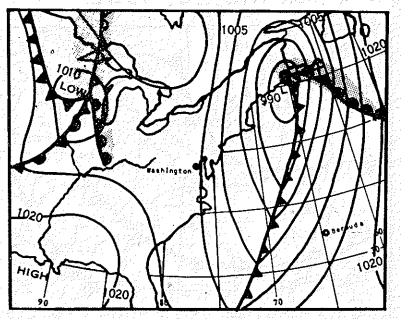
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

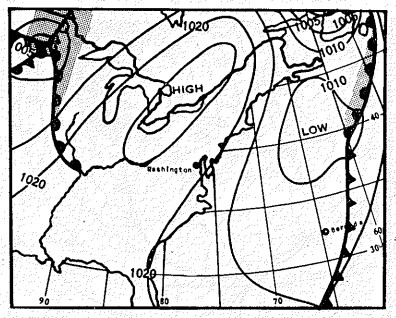
FEBRUARY 1, 1934



FEBRUARY 2, 1934



FEBRUARY 3, 1934



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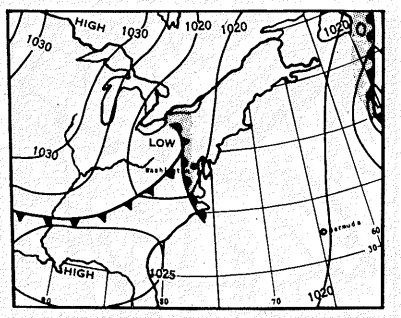
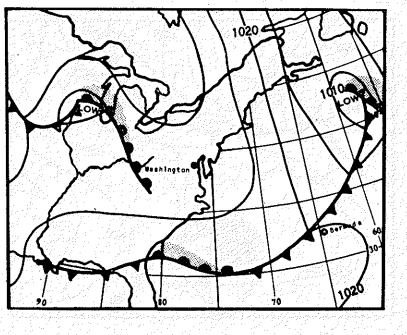
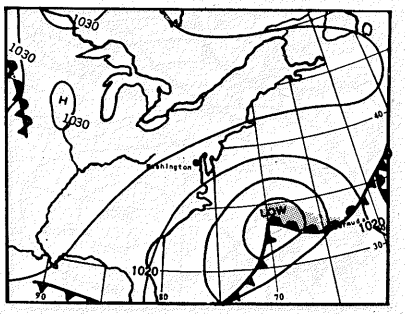


FEBRUARY 5, 1934



FEBRUARY 6, 1934



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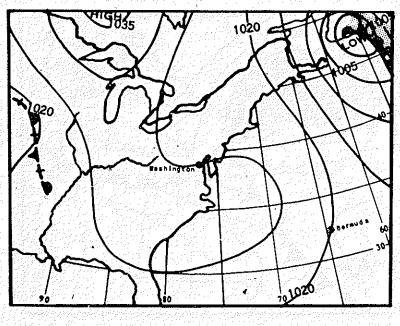

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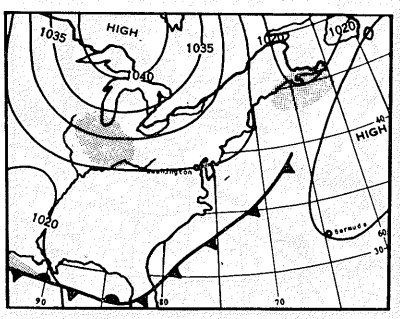

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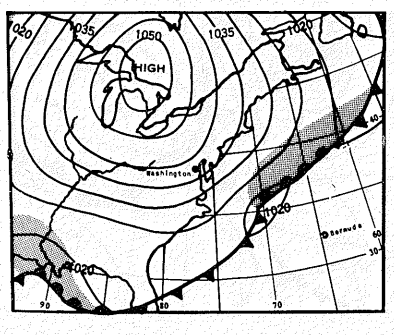

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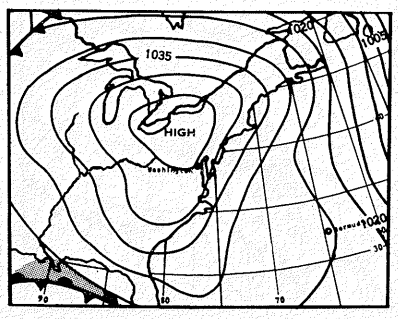

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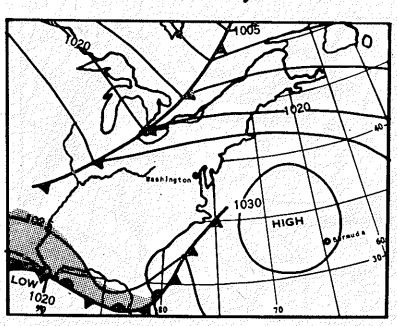

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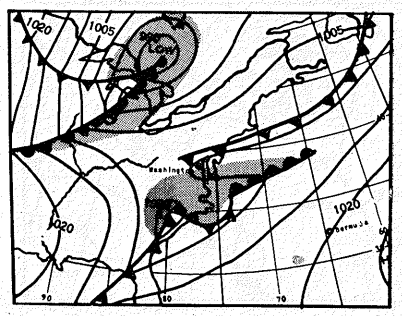
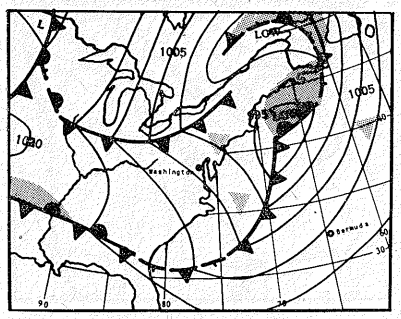


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

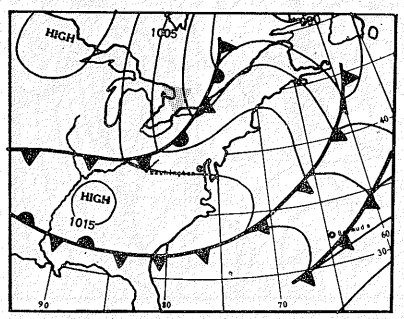
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

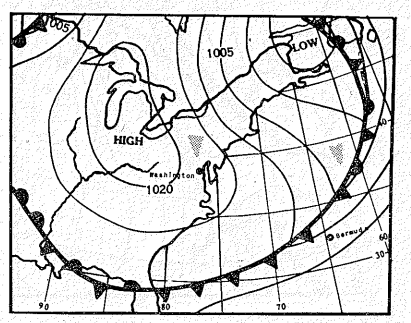
APRIL 19, 1908



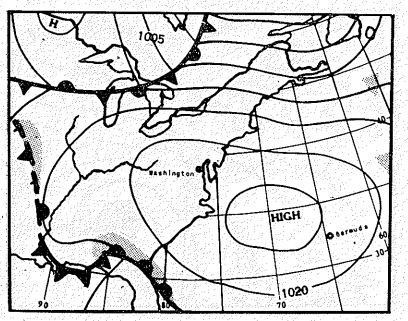
APRIL 20, 1908



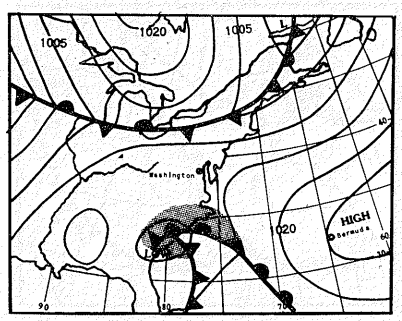
APRIL 21, 1908



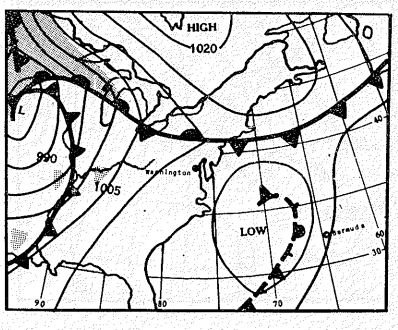
APRIL 22, 1908



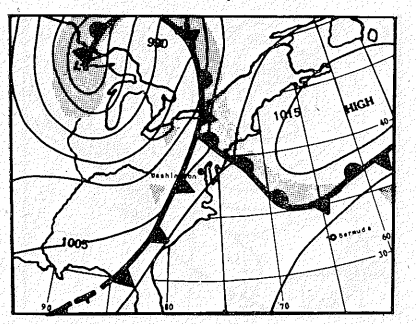
APRIL 23, 1908



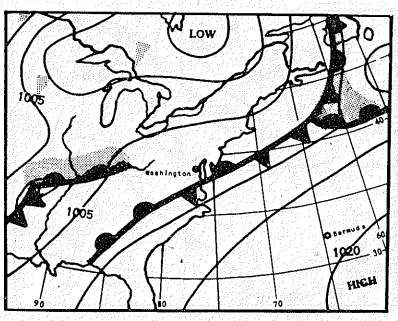
APRIL 24, 1908



APRIL 25, 1908



APRIL 26, 1908



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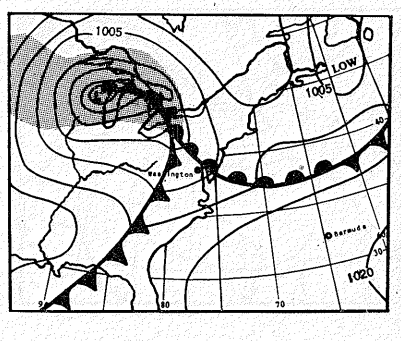

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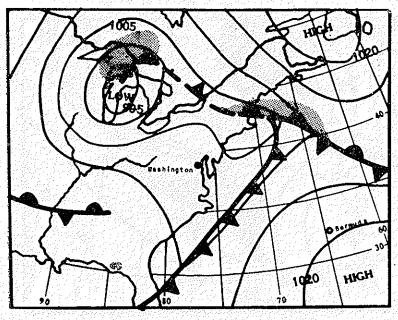

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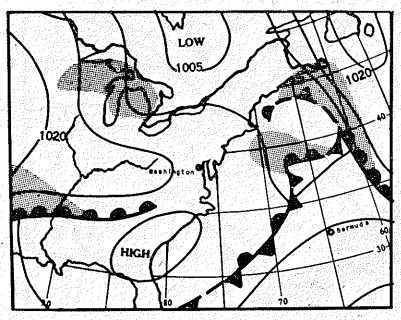
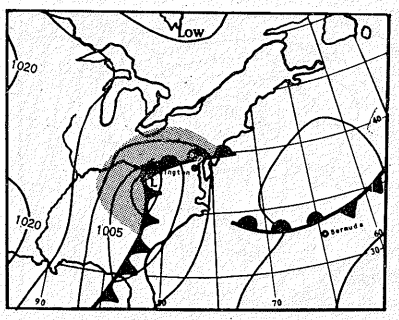


APRIL 30, 1908

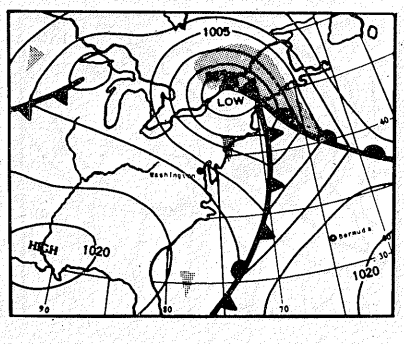


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

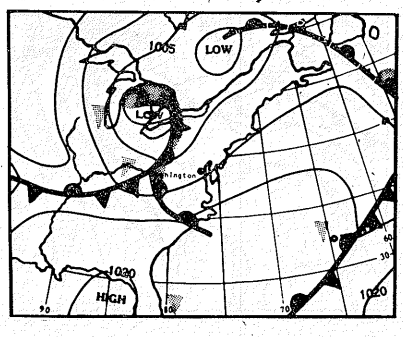
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

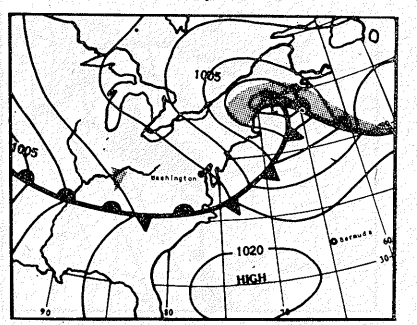
MAY 1, 1908



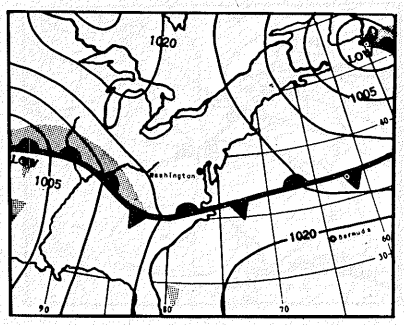
MAY 2, 1908



MAY 3, 1908



MAY 4, 1908



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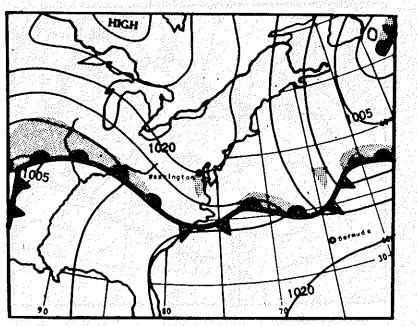
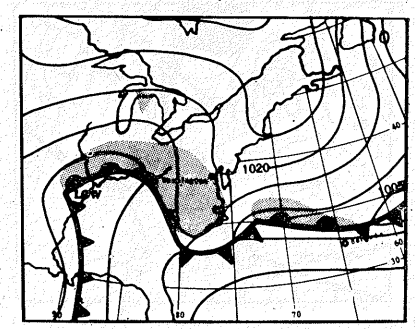
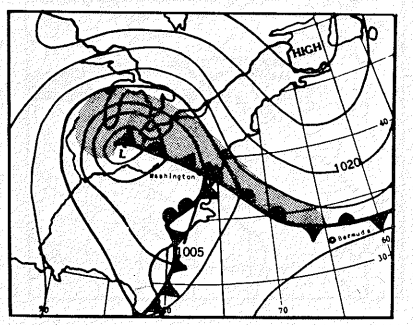


MAY 6, 1908



MAY 7, 1908



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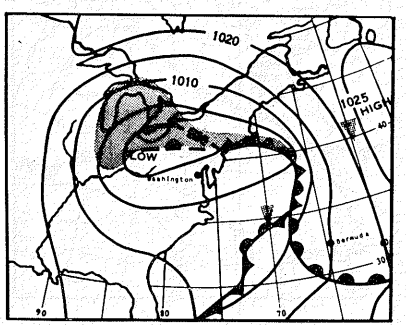

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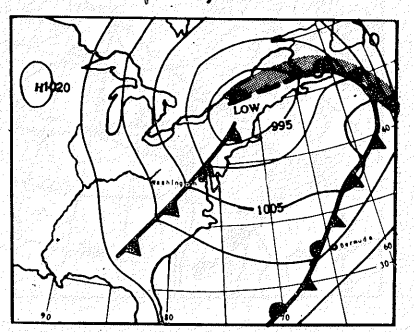

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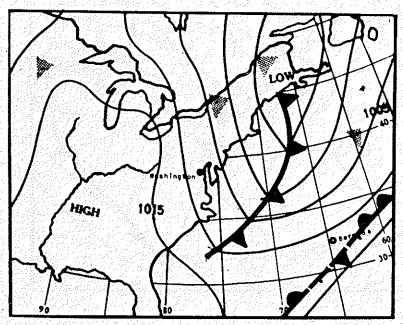

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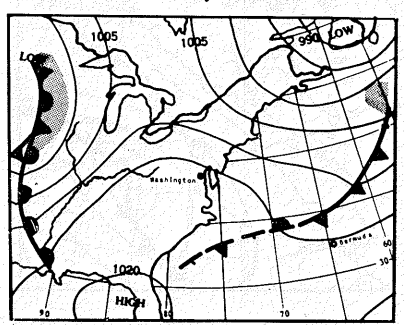

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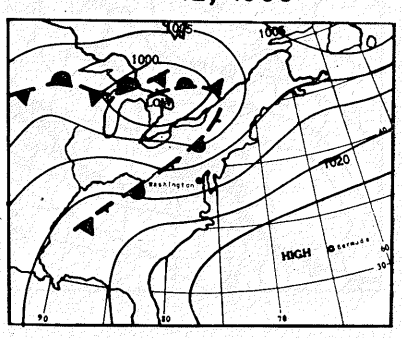
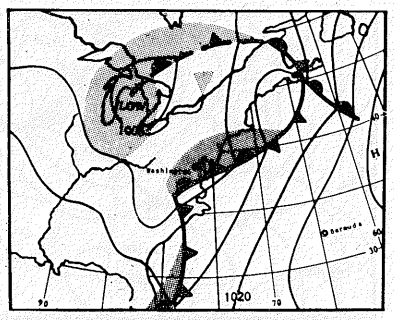


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

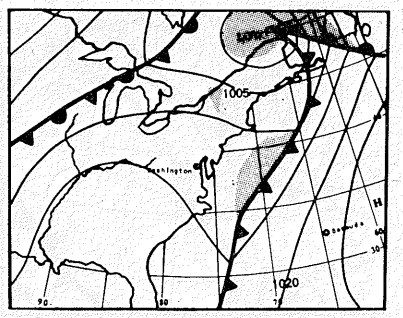
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

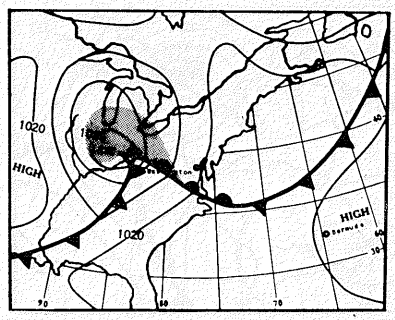
APRIL 19, 1939



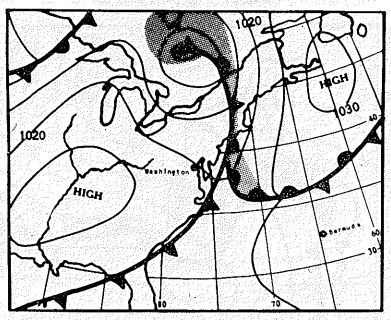
APRIL 20, 1939



APRIL 21, 1939



APRIL 22, 1939



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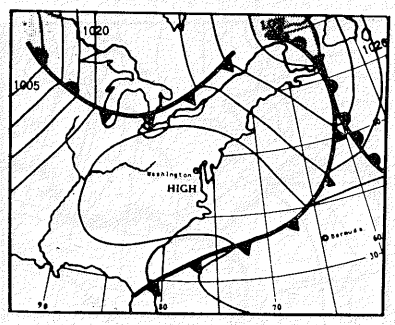

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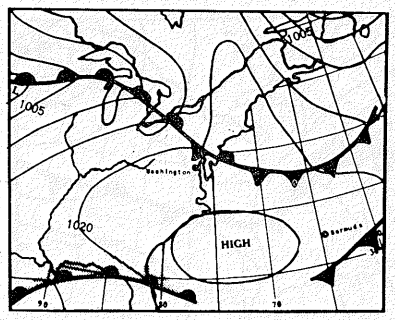

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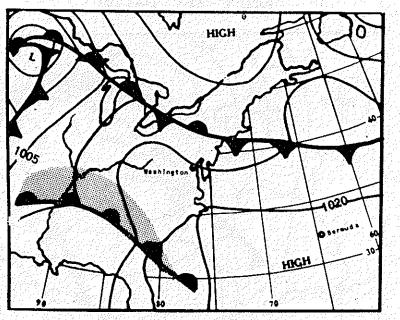

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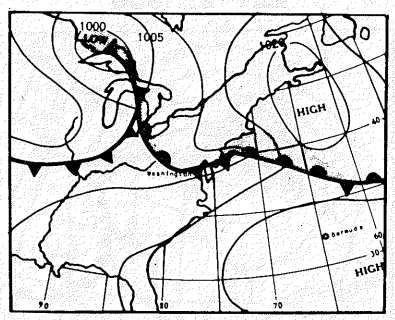

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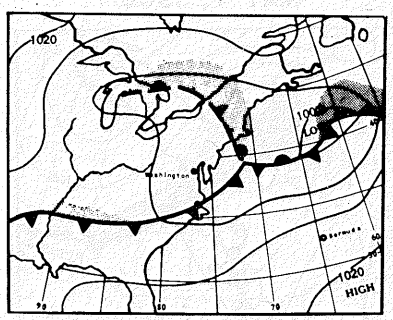
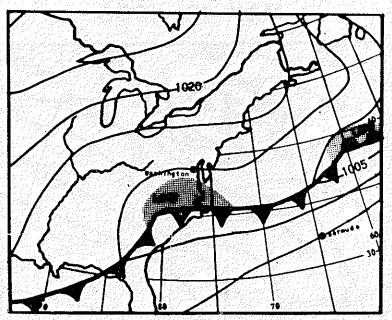


APRIL 28, 1939



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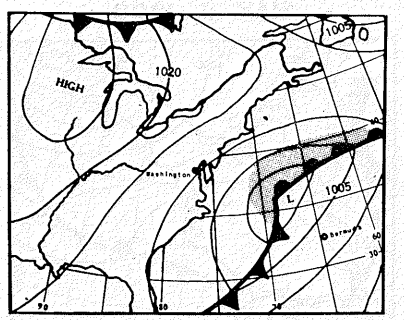

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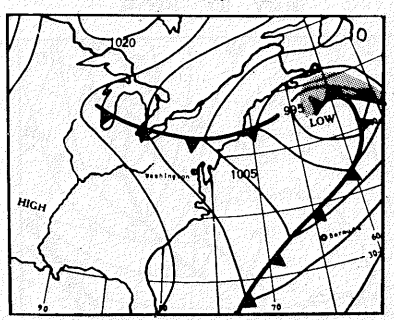
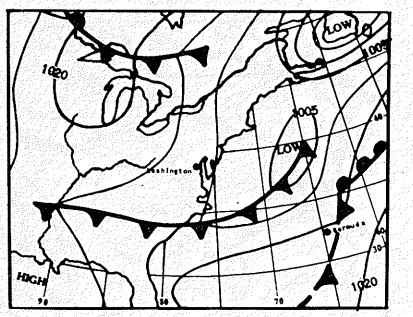


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

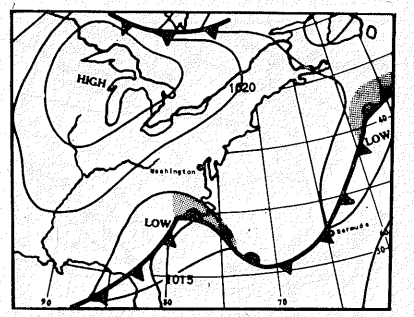
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

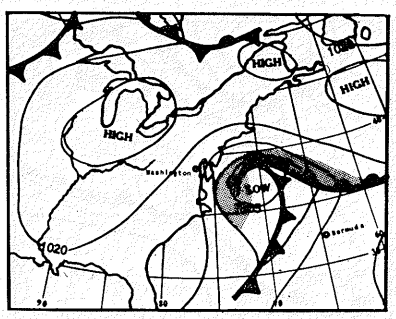
MAY 1, 1939



MAY 2, 1939



MAY 3, 1939



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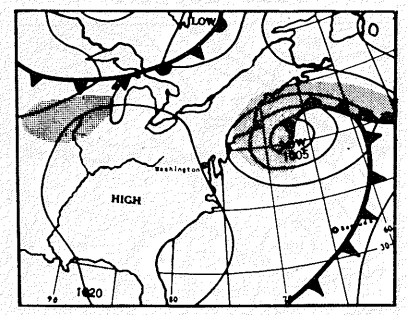
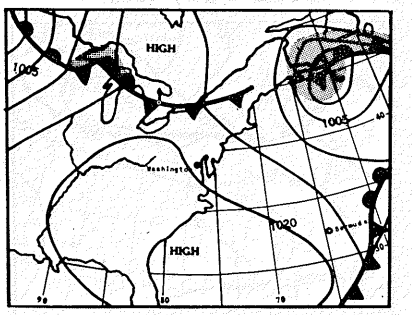
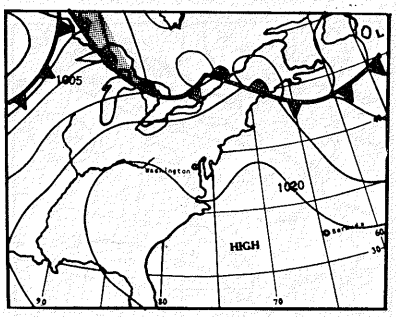


MAY 5, 1939



MAY 6, 1939



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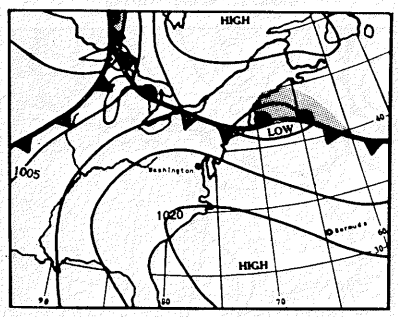

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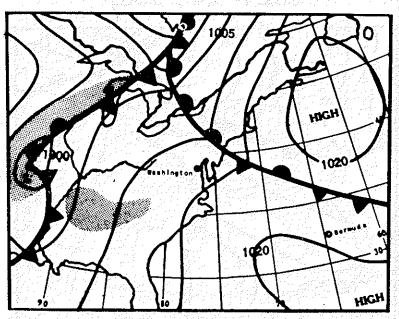

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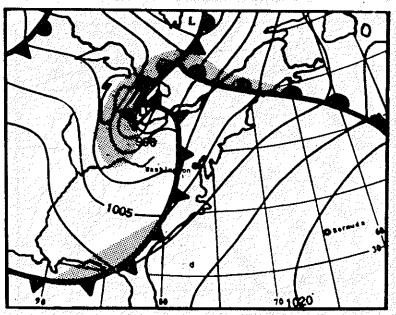

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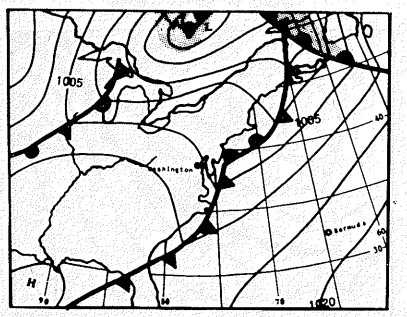

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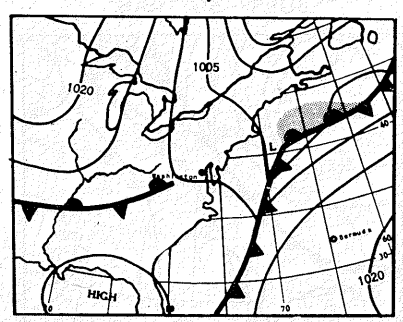

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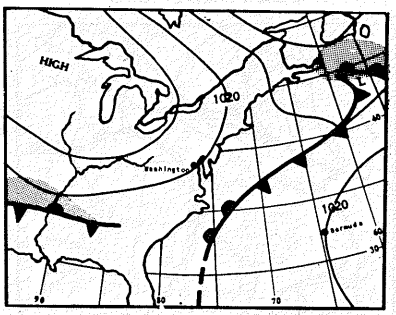
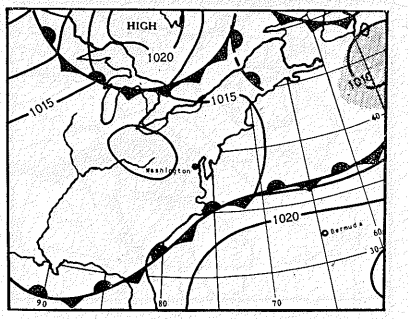


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

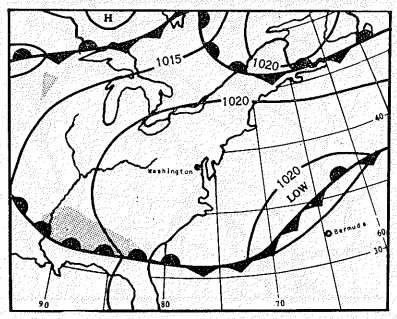
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

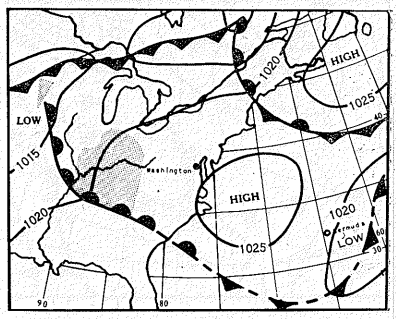
JULY 20, 1918



JULY 21, 1918



JULY 22, 1918



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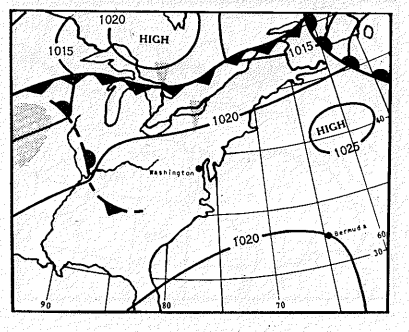
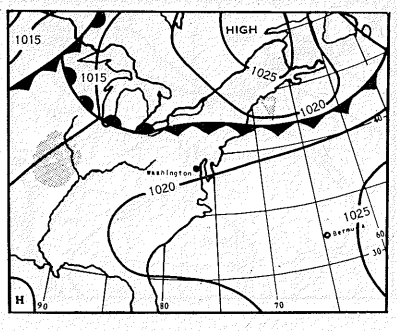
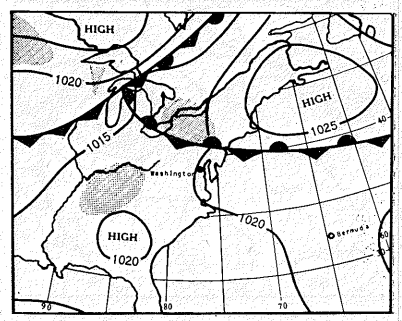


JULY 24, 1918



JULY 25, 1918



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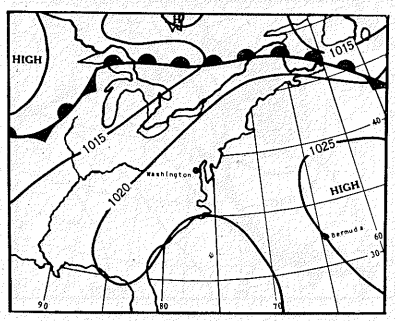

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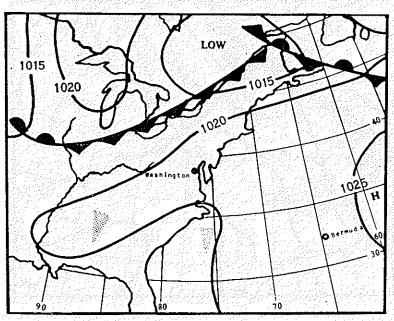
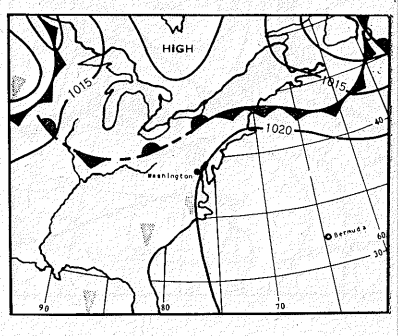


JULY 28, 1918



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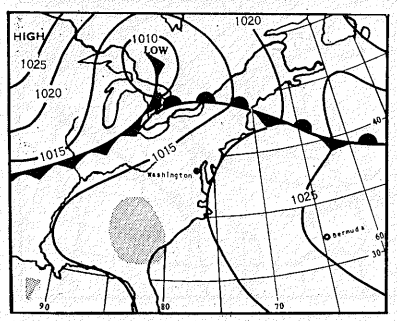
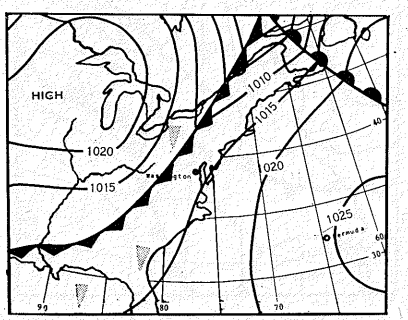


JULY 30, 1918



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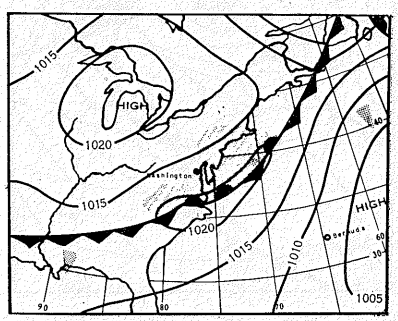
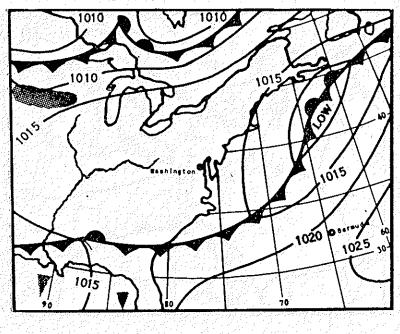


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

AUGUST 1, 1918



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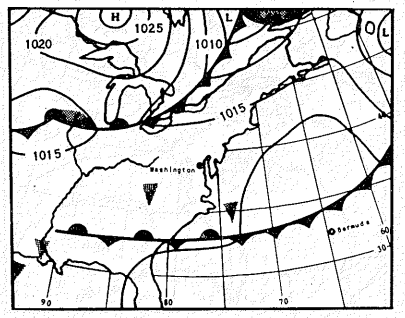

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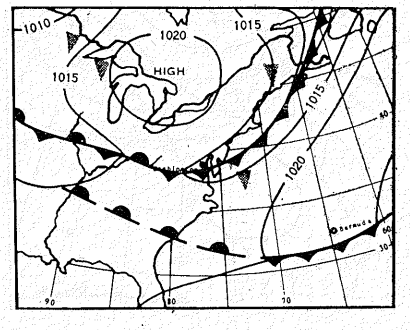

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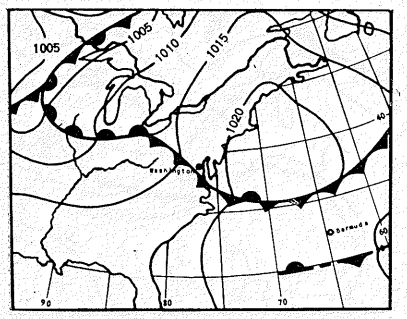

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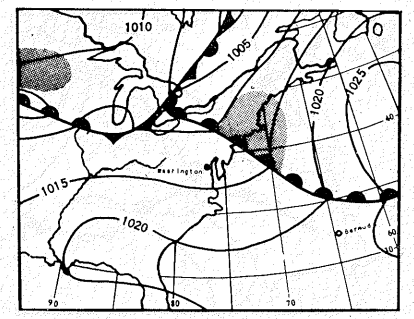

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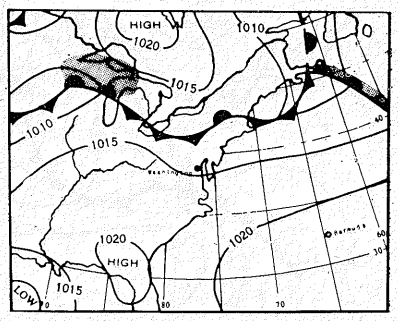

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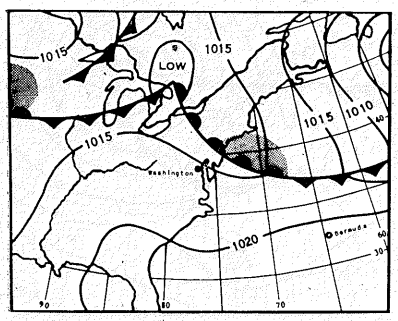

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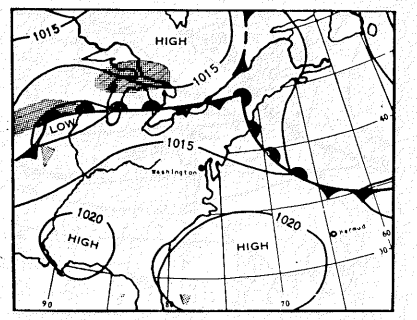

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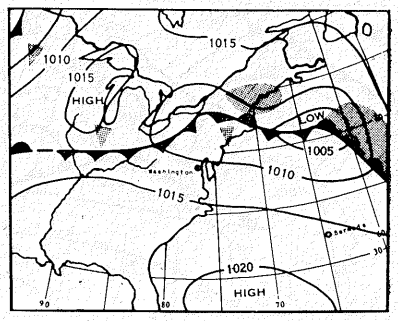

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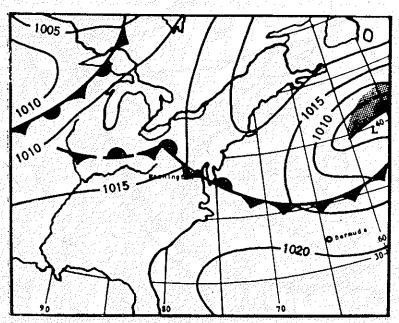

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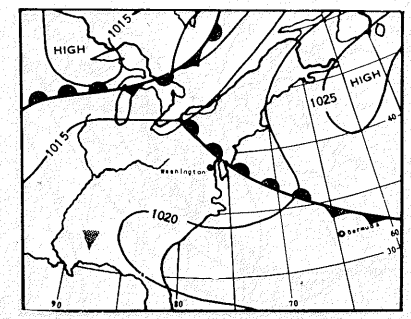

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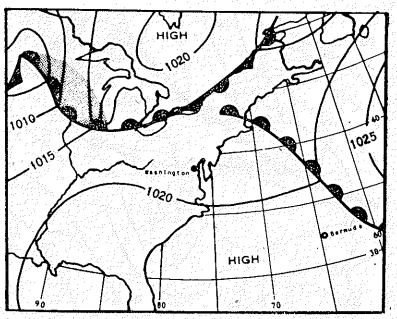

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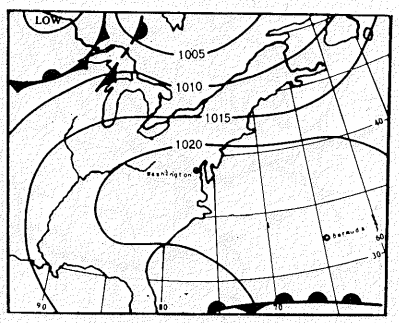
CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

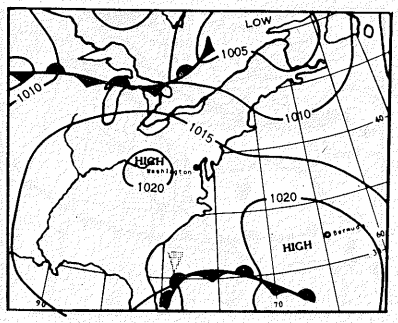
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

JUNE 19, 1923



JUNE 20, 1923



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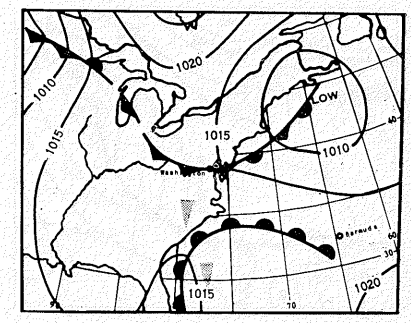

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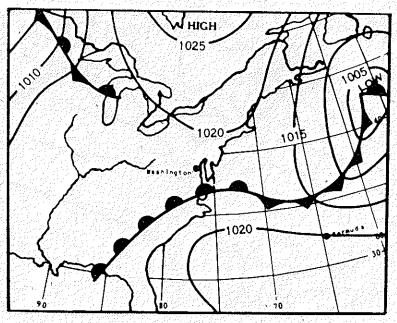

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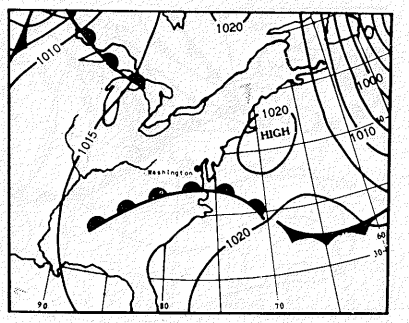

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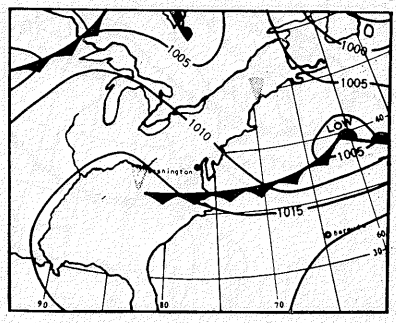

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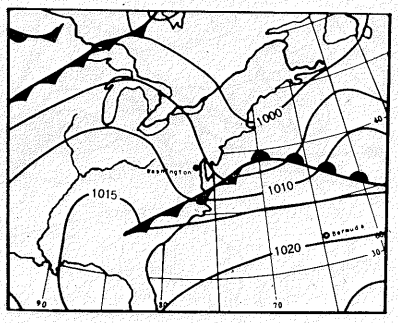

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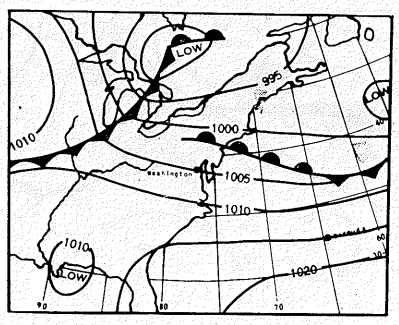

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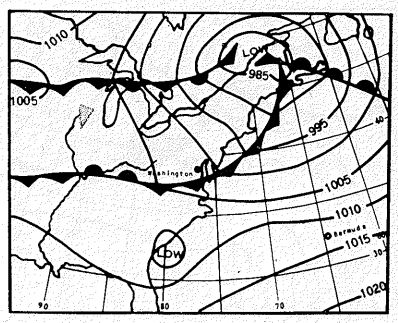

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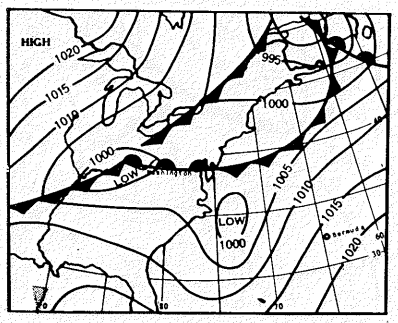

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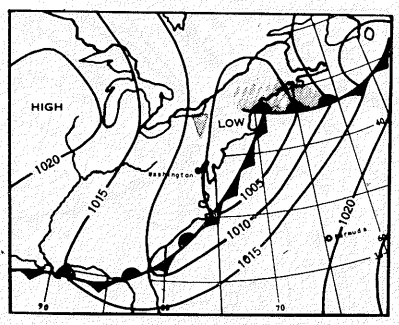

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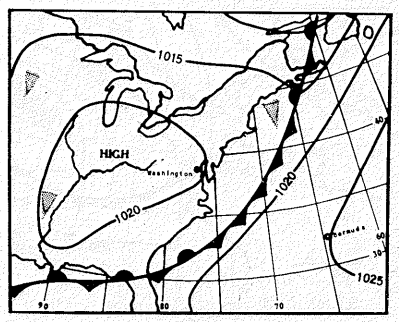
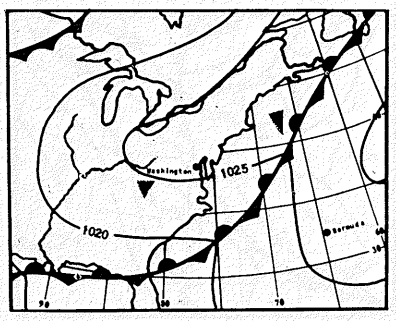


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

JULY 1, 1923



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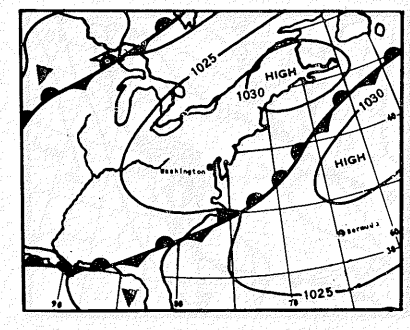

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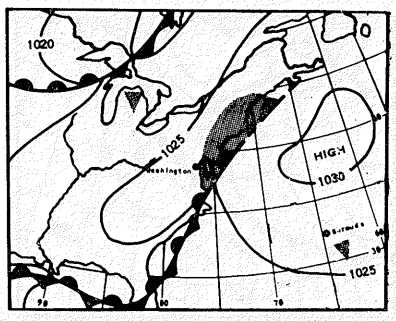

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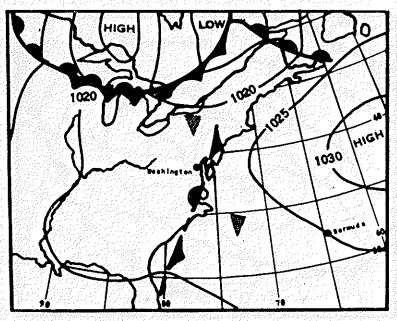

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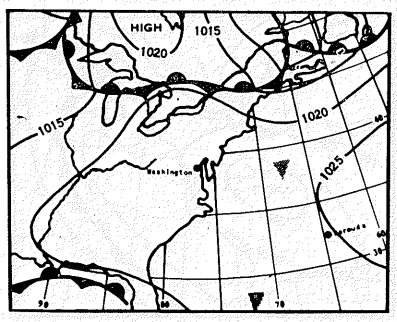

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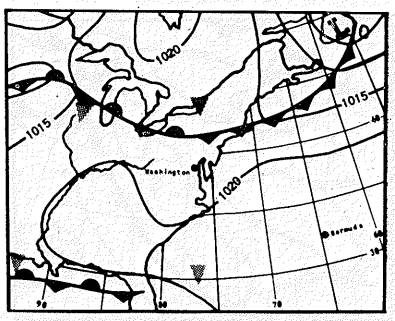

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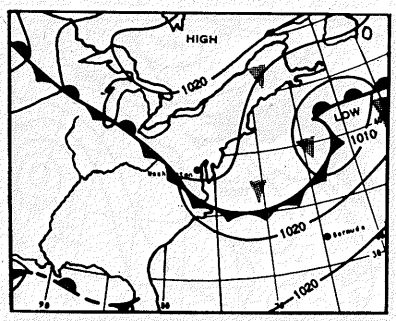

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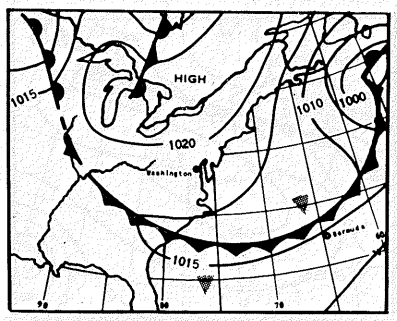

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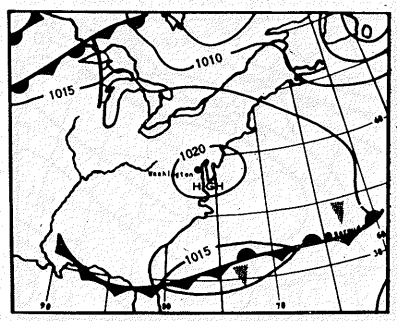

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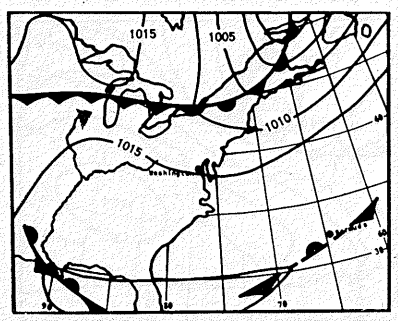

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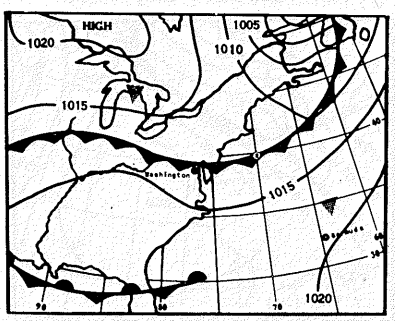

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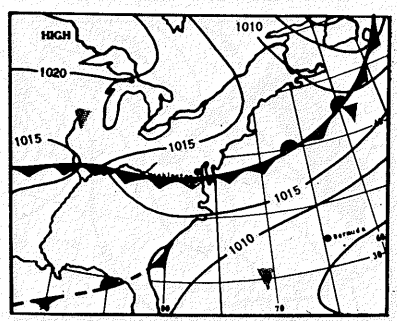
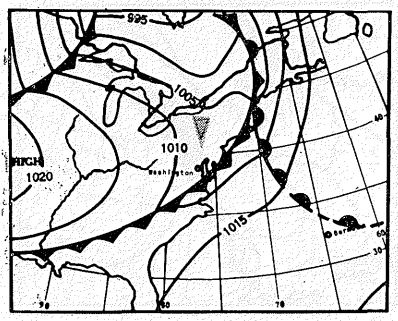


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

SEPTEMBER 19, 1927



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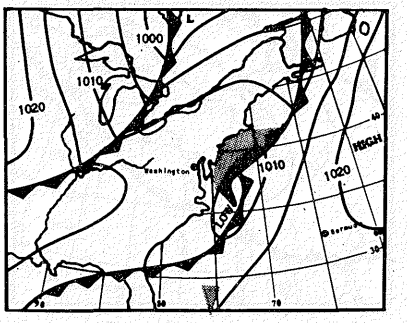

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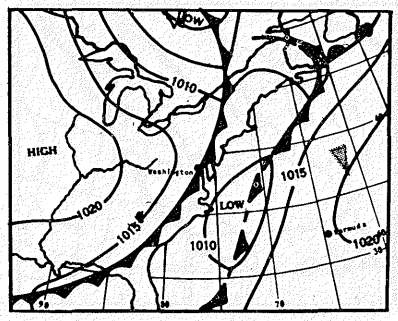

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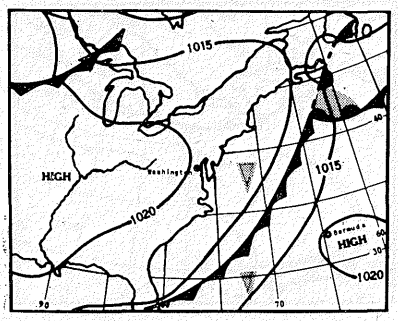

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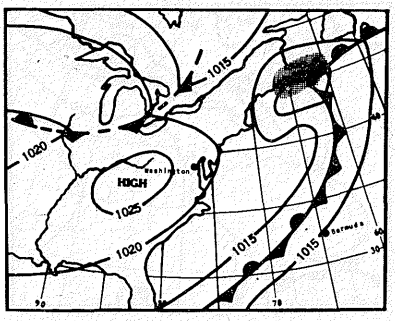

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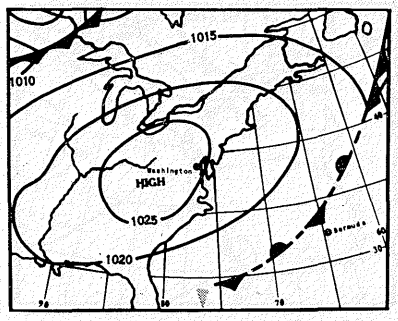

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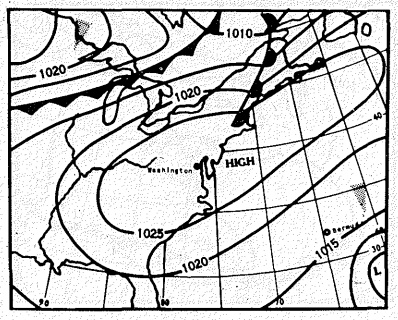

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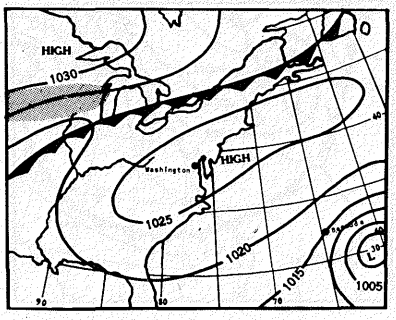

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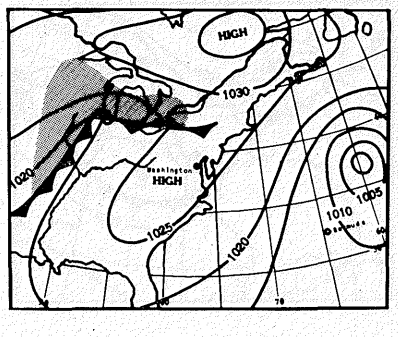

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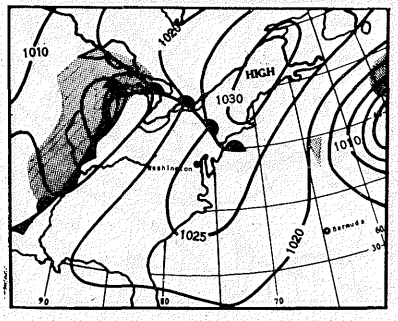

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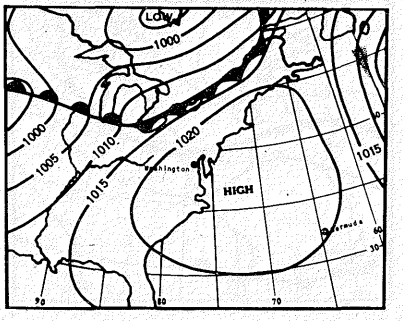

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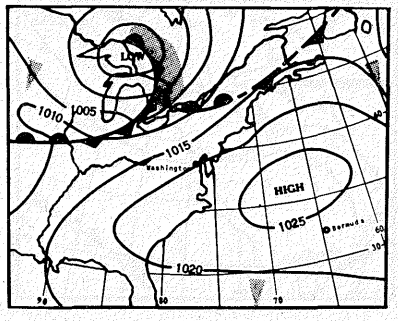
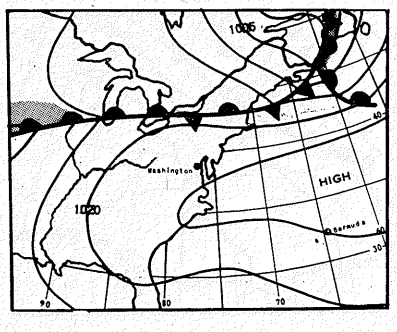


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

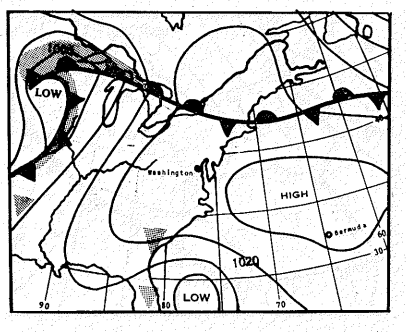
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

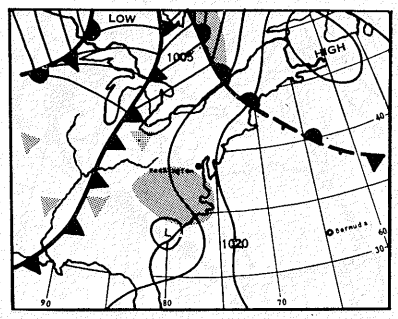
OCTOBER 1, 1927



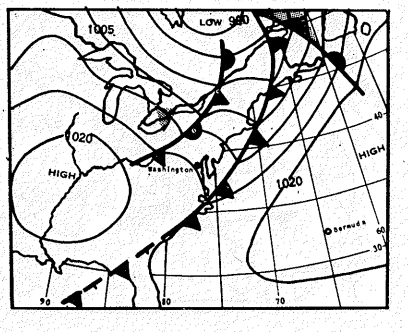
OCTOBER 2, 1927



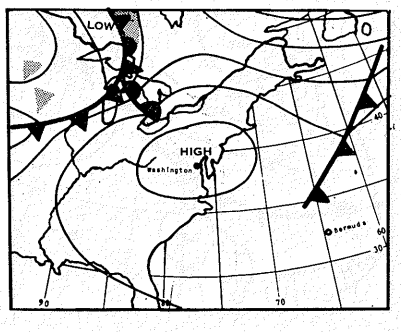
OCTOBER 3, 1927



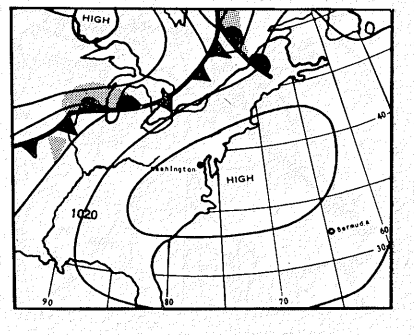
OCTOBER 4, 1927



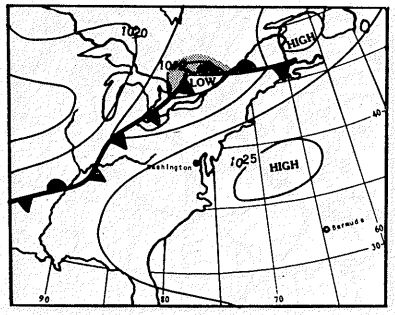
OCTOBER 5, 1927



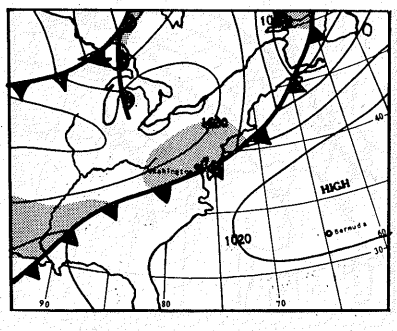
OCTOBER 6, 1927



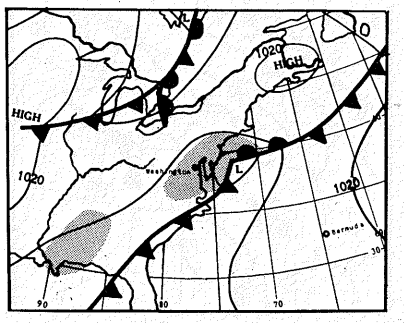
OCTOBER 7, 1927



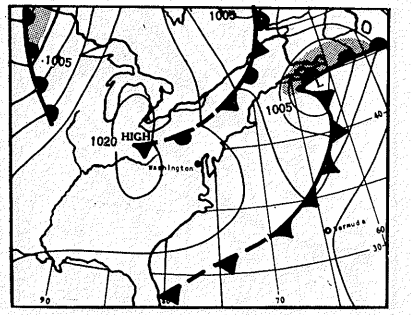
OCTOBER 8, 1927



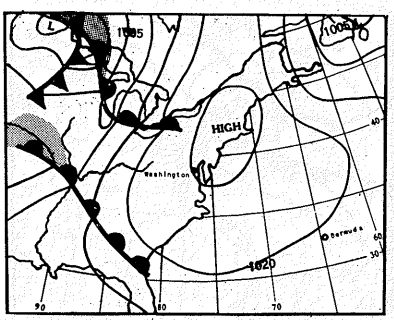
OCTOBER 9, 1927



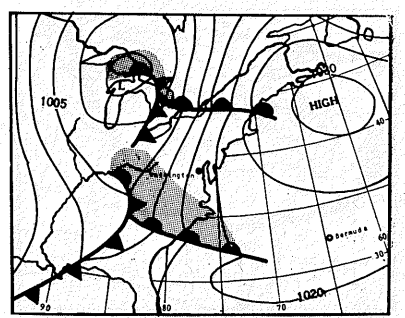
OCTOBER 10, 1927



OCTOBER 11, 1927



OCTOBER 12, 1927

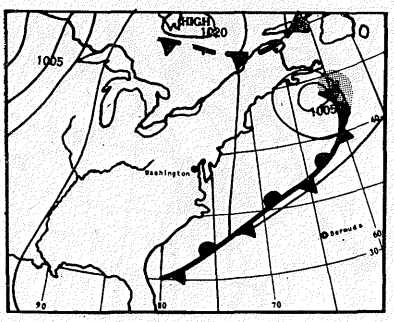


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

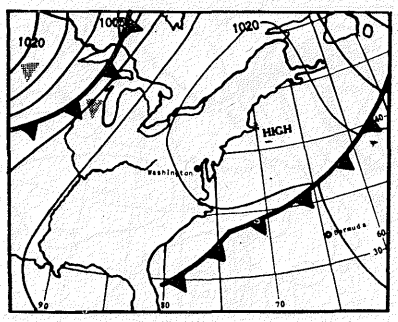
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

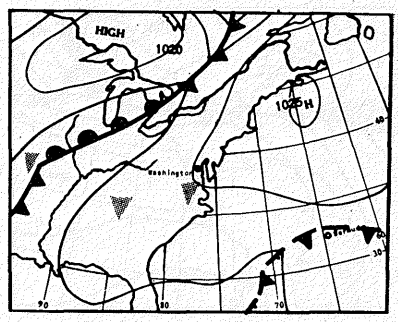
SEPTEMBER 19, 1934



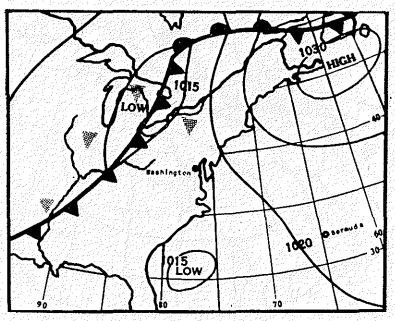
SEPTEMBER 20, 1934



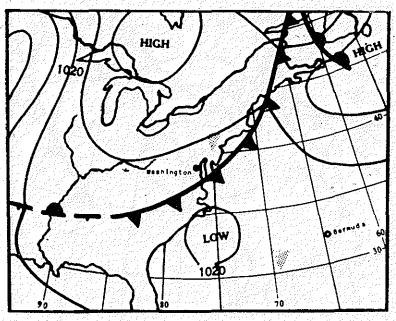
SEPTEMBER 21, 1934



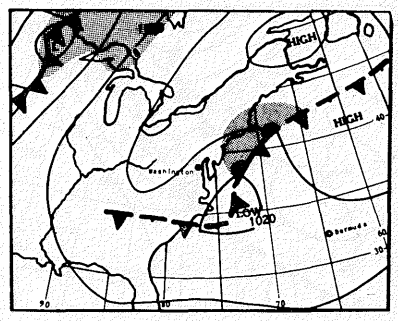
SEPTEMBER 22, 1934



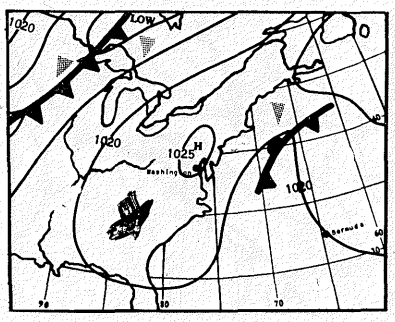
SEPTEMBER 23, 1934



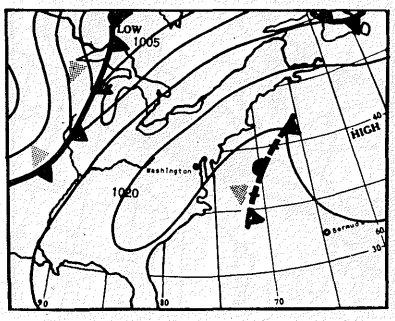
SEPTEMBER 24, 1934



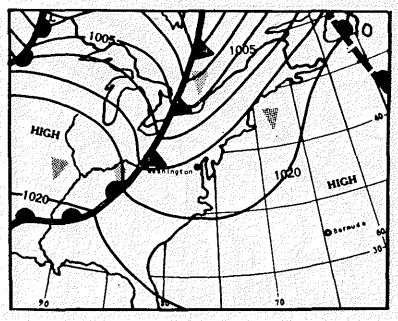
SEPTEMBER 25, 1934



SEPTEMBER 26, 1934



SEPTEMBER 27, 1934



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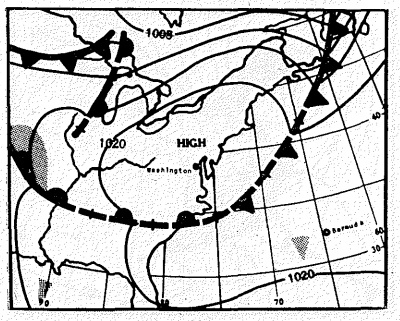

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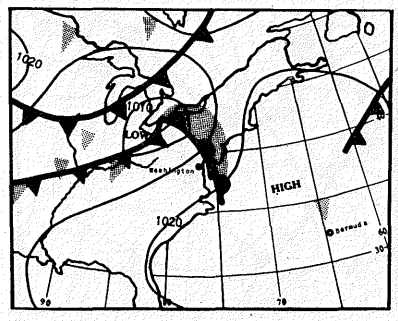
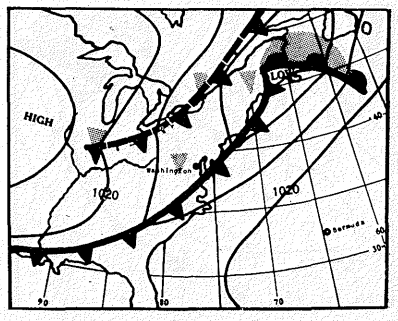


SEPTEMBER 30, 1934

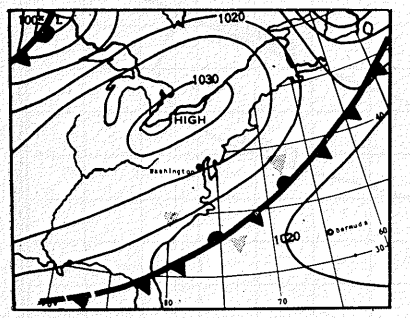


CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

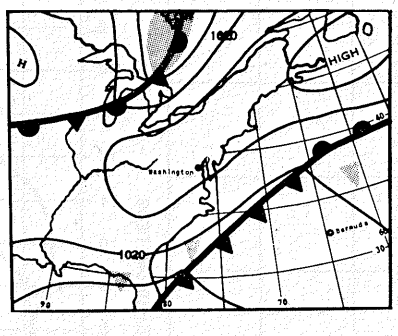
SELECTED SYNOPTIC WEATHER MAPS

DAILY SERIES OF MAPS FROM OBSERVATIONS MADE AT 0800 75TH MERIDIAN TIME

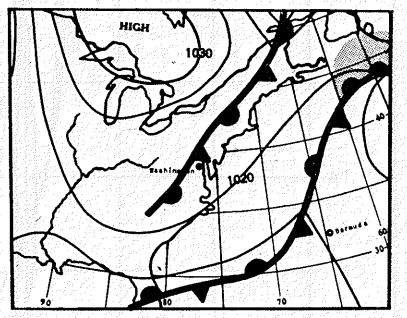
OCTOBER 1, 1934



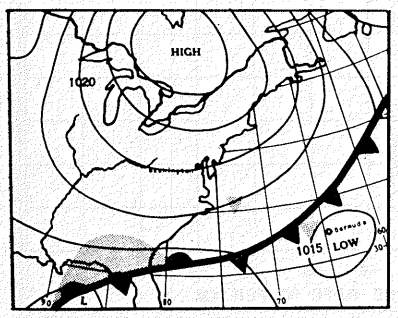
OCTOBER 2, 1934



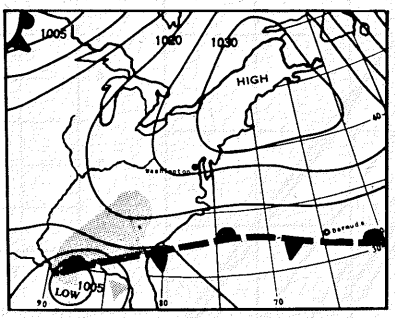
OCTOBER 3, 1934



OCTOBER 4, 1934



OCTOBER 5, 1934



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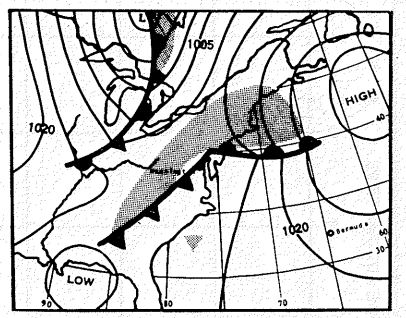
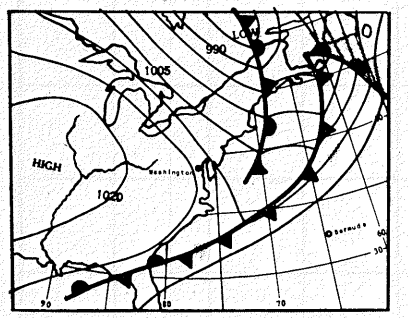
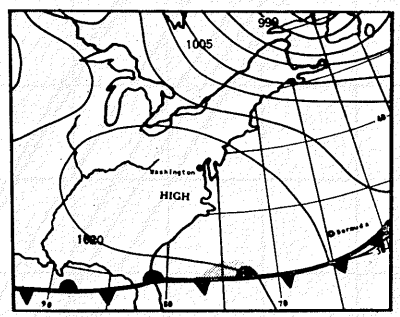


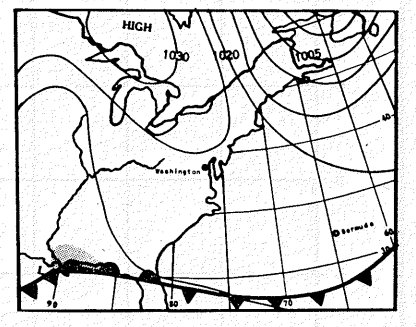
OCTOBER 7, 1934



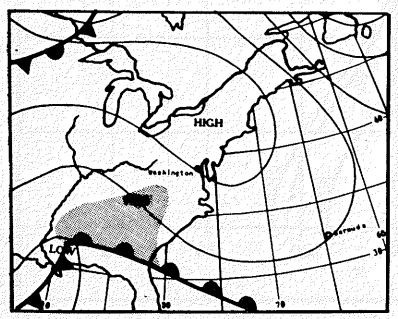
OCTOBER 8, 1934



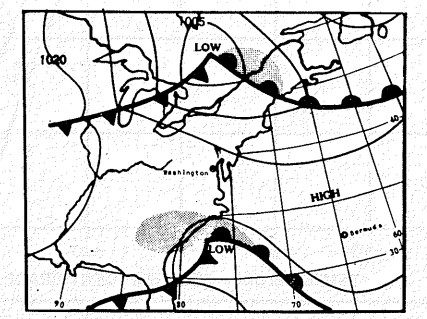
OCTOBER 9, 1934



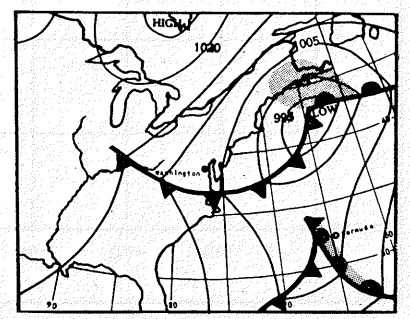
OCTOBER 10, 1934



OCTOBER 11, 1934



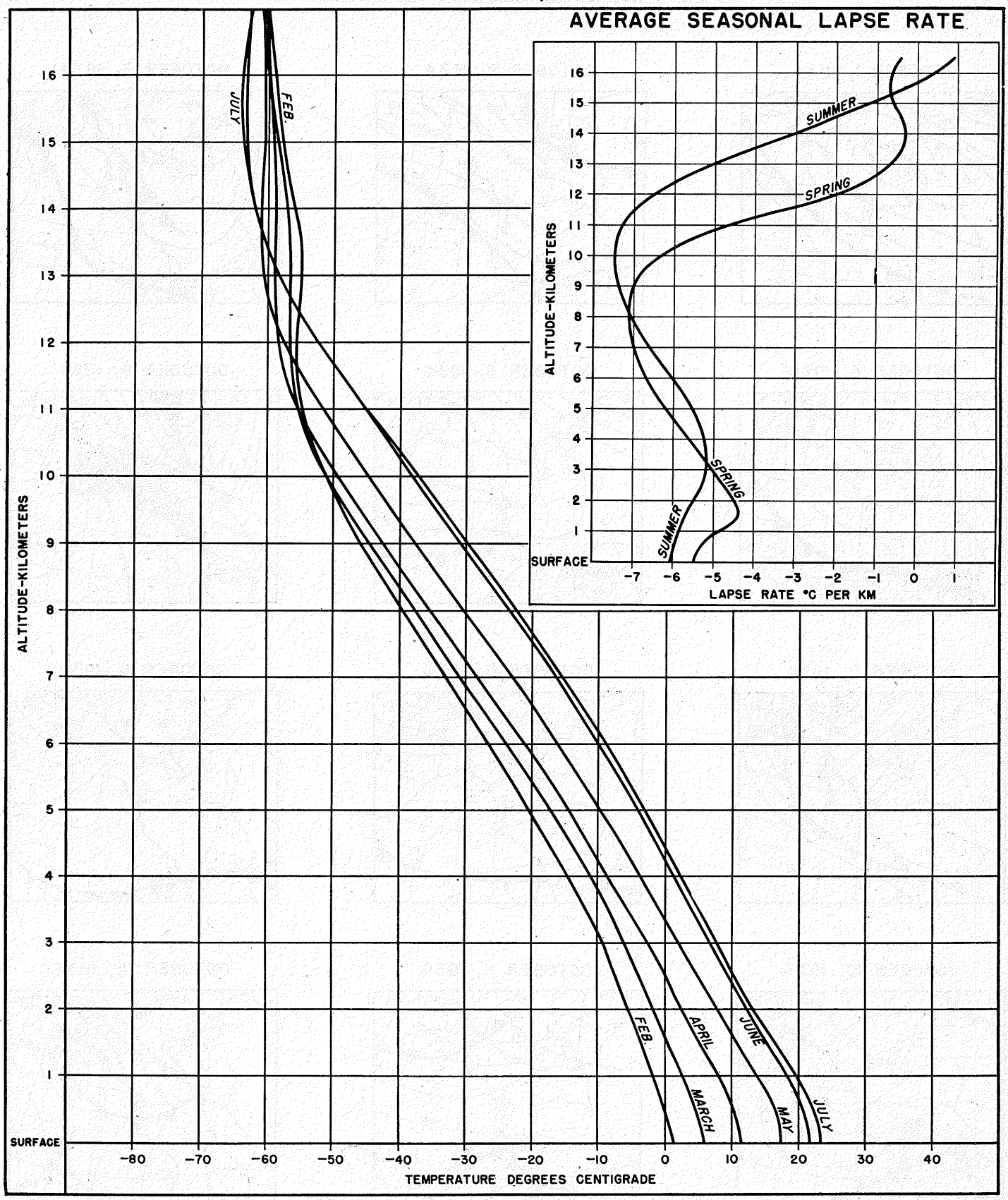
OCTOBER 12, 1934



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

AVERAGE UPPER AIR TEMPERATURE

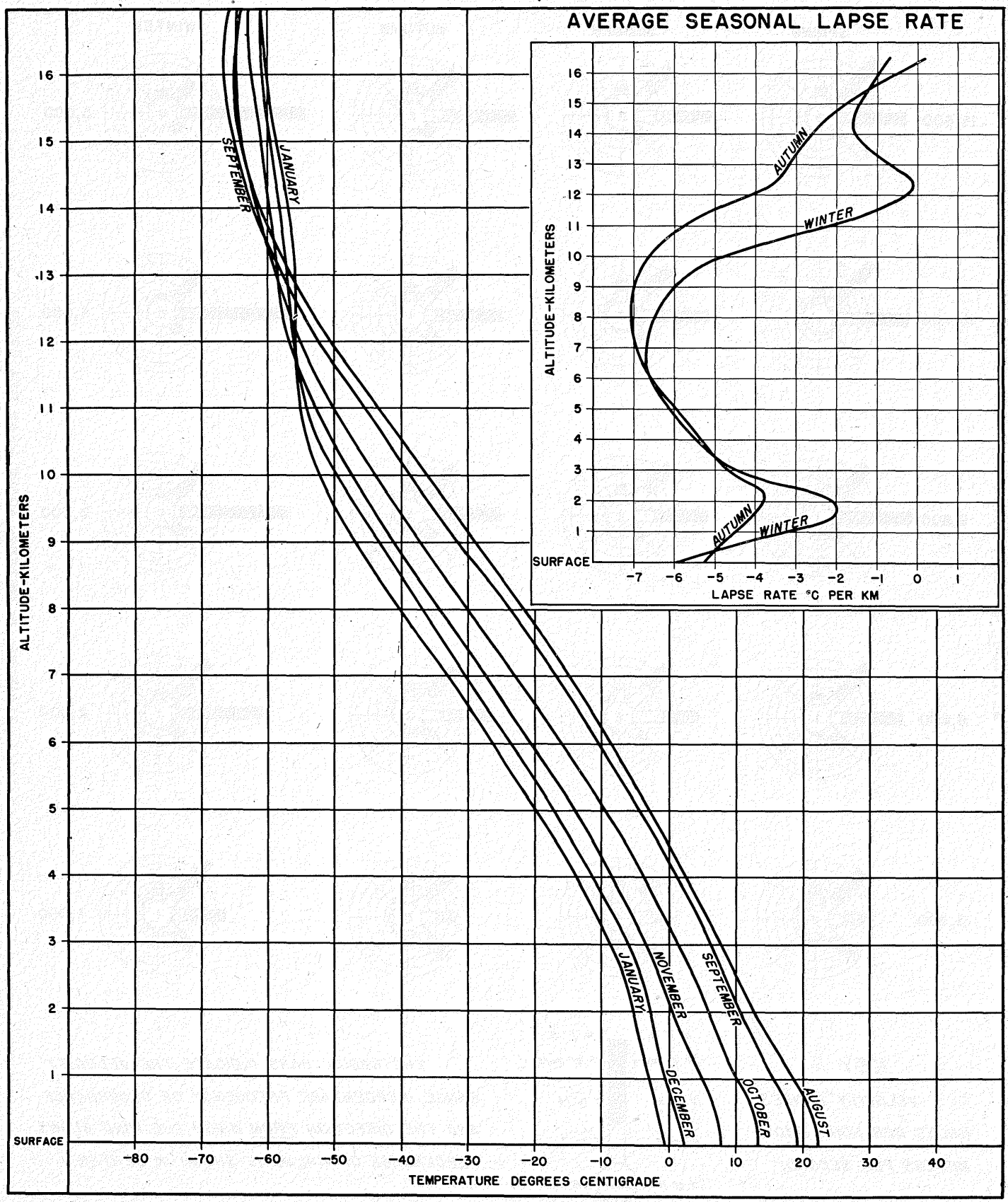
PERIOD OF RECORD, 1940-1945



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

AVERAGE UPPER AIR TEMPERATURE

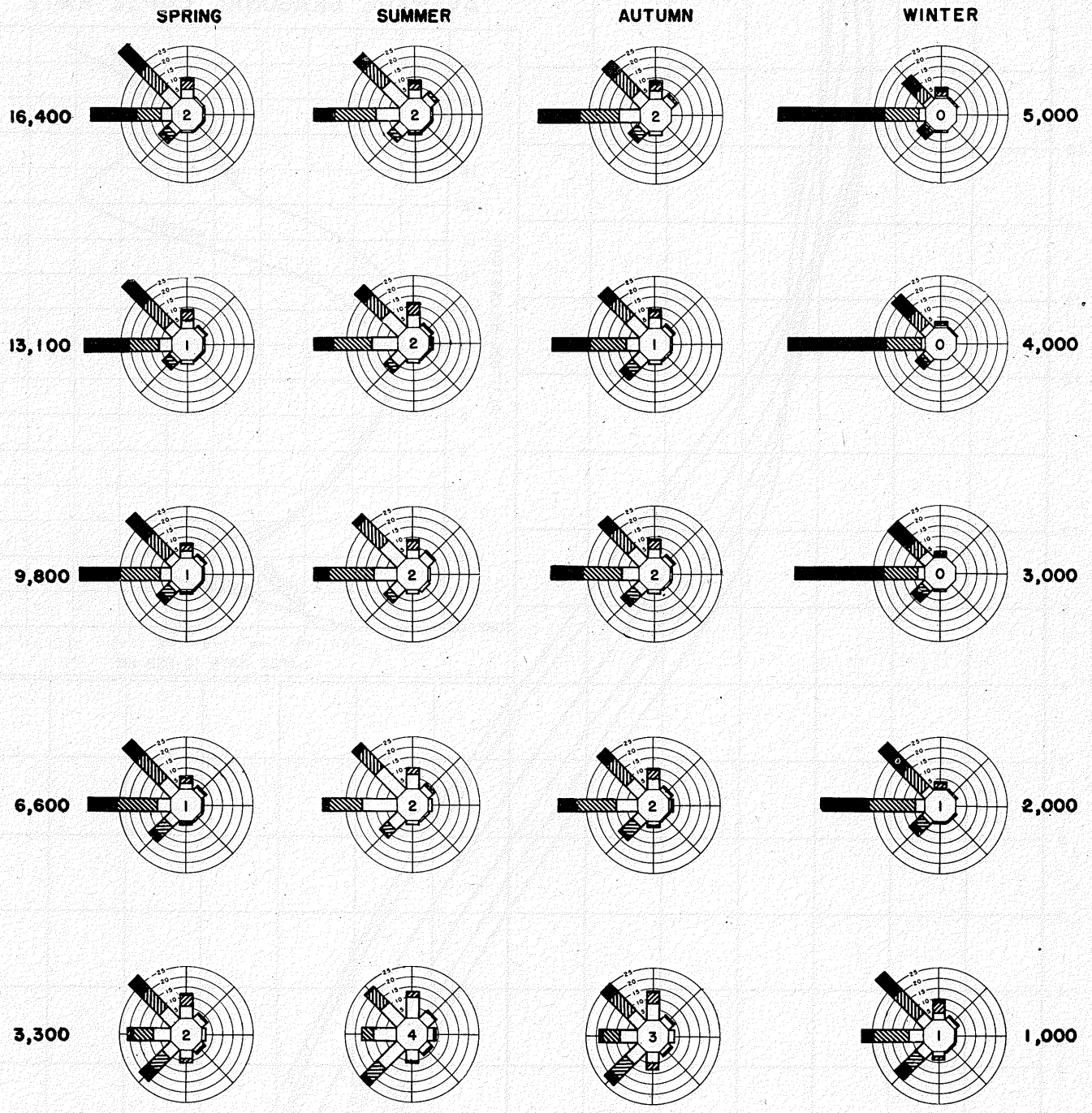
PERIOD OF RECORD, 1940-1945



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

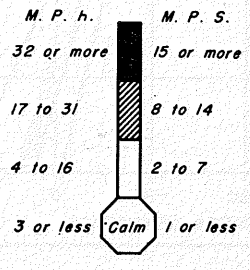
UPPER AIR WIND ROSES BY SEASON

20 YEARS OF RECORD, 1919 – 1938



KEY

VELOCITY RANGES (MILES PER HOUR AND METERS PER SECOND)

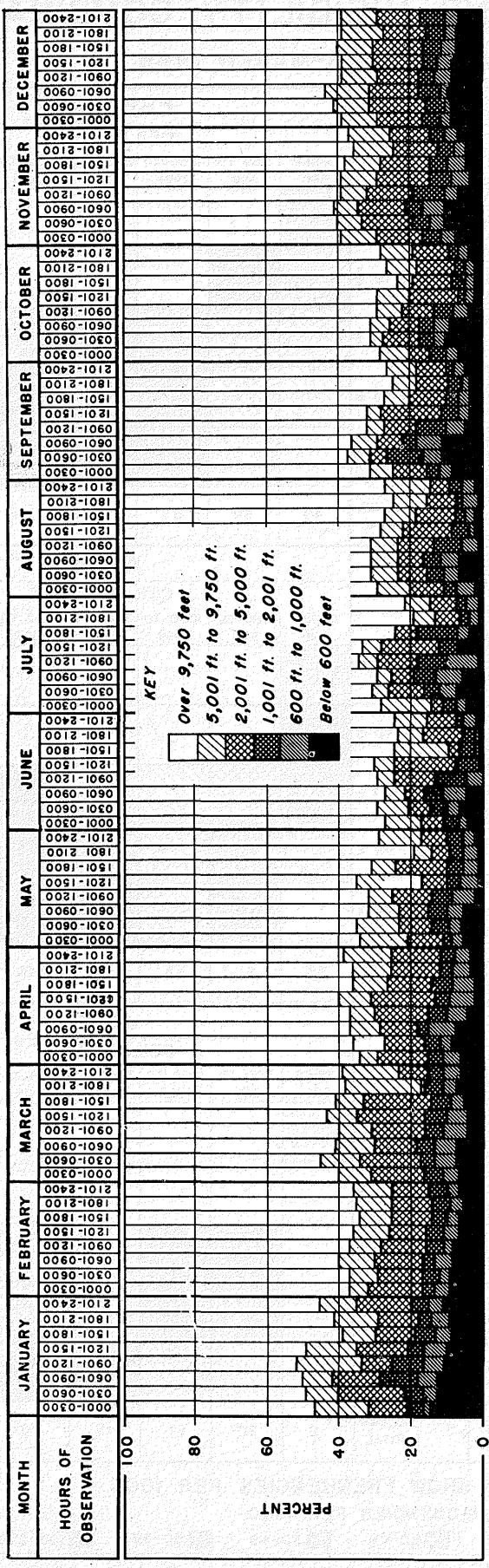


THE RADIAL BARS INDICATE THE VELOCITY RANGE, PERCENTAGE FREQUENCY OF OCCURRENCE AND THE DIRECTION FROM WHICH THE WIND BLOWS. PERCENTAGE OF CALMS IS SHOWN IN CENTER.

DIURNAL VARIATION OF CEILING AND VISIBILITY

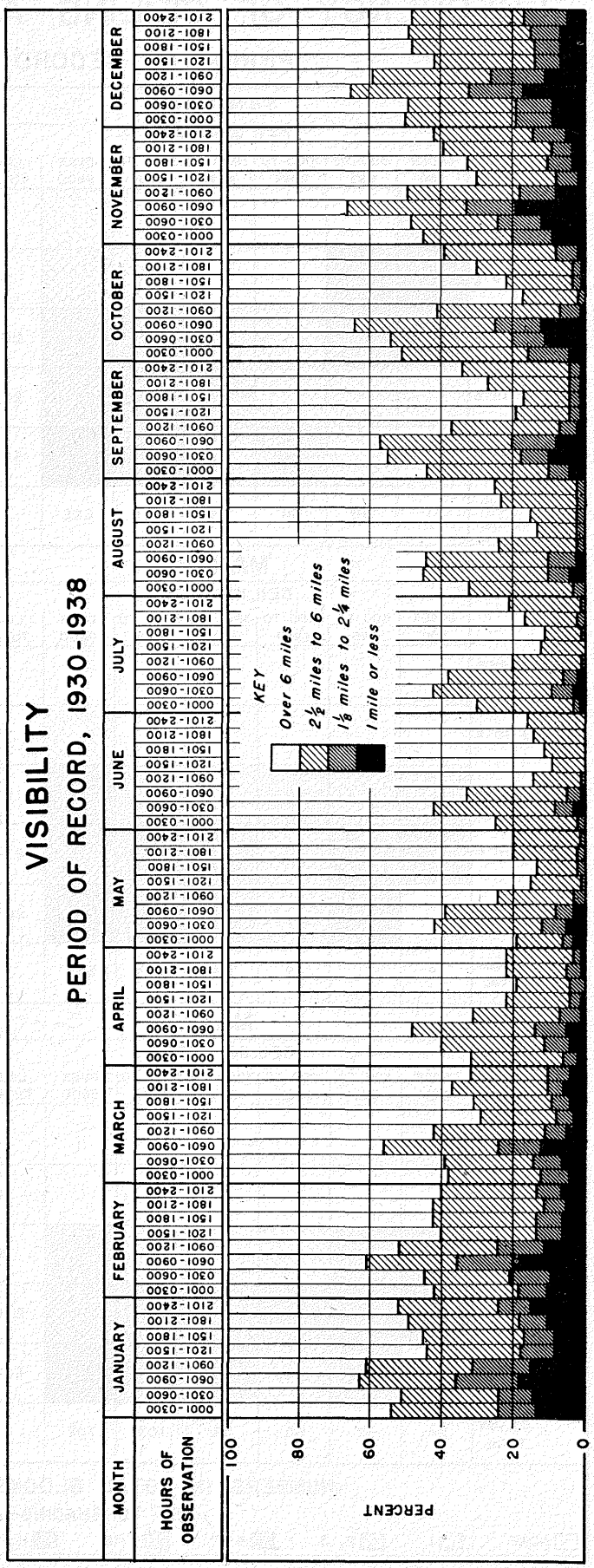
CEILING

PERIOD OF RECORD, 1930-1938



VISIBILITY

PERIOD OF RECORD, 1930-1938



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

FREQUENCY OF CEILING AND VISIBILITY COMBINATIONS

PERIOD OF RECORD APRIL, 1943–MARCH, 1946

JANUARY

CEILING–FEET

VISIBILITY–MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER ½							11
½ TO ¾							33
1 TO 2 ¼							201
2 ½ TO 6							293
OVER 6							462
COLUMN TOTAL	31	99	69	54	121	626	

FEBRUARY

CEILING–FEET

VISIBILITY–MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER ½							7
½ TO ¾							31
1 TO 2 ¼							121
2 ½ TO 6							283
OVER 6							558
COLUMN TOTAL	40	60	53	68	110	669	

MARCH

CEILING–FEET

VISIBILITY–MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER ½							0
½ TO ¾							3
1 TO 2 ¼							121
2 ½ TO 6							274
OVER 6							602
COLUMN TOTAL	12	71	62	64	103	688	

APRIL

CEILING–FEET

VISIBILITY–MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER ½							11
½ TO ¾							6
1 TO 2 ¼							91
2 ½ TO 6							239
OVER 6							653
COLUMN TOTAL	35	61	48	63	140	653	

MAY

CEILING–FEET

VISIBILITY–MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER ½							1
½ TO ¾							0
1 TO 2 ¼							70
2 ½ TO 6							278
OVER 6							651
COLUMN TOTAL	24	52	60	59	103	702	

JUNE

CEILING–FEET

VISIBILITY–MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER ½							1
½ TO ¾							1
1 TO 2 ¼							51
2 ½ TO 6							280
OVER 6							667
COLUMN TOTAL	2	20	61	45	79	793	

NUMBERS IN TOTAL BLOCKS SHOW FREQUENCIES PER 1000

KEY TO SHADING–FREQUENCIES PER 1000

NONE | 1 | 2, 3 | 4-6 | 7-10 | 11-19 | 20-29 | 30-49 | 50-99 | 100-299 | 300-599

CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

FREQUENCY OF CEILING AND VISIBILITY COMBINATIONS

PERIOD OF RECORD APRIL, 1943-MARCH, 1946

JULY

CEILING-FEET

VISIBILITY-MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER 1/2							1
1/2 TO 3/4							3
1 TO 2 1/4							51
2 1/2 TO 6							300
OVER 6							645
COLUMN TOTAL	6	44	93	38	42	777	

AUGUST

CEILING-FEET

VISIBILITY-MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER 1/2							2
1/2 TO 3/4							0
1 TO 2 1/4							53
2 1/2 TO 6							320
OVER 6							625
COLUMN TOTAL	5	23	40	31	52	849	

SEPTEMBER

CEILING-FEET

VISIBILITY-MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER 1/2							1
1/2 TO 3/4							4
1 TO 2 1/4							96
2 1/2 TO 6							275
OVER 6							624
COLUMN TOTAL	23	84	104	62	61	666	

OCTOBER

CEILING-FEET

VISIBILITY-MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER 1/2							10
1/2 TO 3/4							23
1 TO 2 1/4							145
2 1/2 TO 6							264
OVER 6							558
COLUMN TOTAL	24	64	72	61	84	695	

NOVEMBER

CEILING-FEET

VISIBILITY-MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER 1/2							15
1/2 TO 3/4							20
1 TO 2 1/4							128
2 1/2 TO 6							265
OVER 6							572
COLUMN TOTAL	24	53	57	96	105	665	

DECEMBER

CEILING-FEET

VISIBILITY-MILES	UNDER 500	500 TO 999	1000 TO 2999	3000 TO 4999	5000 TO 9500	OVER 9500	LINE TOTAL
UNDER 1/2							7
1/2 TO 3/4							20
1 TO 2 1/4							194
2 1/2 TO 6							290
OVER 6							489
COLUMN TOTAL	28	90	51	63	121	647	

NUMBERS IN TOTAL BLOCKS SHOW FREQUENCIES PER 1000

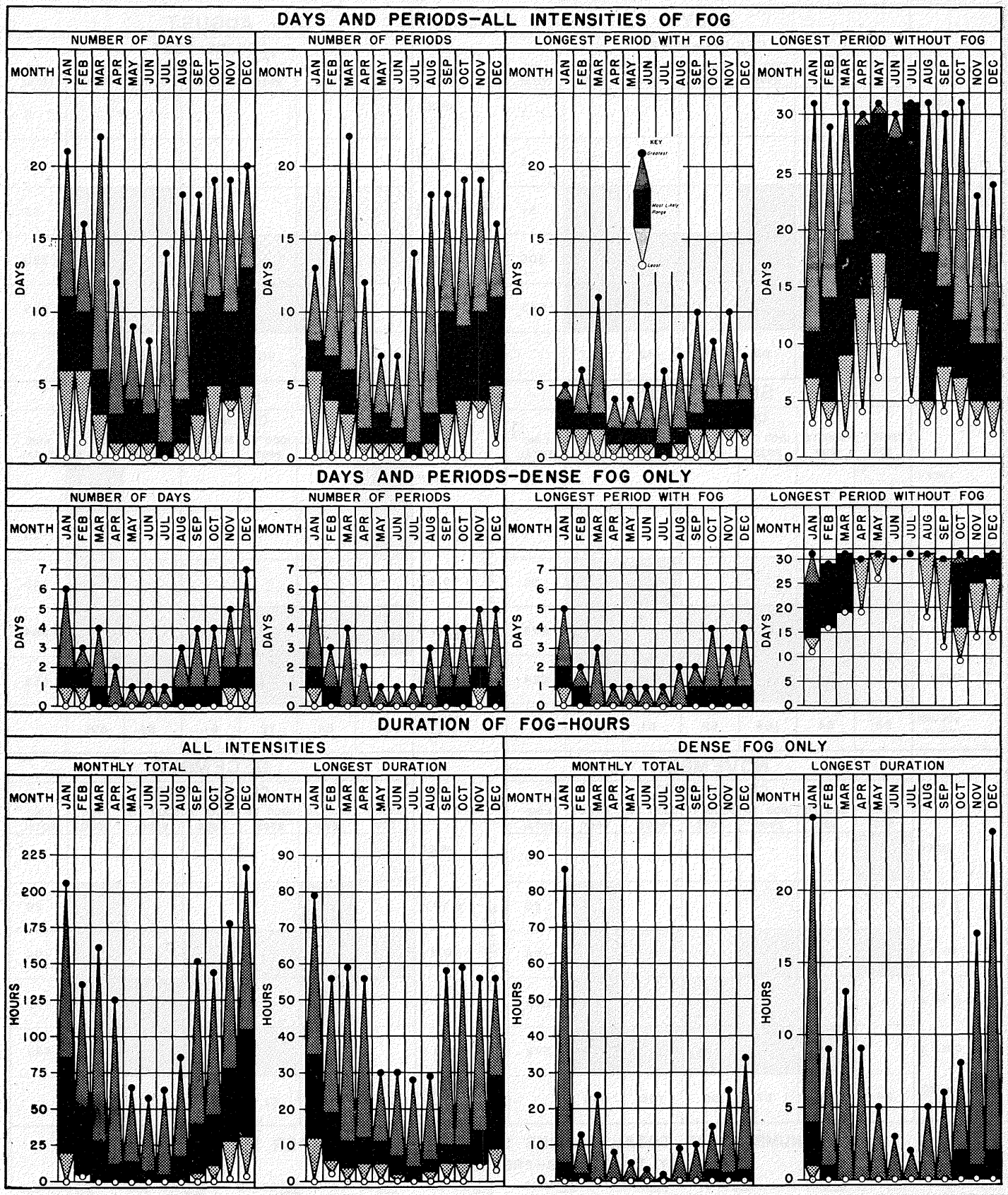
KEY TO SHADING—FREQUENCIES PER 1000

NONE | 1 | 2, 3 | 4-6 | 7-10 | 11-19 | 20-29 | 30-49 | 50-99 | 100-299 | 300-599

CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

FOG-EXPECTANCY DIAGRAMS

PERIOD OF RECORD, 1905-1938

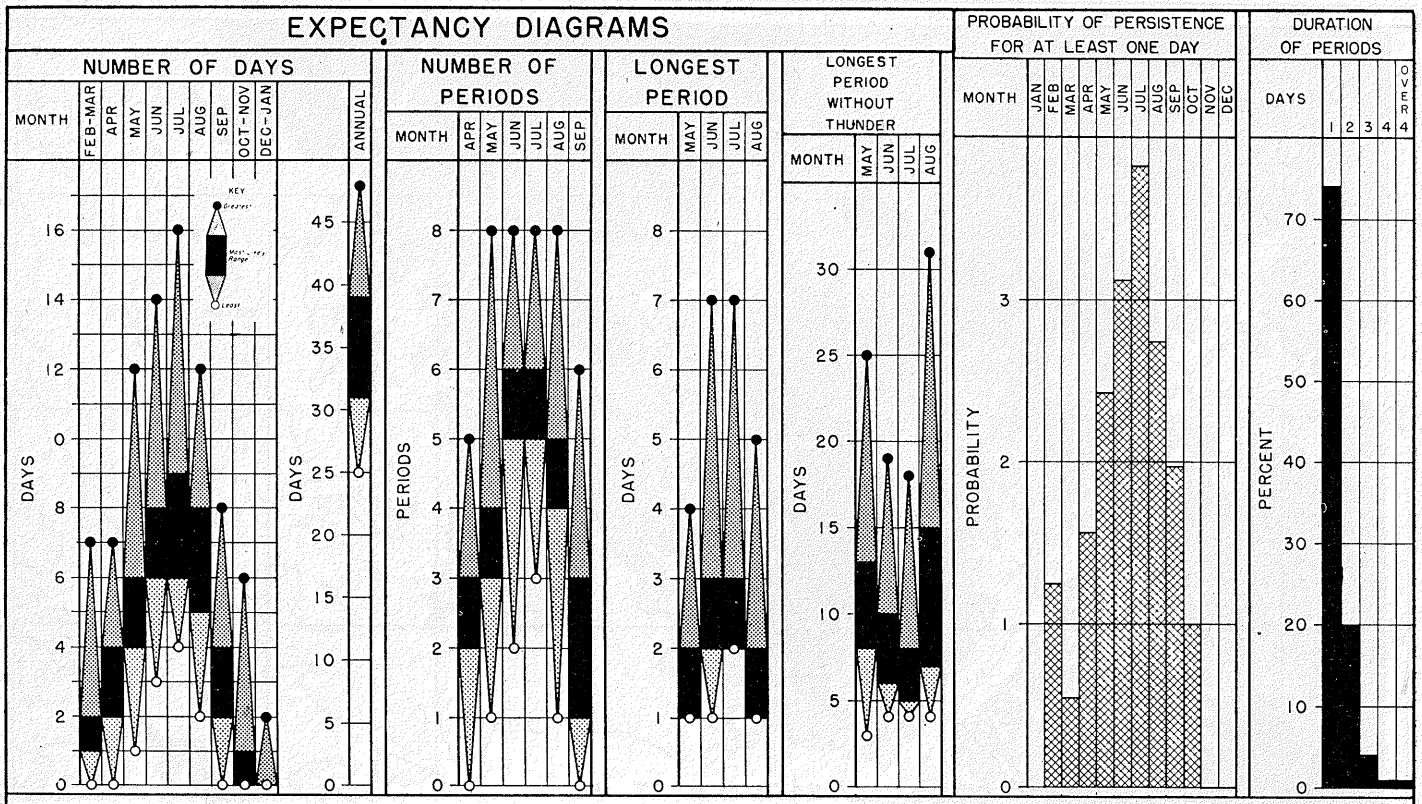


CLIMATIC HANDBOOK FOR WASHINGTON, D C

THUNDERSTORMS

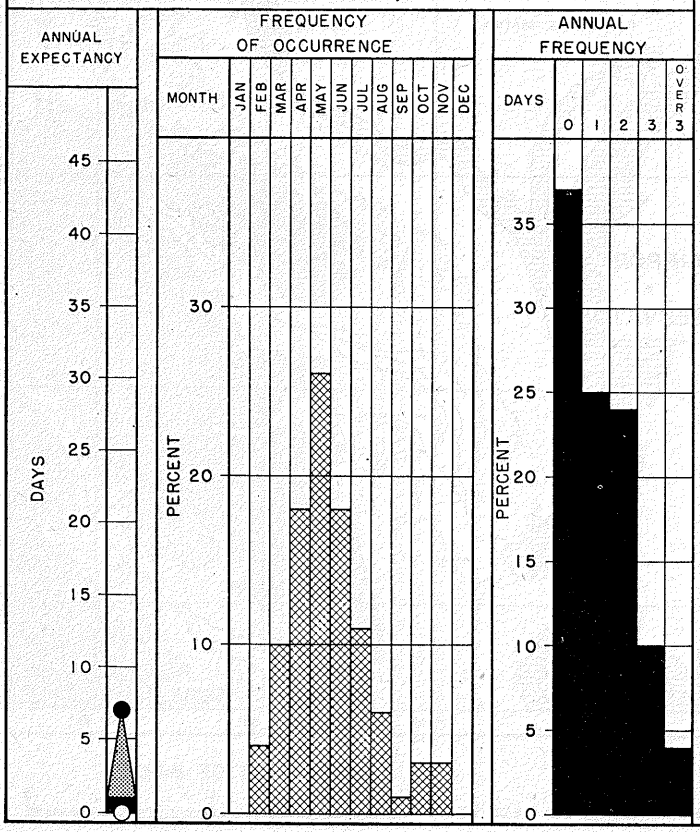
PERIOD OF RECORD, 1905-1945

EXPECTANCY DIAGRAMS



HAIL

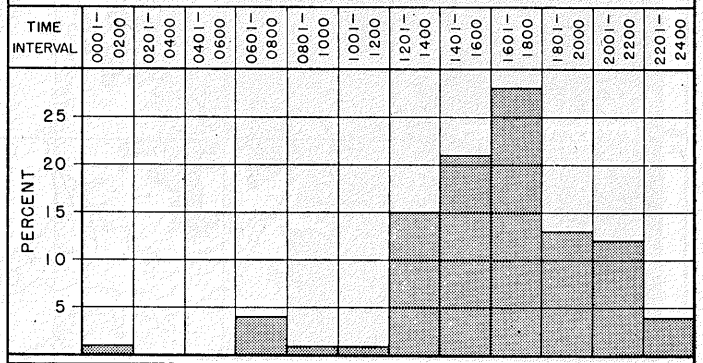
PERIOD OF RECORD, 1889-1945



DIURNAL FREQUENCY

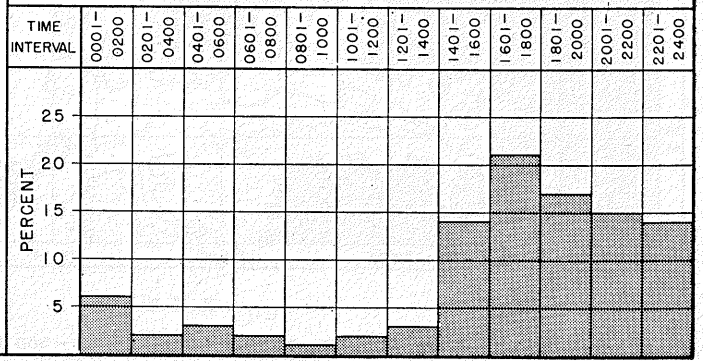
HAIL

PERIOD OF RECORD, 1889-1945



THUNDERSTORMS-AIRPORT OBSERVATIONS

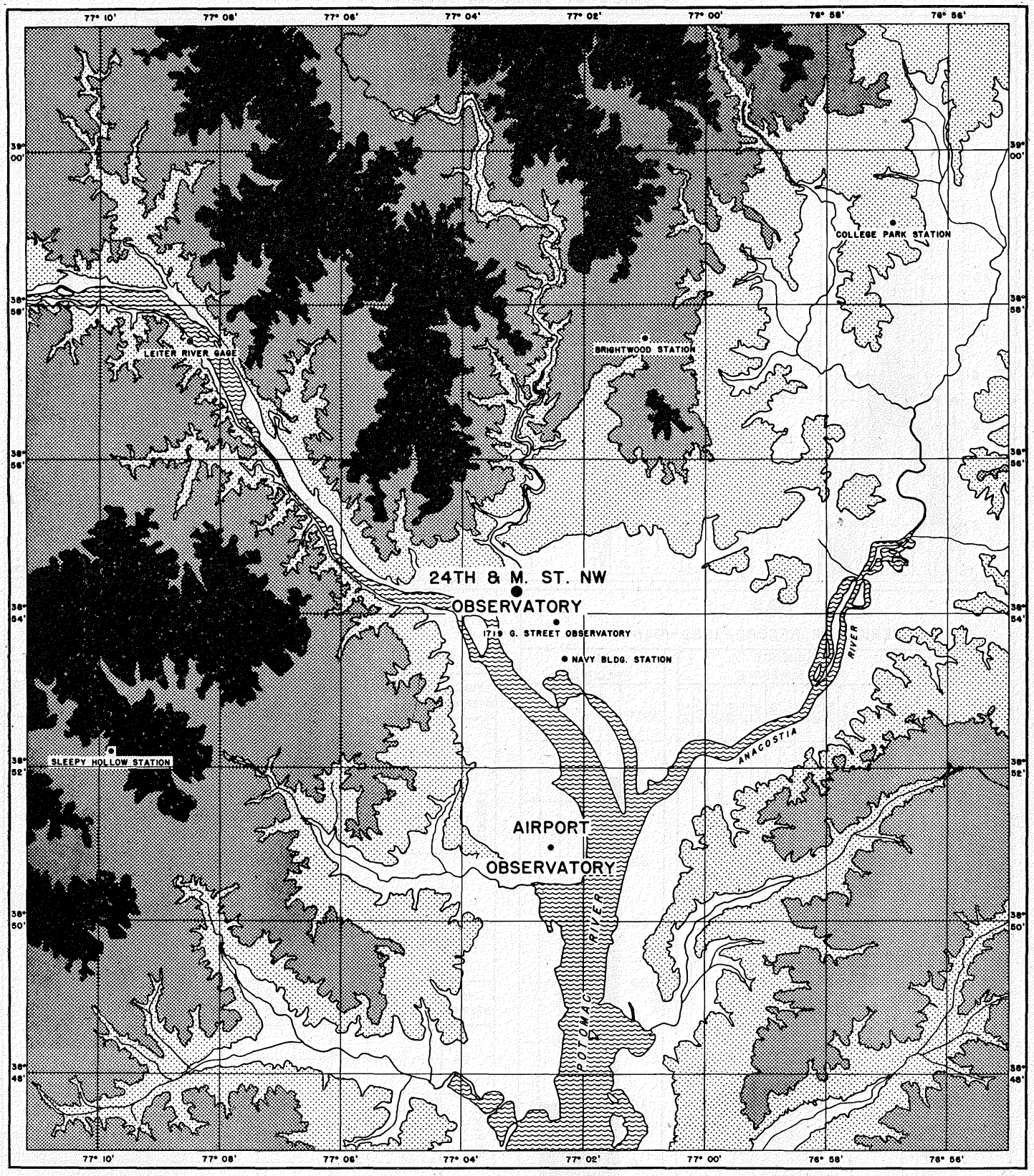
PERIOD OF RECORD, 1930-1938.



CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

ELEVATION MAP

24TH AND M. STREETS NW AND VICINITY



KEY

0 – 100 FEET | 101 – 200 FEET | 201 – 300 FEET | 301 – 400 FEET

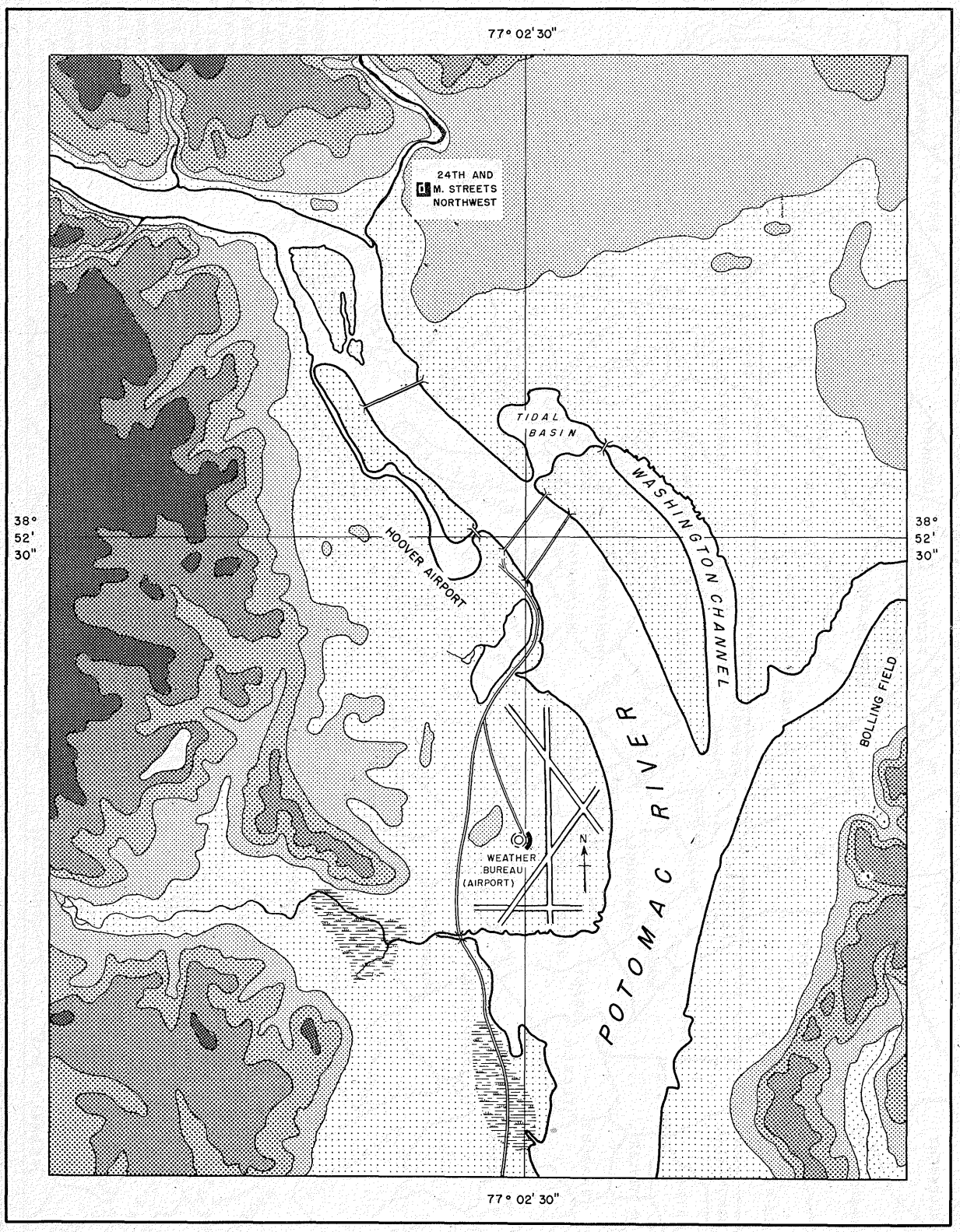
SCALE OF MILES

1 0 1 2 3

CLIMATIC HANDBOOK FOR WASHINGTON, D. C.

ELEVATION MAP

IMMEDIATE NEIGHBORHOOD OF AIRPORT AND 24TH AND M. STREETS NW
50 FOOT CONTOUR INTERVAL



KEY TO ELEVATIONS

0 TO 50FT

50 TO 100FT

100 TO 150FT

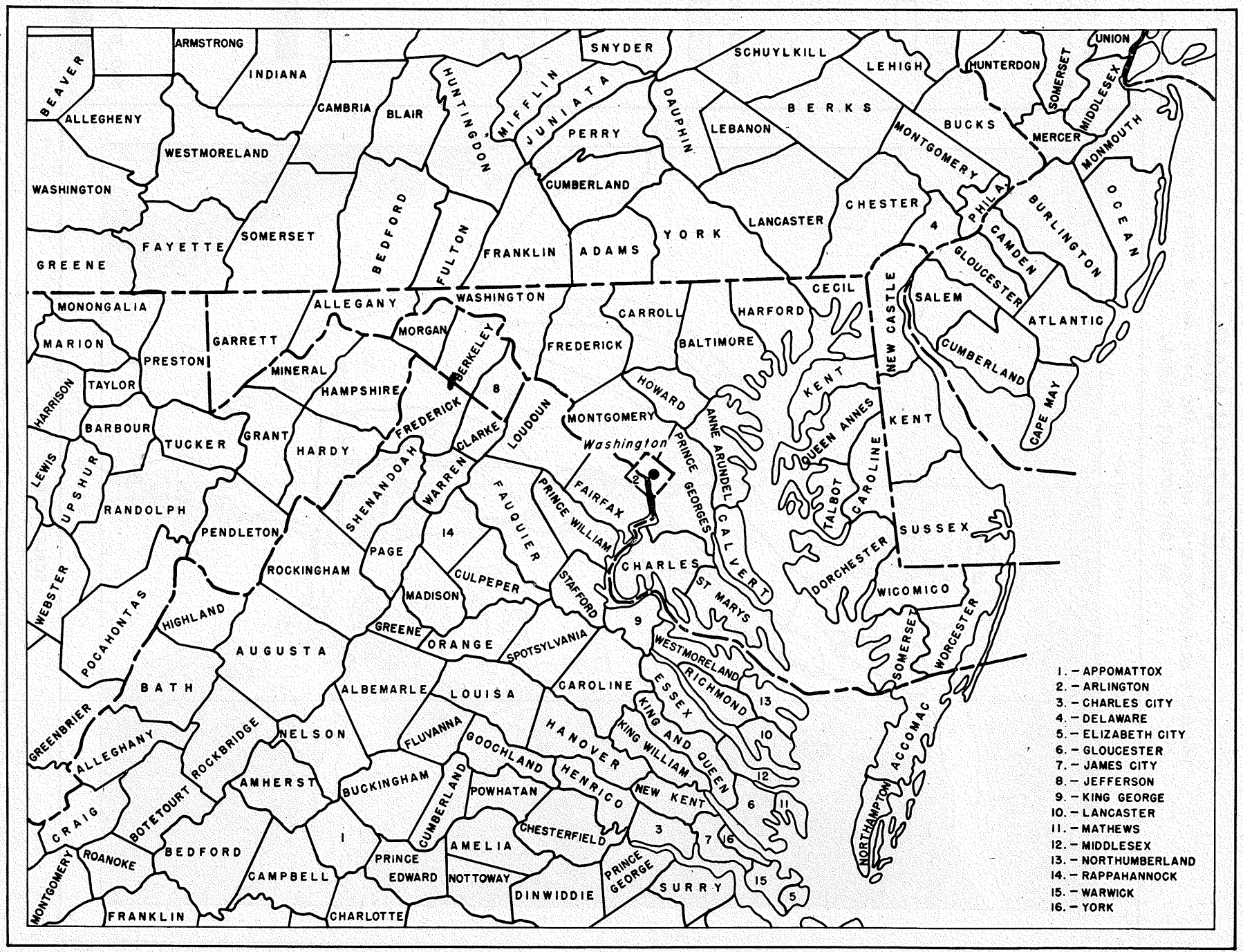
150 TO 200FT

200 TO 250FT

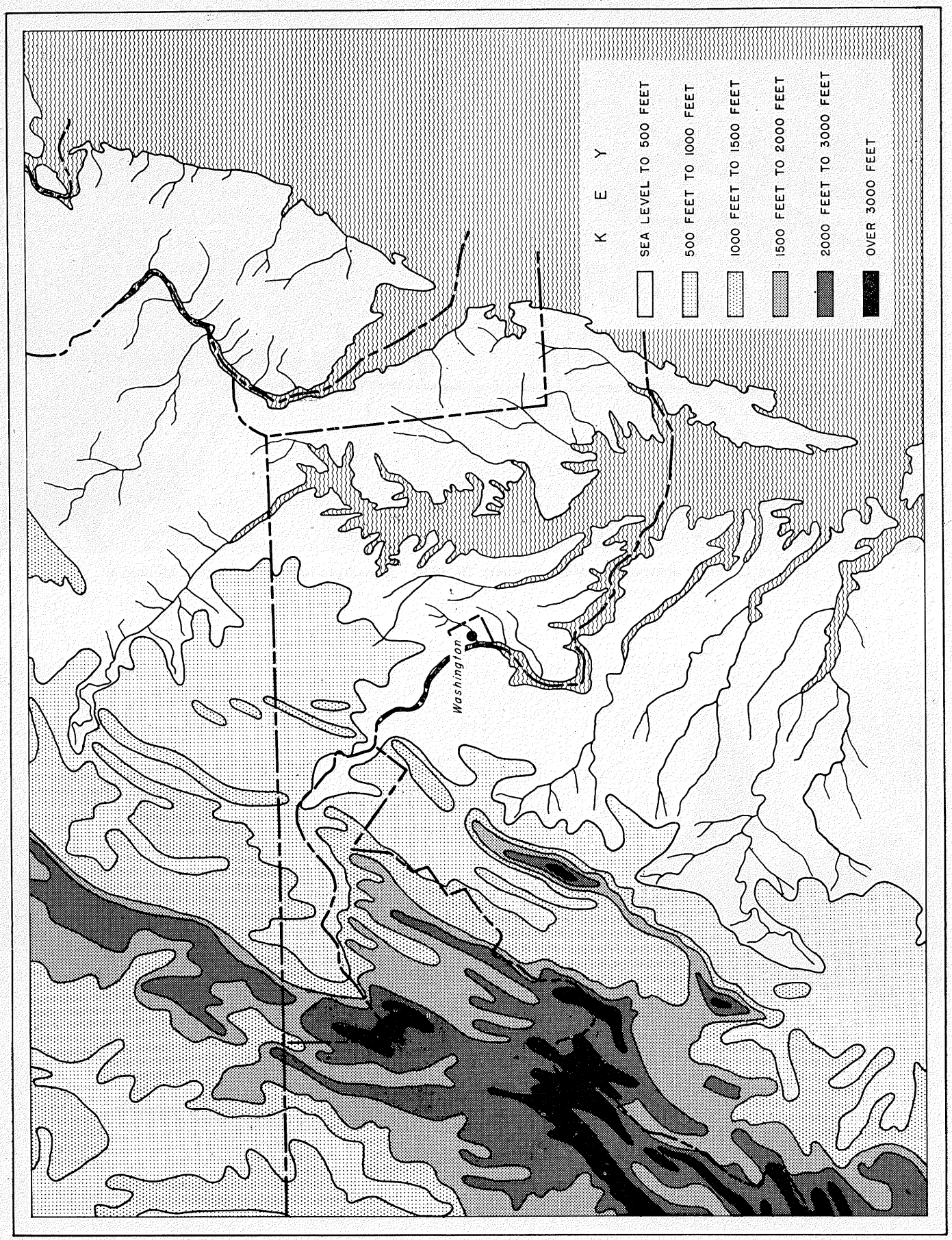
SCALE: MILES

1 ½ 0 1 2

MAP OF COUNTIES NEAR WASHINGTON



ELEVATION MAP FOR COUNTIES NEAR WASHINGTON



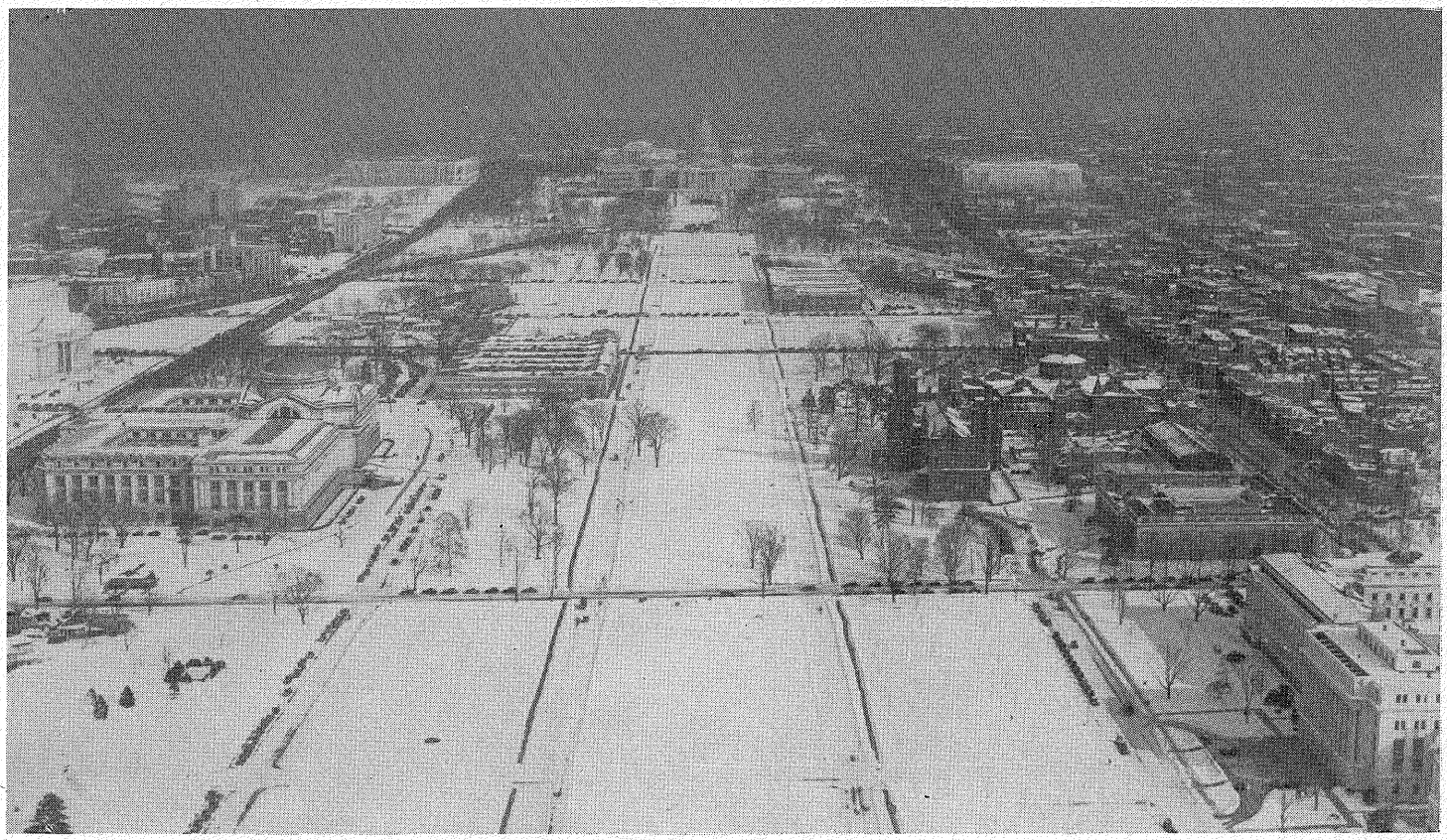


FIGURE 1.—Snow scene on the Mall, February 10, 1936. View from top of Washington Monument.

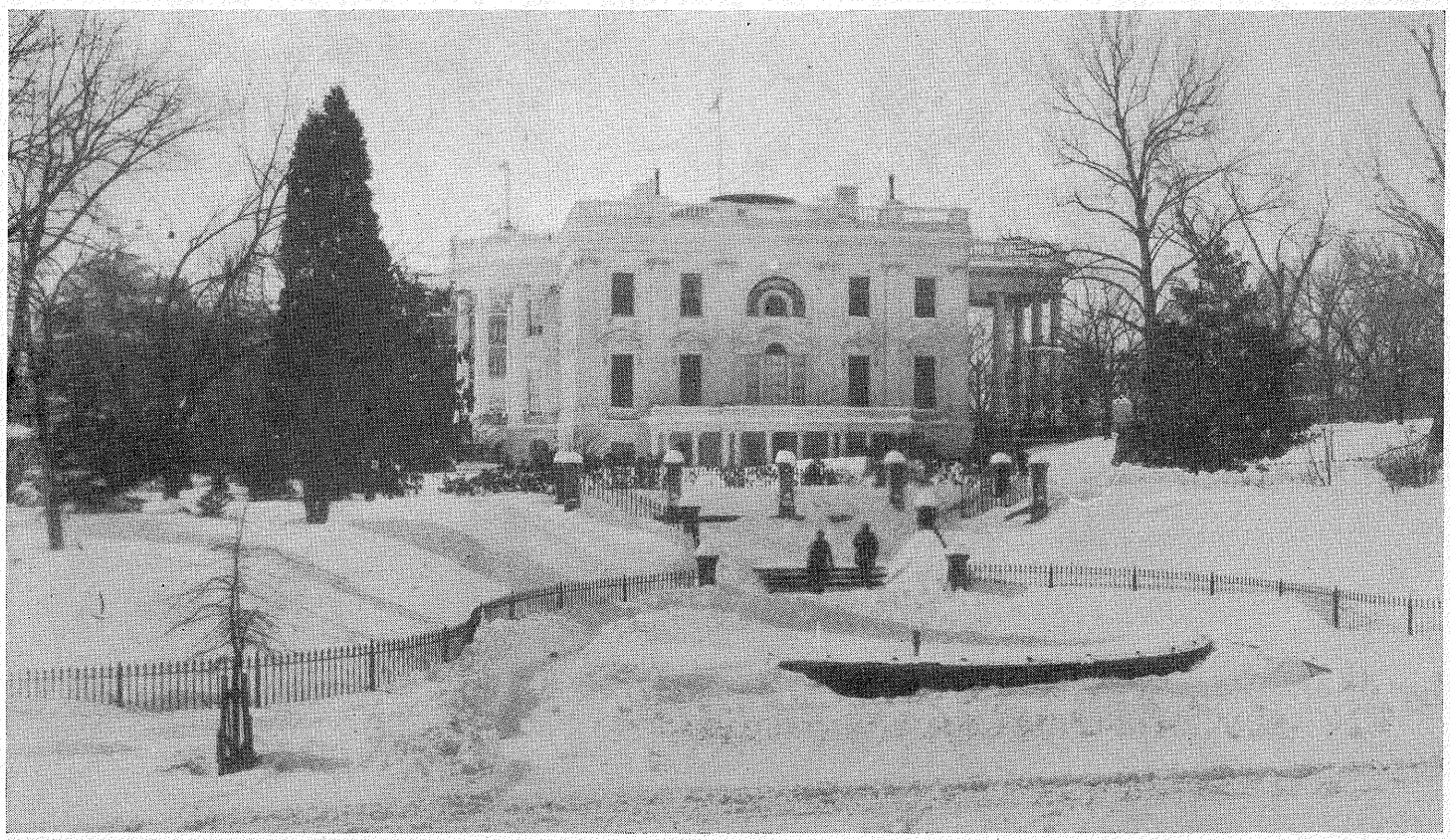


FIGURE 2.—The White House from the east, winter of 1898–99.

FIGURE 3.—Lafayette Square with White House in background after snowstorm of February 9–10, 1926.

FIGURE 4.—After the snowstorm of February 9–10, 1926, when 9.3 inches fell between 8 p. m. of the 9th and 7 p. m. of the 10th.

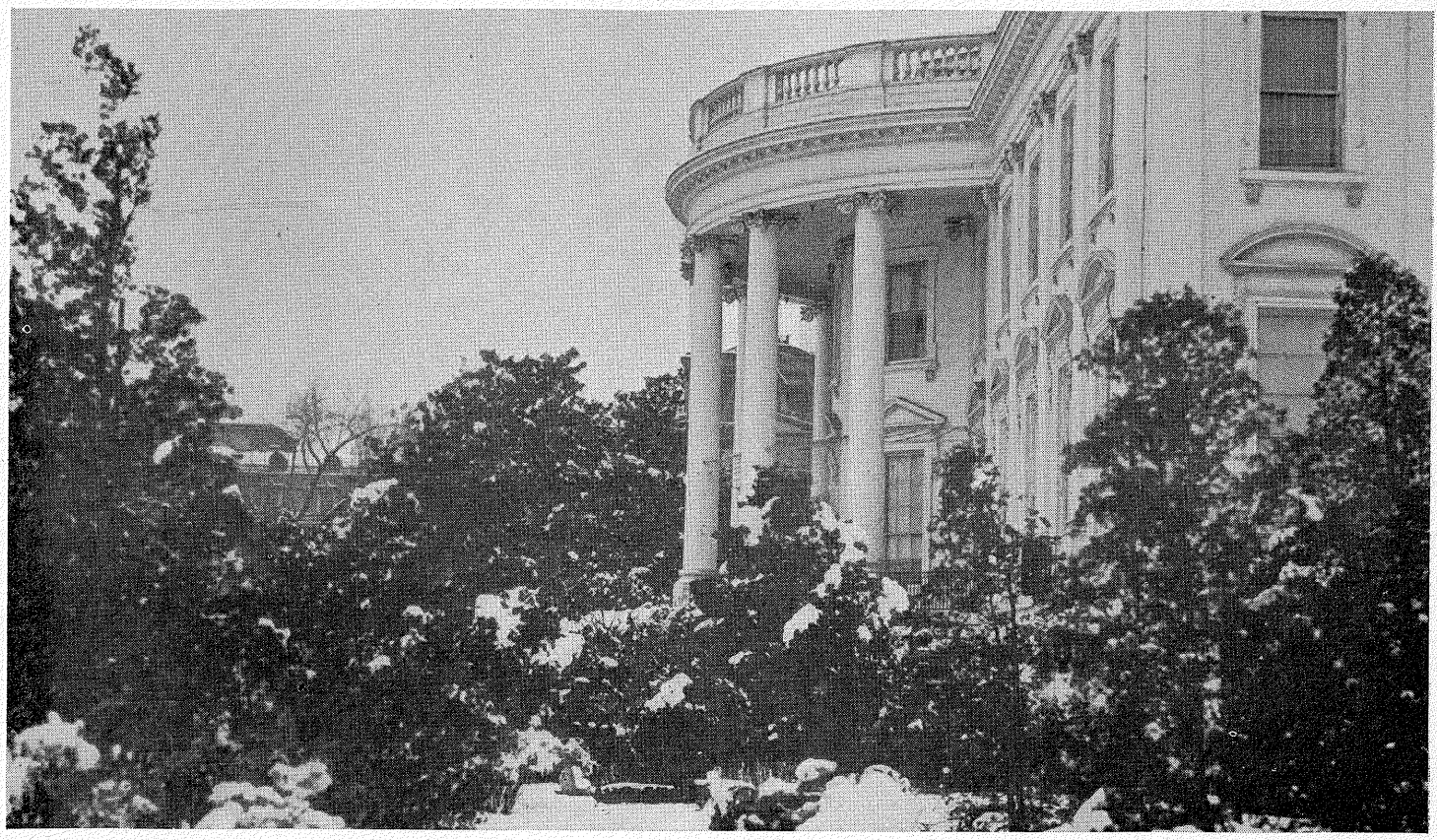


FIGURE 5.—The White House on February 1, 1934—East Terrace Garden.

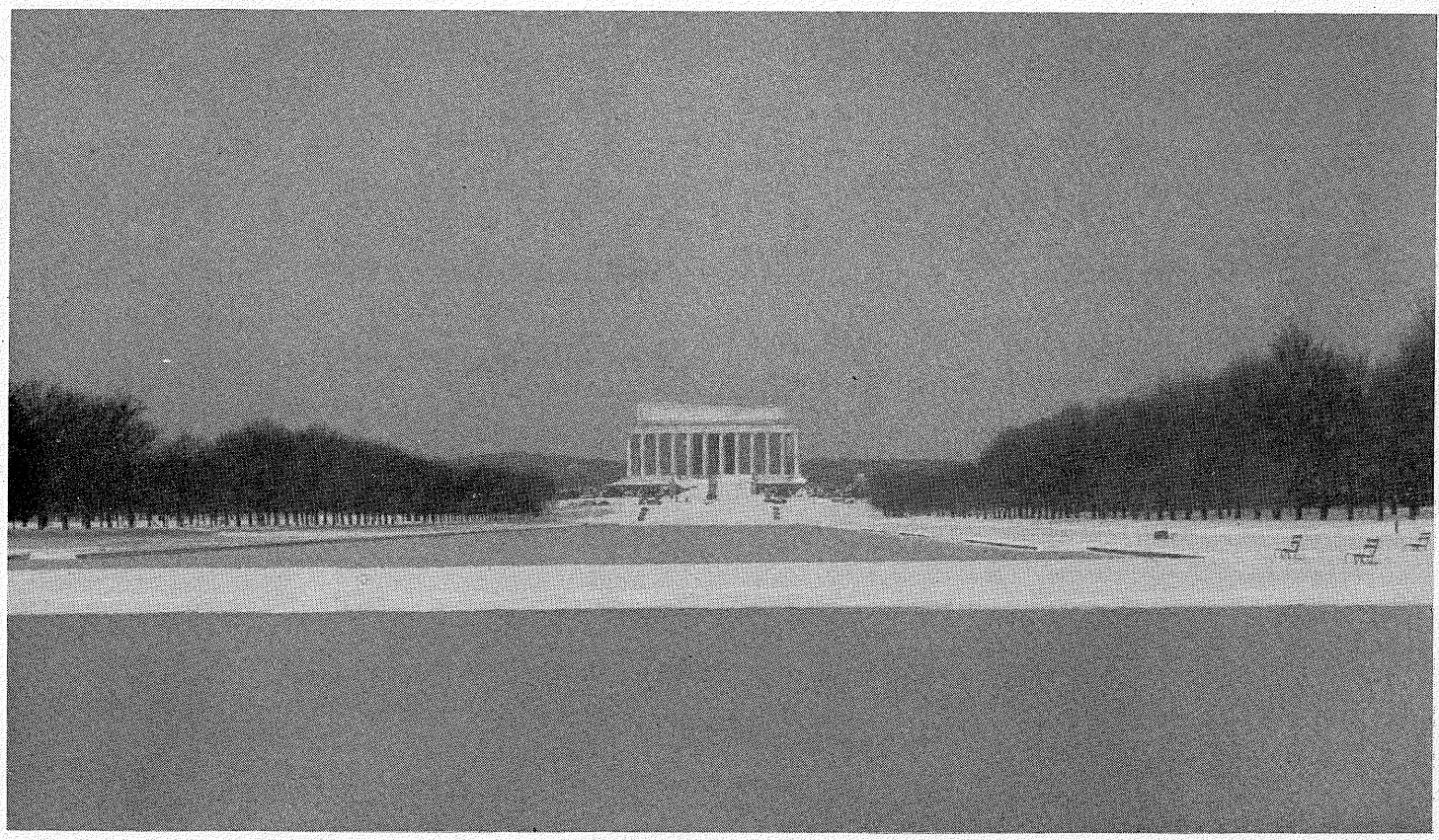


FIGURE 6.—The Lincoln Memorial and reflecting pool in the foreground January 22, 1935.

FIGURE 7.—The White House from the south January 22, 1935.

FIGURE 8.—Lafayette Park January 22, 1935, looking southwest.

FIGURE 9.—West Potomac Park January 24, 1936.

FIGURE 10.—West Potomac Park February 8, 1936, Washington Monument in background.

FIGURE 11.—The Lincoln Memorial February 18, 1937.

FIGURE 12.—Haines Point February 15, 1946, after a day with strong northwest winds. The temperature was 68 at noon February 14 and fell to 20 the next morning.

791252—49——15

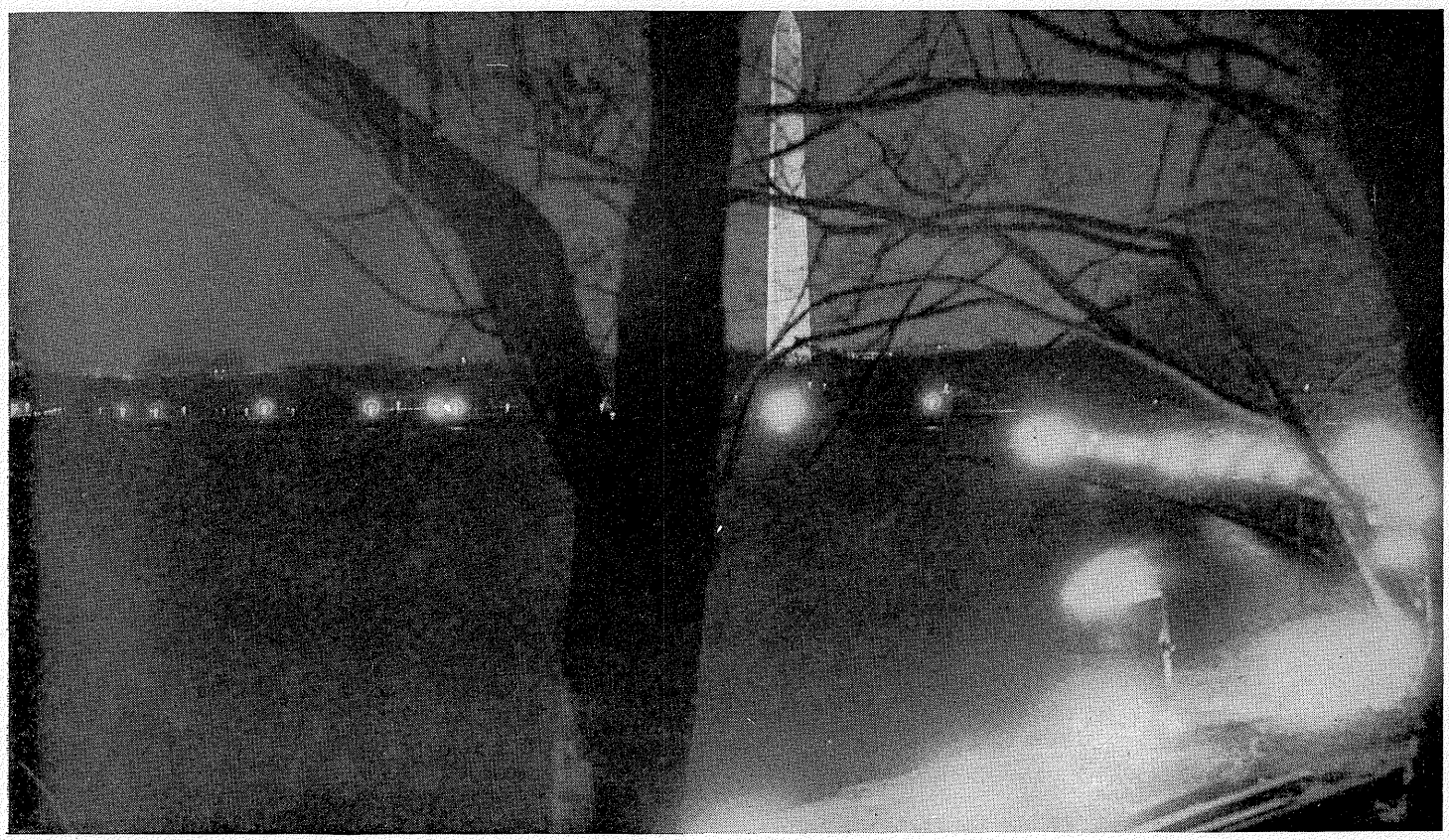


FIGURE 13.—West Potomac Park March 25, 1937, smudge pots used to prevent frost damage to cherry blossoms.

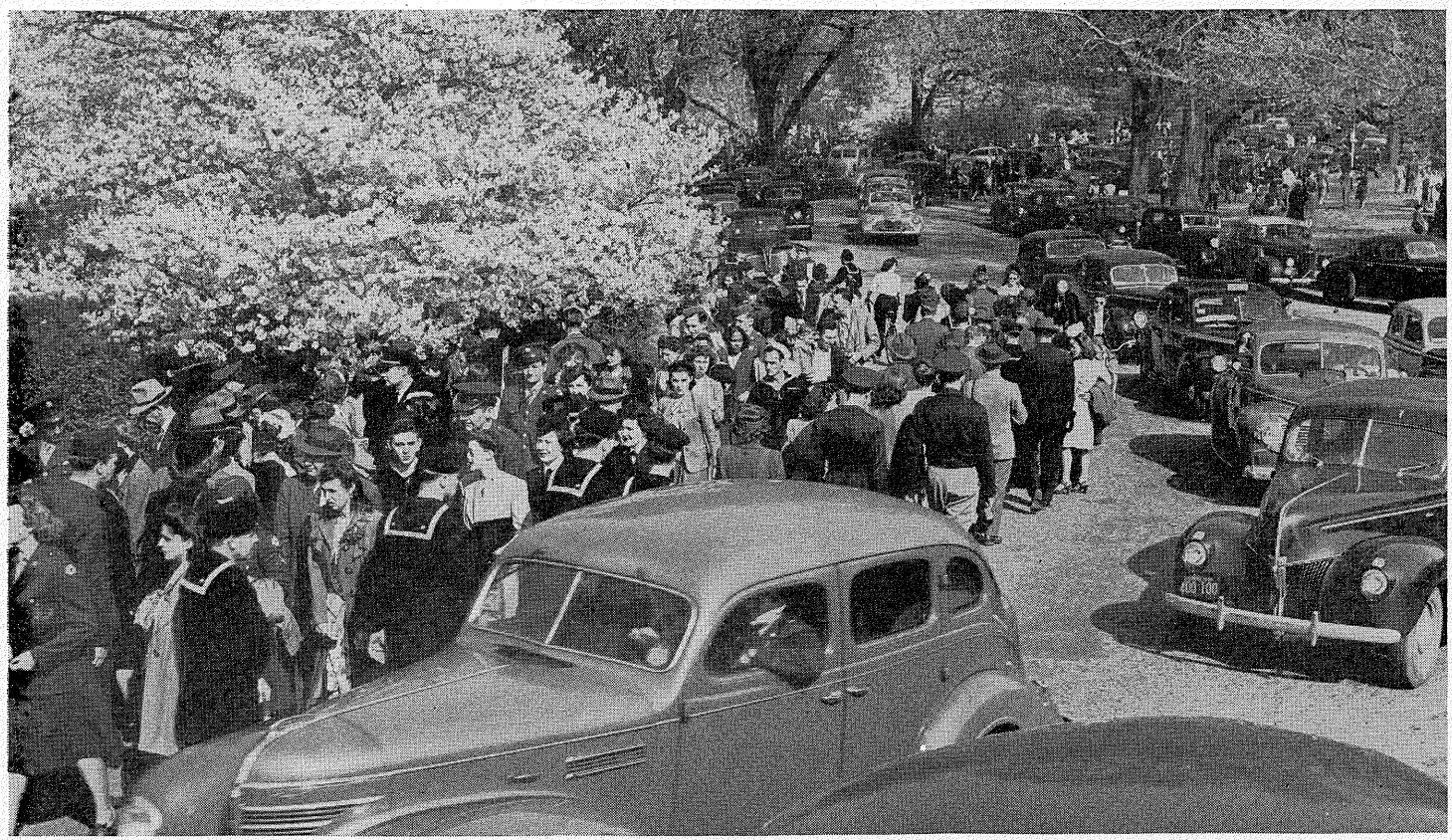


FIGURE 14.—The cherry blossoms March 25, 1945. This year was the earliest blossoming of the cherry trees of record.

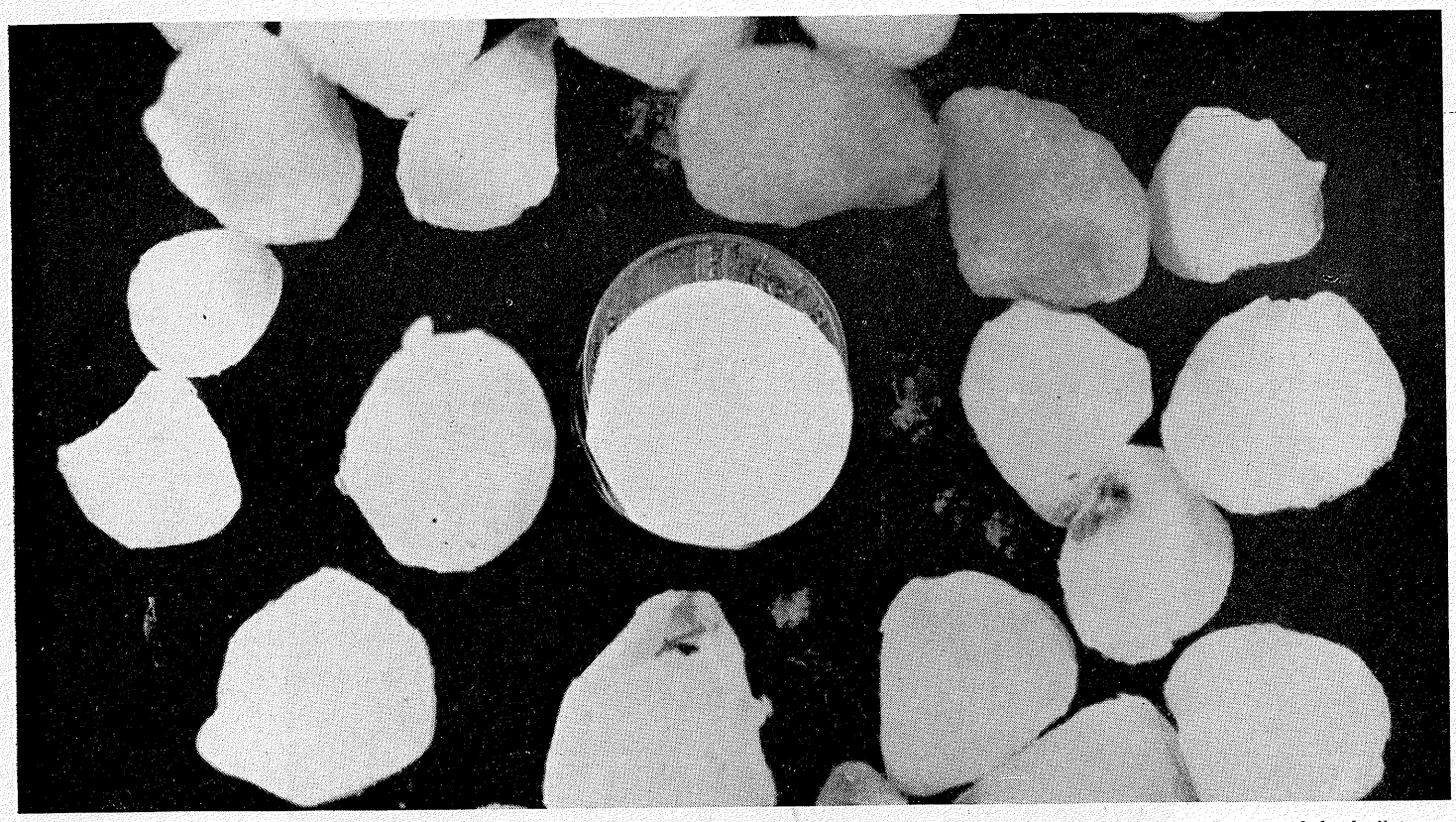


FIGURE 15.—Hailstones at Twenty-fourth and M Streets NW. on April 29, 1938. A silver quarter-dollar is placed under one of the hailstones

FIGURE 16.—Tree struck by lightning, White House Grounds, August 31, 1945.

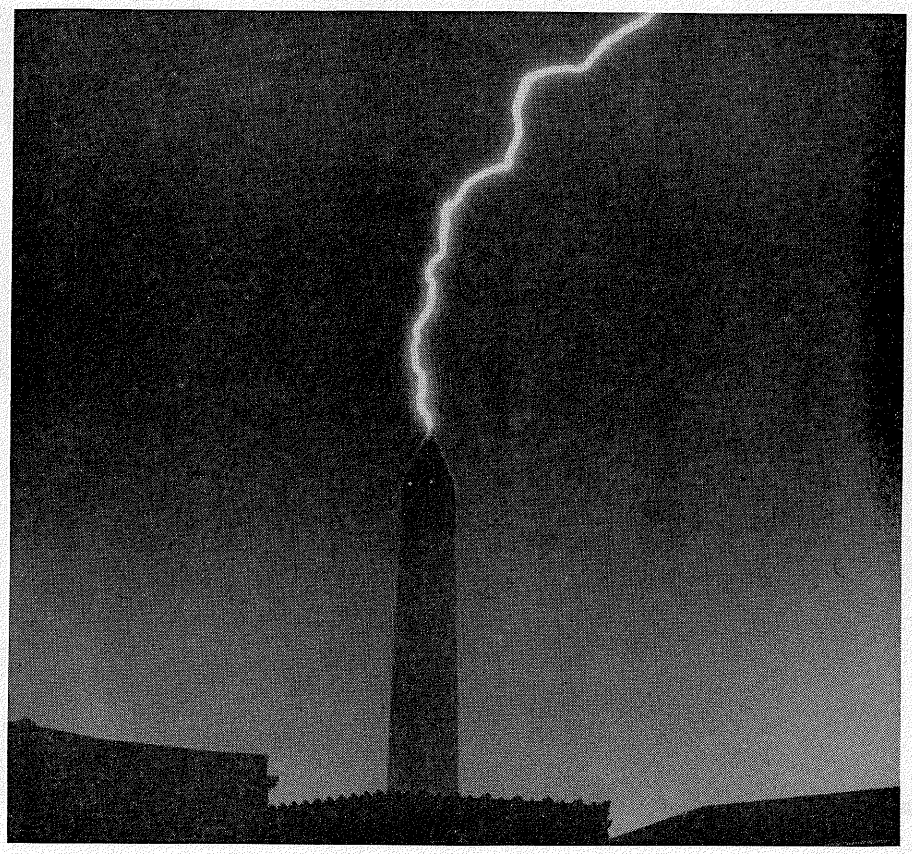


FIGURE 17.—Thunderstorm night of June 7, 1937; lightning strikes the Washington Monument.

FIGURE 18.—Flood aftermath in East Potomac Park, March 19, 1936.

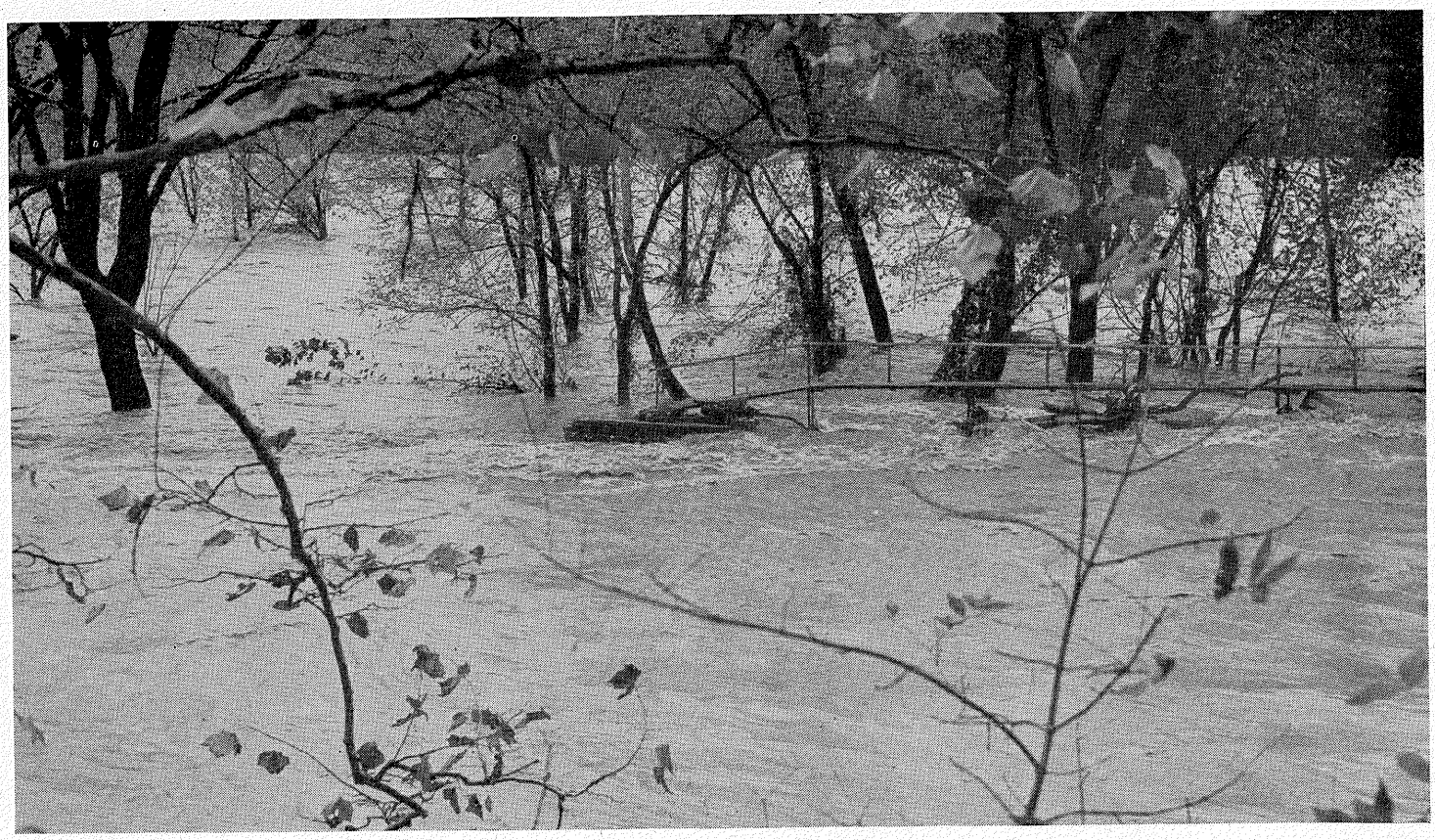


FIGURE 19.—Floodwater at 3 p. m. October 16, 1942, at Pierce Mill in Rock Creek Park.

FIGURE 20.—Floodwater at 1:15 p. m. October 17, 1942, where river and canal meet east of Chain Bridge.

791252—49——16

FIGURE 21.—Bladensburg, Md., vicinity of Peace Cross looking east, October 17, 1942.

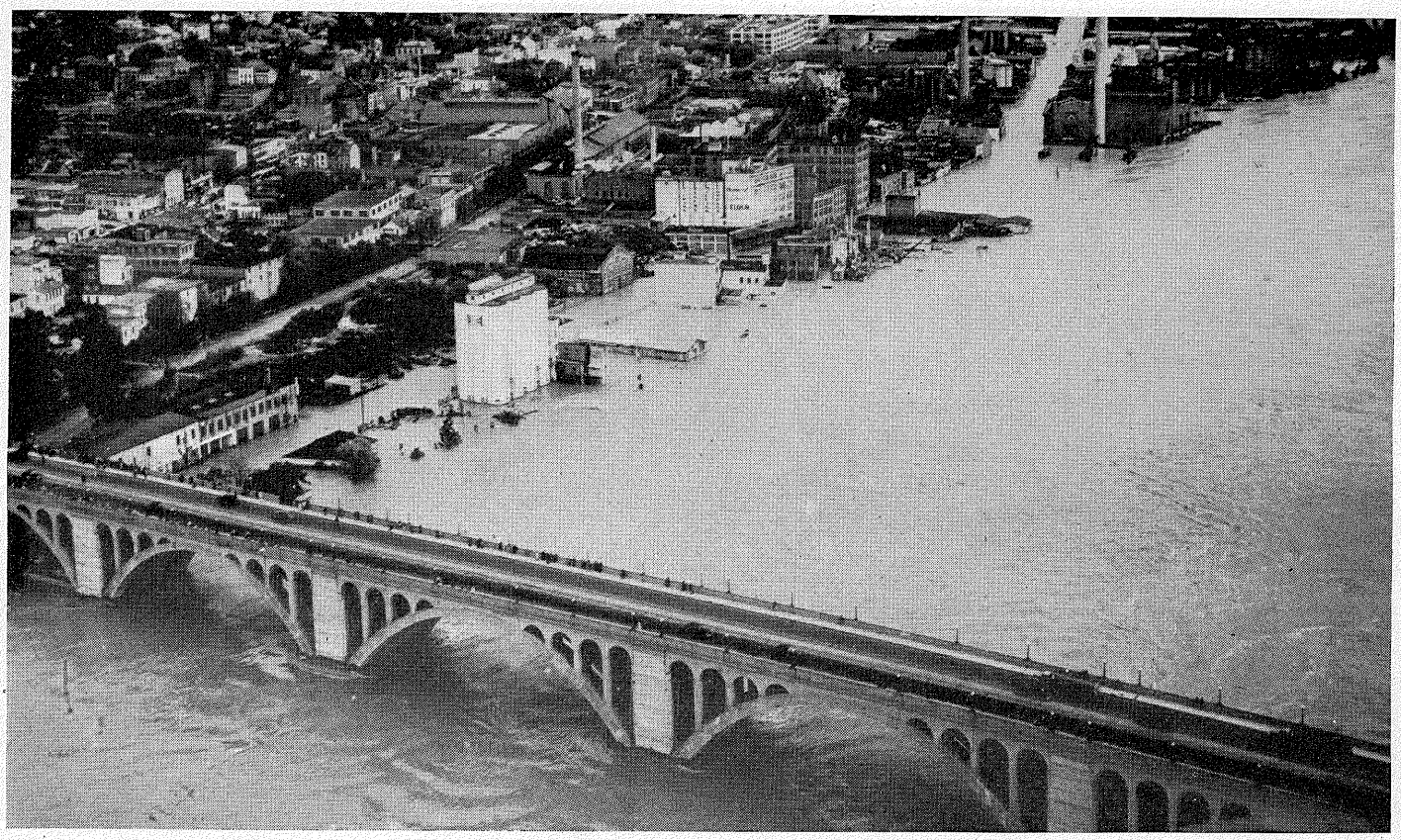


FIGURE 22.—Potomac River flood October 17, 1942. Over Francis Scott Key Bridge looking east down K Street.

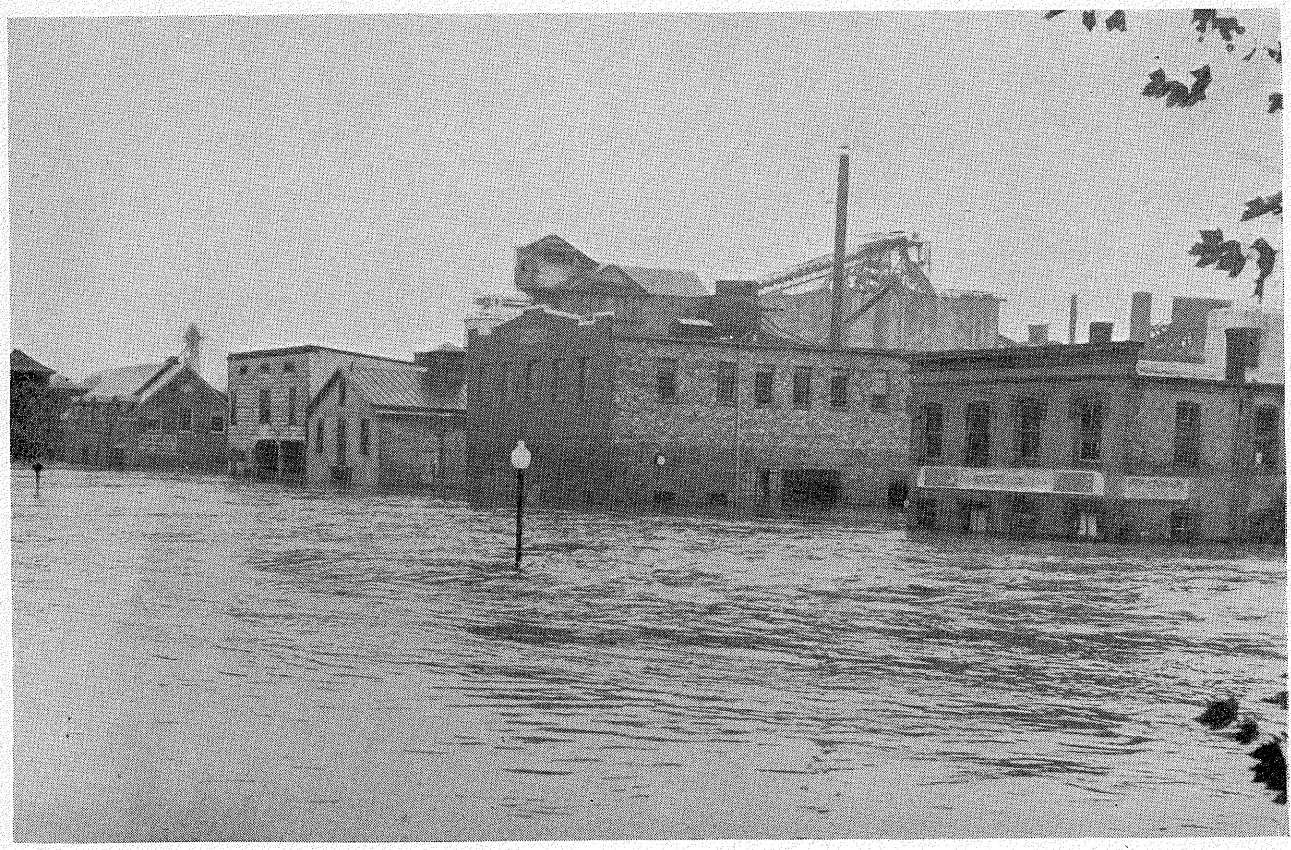


FIGURE 23.—Potomac River flood October 17 1942, Thirty-first and K Streets NW., looking southwest.

FIGURE 24.—Potomac River flood at 11 a. m. October 17, 1942, Jefferson Memorial and Long Bridge.

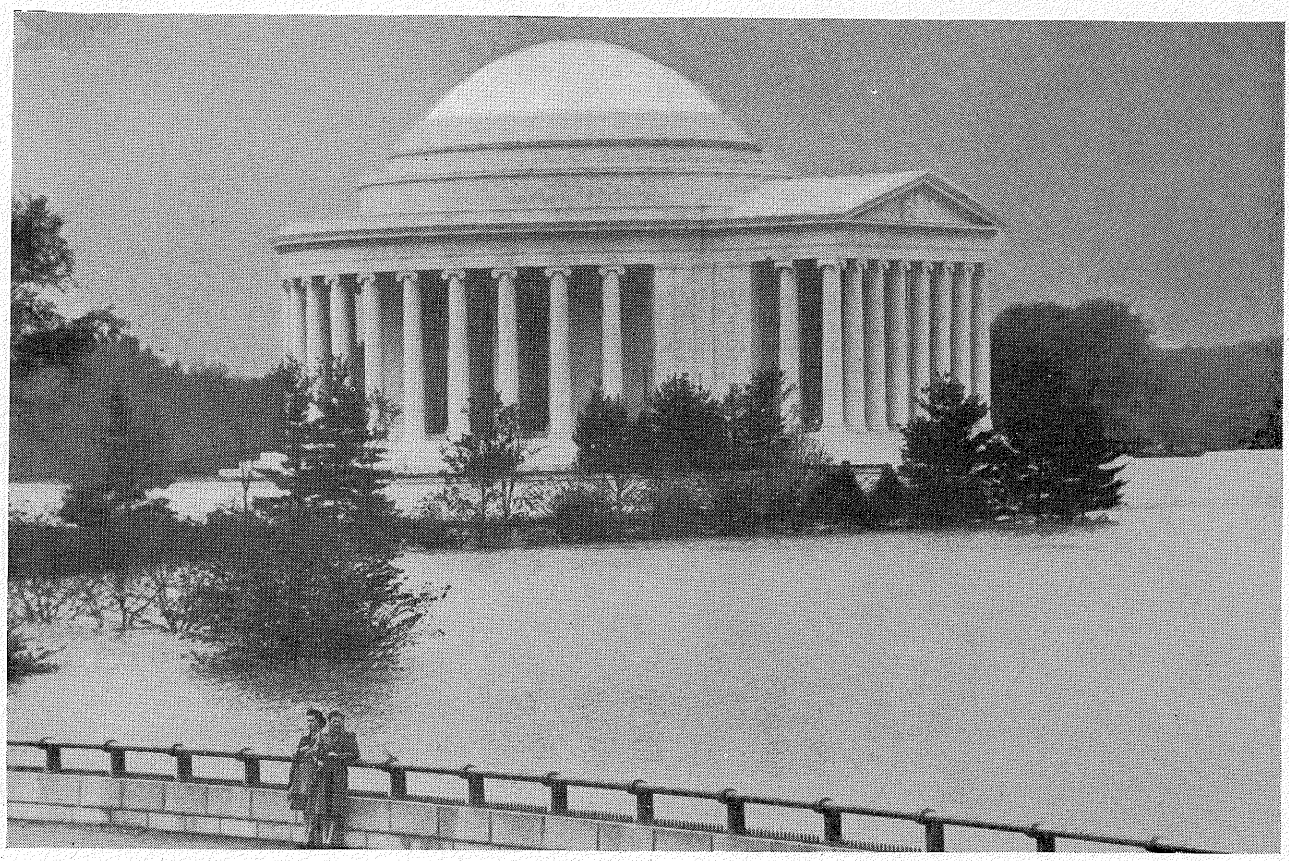


FIGURE 25.—Jefferson Memorial on October 17, 1942.

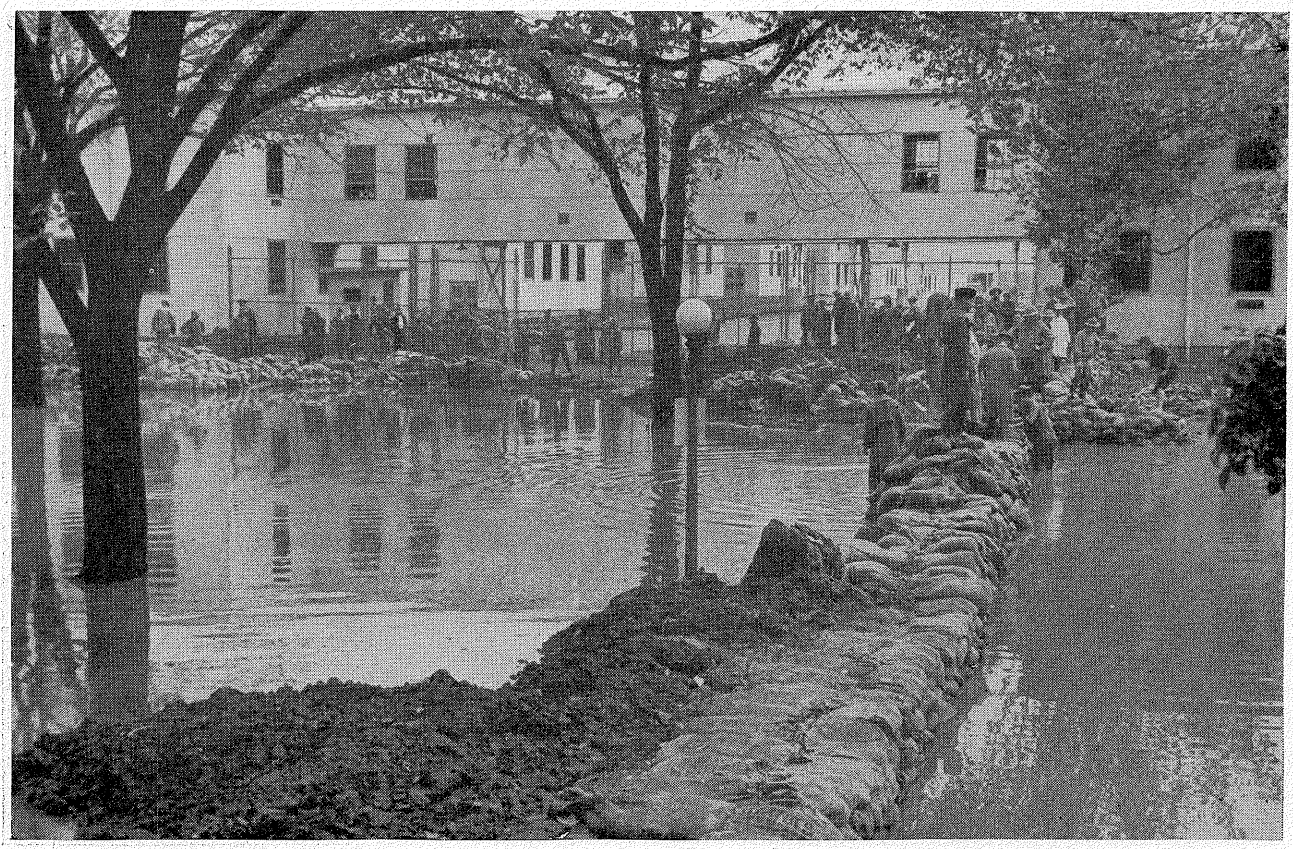


FIGURE 26.—A flood scene at Seventeenth Street and Constitution Avenue, October 17, 1942.

FIGURE 27.—Flood scene at 9:15 a. m. October 17, 1942. Picture taken near Monument Grounds from a dyke and looking up Seventeenth Street.

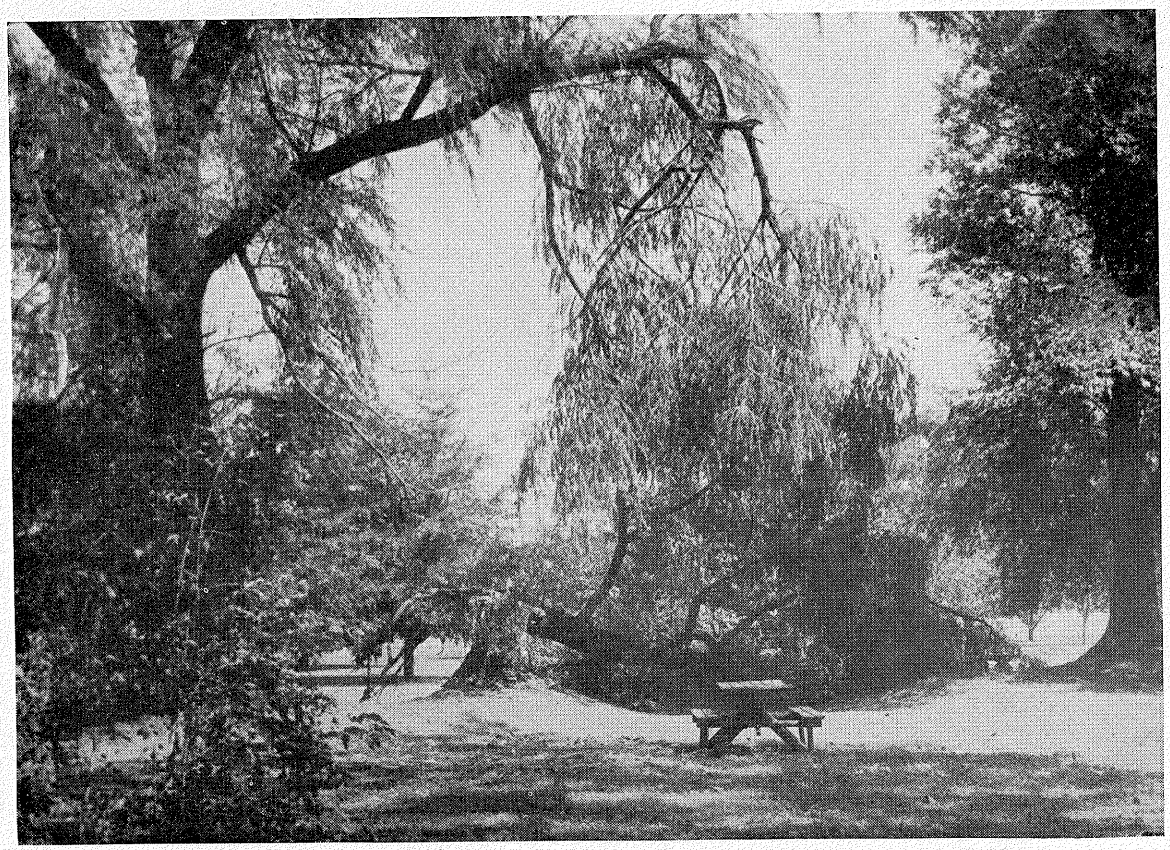


FIGURE 28.—East Potomac Park August 24, 1933; damage caused by wind.

FIGURE 29.—Windstorm damage near polo field, May 21, 1943.

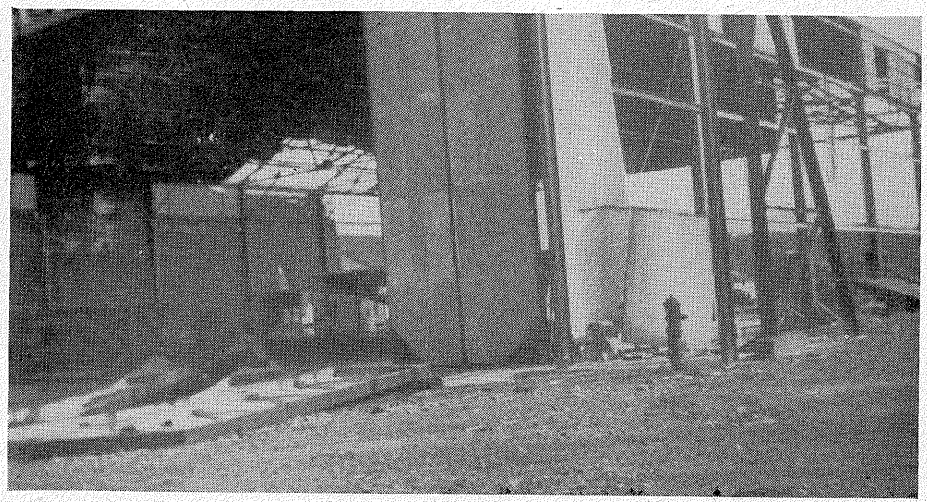


FIGURE 30.—Tornado damage November 17, 1927. Airplane hangar, Naval Air Station, Anacostia, where several planes were housed and injured by falling parts of structure. Hangar built of corrugated sheet iron attached to steel framework; wall sheets and big sliding doors torn away, but framework not much affected.

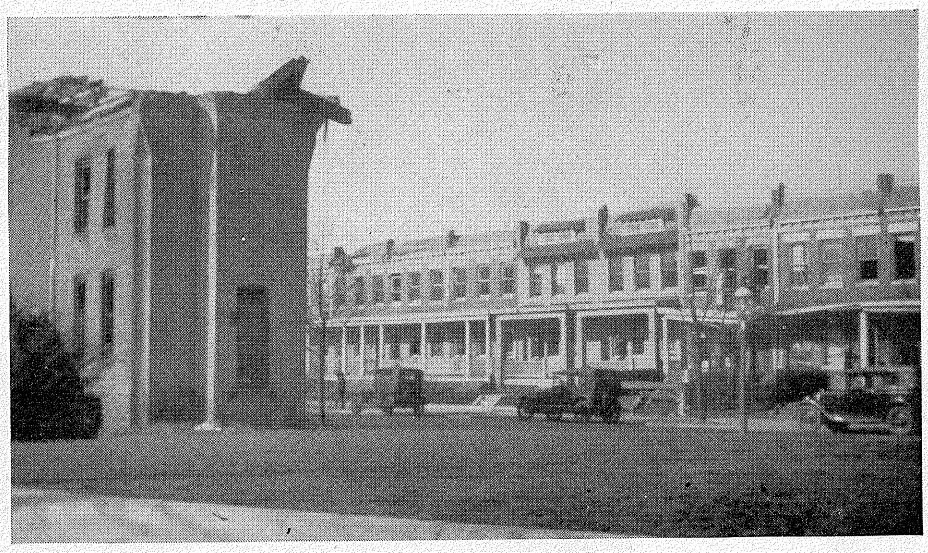


FIGURE 31.—Tornado damage November 17, 1927. Buildings unroofed in northeast Washington.

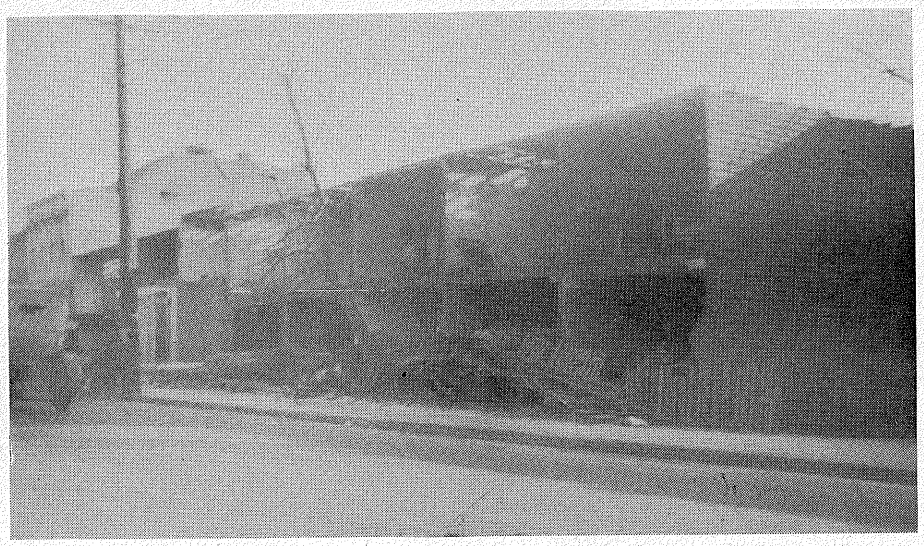


FIGURE 32.—Tornado damage November 17, 1927. Benning Road near 18th Street NE., roofs and north fronts torn away, old light frame construction.

FIGURE 33.—Tornado damage November 17, 1927. New frame dwelling wrecked, about one-fourth mile south of Training School for Boys.

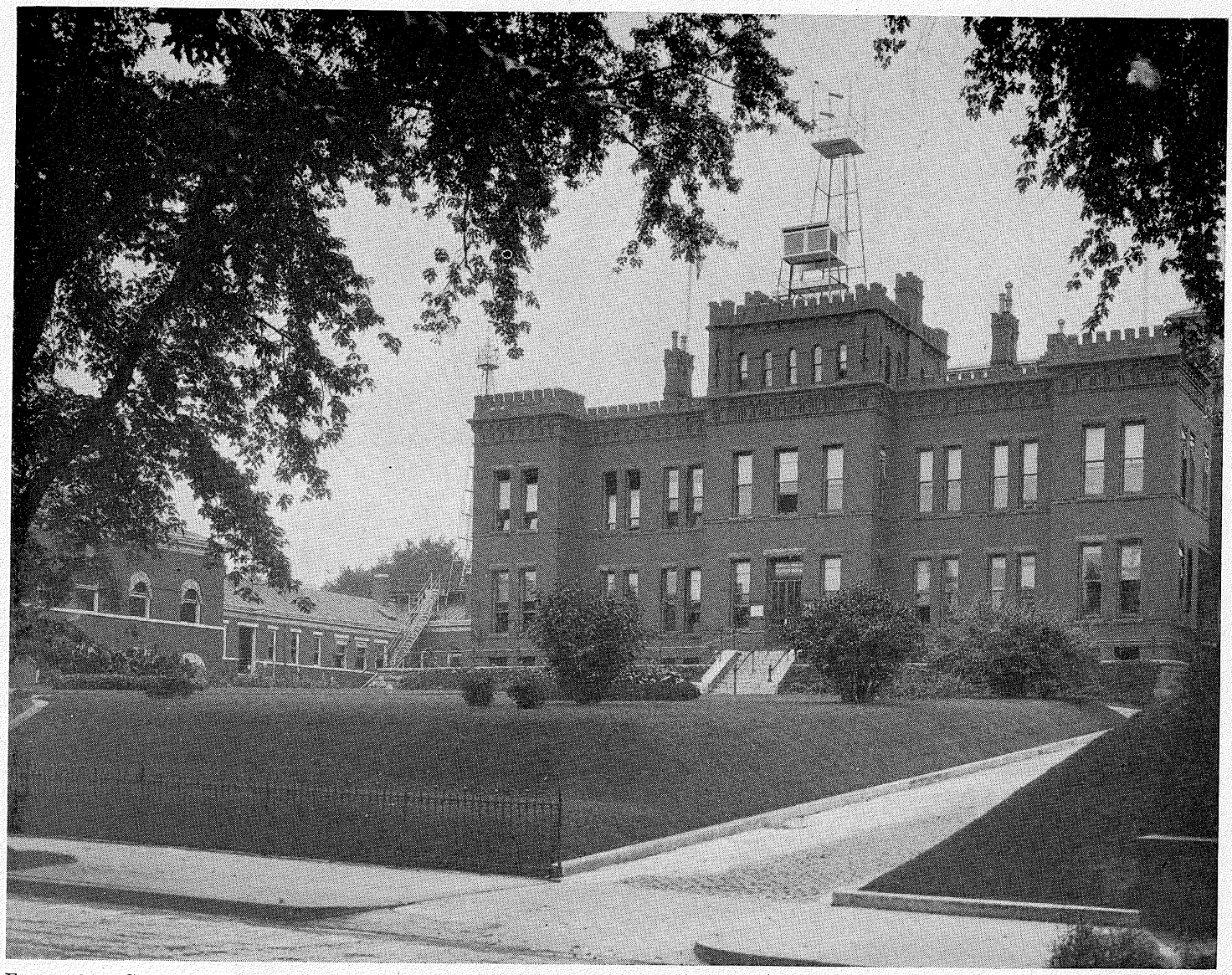


FIGURE 34.—Central Office of United States Weather Bureau at Washington, D. C., showing equipment on roof of "old" Main Building, completed in 1886 and occupied in 1889. Observations of temperature, precipitation, wind, humidity and sky cover were made here from March 22, 1889, to March 2, 1942. To the left on annex building may be seen another instrument tower.

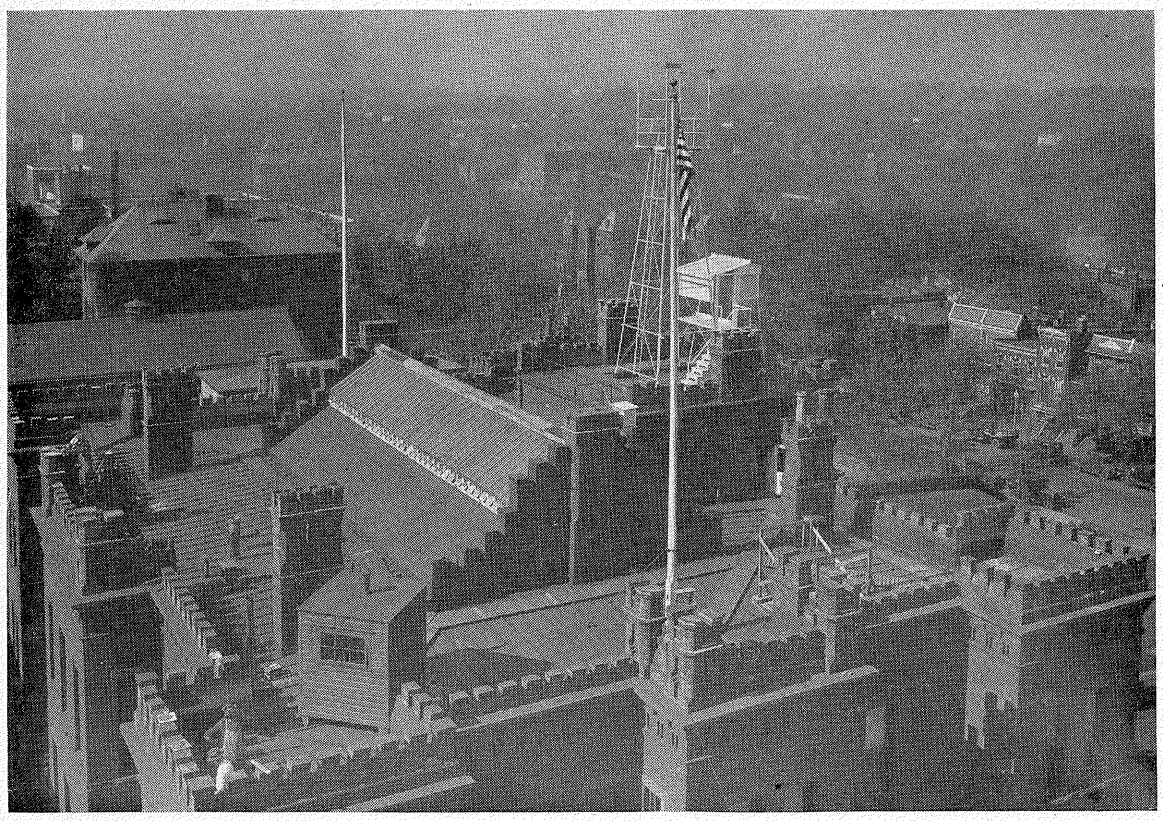


FIGURE 35.—View of roof of "old" Main Building showing instrument shelters and supports; taken from top of 50-foot tower located over annex and looking northwest.

FIGURE 36.—First unit of new Weather Bureau Building; located immediately in front of building shown in figure 36. Observations have been taken from the roof of this new building since March 2, 1942.

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