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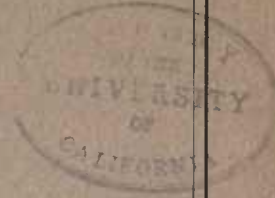


*Compliments of M. Nelson Grayton*

# RESULTS

OF THE **GIFT**  
MAY 29 1930

## METEOROLOGICAL OBSERVATIONS



MADE AT THE

### BLUE HILL METEOROLOGICAL OBSERVATORY,

MASSACHUSETTS, U. S. A.,

*Q134*

*H3A4*

*Observations & investigations ...*

IN THE YEAR 1886:

*Co. 1857-1926*

UNDER THE DIRECTION OF

A. LAWRENCE ROTCH, S. B.



BOSTON:

ALFRED MUDGE & SON, PRINTERS,

NO. 24 FRANKLIN STREET.

1887.















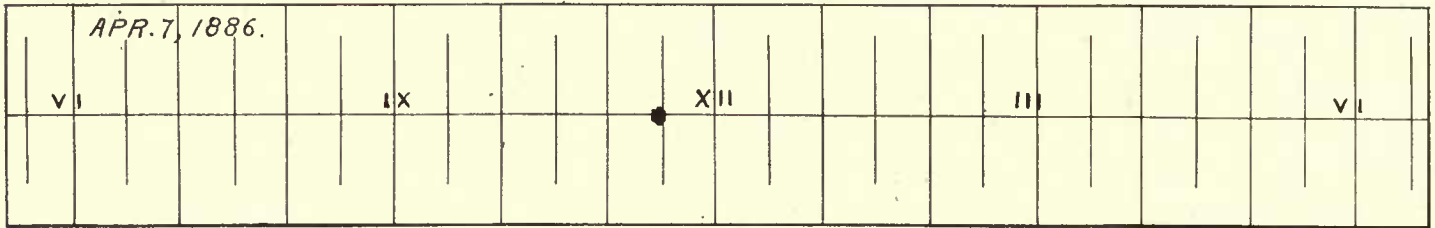


# SUNSHINE RECORDS.

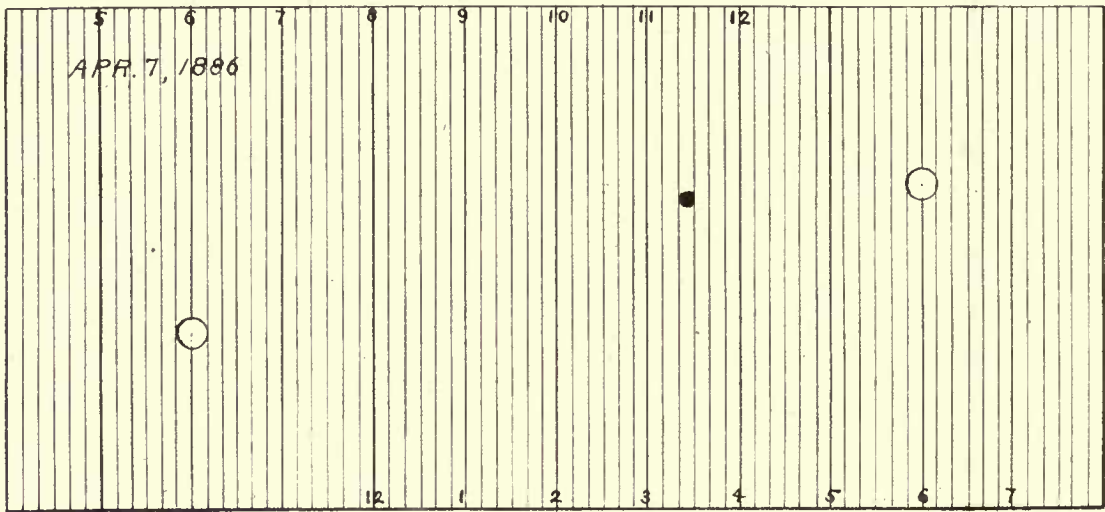
FOR DESCRIPTION OF INSTRUMENTS SEE PAGE VIII.

" " " PHENOMENA " PP. 44 & 45.

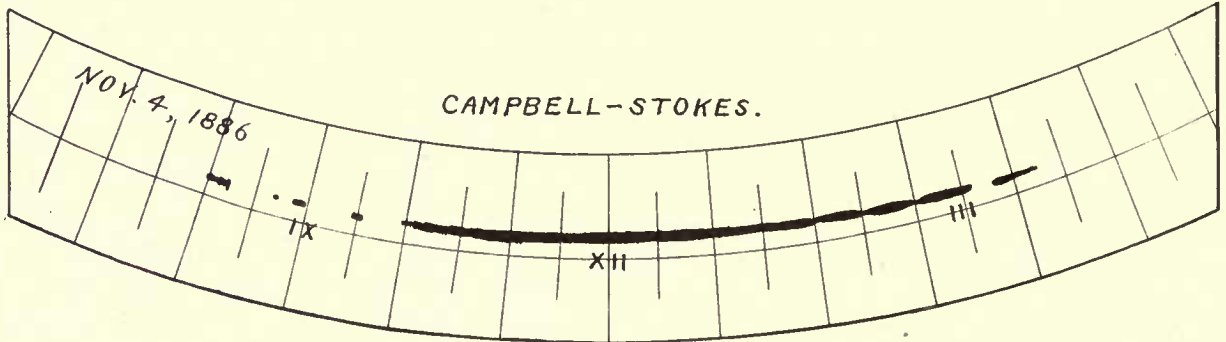
## CAMPBELL-STOKES.



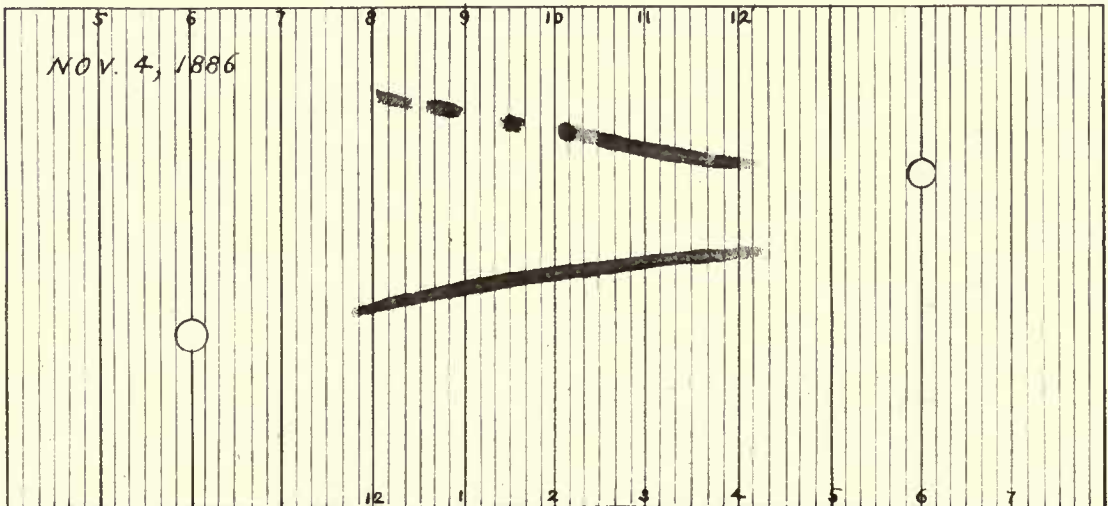
## JORDAN.



## CAMPBELL-STOKES.



## JORDAN.



# RESULTS

OF THE

*Schubert*

## METEOROLOGICAL OBSERVATIONS

MADE AT THE

### BLUE HILL METEOROLOGICAL OBSERVATORY,

*MASSACHUSETTS, U. S. A.,*

IN THE YEAR 1886:

UNDER THE DIRECTION OF

A. LAWRENCE ROTCH, S. B.

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1887.











## ERRATA AND ADDENDA

TO THE

### BLUE HILL OBSERVATIONS FOR 1886.

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Page viii. — To the description of the Sunshine Recorders, add: "Records of both the instruments are given in the Frontispiece."

Pages 3 to 7. — Supply the following omitted dates on which western mountains were visible: —

Nobscot: March 22, June 22, August 4, November 22. Wachusett: December 28. Monadnock: July 12.

Page 3; April 7. — Amount of sunshine, read 0 h. 6 m., instead 0 h. 0 m.

Page 3; April 7. — Per cent of sunshine, read 01, instead 00.

Pages 3 and 8. — Duration of bright sunshine for April, read 177 h. 25 m., instead 177 h. 19 m.

Page 8. — Duration of bright sunshine for year, read 2,098 h. 19 m., instead 2,098 h. 13 m.

Pages 16 to 27. — The total wind movements for each day are not always the exact sums of the hourly movements, as they were otherwise obtained.

Page 18. — Mean wind movement for March, 3-4 P. M., read 25.4, instead 2.54.

Page 31. — Sum for last eight days of February, at 2 P. M., read 232.400, instead 332.400.

Page 32. — Monthly sum for March, at 10 P. M., read 904.303, instead 304.303.

Page 39. — In the sums for the last eleven days of October, from 5 A. M. to 11 P. M., inclusive, the three left-hand figures of each column read 323, instead 393 or 293.

Page 44. — In the description of the phenomena of April 7, insert: "For the automatic sunshine record, see the Frontispiece to this volume."

Page 45. — To the mention of the humidity record of November 4, add: "The record of this day's sunshine is shown in the Frontispiece."

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# INTRODUCTION TO THE BLUE HILL OBSERVATIONS.

## AN ACCOUNT OF THE OBSERVATORY.

*Its History and Personnel.*—The Blue Hill Meteorological Observatory was established as a private observatory by the undersigned in 1885, and is now one of the best equipped meteorological stations in the United States. Tri-daily observations were commenced Feb. 1, 1885, and have since been regularly made at the hours of 7 A. M., 3 and 11 P. M., seventy-fifth meridian time, adopted by the United States Signal Service. Monthly summaries of these observations have been sent to the New England Meteorological Society for publication in its *Bulletin*, to the Signal Service for its *Weather Review*, and to persons interested. A summary of the observations for the year ending Jan. 31, 1886, together with a summary of the corresponding observations made at the Boston Signal Service station, ten and one half miles north of and five hundred and fifteen feet below the observatory, was printed and distributed. Besides the regular meteorological observations, considerable experimental work has been done, notably in weather predictions. Details of this work may be found in a pamphlet by the undersigned, printed not published, entitled *An Account of the Foundation and Work of the Blue Hill Meteorological Observatory*.

The current expenses of the observatory, amounting to about \$2,500 a year, are paid by the undersigned, who directs the work. Mr. Willard P. Gerrish was the observer during the first year, and since that time the position has been filled by Mr. H. Helm Clayton. Frank Brown has acted as steward from the opening of the observatory.

*Its Location and Description.*—Great Blue Hill, upon whose summit the observatory stands, is situated in Norfolk County, Massachusetts, partly in the town of Milton and partly in that of Canton. The elevation above sea level is about six hundred and thirty-five feet, and it is thus not only the highest land in eastern Massachusetts, but is also the highest point within ten miles of the Atlantic coast from Maine to Florida. Great Blue Hill exceeds the other summits of the Blue Hill range by more than one hundred feet, and the surrounding country being low, its exposure is free in all directions, which renders it admirable as a site for a meteorological station, uninfluenced by the causes which affect the records of most of the Government Signal Stations. A road nearly a mile long, and practicable for carriages, has been built up the hill, and a telephone line connects the observatory with Boston. The position of the observatory is fixed by a brass plate on the lower floor of the tower. This marks the supposed site, 2.2 feet below the plate, of the copper bolt set by Simeon Borden, about 1834, for the Massachusetts Trigonometrical Survey, in latitude  $42^{\circ} 12' 44''$  N., longitude  $71^{\circ} 6' 53''$  W., and 635.05 feet above mean tide. The bolt set by the United States Coast and Geodetic Survey, in 1844, is 27.35 feet N.  $11^{\circ} 16'$  E. of the supposed site of the Borden bolt.

The observatory itself is a two-story circular tower, twelve feet in diameter inside and twenty-five feet high, built of the broken stone found on the hill. This contains some of the instruments, others being exposed above its flat roof which is surrounded by a parapet. Extending southward from the tower is a one-story hip-roof house with two bedrooms, a dining-room and kitchen. This is also built of stone, but has a wooden shed attached. In the construction of the building every precaution was taken to insure solidity, the walls being twenty inches thick and the roof securely anchored to them. It has, however, been found impossible to make the walls impervious to rain which is driven by the high wind through the minute cracks which the stone must contain, and several coats of marine varnish have not rendered it water-proof. A large stove in the lower room of the tower heats the upper room through a register, and by its flue and that of the kitchen range also warms the other rooms. In the cellar is a wooden tank which collects the rain falling upon the roof. A safe built into the chimney protects the records and charts from fire. The cost of the building, designed by Messrs. Rotch and Tilden, was about \$3,500.

*Its Auxiliary Stations.*—A station was established July 1, 1886, at the foot of the hill, four hundred and forty feet below the observatory and three quarters of a mile northwest of it, which is visited daily. It is provided with maximum and minimum thermometers and a Draper thermograph exposed in a Hazen shelter, and with a rain gauge similar to that on the hill. Some curious variations of temperature and precipitation between the two stations have been noted, but enough data has not yet been accumulated for publication. Another station in Milton and one in the neighboring town of Randolph send monthly records of temperature and precipitation to the observatory, which receives reports of the synchronous observations made at the Boston Signal Service station.



*Remarks concerning the Self-Recording Instruments.* — A feature of the instruments is their automatic record, the "eye" observations of the standard instruments serving only as a control upon the registration. With the exception of the force of the wind, the species of clouds and their direction of motion, all the elements observed are recorded continuously. So far as possible, the principle of having duplicate instruments for use in case of accident is applied. The register sheets of all the instruments are changed daily at 11 p. m., at which hour the meteorological day ends.

*Barometers.* — The barometers are kept in a glass case in the lower room of the tower, where the temperature is most uniform, though a considerable range of temperature necessarily occurs in winter between the day and the night. The barometer cisterns are six hundred and forty feet above mean tide.

The standard since November, 1885, is Hicks, No. 818. This barometer is constructed on the Fortin system, has a tube about 0.5 inch in diameter, and is read by a vernier directly to 0.002 inch. The instrumental correction, as determined at Kew Observatory, in October, 1885, is +0.009 inch, including capillary action. As compared indirectly with the Signal Service standards at Washington, in February, 1886, its corrected readings are 0.015 inch too low. A Green barometer, No. 2,677, of the Signal Service pattern, reading also to 0.002 inch, is kept as a reserve instrument. It was formerly used as the standard, its readings being 0.017 inch lower than the assumed Kew standard now adopted by the observatory.

A Draper self-recording mercurial barometer, in a glass case near the other barometers, has given an almost continuous record since May, 1885. The principle of this instrument, which was constructed by Black and Pfister, of New York, is as follows: A glass tube thirty-six inches long, with the upper portion of larger diameter than the lower, is held firmly in a vertical position, and filled in the usual manner with quicksilver; its lower or open end dips into a tube or reservoir containing the same metal. This reservoir is suspended on two spiral steel springs, and has freedom of motion up and down. When the pressure of the atmosphere diminishes, a portion of the mercury flows out of the tube into the reservoir; this, becoming heavier, stretches the steel springs, causing the ink pencil fastened to them to mark downwards. If the pressure increases, the reverse movement takes place. The ink pencil makes its mark on a ruled paper register, carried at the rate of half an inch per hour from right to left by a clock. The movement of the pencil on the register can be magnified to any extent by increasing the length of the spiral springs; in this instrument it multiplies three times. The ink pencils used in the Draper instruments are tubes of glass filled with red ink, which touch lightly against the paper register; the advantage of these over lead pencils is that little or no pressure is required. This barograph gives the correction for temperature, or reduction to 32°, from the fact that it weighs the column of mercury instead of measuring its length, which is affected by heat. There is a slight temperature error caused by the unequal bore of the tube and by the expansion of the steel springs, but this is very small. Since July, 1885, the record has been checked by daily comparisons with the standard barometer, and the barograph is now so well regulated that the average correction is only 0.01 inch. Tracings of the barograph, somewhat reduced in size, are shown in Plates Nos. 1 and 1 A, at the end of this volume.

An aneroid barograph, made by Richard Brothers, of Paris, is kept as a reserve instrument. It consists of eight small aneroid boxes placed one above the other, which, by means of a pen on the end of a lever, register the variations of atmospheric pressure upon a paper-covered drum, which is revolved by clockwork inside. Unlike the Richard instruments in general, the drums of those constructed for this observatory revolve once a day instead of once a week, thereby making the time scale much larger. For an aneroid barometer this is remarkably accurate.

*Thermometers and Hygrometers.* — These are exposed in a wooden louvre shelter built from a north window of the tower, fifteen feet above the ground. In its construction special pains were taken to secure ventilation by making the roof double and setting the shelter six inches out from the wall, and to cut off radiation from inside the tower by having double windows. Comparisons have been made between this shelter and an isolated one built according to Prof. H. A. Hazen's specifications, now adopted by the Signal Service as the standard. Except during rapid changes of temperature, when the wall shelter was somewhat sluggish, the error of the latter was less than +0.5°. For convenience the window shelter is employed.

The observatory standard thermometers are Hicks, No. 252,161, verified at Kew, and Baudin, No. 10,682. The working standards are H. J. Green wet and dry bulb and maximum and minimum thermometers. These have been frequently compared with the standard instruments, and the resulting corrections applied.

A Richard thermograph has been in use since April, 1886. This instrument has a curved brass tube filled with alcohol, which straightens by the expansion of the alcohol when the temperature rises, and recurves again when the temperature falls and the alcohol contracts. The motion of the tube is registered on a drum by means of a pen on a lever. The error of the thermograph, ascertained several times daily by comparison with the standard thermometer, is not more than 0.5°, except for the maximum and minimum temperatures which are obtained from the maximum and minimum thermometers, and their hours of occurrence only from the thermograph.

In cold weather a Koppe hair hygrometer, made by Hottinger, of Zürich, has been used to determine the relative humidity and the dew point. In winter the mean relative humidity given by the hair hygrometer is about six per cent lower than that calculated from the readings of the wet and dry bulb thermometers, which are



known to give erroneous results at low temperatures. In summer the mean relative humidity obtained by the two methods agrees within one per cent. An Alluard condensation dew point apparatus is occasionally used as a check upon the other instruments.

A Richard registering hygrometer has been in use since April, 1886, and has given satisfactory results for such an instrument, its error relative to the hair hygrometer or psychrometer being noted several times daily. The hygrometric material employed is a thin strip of horn, whose alteration in length with variations of moisture is registered, as in the thermograph, upon a drum, which revolves once a day, giving a time scale of three tenths of an inch per hour. Sheets from these instruments are shown in Plates Nos. 2 to 5, slightly reduced in size.

*Anemoscope and Anemometers.* — The instruments for measuring the direction, velocity, and force of the wind are exposed about ten feet above the roof of the tower and thirty-five feet above the ground.

A Draper recording anemoscope and anemometer, made by Black and Pfister, have given almost continuous records since March, 1885, with the exception of short periods when repairs were necessary. The anemoscope is constructed as follows: From the wind vane a vertical shaft descends into the tower. The lower end of the shaft carries a brass cylinder covered with paper to receive the record of the oscillations of the wind. An ink pencil, bearing lightly against the paper, descends from the top to the bottom of the cylinder in the course of twenty-four hours, its movement being regulated by a clock. When the wind shifts, the paper register, therefore, correspondingly turns and the pencil makes a trace of the movement; if there is a calm, the pencil makes a straight line downward, a gentle breeze being sufficient to cause the cylinder to oscillate on each side of its mean direction. On the sheet of paper are printed the eight points of the compass and the hours, the trace thus showing the direction and all the variations of the wind, with the times of their occurrence. A reduced copy of the anemoscope sheet, after removal from the cylinder, is given in Plate No. 7.

The principle of the Draper anemometer is this: On the ends of a cross supported by a vertical shaft are four hemispherical cups, which, by the action of the wind, are caused to revolve with a speed, as determined by Dr. Robinson, of about one third the velocity of the wind. On the lower end of the shaft, thus made to revolve by the cups, is an endless screw connecting with a train of wheels which move a cam. This is so arranged that one turn of the cam corresponds to twenty miles movement of the wind. An ink pencil, which rests on the edge of the cam and slides in vertical guides, is carried by each revolution of the cam from the bottom to the top of a sheet of paper, which is drawn aside by a clock at the rate of half an inch per hour. The number of times that the pencil moves from the bottom to the top of the paper, multiplied by twenty, gives the number of miles that the wind has travelled in an hour or day. A reduced copy of the anemometer sheet is shown in Plate No. 6.

A smaller Robinson anemometer records electrically by the Gibbon self-register each mile travelled by the wind. This apparatus, which is that made for the Signal Service by the Hahl Manufacturing Company, of Baltimore, has been used during 1886. On account of the open time scale of the register (two inches per hour), it serves to show the velocity of brief gusts of wind better than does the Draper anemometer, and is also available to supply breaks in the latter record.

The average movements recorded by the Draper and Signal Service anemometers differ by less than one per cent. The latter instrument, in a series of tests, gave about five per cent lower velocities than did a Hicks portable anemometer, whose dial was graduated at Kew Observatory by comparison with the standard anemometer.

A wind pressure gauge, constructed from the writer's designs by the Crosby Steam Gauge Company, of Boston, has been in use during 1886. A vane keeps a disk with a square foot of surface normal to the wind, whose pressure stretches a spring in the tail of the vane and leaves an index at the maximum pressure in pounds, to which it has been subjected. After the pressure has been converted into velocity by the formula  $v = \sqrt{\frac{p}{0.005}}$ , where  $v$  is the velocity in miles per hour, and  $p$  is the pressure in pounds per square foot, the velocity thus obtained agrees closely with the maximum velocity for a period of five minutes, as registered by the Signal Service anemometer. The extreme velocity of the gusts would naturally be expected to exceed the mean velocity for five minutes, and this is generally found to be the case. The agreement is closest at moderate velocities, but whether this is owing to the inertia of the pressure plate causing it to be sluggish with light winds, or whether the velocity of the gusts exceeds in a greater ratio the mean velocity during high winds than during low winds, has not been determined.

*Rain and Snow Gauges.* — Three of these have been used during 1886. They are placed near one another in a freely exposed position, one hundred and fifty feet northeast of the observatory, with their rims within two feet of the ground.

The standard rain gauge is a copper cylinder, fourteen inches deep, with a turned brass rim eight inches in diameter. The rain is measured with a stick in a tube having one tenth the area of the receiver. This is the gauge recommended by the New England Meteorological Society. To ascertain the rainfall during a storm without emptying the gauge, it is weighed upon a spring balance compensated for the weight of the empty gauge and graduated to indicate 0.02 inch.

The standard snow gauge has an aperture similar to the rain gauge. The receiver is sixteen inches deep, and is enlarged below to keep the snow from blowing out, this plan having been tried in Europe. The gauge, with the unmelted snow, is weighed upon the spring balance, which is compensated as before for the weight of



this empty gauge. This method obviates loss by evaporation in melting the snow for measurement, and enables the snowfall to be quickly ascertained.

The self-recording rain and snow gauge constructed after the writer's design, by Richard Brothers of Paris, has been in use since March, 1886. The receiver in this gauge rests upon a platform balance, and when rain falls its weight causes the balance to record the amount and time of occurrence of the rain upon a revolving drum, as in the other Richard instruments. Tracings of this gauge, slightly reduced in size, are shown in Plates Nos. 8 and 9. To adapt it to snow another receiver is used, which is deeper, with an inner shield to prevent clogging by sleet. The author believes this to be the first successful attempt to record snow automatically without first melting it. The records of the registering gauge agree fairly well with those of the standard with which they are compared. The former gauge has been surrounded by a flaring wire screen on the Nipher system to protect it from the wind, and more snow has thereby been caught in windy weather than before.

*Sunshine and Cloud Instruments.*—The sunshine recorders are placed on the south parapet of the tower, with no obstructions to affect their records. A level stand in the centre of the tower roof with a meridian reference line serves as a base for the cloud mirror.

A Campbell-Stokes sunshine recorder, which has been in operation during 1886, is the standard instrument in Europe for registering sunshine, but it is believed that there are none used in the United States. It consists of a glass ball held in a concentric frame at the distance of the focal radius from the centre of the ball. This frame holds a strip of cardboard which is charred whenever the sun shines brightly, and by the apparent motion of the sun the hours into which the cardboard is divided are successively traversed by its image. The strip is adjusted in the frame to give approximately the standard time of the seventy-fifth meridian.

A Jordan sunshine recorder, made by Negretti and Zambra of London, has also been in use the past year. A brass cylinder, with its axis parallel to the earth's axis, has in its opposite sides two holes through which the sun shines upon sensitized paper, and the traces thus made are rendered permanent by immersing the paper in water. This generally records more sunshine than does the burning instrument, whose action is stopped when the sun is partly obscured by cirrus clouds or light haze.

A cloud mirror for the measurement of the azimuth and altitude of clouds has been used by Mr. Clayton. Frequent measurements, in degrees of azimuth, of the direction of motion of the clouds, particularly those of the cirrus type, have been made but are not ready for publication. The altitude of the clouds is obtained by first calculating their velocity of motion by noting the time which their shadows require to traverse known distances on the plain below. Only clouds of the stratus and cumulus types give shadows which can thus be used. The velocity of a cloud being known, two angular measurements of its altitude, at a definite interval of time apart, enable its height to be calculated.

#### THE REDUCTION OF THE OBSERVATIONS.

*General Results.*—The daily results refer to the twenty-four hours ending at 11 P. M. The figures in the first four columns following the date, pages 2 to 7, are the daily means obtained from observations at 7 A. M., 3 and 11 P. M., seventy-fifth meridian time, according to the practice of the Signal Service. Until April, eye observations were taken at these hours; after that, the data for 7 A. M. and 3 P. M. were generally obtained from the sheets of the self-recording instruments, controlled by eye observations of the standard instruments made at least twice a day.

All temperatures are expressed in Fahrenheit degrees.

The table used for the reduction of the barometer to 32° is that computed from Schumacher's formula, and contained in the *Instructions for Voluntary Observers of the Signal Service*. The reduction to sea level from a height of six hundred and forty feet is effected by a table calculated from Laplace's formula, in which the arguments are the temperature of the external air and the height of the barometer corrected to 32°. The correction to reduce to the standard gravity of latitude 45°, is  $-0.007$  inch, which is the constant employed by the Boston Signal Office. The barometer reduced to sea level and standard gravity is only used in the monthly and annual means and extremes. The actual barometer is also given in the means.

The dew point and relative humidity are calculated from the readings of the wet and dry bulb thermometers, by means of the table, computed for a barometric pressure of thirty inches, contained in the above *Instructions*; or inversely, the dew point is calculated from the relative humidity, when such is obtained from the hygrometer.

The hours of actual sunshine are got from the Campbell-Stokes instrument, and the daily percentage of possible sunshine is determined from the average possible duration of sunshine in latitude 42°, which is given for each month in Jelinek's *Anleitung zur Ausführung Meteorologischer Beobachtungen*, revised by Dr. Hann. From the number of hours thus found, thirty minutes are subtracted daily to allow for the time when the sun, on account of its proximity to the horizon, does not affect the register.

The mean cloudiness for the first three months was obtained from tri-daily eye observations. After March it is assumed to be the complement of the percentage of bright sunshine, the cloudiness thus got having been found here and elsewhere to be about four per cent less than that obtained from eye observations. In the Annual Summary, page 8, the mean cloudiness has been obtained from the sunshine for all the months.



The transparency of the air from March to December, inclusive, is indicated by the record of visibility of distant mountains, which subtend about the same visual angle as seen from Blue Hill, the highest mountains being the most distant. The height above the sea of Nobscot is 602 feet; Wachusett, 2,018 feet; and Monadnock, 3,170 feet; their distances from Blue Hill being as stated in the records.

The prevailing direction of the wind and its daily movement are omitted from these tables, because they appear in the Hourly Values, pages 10 to 28. In the Annual Summary, page 8, the table of monthly means and totals is compiled from the preceding monthly sums and means. The figures for sunshine and precipitation, and the number of days with precipitation which are given as yearly means, are, strictly speaking, the monthly averages of these elements for the year. In the table of monthly extremes, the first three columns should be headed "Barometer Reduced to 32°, Sea Level and Standard Gravity," instead of "Pressure," etc., as printed.

*Hourly Values from the Self-Recording Instruments.* — The tabulation of all the sheets from these instruments has been done by Mr. Clayton, so that the personal equation introduced is nearly constant. The figures in the tables have been added by the arithmometer of Thomas de Colmar. The maximum values are indicated in the sums and means of the pressure and wind velocity, and in the annual summary of the wind direction, by heavy-faced type, and the minimum values by light-faced type. The ten-day means of pressure and wind velocity can be easily obtained from the ten-day sums by moving the decimal point.

The hours of prevalence of each wind, pages 10 to 13, need no special explanation. The anemoscope from which the data are derived gave a continuous record during the year except on Jan. 30, when the action of the vane was impeded by ice, and on thirty-two hours distributed through the year, when the direction of the wind was otherwise obtained. Only two hours of calm are given, but the record of the sensitive electrical anemometer shows that in reality there were no absolute calms of an hour's duration during the year.

The hourly wind movements, pages 16 to 28, are also continuous with the exception of the last four days of January, when both anemometers were stopped by ice. A few other breaks in the Draper record, besides the values for very low velocities, have been supplied by the records of the electrical anemometer. The two hours of calm, before mentioned, however, remain.

The hourly data for the atmospheric pressure, pages 30 to 42, are complete for each hour, the values for four scattered hours, missing from the Draper barograph sheets, having been interpolated. The figures given are the readings, corrected for temperature and instrumental error, the latter being ascertained several times daily, and the correction for each hour interpolated. For economy in printing the hourly values, twenty-nine inches is omitted, unless the pressure for the same hour of the preceding day is twenty-eight or thirty inches; and twenty-nine is to be supplied elsewhere when no whole inches are given. The double diurnal maxima and minima are indicated in the sums and means by heavy and light faced type.

These are among the most complete hourly values of wind velocity and atmospheric pressure which have been published for a few stations in the United States.

A. LAWRENCE ROTCH,

*Blue Hill Meteorological Observatory.*

MAY, 1887.







GENERAL RESULTS  
OF THE  
METEOROLOGICAL OBSERVATIONS  
MADE AT THE  
BLUE HILL METEOROLOGICAL OBSERVATORY,  
IN THE  
YEAR 1886.







# MARCH.

# APRIL.

Day of Month.	Barom. Red. to 32°. Inches.	Air Temp. °	Dew Point. °	Relative Hum. Per cent	Max. Temp. °	Min. Temp. °	Range. °	SUNSHINE.		Cloudiness. 0-10	Rainfall. Inches.	Melted Snow. Inches.
								Hrs. Min.	Per cent.			
1.	28.960	1.3	-7.2	64	9.0	-3.0	12.0	10	0	88		.01
2.	28.716	11.1	4.7	67	19.0	-3.0	22.0	2	0	20		
3.	28.976	21.2	11.3	68	29.1	12.2	16.9	1	10	10		
4.	29.118	28.5	20.1	70	37.8	13.7	24.1	10	15	90		
5.	.091	27.3	18.6	71	37.0	21.5	15.5	7	30	66		
6.	.099	27.3	13.1	61	30.7	20.8	9.9	10	40	94		
7.	.225	23.4	16.7	55	31.5	16.2	15.3	0	15	02		.02
8.	.135	30.4	23.3	77	38.8	20.4	18.4	0	30	82		.01
9.	.120	21.6	18.2	78	30.8	14.8	16.0	2	30	22		
10.	.228	23.1	14.6	54	33.0	12.3	20.7	9	30	83		
11.	.222	31.1	15.8	49	43.5	18.4	25.1	10	10	89		
12.	28.858	35.5	26.7	71	42.5	29.4	13.1	0	0	00		
13.	28.628	33.9	33.8	98	39.9	32.0	7.9	0	0	00		
14.	29.149	31.5	20.2	60	39.9	22.5	17.4	8	45	77		.28
15.	.349	34.6	26.6	70	42.8	29.3	13.5	6	0	52		
16.	.212	35.9	28.4	73	49.0	29.0	20.0	2	30	20		.08
17.	.517	29.4	20.4	68	36.7	24.6	12.1	11	15	98		
18.	.458	36.7	21.1	53	49.0	25.5	23.5	9	40	84		
19.	.398	29.4	24.4	73	36.1	25.1	11.0	5	30	49		.20
20.	.191	32.8	32.8	100	34.6	27.3	7.3	0	0	00		
21.	28.721	32.8	32.8	100	37.5	28.8	8.7	0	0	00		.32
22.	28.622	34.3	29.1	85	44.6	28.6	16.0	1	45	15		1.18
23.	28.778	30.0	21.5	66	37.3	23.4	13.9	1	30	14		Inap.
24.	29.169	26.0	14.4	55	34.2	19.0	15.2	9	45	85		.02
25.	.272	36.1	25.7	60	42.2	23.8	18.4	0	50	07		Inap.
26.	.268	43.3	19.5	34	51.5	37.4	14.1	5	40	50		
27.	.498	37.8	30.6	68	47.1	31.3	15.8	0	0	00		.28
28.	.650	33.5	32.0	88	38.6	30.5	8.1	2	5	18		.02
29.	.710	35.5	31.1	85	42.6	28.0	14.6	4	0	35		.12
30.	.372	39.0	39.0	100	41.8	34.8	7.0	0	0	00		.38
31.	.272	55.7	54.1	95	59.0	41.2	17.8	0	0	00		.11
Sums.	29.161	30.6	23.0	71.5	38.3	23.1	15.2	144	05	41	2.53	.52
Means.								4	40		6.8	
Red. to Sea Level and Stan. Gravity.	29.879				30.7						Total Precipitation . . . . .	3.05
											Mean (Max. and Min.) . . . . .	
											46.8	
											177	19
											5	55
											18.3	
											56.0	
											37.7	
											70.0	
											46.8	
											Mean (Max. and Min.) . . . . .	
											46.8	
											Total Precipitation . . . . .	2.16

† Obtained from tri-daily eye observations.

DAYS ON WHICH WESTERN MOUNTAINS WERE VISIBLE.

NONSCOT (distant 20 miles). — 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 14, 16, 17, 18, 21, 23, 25, 26.  
 WACHUSETT (distant 44 miles). — 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 16, 17, 18, 22, 23, 25, 26.  
 MONADNOCK (distant 68 miles). — 1, 2, 3, 4, 5, 6, 7, 10, 16, 18, 22, 23, 25, 26.

DAYS ON WHICH WESTERN MOUNTAINS WERE VISIBLE.  
 NONSCOT (distant 20 miles). — 1, 2, 3, 4, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 22, 23, 24, 25, 26, 27, 28, 30.  
 WACHUSETT (distant 44 miles). — 1, 2, 3, 4, 8, 9, 10, 11, 12, 23, 24, 25, 26, 27, 28, 30.  
 MONADNOCK (distant 68 miles). — 9, 10, 11, 26.



MAY.

JUNE.

Day of Month.	Barom. Red. to 32°. Inches.	Air Temp. °	Dew Point. °	Relative Hum. Per cent	Max. Temp. °	Min. Temp. °	Range. °	SUNSHINE.		Cloud. Incess. 0-10	Rainfall. Inches.	Melted Snow. Inches.
								Hrs. Min.	Per cent.			
1.	29.254	46.5	33.0	62	58.9	38.4	20.5	13	0	96		
2.	.260	50.7	35.3	82	43.8	37.6	6.2	12	15	90		
3.	.357	50.2	34.7	56	66.4	34.5	31.9	10	45	79		
4.	.263	56.4	41.8	60	74.2	43.2	31.0	8	20	62	Inap.	
5.	.123	59.1	49.8	74	76.6	47.2	29.4	4	0	28	.45	
6.	.224	55.6	40.7	60	66.8	45.8	21.0	6	15	46		
7.	.280	58.9	45.7	59	71.2	47.3	23.9	9	45	72		
8.	.047	46.3	46.3	100	52.8	44.8	8.0	0	0	00	1.48	
9.	.096	53.1	39.5	61	65.2	43.6	21.6	10	30	77	.12	
10.	.369	52.7	41.2	69	65.7	45.3	20.4	8	45	65	.20	
11.	.345	43.0	41.7	95	46.1	41.4	4.7	0	0	00	.24	
12.	.307	43.5	41.0	92	51.0	39.5	11.5	1	15	00	Inap.	
13.	.269	42.0	42.0	98	44.8	39.4	5.4	0	0	00		
14.	.353	46.0	41.9	87	55.1	41.2	13.9	6	30	48	.01	
15.	.255	50.5	45.5	84	61.0	40.4	20.6	5	10	38	.74	
16.	.153	56.0	50.0	82	66.1	48.3	17.8	3	20	25		
17.	.474	52.2	34.3	52	58.9	40.8	18.1	12	0	88		
18.	.610	54.1	38.2	56	64.1	45.8	18.3	8	15	61		
19.	.491	53.4	47.5	79	62.8	47.9	14.9	4	30	33		
20.	.218	60.9	55.0	75	71.8	46.9	24.9	8	0	59	.04	
21.	.232	61.7	36.4	40	69.8	50.8	19.0	14	20	100		
22.	.154	64.0	54.2	63	74.8	51.4	23.4	3	30	25	Inap.	
23.	.103	68.6	49.8	53	80.6	57.7	22.9	12	10	90		
24.	.036	60.8	48.0	65	68.7	56.8	11.9	0	0	00	Inap.	
25.	28.847	50.2	44.5	79	57.5	44.8	12.7	0	0	00	.28	
26.	28.966	47.8	33.8	59	53.3	40.8	12.5	6	10	45	.01	
27.	28.989	50.8	42.7	70	64.7	45.8	18.9	5	10	38	.01	
28.	29.106	55.9	42.4	60	67.1	47.8	19.3	12	20	91		
29.	.220	63.2	45.0	53	73.1	49.9	23.2	13	30	98		
30.	.133	68.5	51.5	60	81.7	55.4	26.3	10	30	77	Inap.	
31.	.254	60.1	49.7	66	67.8	55.4	12.4	9	30	70	.35	
Sums.	29.219	54.0	43.3	69.4	64.0	45.7	18.3	219	45	52	3.94	.00
Means.								7	5			
Red. to Sea Level and Stan. Gravity.	29.896	Mean (Max. and Min.)		Total Precipitation . . . . .	54.8						3.94	
Red. to Sea Level and Stan. Gravity.	29.966	Mean (Max. and Min.)	61.7	Total Precipitation . . . . .	61.7						1.52	
Sums.	29.293	61.1	51.4	73.2	70.1	53.3	16.8	202	30	46	1.52	.00
Means.								6	45			

DAYS ON WHICH WESTERN MOUNTAINS WERE VISIBLE.

NOBSCOT (distant 20 miles). — 1, 2, 3, 4, 5, 6, 7, 9, 10, 14, 15, 16, 17, 18, 20, 21, 22, 26, 27, 28, 29, 30.  
 WACHUSETT (distant 44 miles). — 6, 7, 9, 10, 14, 15, 16, 17, 18, 21, 26.  
 MONADNOCK (distant 68 miles). — 6, 7, 9, 15, 16, 17, 18, 21, 26.

DAYS ON WHICH WESTERN MOUNTAINS WERE VISIBLE.

NOBSCOT (distant 20 miles). — 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 23, 26, 27, 28, 29, 30.  
 WACHUSETT (distant 44 miles). — 3, 5, 9, 10, 16, 18, 19, 20, 21, 22, 26, 27, 28, 29, 30.  
 MONADNOCK (distant 68 miles). — 18, 19, 20, 27, 28, 29, 30.







# SEPTEMBER.

Day of Month.	Barom. Red. to 32°. Inches.	Air Temp. °	Dew Point. °	Relative Hum. Per cent	Max. Temp. °	Min. Temp. °	Range. °	SUNSHINE.		Cloudiness. 0-10	Rainfall. Inches.	Melted Snow.
								Hrs. Min.	Per cent.			
1.	29.340	59.2	45.7	60	67.8	54.0	13.8	9 0	75	3		
2.	.738	58.1	46.3	63	74.1	49.5	24.6	9 45	90	1		
3.	.774	57.2	50.4	79	75.0	52.0	23.0	12 0	100	0		
4.	.747	57.8	55.2	90	64.5	51.0	13.5	0 0	00	10		
5.	.697	61.6	57.6	84	67.1	56.8	10.3	7 30	63	4		
6.	.702	67.9	63.6	87	76.1	61.6	14.5	4 30	37	6		
7.	.651	70.8	65.8	86	81.6	65.5	16.1	9 0	75	3		
8.	.499	71.0	63.2	82	80.9	63.6	17.3	9 20	78	2		
9.	.354	71.0	65.2	83	81.6	64.4	17.2	7 50	65	4	.01	
10.	.203	62.5	62.4	100	68.2	61.0	7.2	0 0	00	10	.46	
11.	.207	68.0	55.0	67	76.3	61.0	15.3	6 15	51	5		
12.	.129	64.1	54.0	70	76.2	57.4	18.8	8 0	67	3	.08	
13.	.230	57.2	42.9	59	66.0	52.0	14.0	11 25	96	1	.27	
14.	.374	61.9	51.0	68	69.6	50.5	19.1	9 20	78	2		
15.	.589	59.8	55.7	84	68.7	57.9	10.8	10 40	90	1		
16.	.574	60.9	59.1	98	64.3	57.8	6.5	0 0	00	10	.10	
17.	.642	61.7	42.5	49	69.0	57.9	11.1	11 30	96	0	.34	
18.	.376	61.6	58.3	87	67.9	53.3	14.6	4 5	35	7		
19.	.204	51.3	38.3	60	68.0	43.3	24.7	10 2	85	2	.04	
20.	.410	48.8	32.0	56	61.0	38.5	22.5	11 0	90	1		
21.	.500	47.2	33.8	60	57.1	37.7	19.4	10 15	87	2		
22.	.443	49.0	39.0	100	51.8	47.5	4.3	0 0	00	10	1.51	
23.	.507	56.5	47.5	75	67.3	46.0	21.3	7 30	61	4		
24.	.606	49.6	42.5	76	56.2	47.7	8.5	6 50	58	4		
25.	.249	63.8	62.0	88	74.5	49.6	24.9	2 50	24	8		
26.	.268	63.8	55.4	78	74.2	53.9	20.3	6 20	54	5	.01	
27.	.230	62.6	62.4	100	67.0	53.5	13.5	0 0	00	10	.26	
28.	.260	56.4	50.0	75	66.5	52.3	14.2	3 0	25	7	Inap.	
29.	.224	53.5	47.9	82	59.0	47.9	11.1	1 0	09	9	Inap.	
30.												
31.												
Sums.								191 0	53		3.08	00
Means.	29.440	60.2	52.7	78.0	69.1	53.7	15.4	6 22	53	4.7		

Red. to Sea Level and Stan. Gravity.	30.118	Mean (Max. and Min.)	61.4	Total Precipitation	3.08
Sums.	29.440	Mean (Max. and Min.)	49.5	42.2	4.6
Means.	176 38	54	15.5	4.87	00

# OCTOBER.

Day of Month.	Barom. Red. to 32°. Inches.	Air Temp. °	Dew Point. °	Relative Hum. Per cent	Max. Temp. °	Min. Temp. °	Range. °	SUNSHINE.		Cloudiness. 0-10	Rainfall. Inches.	Melted Snow.
								Hrs. Min.	Per cent.			
1.	29.138	47.8	37.0	72	64.9	40.5	24.4	5 25	48	5		
2.	.553	40.8	28.2	63	51.9	32.8	19.1	8 35	78	2		
3.	.659	47.2	32.4	57	58.1	38.5	19.6	11 0	100	0		
4.	.478	54.1	41.2	61	66.0	41.0	25.0	9 20	88	1		
5.	.422	50.4	43.3	77	56.1	46.0	10.1	9 10	87	1		
6.	.547	55.0	42.0	61	64.2	44.7	19.5	9 40	89	1		
7.	.529	48.7	45.2	86	54.3	45.3	9.0	4 0	39	6		
8.	.447	56.3	44.8	71	69.6	45.0	24.6	10 5	96	0		
9.	.551	59.4	46.8	62	76.0	51.4	24.6	10 5	96	0		
10.	.506	60.9	44.6	63	65.3	55.6	9.7	9 25	90	1		
11.	.253	63.9	50.5	59	73.3	53.2	20.1	8 15	79	2		
12.	.452	47.5	44.2	83	61.0	45.7	15.3	6 50	65	4	.04	
13.	.072	57.5	44.5	68	69.2	46.4	22.8	3 0	00	10	Inap.	
14.	.494	34.2	18.5	73	60.2	43.9	16.3	9 0	86	2	.04	
15.	.666	46.0	42.2	84	48.9	42.9	6.0	9 30	90	1		
16.	.656	37.7	24.0	56	46.3	24.6	21.7	7 40	73	3		
17.	.859	43.7	36.3	75	50.2	39.3	10.9	4 15	40	6		
18.	.647	52.0	47.1	84	61.1	40.7	20.4	7 0	67	3		
19.	.326	52.4	37.8	63	62.0	43.0	19.0	3 5	30	3		
20.	.331	50.3	32.6	56	60.8	37.5	23.3	10 20	100	0		
21.	.514	44.5	27.9	59	54.5	40.0	14.5	10 18	100	0		
22.	.728	38.3	30.7	76	45.0	33.7	11.3	9 30	91	1		
23.	.540	52.0	46.8	84	56.4	37.5	18.7	0 15	02	10		
24.	.707	45.7	44.6	93	50.2	43.1	7.1	0 40	06	9	.01	
25.	.254	44.2	44.2	100	45.5	42.6	2.9	0 0	00	10	1.79	
26.	.286	47.6	47.6	100	47.8	39.1	8.7	0 0	00	10	.15	
27.	.221	45.7	45.5	100	48.1	40.8	7.3	0 0	00	10	.61	
28.	.150	48.2	48.2	100	51.1	46.0	5.1	0 25	04	10	1.04	
29.												
30.												
31.												
Sums.								176 38	54	4.6	4.87	00
Means.	29.459	49.5	40.6	74.4	57.7	42.2	15.5	5 42	54	4.6		

Red. to Sea Level and Stan. Gravity.	30.152	Mean (Max. and Min.)	50.0	Total Precipitation	4.87
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DAYS ON WHICH WESTERN MOUNTAINS WERE VISIBLE.

NOBSCOT (distant 20 miles). — 2, 3, 7, 8, 9, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 24, 25, 26, 27, 29, 30.  
 WACHUSETT (distant 44 miles). — 2, 7, 9, 11, 12, 13, 14, 18, 19, 20, 21, 22, 27, 29.  
 MONADNOCK (distant 68 miles). — 11, 13, 18, 20, 22, 27, 29.

DAYS ON WHICH WESTERN MOUNTAINS WERE VISIBLE.

NOBSCOT (distant 20 miles). — 1, 2, 3, 4, 6, 13, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26.  
 WACHUSETT (distant 44 miles). — 1, 2, 3, 14, 15, 16, 17, 21, 22, 23, 24.  
 MONADNOCK (distant 68 miles). — 1, 2, 3, 16, 17, 22, 23, 24.



# NOVEMBER.

# DECEMBER.

Day of Month.	Barom. Red. to 32°. Inches.	Air Temp. °	Dew Point °	Relative Hum. Per cent	Max. Temp. °	Min. Temp. °	Range. °	SUNSHINE.		Cloud. Iness. 0-10	Rainfall. Inches.	Melted Snow. Inches.
								Hrs. Min.	Per cent.			
1.	29.266	50.3	47.1	85	57.6	45.1	12.5	3 30	35	6		
2.	.415	52.1	42.0	70	62.0	45.3	16.7	7 30	80	2	.11	.09
3.	.323	53.7	50.5	89	63.0	43.3	19.7	3 40	40	6		
4.	.308	49.0	34.2	62	56.5	39.2	17.3	6 10	62	4		
5.	.532	47.3	35.4	62	55.0	36.4	18.6	9 35	100	0		
6.	.210	49.4	49.3	100	57.0	45.5	11.5	0 0	00	10	.28	
7.	28.862	36.5	23.7	61	55.1	27.2	27.9	8 5	87	1	.44	
8.	29.215	28.3	16.7	62	37.1	22.5	14.6	8 0	86	2		
9.	.422	37.1	23.5	60	45.9	25.4	20.5	5 45	61	4	.10	
10.	.388	39.9	35.1	83	48.2	34.3	13.9	0 10	02	10		
11.	.379	44.2	36.3	75	52.0	37.0	15.0	1 55	20	8		
12.	.352	38.1	34.2	84	45.1	35.8	9.3	0 35	06	9	.18	
13.	28.736	34.1	34.0	100	44.6	27.7	17.0	0 0	00	10	.88	.18
14.	29.036	30.2	22.7	70	34.6	26.4	8.2	8 20	89	1		
15.	.357	36.7	22.3	60	42.0	30.0	12.0	8 20	89	1		
16.	.680	32.1	13.2	45	38.5	27.1	11.4	7 35	81	2	.18	
17.	.477	43.2	38.4	85	51.0	29.3	21.7	0 0	00	10	.20	
18.	28.925	52.4	45.5	80	62.6	37.1	25.0	0 10	02	10		
19.	29.043	34.1	17.8	50	40.0	30.6	9.4	5 0	54	5		
20.	.114	38.2	21.0	50	45.2	30.2	15.0	6 30	70	3		
21.	.289	37.6	25.0	63	45.9	33.5	12.4	8 15	90	1		
22.	.489	36.6	22.6	58	43.0	28.7	14.3	9 15	99	0		
23.	.001	47.3	46.5	97	56.2	34.1	22.1	0 0	00	10	.38	
24.	.025	42.4	32.1	67	60.0	32.0	28.0	8 45	94	1		
25.	.087	33.6	28.7	83	48.2	30.0	18.2	0 0	00	10	.32	
26.	.402	30.9	21.7	65	36.5	26.6	9.9	7 30	80	2	.02	
27.	.549	29.1	18.7	63	37.0	23.4	13.6	7 30	80	2		
28.	.428	32.1	22.5	63	39.0	22.1	16.9	4 45	41	6		
29.	.224	43.2	36.6	78	51.7	33.0	18.7	3 15	35	7	Inap.	
30.	.054	43.4	42.9	98	47.5	41.7	5.8	0 0	00	10		
Sums.	29.253	40.1	31.3	72.3	48.6	32.7	15.9	140 5	49	5.1	2.98	.18
Means.								4 40	49			

Red. to Sea Level and Stan. Gravity.	30.082	Mean (Max. and Min.)	25.5	Total Precipitation	5.54
Sums.	29.351	25.1	17.5	73.3	33.0
Means.					

## DAYS ON WHICH WESTERN MOUNTAINS WERE VISIBLE.

NOBSCOT (distant 20 miles). — 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 29.

WACHUSETT (distant 44 miles). — 1, 2, 4, 5, 7, 8, 9, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 24, 25, 26, 27, 28.

MONADNOCK (distant 68 miles). — 1, 2, 4, 5, 7, 8, 9, 13, 14, 15, 16, 18, 21, 22.

## DAYS ON WHICH WESTERN MOUNTAINS WERE VISIBLE.

NOBSCOT (distant 20 miles). — 1, 2, 3, 4, 6, 8, 9, 14, 15, 16, 17, 19, 20, 25, 26, 27, 28, 29.

WACHUSETT (distant 44 miles). — 3, 4, 6, 8, 14, 16, 25, 26, 27, 29.

MONADNOCK (distant 68 miles). — 3, 4, 6, 8, 14, 25, 27, 29.



# ANNUAL SUMMARY.

## MONTHLY MEANS AND TOTALS.

MONTH.	Barom.	Barom.	Air	Dew	Relative	Max.	Min.	Range	BRIGHT SUNSHINE.		Cloudiness.	PRECIPITATION.			No. of Days with .01 in. or more Precipitation.
	Red. to 32° Inches.	Red. to Sea Level and Stan. Grav. Inches.	Temp. °	Point. °	Hum. Per cent	Temp. °	Temp. °	of Temp. °	Duration. Hours.	Per cent. of Possible.		0-10	Rainfall. Inches.	Melted Snow. Inches.	
January	29.286	30.018	23.1	18.9	76.3	30.5	15.0	15.0	118	42	5.8	3.83	1.34	5.17	14
February	.257	29.990	23.2	17.6	72.8	32.7	15.0	17.7	127	45	5.5	7.67	.62	8.29	9
March	.162	29.879	30.6	23.0	71.5	38.3	23.1	15.2	144	41	5.9	2.53	.52	3.05	15
April	.426	30.126	45.8	35.5	70.0	56.0	37.7	18.3	177	46	5.4	2.02	.14	2.16	9
May	.219	29.896	54.0	43.3	69.4	64.0	45.7	18.3	219	45	4.8	3.94	.00	3.94	12
June	.293	29.966	61.1	51.4	73.2	70.1	53.3	16.8	202	30	5.4	1.52	.00	1.52	11
July	.269	29.930	68.7	58.9	73.1	79.0	60.5	18.5	236	55	4.6	2.26	.00	2.26	7
August	.290	29.956	65.4	56.7	75.0	75.6	57.1	18.5	253	61	3.9	3.95	.00	3.95	12
September	.440	30.118	60.2	52.7	78.0	69.1	53.7	15.4	191	00	4.7	3.08	.00	3.08	10
October	.459	30.152	49.5	40.6	74.4	57.7	42.2	15.5	176	38	4.6	4.87	.00	4.87	9
November	.253	29.957	40.1	31.3	72.3	48.6	32.7	15.9	140	05	5.1	2.98	.18	3.16	10
December	.351	30.082	25.1	17.5	73.3	33.0	17.9	15.1	110	55	5.9	3.03	2.51	5.54	14
Yearly sums									2,098	13		41.68	5.31	46.99	132
Yearly means	29.308	30.005	45.6	37.3	73.3	54.6	37.9	16.7	174	51	5.1			3.92	11

## MONTHLY EXTREMES.

MONTH.	PRESSURE.			AIR TEMPERATURE.				DAILY RANGE.			WIND.			Greatest Daily Precipitation. Inches.
	Highest. Inches.	Lowest. Incheq.	Range. Inches.	Highest. °	Lowest. °	Range. °	Highest. °	Lowest. °	Greatest. °	Least. °	Highest Hourly Velocity and Direction.	Max. Pressure per Square Ft. Pounds.	Greatest Daily Precipitation. Inches.	
January	30.869	28.687	2.182	50.7	-15.0	65.7	45.2	-6.5	30.0	3.7	65 N. E.	32.5	1.36	
February	.715	28.941	1.774	55.4	-9.8	65.2	47.3	-5.2	38.0	1.7	73 N. W.	43.7	4.85	
March	.585	29.267	1.318	59.0	-3.0	62.0	55.7	1.3	25.1	7.0	56 N. W.	20.5	1.18	
April	.620	29.545	1.075	78.9	24.4	54.5	63.5	28.0	35.4	7.2	58 N. E.	26.0	1.72	
May	.330	29.486	0.844	81.7	34.5	47.2	68.6	40.7	31.9	4.7	40 N. W.	10.0	1.48	
June	.268	29.438	0.830	81.2	47.5	33.7	67.8	52.1	29.5	3.5	33 N. W.	7.0	0.61	
July	.227	29.668	0.559	91.0	50.0	41.0	80.2	59.6	28.8	8.0	37 S.	11.0	1.11	
August	.375	29.466	0.909	88.1	50.5	37.6	75.8	55.3	33.5	10.1	39 W.	12.0	0.98	
September	.483	29.635	0.848	81.6	37.7	43.9	70.8	47.2	24.9	4.3	38 N. W.	13.0	1.51	
October	.618	29.678	0.940	76.6	24.6	52.0	65.4	34.2	25.0	2.9	43 N. E.	14.0	1.79	
November	.454	29.180	1.274	63.0	22.1	40.9	53.7	28.3	28.0	8.2	69 S.	31.0	1.06	
December	.656	29.320	1.336	51.0	2.7	48.3	46.1	7.1	38.2	4.8	48 N.	17.0	1.15	
Year	30.869	28.687	2.182	91.0	-15.0	106.0	80.2	-6.5	38.2	1.7	73 N. W.	43.7	4.85	



NUMBER OF HOURS OF PREVALENCE OF EACH WIND

REFERRED TO

DIFFERENT POINTS OF AZIMUTH,

FOR

EACH DAY, MONTH, AND THE YEAR 1886,

AS DERIVED FROM THE RECORDS OF THE DRAPER ANEMOSCOPE.



JANUARY.

FEBRUARY.

Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.	Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.
1.	0	1	1	2	20	0	0	0		1.	0	0	3	15	6	0	0	0	
2.	0	0	0	0	5	8	8	3		2.	0	0	6	6	12	0	0	0	
3.	15	0	0	0	0	0	0	9		3.	0	0	0	7	10	7	0	0	
4.	24	0	0	0	0	0	0	0		4.	0	0	0	0	5	19	0	0	
5.	11	13	0	0	0	0	0	0		5.	0	0	0	0	24	0	0	0	
6.	0	0	3	21	0	0	0	0		6.	0	4	5	9	6	0	0	0	
7.	0	0	0	23	1	0	0	0		7.	0	2	16	5	0	0	0	0	1
8.	0	0	0	10	8	2	4	0		8.	0	3	21	0	0	0	0	0	
9.	2	1	5	3	0	3	7	3		9.	5	3	9	7	0	0	0	0	
10.	0	0	3	21	0	0	0	0		10.	0	0	0	0	0	3	21	0	
11.	0	0	0	23	1	0	0	0		11.	0	0	0	0	0	0	24	0	
12.	0	0	0	10	14	0	0	0		12.	9	6	0	0	0	0	5	4	
13.	0	0	0	11	5	5	2	1		13.	1	18	5	0	0	0	0	0	
14.	0	0	0	0	1	23	0	0		14.	0	7	16	1	0	0	0	0	
15.	0	0	0	0	15	1	5	3		15.	3	9	10	2	0	0	0	0	
16.	0	0	0	0	0	11	13	0		16.	0	0	1	21	2	0	0	0	
17.	0	0	0	11	8	5	0	0		17.	0	5	7	6	6	0	0	0	
18.	0	0	0	14	10	0	0	0		18.	2	1	13	8	0	0	0	0	
19.	4	0	0	2	2	0	4	12		19.	5	18	0	0	0	0	0	1	
20.	0	0	0	13	6	1	2	2		20.	0	0	4	13	7	0	0	0	
21.	15	0	0	0	0	1	3	5		21.	0	0	7	7	10	0	0	0	
22.	0	0	0	0	2	18	4	0		22.	4	4	1	1	2	7	3	2	
23.	0	0	4	6	14	0	0	0		23.	0	3	9	4	8	0	0	0	
24.	0	0	0	0	2	22	0	0		24.	0	0	0	0	18	4	2	0	
25.	0	0	0	0	0	14	9	1		25.	20	2	0	0	0	0	0	2	
26.	0	0	0	0	10	14	0	0		26.	0	4	0	8	12	0	0	0	
27.	0	0	0	0	0	0	21	3		27.	0	0	0	0	24	0	0	0	
28.	0	0	0	0	0	3	21	0		28.	0	0	0	0	24	0	0	0	
29.	0	0	0	0	0	15	9	0											
30.	Vane	clogged by ice.																	
31.	0	8	2	12	2	0	0	0											
Sums.	71	23	18	182	126	146	112	42	0	Sums.	49	89	133	120	176	40	55	9	1

MARCH.

APRIL.

Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.	Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.
1.	0	0	0	3	21	0	0	0		1.	0	17	7	0	0	0	0	0	
2.	0	0	0	0	24	0	0	0		2.	0	5	7	4	8	0	0	0	
3.	0	0	0	0	24	0	0	0		3.	1	0	0	4	8	9	0	2	
4.	0	0	0	0	24	0	0	0		4.	2	0	0	0	1	8	8	5	
5.	0	0	0	0	24	0	0	0		5.	9	0	0	0	0	3	5	6	1
6.	0	0	0	0	24	0	0	0		6.	0	0	0	0	0	2	19	3	
7.	0	0	0	0	23	0	1	0		7.	2	5	0	0	1	1	14	1	
8.	3	7	6	0	0	0	5	3		8.	0	0	0	0	11	13	0	0	
9.	0	5	1	1	1	13	3	0		9.	0	0	0	6	18	0	0	0	
10.	0	0	0	1	11	12	0	0		10.	0	0	0	18	1	5	0	0	
11.	0	0	4	12	8	0	0	0		11.	6	0	0	0	0	8	7	3	
12.	0	5	19	0	0	0	0	0		12.	4	20	0	0	0	0	0	0	
13.	0	4	6	5	9	0	0	0		13.	0	3	20	1	0	0	0	0	
14.	0	0	0	11	13	0	0	0		14.	5	0	1	1	2	1	11	3	
15.	12	0	0	3	1	0	3	5		15.	3	3	6	7	0	0	0	5	
16.	7	1	0	3	9	4	0	0		16.	4	0	0	0	0	0	15	5	
17.	0	3	1	0	5	6	3	7		17.	5	12	2	2	0	1	0	2	
18.	0	0	3	5	10	6	0	0		18.	1	3	6	8	2	0	2	2	
19.	6	0	0	0	0	1	14	3		19.	0	0	0	3	5	4	6	6	
20.	11	0	0	0	0	0	4	9		20.	2	2	0	0	0	0	14	6	
21.	0	0	0	0	0	12	4	8		21.	0	5	14	5	0	0	0	0	
22.	0	0	6	13	2	2	1	0		22.	2	3	0	2	2	3	8	4	
23.	0	0	0	18	6	0	0	0		23.	0	9	15	0	0	0	0	0	
24.	0	0	0	0	24	0	0	0		24.	5	1	4	6	2	4	1	1	
25.	2	11	3	3	4	0	0	1		25.	3	6	3	0	0	0	5	7	
26.	0	0	0	21	3	0	0	0		26.	0	0	2	3	8	8	1	2	
27.	4	15	4	1	0	0	0	0		27.	2	1	3	1	0	0	8	9	
28.	2	0	0	0	0	0	16	6		28.	0	0	3	7	3	1	9	4	
29.	10	1	0	0	0	0	0	13		29.	0	0	0	0	0	0	7	17	
30.	8	2	0	0	0	6	4	4		30.	0	0	0	0	0	1	16	7	
31.	0	24	0	0	0	0	0	0											
Sums.	65	78	53	100	270	62	58	58	0	Sums.	56	95	93	78	72	72	153	100	1



MAY.

JUNE.

Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.	Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.
1.	5	0	0	0	0	4	7	8		1.	3	4	0	0	2	1	9	5	
2.	0	0	0	0	0	2	21	1		2.	0	15	9	0	0	0	0	0	
3.	2	11	0	0	0	7	2	2		3.	0	8	5	8	3	0	0	0	
4.	0	7	16	1	0	0	0	0		4.	3	9	1	0	10	0	1	0	
5.	0	11	10	2	1	0	0	0		5.	0	11	13	0	0	0	0	0	
6.	2	3	3	9	6	1	0	0		6.	0	9	14	1	0	0	0	0	
7.	0	12	5	5	2	0	0	0		7.	0	10	14	0	0	0	0	0	
8.	3	0	0	0	0	9	10	2		8.	0	0	5	6	13	0	0	0	
9.	0	0	0	0	8	16	0	0		9.	0	3	7	5	9	0	0	0	
10.	5	9	3	0	2	3	2	0		10.	1	5	4	5	7	2	0	0	
11.	8	0	0	0	0	3	6	7		11.	3	2	0	0	0	5	10	4	
12.	2	0	0	0	0	1	12	9		12.	3	0	2	0	2	6	8	3	
13.	1	0	0	0	0	2	11	10		13.	11	0	0	1	2	0	1	9	
14.	3	0	0	0	0	0	12	9		14.	13	0	0	0	0	0	0	11	
15.	13	11	0	0	0	0	0	0		15.	17	0	0	0	0	0	0	7	
16.	0	9	1	1	9	4	0	0		16.	5	9	7	1	0	2	0	0	
17.	0	0	0	1	18	5	0	0		17.	0	7	17	0	0	0	0	0	
18.	0	12	11	0	0	1	0	0		18.	0	0	0	9	11	4	0	0	
19.	0	1	23	0	0	0	0	0		19.	3	3	0	0	9	2	5	2	
20.	0	2	19	2	1	0	0	0		20.	4	4	3	3	3	4	1	2	
21.	0	0	1	1	22	0	0	0		21.	0	3	13	6	2	0	0	0	
22.	0	4	18	2	0	0	0	0		22.	0	0	9	14	1	0	0	0	
23.	0	0	4	4	12	4	0	0		23.	7	0	2	2	2	0	4	7	
24.	2	5	3	1	2	6	2	3		24.	0	0	0	0	0	0	1	23	
25.	0	4	6	4	10	0	0	0		25.	1	0	3	2	2	3	9	4	
26.	0	0	3	21	0	0	0	0		26.	0	1	8	15	0	0	0	0	
27.	0	9	13	2	0	0	0	0		27.	0	0	0	9	10	2	2	1	
28.	0	0	2	5	6	11	0	0		28.	0	0	5	0	1	9	8	1	
29.	0	3	4	5	7	5	0	0		29.	0	0	6	16	1	1	0	0	
30.	0	3	20	1	0	0	0	0		30.	0	0	0	0	15	4	5	0	
31.	8	0	4	3	0	3	3	3											
Sums.	54	116	169	70	106	87	88	54	0	Sums.	74	103	147	103	105	45	64	79	0

JULY.

AUGUST.

Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.	Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.
1.	0	3	5	6	4	6	0	0		1.	2	12	4	3	3	0	0	0	
2.	0	3	19	2	0	0	0	0		2.	0	5	1	7	11	0	0	0	
3.	4	2	3	2	3	3	5	2		3.	0	0	0	22	2	0	0	0	
4.	1	9	6	0	0	3	5	0		4.	0	0	0	14	10	0	0	0	
5.	2	1	10	5	0	0	2	4		5.	0	1	3	9	11	0	0	0	
6.	0	0	7	17	0	0	0	0		6.	0	10	10	3	1	0	0	0	
7.	0	0	6	17	1	0	0	0		7.	1	1	0	3	1	2	13	3	
8.	5	0	0	0	6	6	2	5		8.	0	1	5	2	2	11	3	0	
9.	2	0	0	0	0	4	8	10		9.	0	0	19	5	0	0	0	0	
10.	3	2	0	0	0	3	6	10		10.	0	0	24	0	0	0	0	0	
11.	0	3	8	9	2	2	0	0		11.	0	1	23	0	0	0	0	0	
12.	0	5	0	1	12	6	0	0		12.	0	0	3	11	8	2	0	0	
13.	0	8	6	10	0	0	0	0		13.	3	11	0	0	0	5	3	2	
14.	12	2	0	0	0	0	0	10		14.	0	8	6	4	4	2	0	0	
15.	3	14	0	0	0	0	1	6		15.	0	0	0	0	19	4	0	0	
16.	0	22	2	0	0	0	0	0		16.	2	16	0	3	1	2	0	0	
17.	0	15	9	0	0	0	0	0		17.	4	2	3	3	1	3	4	4	
18.	1	11	11	1	0	0	0	0		18.	4	8	0	0	0	2	6	4	
19.	0	2	4	16	2	0	0	0		19.	1	5	11	1	1	2	0	3	
20.	0	0	0	3	17	4	0	0		20.	13	7	1	2	1	0	0	0	
21.	2	9	2	0	5	4	1	1		21.	12	4	3	5	0	0	0	0	
22.	0	0	4	16	0	3	1	0		22.	3	0	0	0	1	4	15	1	
23.	1	0	1	1	2	8	10	1		23.	0	7	5	3	9	0	0	0	
24.	0	0	0	19	3	2	0	0		24.	1	7	11	5	0	0	0	0	
25.	0	5	13	6	0	0	0	0		25.	0	1	0	0	0	7	16	0	
26.	0	11	13	0	0	0	0	0		26.	0	0	0	12	5	5	2	0	
27.	0	9	13	2	0	0	0	0		27.	0	0	6	9	8	1	0	0	
28.	5	3	2	3	4	3	2	2		28.	1	4	6	7	4	1	0	1	
29.	0	1	20	3	0	0	0	0		29.	1	0	0	4	1	1	12	5	
30.	0	2	19	3	0	0	0	0		30.	3	5	0	0	1	3	3	9	
31.	0	6	8	2	4	4	0	0		31.	0	15	0	2	1	6	0	0	
Sums.	40	148	191	144	66	61	43	51	0	Sums.	51	131	144	140	106	63	77	32	0



SEPTEMBER.

OCTOBER.

Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.	Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.
1.	0	0	0	0	15	7	2	0		1.	0	0	3	15	6	0	0	0	
2.	2	2	2	2	2	4	8	2		2.	0	0	0	23	1	0	0	0	
3.	0	0	0	0	3	2	3	3		3.	0	1	8	9	0	4	2	0	
4.	0	0	0	0	0	0	13	11		4.	0	0	23	1	0	0	0	0	
5.	6	0	0	0	0	0	11	7		5.	4	0	0	2	2	1	11	4	
6.	19	4	0	0	0	0	0	1		6.	0	1	0	0	1	9	6	7	
7.	0	5	16	3	0	0	0	0		7.	0	0	0	0	0	3	21	0	
8.	0	0	22	2	0	0	0	0		8.	2	6	7	0	0	3	6	0	
9.	0	9	15	0	0	0	0	0		9.	0	0	0	12	12	0	0	0	
10.	4	0	0	2	0	6	9	3		10.	4	2	1	0	1	5	9	2	
11.	0	0	7	5	12	0	0	0		11.	0	4	20	0	0	0	0	0	
12.	3	14	2	0	5	0	0	0		12.	0	0	6	15	3	0	0	0	
13.	0	0	0	13	11	0	0	0		13.	0	0	0	0	3	0	14	7	
14.	0	19	5	0	0	0	0	0		14.	10	8	0	0	0	0	0	6	
15.	0	2	3	2	2	0	7	8		15.	0	8	2	14	0	0	0	0	
16.	6	0	0	0	0	0	3	15		16.	0	0	0	0	24	0	0	0	
17.	0	10	13	1	0	0	0	0		17.	0	5	9	1	9	0	0	0	
18.	0	0	2	2	13	4	2	1		18.	0	3	5	0	2	3	2	9	
19.	7	10	4	0	0	0	1	2		19.	4	2	0	0	0	0	7	11	
20.	0	0	2	11	11	0	0	0		20.	0	5	19	0	0	0	0	0	
21.	0	0	0	22	1	1	0	0		21.	0	0	12	3	9	0	0	0	
22.	0	3	3	4	8	6	0	0		22.	0	0	13	7	4	0	0	0	
23.	5	4	3	0	0	3	5	4		23.	0	0	0	4	5	11	4	0	
24.	0	0	0	11	8	5	0	0		24.	3	1	0	0	0	2	8	10	
25.	5	2	0	0	2	1	9	5		25.	1	11	12	0	0	0	0	0	
26.	0	7	17	0	0	0	0	0		26.	0	0	1	7	1	2	11	2	
27.	0	0	2	11	4	0	1	6		27.	0	0	0	0	0	0	13	11	
28.	10	5	1	0	2	0	0	6		28.	0	0	0	0	0	10	14	0	
29.	0	3	3	1	15	2	0	0		29.	0	0	0	0	0	0	24	0	
30.	0	0	0	0	2	7	6	9		30.	0	0	0	0	0	9	15	0	
										31.	0	0	0	0	0	7	10	7	
Sums.	67	99	122	95	115	49	90	83	0	Sums.	28	57	141	113	83	69	177	76	0

NOVEMBER.

DECEMBER.

Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.	Date.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.
1.	2	0	0	1	7	14	0	0		1.	2	1	6	15	0	0	0	0	
2.	4	3	0	0	0	11	4	2		2.	0	3	5	16	0	0	0	0	
3.	0	24	0	0	0	0	0	0		3.	0	0	0	20	4	0	0	0	
4.	0	8	1	3	12	0	0	0		4.	0	0	0	2	22	0	0	0	
5.	2	13	3	3	3	0	0	0		5.	0	0	0	0	0	24	0	0	
6.	6	13	5	0	0	0	0	0		6.	0	0	0	0	0	16	8	0	
7.	2	5	2	15	0	0	0	0		7.	0	0	0	0	0	17	7	0	
8.	0	0	0	24	0	0	0	0		8.	0	0	0	16	7	1	0	0	
9.	0	0	9	15	0	0	0	0		9.	0	0	0	12	9	1	2	0	
10.	1	1	15	4	1	0	0	2		10.	1	3	15	0	0	0	4	1	
11.	0	0	2	19	3	0	0	0		11.	0	0	6	12	5	1	0	0	
12.	0	0	0	2	9	3	2	8		12.	0	0	0	0	1	3	7	13	
13.	0	0	0	4	3	6	6	5		13.	0	0	1	0	1	7	14	1	
14.	0	0	0	23	1	0	0	0		14.	0	0	4	20	0	0	0	0	
15.	0	0	0	20	4	0	0	0		15.	0	6	10	1	3	3	1	0	
16.	0	0	0	4	19	1	0	0		16.	0	0	0	2	10	12	0	0	
17.	5	16	3	0	0	0	0	0		17.	0	0	14	10	0	0	0	0	
18.	0	14	3	7	0	0	0	0		18.	3	4	16	1	0	0	0	0	
19.	0	0	5	19	0	0	0	0		19.	0	0	12	9	3	0	0	0	
20.	0	0	5	18	1	0	0	0		20.	0	0	0	0	22	2	0	0	
21.	0	0	0	21	3	0	0	0		21.	0	0	14	4	6	0	0	0	
22.	0	0	0	3	15	1	3	2		22.	0	3	8	10	3	0	0	0	
23.	13	3	7	0	0	0	0	1		23.	8	2	0	0	1	8	4	1	
24.	0	0	6	9	9	0	0	0		24.	8	16	0	0	0	0	0	0	
25.	3	0	1	6	7	0	1	6		25.	0	2	1	1	20	0	0	0	
26.	0	0	1	23	0	0	0	0		26.	0	0	0	0	0	18	6	0	
27.	0	0	3	19	2	0	0	0		27.	0	3	4	8	5	4	0	0	
28.	0	2	16	6	0	0	0	0		28.	0	0	0	20	4	0	0	0	
29.	4	17	3	0	0	0	0	0		29.	0	0	0	9	8	7	0	0	
30.	1	1	5	2	0	2	7	6		30.	0	0	0	0	0	24	0	0	
										31.	0	0	0	0	0	12	12	0	
Sums.	43	120	95	270	99	38	23	32	0	Sums.	22	43	116	188	134	160	65	16	0



## ANNUAL SUMMARY.

Month.	S. E.	S.	S. W.	W.	N. W.	N.	N. E.	E.	Calm.
January (30 days) .....	71	23	18	<b>182</b>	126	146	112	42	0
February .....	49	89	133	120	<b>176</b>	40	55	9	1
March .....	65	78	53	100	<b>270</b>	62	58	58	0
April .....	56	95	93	78	72	72	<b>153</b>	100	1
May .....	54	116	<b>169</b>	70	106	87	88	54	0
June .....	74	103	<b>147</b>	103	105	45	64	79	0
July .....	40	148	<b>191</b>	144	66	61	43	51	0
August .....	51	131	<b>144</b>	140	106	63	77	32	0
September .....	67	99	<b>122</b>	95	115	49	90	83	0
October .....	28	57	141	113	83	69	<b>177</b>	76	0
November .....	43	120	95	<b>270</b>	99	38	23	32	0
December .....	22	43	116	<b>188</b>	134	160	65	16	0
Year .....	620	1,102	1,422	<b>1,603</b>	1,458	892	1,005	632	2







HOURLY MEASURES IN MILES

OF THE

HORIZONTAL MOVEMENT OF THE WIND

FOR

EACH DAY, MONTH, AND THE YEAR 1886,

AS DERIVED FROM THE RECORDS OF THE DRAPER ANEMOMETER.



# JANUARY.

P. M.

A. M.

P. M.

Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
1.	10	16	33	42	46	44	37	38	38	38	38	20	737	1.
2.	16	19	17	21	23	25	20	17	20	17	13	15	391	2.
3.	16	15	13	17	17	12	12	11	11	12	17	15	317	3.
4.	13	14	19	15	18	19	18	19	18	20	26	42	597	4.
5.	39	46	43	45	49	43	47	51	51	35	35	22	813	5.
6.	18	18	17	16	18	15	15	16	16	17	17	24	488	6.
7.	23	28	25	29	27	26	29	23	23	22	28	19	628	7.
8.	27	28	29	16	18	18	18	15	15	14	15	20	422	8.
9.	30	42	46	55	60	62	53	58	58	57	41	27	943	9.
10.	26	26	28	30	27	35	36	34	34	36	41	22	775	10.
Sums.	221	243	260	268	294	308	286	284	284	268	271	288	6,101	Sums.

Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
11.	16	19	23	18	17	20	18	18	15	11	14	22	452	11.
12.	19	24	30	26	23	21	20	18	21	18	18	20	503	12.
13.	19	17	14	14	14	12	14	8	12	12	8	11	217	13.
14.	16	16	16	14	24	27	23	22	22	21	20	15	443	14.
15.	17	20	16	14	9	3	1	3	3	8	2	10	188	15.
16.	12	13	16	21	23	22	21	23	23	25	22	14	449	16.
17.	15	14	12	10	10	14	12	10	10	5	10	29	500	17.
18.	23	32	24	22	29	24	23	22	20	22	29	10	496	18.
19.	6	8	11	7	7	5	7	9	9	18	19	22	366	19.
20.	27	27	26	32	26	27	29	22	22	23	27	5	452	20.
Sums.	170	199	194	185	182	177	175	163	159	163	169	160	4,066	Sums.

Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
21.	7	11	12	19	20	21	20	25	23	24	23	27	423	21.
22.	31	27	19	21	19	19	22	21	25	25	24	4	491	22.
23.	10	11	21	28	24	21	25	32	34	32	38	28	648	23.
24.	26	30	27	21	22	23	21	19	20	22	20	26	591	24.
25.	26	25	25	24	25	21	15	14	11	12	11	20	388	25.
26.	13	16	15	18	15	15	15	13	9	7	4	20	313	26.
27.	21	22	22	17	18	15	19	19	22	24	21	24	539	27.
28.														28.
29.														29.
30.														30.
31.														31.
Sums.	134	142	141	148	143	135	135	143	140	146	141	149	3,393	Sums.

Monthly Sums.	19.4	21.6	584	595	601	619	620	611	592	583	577	581	596	561	20.6	557	552	568	533	509	524	537	550	541	528	538	13,560	Monthly Sums.
Means.	19.4	21.6	22.0	21.9	21.4	21.5	22.1	20.8	20.7	19.7	18.9	19.4	19.9	20.4	20.0	19.6	20.9	20.4	20.4	19.4	20.4	20.4	20.4	20.0	19.6	19.7	20.9	Means.



# FEBRUARY.

P. M.

A. M.

P. M.

Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
1.	14	14	11	10	8	7	6	7	7	10	12	16	18	15	13	16	16	16	19	20	23	22	19	22	341	1.
2.	23	21	26	30	35	30	30	31	30	26	32	31	26	21	20	15	18	16	21	19	20	21	24	25	590	2.
3.	20	25	24	19	20	22	22	21	25	20	18	16	15	14	12	14	14	15	18	20	26	22	25	25	469	3.
4.	25	36	36	38	39	38	37	40	36	40	38	37	36	32	36	32	31	29	28	30	26	30	38	31	824	4.
5.	35	35	33	33	32	29	34	28	32	32	34	30	33	31	33	36	35	28	29	33	27	30	30	30	764	5.
6.	22	22	20	23	20	25	16	22	24	19	10	12	10	6	6	10	11	12	12	16	14	14	13	13	369	6.
7.	17	11	13	13	9	13	13	14	12	9	6	5	5	5	4	6	3	0	0	4	9	11	12	11	211	7.
8.	15	18	16	17	17	18	22	21	23	27	30	28	30	26	23	26	23	23	24	24	25	20	20	26	544	8.
9.	26	26	31	28	29	25	22	16	16	12	13	8	6	5	6	2	5	5	5	5	6	2	3	3	305	9.
10.	17	20	18	18	21	20	20	22	21	20	21	23	23	31	28	32	24	25	24	25	24	24	25	26	552	10.
Sums.	214	228	228	230	230	228	222	222	226	213	214	206	202	188	181	189	179	171	178	196	200	201	206	212	4,969	Sums.

11.	22	23	23	26	28	29	31	29	33	30	32	30	33	36	37	38	36	34	36	37	33	42	41	40	782	11.
12.	32	37	36	32	33	34	23	18	16	11	9	8	23	28	16	10	8	14	17	19	20	33	27	21	525	12.
13.	20	27	40	39	40	40	29	39	36	34	32	35	33	23	19	19	23	31	27	22	21	22	27	30	725	13.
14.	35	33	29	26	29	26	26	27	25	22	24	29	26	23	22	22	23	23	27	24	26	27	29	25	620	14.
15.	23	24	25	26	20	17	18	11	7	7	9	12	18	17	26	33	30	32	38	47	57	54	40	37	628	15.
16.	35	39	38	30	29	32	29	29	22	23	28	32	29	31	26	27	30	36	32	39	33	25	25	25	724	16.
17.	24	27	23	19	22	18	16	10	8	5	13	3	8	13	17	17	22	21	22	17	19	20	24	24	412	17.
18.	23	26	24	23	22	18	18	21	21	20	22	21	25	31	31	28	14	14	15	10	15	10	8	1	470	18.
19.	4	13	15	14	15	20	21	28	22	20	21	23	34	37	33	33	31	22	24	24	17	13	9	9	494	19.
20.	16	18	16	19	21	24	21	24	22	21	24	24	25	32	34	37	39	42	58	60	56	61	58	49	801	20.
Sums.	234	267	249	244	250	258	243	231	212	193	214	217	254	271	255	264	274	260	289	299	297	307	297	261	6,181	Sums.

21.	44	44	41	44	39	35	29	28	25	28	32	24	25	19	14	17	12	16	16	17	15	17	15	11	607	21.
22.	7	5	9	13	15	15	17	14	15	17	9	11	8	6	5	4	4	10	13	13	17	18	19	20	285	22.
23.	23	24	28	27	26	26	22	24	21	17	17	13	16	20	24	28	29	31	32	33	35	22	27	30	595	23.
24.	25	37	27	28	27	16	25	25	28	30	32	31	28	27	28	30	26	22	20	12	10	11	10	12	567	24.
25.	13	9	9	10	17	20	23	25	26	27	29	33	37	36	39	42	45	56	57	47	51	50	33	33	787	25.
26.	28	15	11	7	17	35	35	37	40	47	52	50	49	47	43	41	48	53	54	68	70	66	59	59	1,085	26.
27.	62	66	63	64	63	73	63	64	59	57	55	60	64	66	64	69	61	60	61	59	49	51	55	60	1,467	27.
28.	41	45	41	36	37	47	45	61	60	57	48	49	50	58	59	62	58	54	59	59	57	49	46	55	1,233	28.
Sums.	243	245	229	229	241	267	250	278	274	277	274	271	277	278	276	293	283	302	312	312	304	281	291	280	6,576	Sums.

Monthly Sums.	691	740	706	703	730	753	724	731	712	683	702	694	733	737	712	746	736	742	779	807	801	789	794	753	17,736	Monthly Sums.
Means.	24.7	26.4	25.3	25.1	26.1	26.9	25.9	26.1	25.4	24.4	25.1	24.8	26.2	26.3	25.4	26.6	26.3	26.5	27.8	28.8	28.6	28.4	26.9	26.9	26.4	Means.



# MARCH.

P. M.

A. M.

P. M.

Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9 10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.	
1.	49	50	51	45	44	35	41	40	38	41	41	41	44	55	45	42	38	36	36	40	46	49	49	54	48	1,055	1.
2.	37	44	56	51	51	47	43	49	46	41	50	45	44	52	47	52	46	46	46	49	45	43	43	45	45	1,123	2.
3.	45	43	40	37	37	38	35	38	37	35	34	27	31	27	33	27	30	25	25	33	33	32	29	24	24	791	3.
4.	22	28	27	29	29	31	30	34	34	32	34	26	29	28	31	32	34	26	25	38	34	27	30	31	31	735	4.
5.	31	27	21	23	23	25	23	23	30	28	35	30	32	27	26	23	26	23	23	33	30	32	27	21	27	639	5.
6.	16	18	17	17	20	20	18	14	17	26	27	23	28	33	30	33	34	29	24	18	40	40	38	34	34	645	6.
7.	26	25	21	18	18	20	22	11	10	33	11	9	32	35	27	28	19	24	24	15	15	11	5	6	6	523	7.
8.	8	7	9	8	6	10	12	11	10	10	11	9	9	9	10	12	15	19	20	14	13	16	18	10	10	284	8.
9.	20	19	18	12	9	6	7	16	21	32	32	32	33	31	29	25	19	21	18	20	18	19	14	17	17	481	9.
10.	13	24	16	15	15	12	14	15	12	13	12	9	7	8	10	14	16	17	17	16	18	16	13	17	17	327	10.
Sums.	267	275	276.	255	252	244	245	259	266	291	303	271	289	305	280	285	290	282	277	289	292	285	271	254	6,603	Sums.	

11.	16	14	14	17	23	23	20	19	20	15	13	9	13	16	18	21	25	20	20	23	24	28	28	20	18	449	11.
12.	21	22	28	29	27	26	29	23	25	24	28	30	34	38	35	30	36	24	25	26	28	26	26	20	25	665	12.
13.	24	21	20	20	15	12	9	8	9	8	7	4	3	6	13	10	10	12	15	14	17	14	13	15	25	302	13.
14.	21	26	32	36	31	36	39	36	38	33	34	23	20	21	26	30	30	23	13	13	16	11	16	20	20	613	14.
15.	13	13	14	12	10	11	13	12	11	10	11	12	13	14	13	12	15	17	17	18	16	13	15	14	14	319	15.
16.	13	13	10	11	11	6	4	2	3	12	4	5	15	17	22	35	24	25	25	37	39	34	32	28	28	436	16.
17.	23	28	29	20	17	21	21	21	24	21	21	14	16	14	14	11	12	13	13	12	8	7	7	9	9	395	17.
18.	15	15	17	16	16	13	11	17	13	14	15	11	11	16	17	18	18	19	19	14	17	23	22	21	21	390	18.
19.	21	18	17	17	16	18	19	18	14	13	16	13	11	12	11	11	14	11	14	14	14	13	14	14	14	353	19.
20.	16	11	11	12	16	14	16	14	21	14	16	17	14	18	20	23	26	29	29	30	32	37	40	33	33	509	20.
Sums.	183	181	192	190	182	180	181	170	178	164	165	138	150	172	189	198	210	201	190	205	204	207	205	197	4,431	Sums.	

21.	30	39	40	33	39	42	45	45	34	28	29	25	30	29	33	30	30	26	31	28	25	33	28	28	31	783	21.
22.	22	16	9	15	15	10	12	13	14	15	21	28	29	31	32	28	30	28	32	30	32	30	25	25	31	540	22.
23.	20	19	19	31	22	21	19	20	20	18	18	21	23	23	27	27	32	33	34	35	32	28	26	33	23	598	23.
24.	35	33	34	31	34	35	36	32	35	38	41	34	31	36	36	39	33	33	34	21	16	15	16	18	18	751	24.
25.	15	15	12	9	10	11	6	4	11	17	21	22	25	30	28	29	29	23	16	10	9	10	11	17	17	383	25.
26.	17	19	18	19	17	16	23	22	19	20	30	33	34	33	31	39	36	40	36	25	39	42	27	16	16	651	26.
27.	8	6	8	14	12	12	16	17	19	18	19	16	20	12	16	17	18	18	15	11	17	14	14	15	2	356	27.
28.	14	12	13	15	14	16	15	15	15	19	17	16	15	11	8	5	5	5	8	10	10	10	5	2	2	272	28.
29.	5	6	13	13	11	13	17	14	17	18	23	24	26	23	25	24	19	18	21	19	20	25	24	18	18	443	29.
30.	17	21	21	23	24	22	19	18	20	13	8	2	3	8	9	10	9	17	7	7	2	4	6	13	13	303	30.
31.	16	19	15	16	20	23	21	25	22	24	28	30	27	36	39	40	39	39	36	38	35	39	39	41	41	707	31.
Sums.	199	202	202	210	218	219	229	225	226	228	255	255	263	278	283	286	289	281	270	234	237	250	221	227	5,787	Sums.	

Monthly Sums.	649	658	670	655	652	643	655	654	670	683	723	664	702	755	752	769	789	764	737	728	733	742	697	678	16,821	Monthly Sums.
Means.	21.0	21.2	21.6	21.1	21.0	20.8	21.1	21.1	21.6	22.0	23.3	21.4	22.6	24.3	24.3	24.8	25.4	24.6	23.8	23.5	23.6	23.9	22.5	21.8	22.6	Means.



# APRIL.

P. M.

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Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.									
1.	53	51	53	49	52	41	35	37	29	32	32	37	36	36	35	35	33	26	22	19	879	1.	
2.	19	19	18	19	18	19	22	19	19	19	21	30	30	29	34	29	26	25	21	20	15	566	2.
3.	13	8	9	11	7	8	6	4	1	4	5	5	4	4	4	4	1	2	2	9	8	149	3.
4.	12	20	18	24	23	20	21	19	13	20	19	18	19	16	13	13	8	7	7	8	6	364	4.
5.	5	3	1	0	2	5	6	4	6	6	7	10	8	10	11	11	9	12	9	10	10	181	5.
6.	13	19	23	27	32	29	35	37	38	44	48	52	48	58	55	50	32	24	13	14	15	869	6.
7.	17	13	6	3	4	4	8	11	8	13	15	10	14	19	19	18	16	17	15	14	12	304	7.
8.	12	12	12	11	11	13	13	11	9	11	12	10	12	14	14	14	16	18	20	18	19	307	8.
9.	21	18	16	15	14	15	17	15	12	13	12	13	13	13	22	16	17	19	15	19	19	402	9.
10.	20	19	23	26	24	24	25	19	15	21	17	20	21	32	32	31	28	30	30	34	24	600	10.
Sums.	185	182	179	185	187	178	188	176	150	183	188	205	203	240	241	217	188	180	154	167	147	4,621	Sums.

11.	25	27	21	19	17	17	16	15	19	23	21	20	19	16	13	12	13	19	19	19	21	438	11.
12.	16	16	15	15	16	17	15	16	13	17	16	14	18	24	21	21	21	24	22	22	21	445	12.
13.	20	19	18	17	18	20	20	19	19	19	21	21	21	21	18	18	8	12	11	11	11	417	13.
14.	10	13	15	17	21	19	23	22	21	19	22	21	18	14	9	9	11	12	12	12	12	374	14.
15.	12	8	6	8	9	8	9	7	6	7	8	9	10	5	10	16	13	14	11	16	16	239	15.
16.	16	17	15	14	17	14	13	13	12	15	14	11	17	8	15	15	14	14	12	12	8	326	16.
17.	1	1	3	2	1	1	3	6	5	4	5	6	6	10	9	9	12	14	14	14	13	173	17.
18.	15	16	19	20	20	18	16	14	13	8	6	4	9	6	10	10	16	15	14	18	21	329	18.
19.	21	21	18	18	17	20	22	23	18	13	12	13	15	12	12	17	17	12	8	7	15	360	19.
20.	18	25	24	21	23	19	16	16	19	21	25	17	17	16	12	10	11	14	13	13	14	406	20.
Sums.	154	163	154	151	159	153	153	151	145	146	150	133	137	138	140	134	138	149	136	145	146	3,507	Sums.

21.	12	12	13	16	17	19	19	19	17	15	14	12	11	14	16	18	16	14	16	18	18	368	21.
22.	19	18	19	16	15	18	19	21	23	21	21	20	16	16	17	18	17	12	14	14	15	416	22.
23.	13	12	13	17	18	17	20	19	14	16	15	17	20	22	18	18	16	17	22	23	23	420	23.
24.	20	22	25	26	24	25	30	21	23	24	26	26	20	17	13	16	16	5	3	4	7	434	24.
25.	5	2	4	18	26	25	23	25	21	21	21	16	7	7	7	10	16	19	19	19	17	370	25.
26.	17	16	17	17	13	12	14	7	6	7	7	6	8	19	19	21	21	20	21	30	31	366	26.
27.	25	26	25	22	18	18	18	15	14	13	13	13	11	9	11	14	13	14	17	19	18	384	27.
28.	21	26	18	16	19	14	10	9	10	10	10	9	9	11	14	18	14	9	6	8	7	316	28.
29.	8	11	12	12	1	4	10	11	13	18	19	18	19	20	19	18	16	9	9	9	10	300	29.
30.	17	16	19	22	23	21	22	24	28	28	27	31	28	29	24	18	14	8	6	5	1	471	30.
Sums.	157	153	165	182	174	173	186	171	169	173	173	168	155	168	154	148	136	127	133	146	147	3,845	Sums.

Monthly Sums.	496	500	498	518	520	504	527	498	464	502	509	506	495	535	554	499	462	456	423	458	440	11,973	Monthly Sums.
Means.	16.5	16.7	16.6	17.3	17.3	16.8	17.6	16.6	15.5	16.7	17.0	16.9	16.5	17.8	18.5	16.6	15.4	15.2	14.1	15.3	14.7	16.6	Means.



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Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
1.	4	1	4	12	13	14	15	10	10	13	13	16	15	16	18	19	18	19	18	16	18	13	16	19	329	1.
2.	20	21	23	28	22	24	26	31	30	33	30	33	33	30	29	26	26	24	19	15	12	13	15	14	577	2.
3.	3	17	13	15	15	12	15	12	9	7	7	7	5	10	18	22	26	28	29	27	30	26	23	23	417	3.
4.	23	24	23	22	20	22	21	20	18	15	14	12	12	19	19	20	26	26	23	20	19	20	23	21	489	4.
5.	19	19	21	17	20	18	16	17	15	32	20	34	21	29	24	24	28	24	17	12	7	14	15	18	488	5.
6.	18	16	19	26	24	18	16	10	15	8	12	10	8	9	8	8	11	11	6	7	9	7	8	8	304	6.
7.	9	13	10	4	12	14	16	15	12	12	9	13	12	11	15	18	21	22	25	22	20	19	19	14	352	7.
8.	12	11	9	13	18	14	15	20	26	32	37	34	32	33	29	30	26	30	30	34	27	29	27	27	601	8.
9.	32	33	30	36	34	26	26	30	32	31	28	36	36	40	35	33	39	38	30	20	22	21	21	20	729	9.
10.	18	23	20	18	16	14	12	8	9	7	7	5	5	5	10	22	20	20	21	21	19	15	14	14	342	10.
Sums.	172	178	182	191	194	181	178	173	176	185	177	184	195	207	214	222	241	240	217	194	183	179	187	178	4,628	Sums.

11.	20	27	26	26	27	19	20	29	26	26	30	27	25	28	25	26	32	28	27	20	19	18	17	15	585	11.
12.	14	15	10	10	11	8	10	11	13	6	6	9	9	9	11	7	3	8	7	7	9	8	7	6	214	12.
13.	7	3	2	3	6	3	8	7	6	10	11	14	15	19	19	16	21	18	14	15	16	16	13	16	278	13.
14.	23	16	21	24	29	29	27	23	16	20	21	23	18	13	13	14	17	13	13	13	13	11	10	10	429	14.
15.	13	5	2	3	6	6	9	10	13	14	11	10	11	11	12	16	20	20	18	18	24	27	24	21	319	15.
16.	30	34	35	36	33	32	27	30	28	20	20	17	19	13	9	7	10	13	7	14	21	25	19	18	517	16.
17.	20	24	24	24	22	22	21	20	22	24	19	22	25	22	19	22	21	21	15	11	12	13	10	6	435	17.
18.	7	5	8	10	12	13	13	10	8	8	9	9	11	15	19	20	25	25	28	25	23	20	25	23	369	18.
19.	20	20	18	19	17	17	16	17	19	20	25	26	28	34	30	28	26	23	26	27	21	20	21	20	539	19.
20.	21	21	21	25	22	21	26	25	24	28	28	31	28	25	25	24	23	20	24	29	29	21	21	20	582	20.
Sums.	175	170	167	180	171	170	177	173	175	176	180	188	189	179	192	180	198	189	179	179	187	179	169	155	4,267	Sums.

21.	18	21	18	21	20	20	20	19	20	21	22	21	20	17	19	21	22	24	21	18	18	14	7	10	452	21.	
22.	7	11	14	13	13	13	14	16	20	20	24	28	22	20	20	21	23	20	18	17	18	18	16	16	16	417	22.
23.	14	17	15	19	14	14	17	16	15	15	10	11	14	16	17	15	10	14	14	17	18	13	8	8	338	23.	
24.	11	18	18	19	23	23	22	21	15	8	8	6	5	4	5	7	7	12	15	17	19	28	13	13	324	24.	
25.	13	15	15	19	13	13	11	7	3	4	6	10	14	18	23	22	27	26	29	33	25	27	27	23	441	25.	
26.	29	34	23	22	24	24	27	30	33	33	36	35	32	26	26	31	24	21	21	21	19	16	23	23	628	26.	
27.	23	27	17	26	23	25	23	22	19	23	27	27	24	25	29	27	26	23	22	27	21	20	19	20	567	27.	
28.	16	15	17	19	18	18	15	15	14	13	10	11	8	9	7	9	17	11	10	13	16	17	16	13	331	28.	
29.	10	12	14	14	15	15	13	11	6	6	7	12	11	11	10	10	8	12	13	15	17	18	19	20	302	29.	
30.	21	21	21	21	19	19	20	19	14	14	10	14	13	17	19	20	20	22	23	17	16	14	15	16	16	427	30.
31.	16	12	13	15	18	17	12	21	19	18	13	10	7	11	7	7	10	11	9	9	5	3	2	5	260	31.	
Sums.	178	205	195	198	214	201	194	197	178	175	173	180	170	174	182	190	194	196	192	192	196	178	163	177	4,487	Sums.	

Monthly Sums.	525	553	544	569	579	552	549	543	529	536	530	552	554	560	588	592	633	625	591	565	566	556	519	510	13,382	Monthly Sums.
Means.	17.0	17.8	17.5	18.3	18.7	17.8	17.7	17.5	17.1	17.3	17.1	17.8	17.8	18.1	19.0	19.1	20.4	20.2	19.1	18.2	18.2	17.9	16.8	16.5	18.0	Means.



# JUNE.

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Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
1.	10	15	19	21	22	22	17	15	12	8	10	10	12	12	15	14	11	15	14	14	17	19	18	20	362	1.
2.	18	18	19	18	17	17	16	11	10	12	15	20	24	24	22	22	26	22	25	23	22	23	29	26	479	2.
3.	25	29	29	32	28	33	28	31	30	30	25	20	19	13	20	21	19	18	18	20	20	27	23	30	573	3.
4.	19	21	19	18	18	18	18	18	12	9	6	5	4	3	2	9	22	21	21	24	23	23	22	22	378	4.
5.	21	19	21	17	15	15	11	12	11	7	10	11	12	13	15	18	13	14	19	20	20	18	17	17	388	5.
6.	14	13	13	14	15	14	17	12	13	14	10	9	9	10	11	11	12	16	16	17	18	15	15	17	324	6.
7.	15	19	19	15	15	14	17	12	12	14	15	17	17	18	17	17	20	15	18	16	12	13	18	18	387	7.
8.	20	23	24	22	24	24	22	21	20	22	24	22	23	19	21	21	22	23	16	15	14	20	24	25	505	8.
9.	22	20	18	14	10	10	12	9	3	4	7	10	16	16	19	19	23	24	23	18	22	27	25	25	394	9.
10.	21	20	14	11	7	5	5	7	5	7	8	10	4	5	4	4	5	4	6	9	10	8	17	17	205	10.
Sums.	195	197	195	182	172	170	161	152	128	127	130	134	140	133	146	156	173	172	179	175	174	191	202	211	3,995	Sums.

11.	20	19	19	20	19	18	17	20	16	12	12	13	13	12	12	11	11	11	10	10	10	8	9	6	328	11.	
12.	6	9	20	5	7	7	5	4	8	17	16	15	17	16	12	11	17	17	15	18	10	6	8	7	7	368	12.
13.	3	4	3	25	20	15	17	4	6	8	5	6	6	8	16	13	7	7	9	13	14	16	16	15	15	196	13.
14.	14	14	21	13	15	13	10	13	15	14	14	10	20	22	16	13	12	11	11	11	14	18	16	16	14	375	14.
15.	10	14	14	13	15	6	3	2	1	14	5	7	9	11	10	7	9	6	9	8	7	6	7	4	245	15.	
16.	5	2	3	5	5	6	3	2	1	2	20	7	9	12	15	14	15	16	12	15	19	17	16	16	16	222	16.
17.	16	19	21	19	17	16	17	16	15	18	20	17	18	21	23	22	24	21	20	22	20	21	23	22	22	469	17.
18.	25	25	28	25	24	22	25	28	26	28	29	33	26	24	28	27	32	26	19	19	19	23	22	24	606	18.	
19.	21	19	16	15	14	17	16	17	15	14	14	8	8	9	9	7	6	5	6	9	10	12	11	13	291	19.	
20.	11	15	15	11	14	14	15	14	8	7	7	4	4	8	7	10	10	13	16	16	17	16	17	14	283	20.	
Sums.	131	139	160	160	158	158	151	149	132	134	138	130	127	143	143	134	143	133	126	128	140	143	145	137	3,383	Sums.	

21.	14	16	18	18	17	15	16	14	11	6	4	6	7	9	11	9	11	18	20	18	19	15	18	21	331	21.	
22.	20	24	22	10	20	16	15	14	10	11	10	12	9	8	9	9	9	10	10	14	15	17	17	17	17	339	22.
23.	16	12	11	20	8	5	5	6	9	13	9	10	16	6	5	5	16	12	14	14	16	17	16	16	260	23.	
24.	19	19	21	20	18	20	18	18	18	18	18	19	16	18	15	18	17	15	15	16	17	18	18	15	424	24.	
25.	14	11	11	8	9	8	4	3	2	3	3	4	4	3	4	4	2	4	3	5	3	4	6	4	127	25.	
26.	11	14	13	11	14	16	16	14	14	16	12	14	14	20	21	18	29	27	27	23	20	20	22	23	435	26.	
27.	19	21	21	22	20	22	20	19	23	26	32	28	29	28	32	27	23	22	27	20	18	18	20	14	551	27.	
28.	14	13	8	5	4	6	9	10	10	11	13	14	11	10	6	6	5	2	2	4	7	9	12	12	204	28.	
29.	16	21	22	20	20	22	21	16	17	20	23	26	26	26	32	29	32	28	29	22	22	25	24	24	564	29.	
30.	23	24	18	14	10	6	8	8	11	19	21	21	19	18	15	16	18	13	13	13	15	15	13	6	357	30.	
Sums.	166	175	165	148	140	136	132	120	125	143	135	153	144	146	150	153	172	154	157	149	152	156	167	152	3,591	Sums.	

Monthly Sums.	492	511	520	490	470	464	444	421	385	404	403	417	411	422	439	443	488	459	462	452	466	490	514	500	10,969	Monthly Sums.
Means.	16.4	17.0	17.3	16.3	15.7	15.5	14.8	14.0	12.8	13.5	13.4	13.9	13.7	14.1	14.6	14.8	16.3	15.3	15.4	15.1	15.5	16.3	17.1	16.7	15.2	Means.



# JULY.

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Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	10-11	Total.	Date.
1.	9	14	14	14	14	12	12	10	6	6	5	5	19	272	1.
2.	21	22	20	20	21	17	19	19	17	15	15	15	16	394	2.
3.	15	16	15	15	12	15	15	15	12	5	9	9	12	262	3.
4.	10	15	15	15	12	10	5	4	3	2	4	4	13	263	4.
5.	4	10	20	18	18	19	19	16	14	7	6	5	17	314	5.
6.	17	18	20	20	21	19	19	17	14	12	12	14	25	452	6.
7.	23	24	25	25	27	25	25	23	23	27	30	27	19	592	7.
8.	15	16	16	16	21	20	20	17	14	13	14	12	13	289	8.
9.	15	21	21	19	19	22	22	21	23	23	20	19	17	445	9.
10.	13	8	9	9	11	12	12	6	5	7	8	6	5	201	10.
Sums.	157	175	184	171	175	171	168	148	131	117	118	116	155	3,484	Sums.

11.	11	11	12	11	13	14	14	13	17	18	22	23	29	440	11.
12.	25	20	16	14	14	15	16	10	6	5	7	12	12	298	12.
13.	17	18	14	10	9	10	7	8	5	5	6	10	8	361	13.
14.	15	12	14	11	10	13	11	12	13	14	15	14	16	403	14.
15.	12	9	12	16	15	16	17	22	19	8	7	14	24	447	15.
16.	26	23	23	23	25	24	24	24	37	37	34	24	27	591	16.
17.	19	18	19	15	13	11	11	11	13	11	13	9	18	313	17.
18.	11	12	11	12	9	10	6	7	5	6	8	9	14	272	18.
19.	14	19	21	18	15	11	3	4	8	13	14	15	11	360	19.
20.	20	20	17	12	11	15	9	11	12	7	3	3	13	280	20.
Sums.	170	162	159	142	131	142	118	122	135	124	129	142	175	3,765	Sums.

21.	14	16	13	14	16	16	15	12	5	3	3	6	10	271	21.
22.	8	8	7	10	11	10	10	9	9	7	7	6	16	270	22.
23.	15	16	17	20	15	12	15	12	11	8	12	12	13	298	23.
24.	8	4	3	6	8	16	15	16	9	9	9	14	12	296	24.
25.	10	11	10	9	9	8	8	8	8	6	8	8	21	325	25.
26.	23	22	23	26	24	23	22	24	23	26	23	20	22	500	26.
27.	16	15	14	13	14	18	18	21	19	21	20	18	18	396	27.
28.	12	11	9	12	12	9	9	11	10	8	4	4	17	263	28.
29.	15	15	15	15	7	7	7	9	7	4	9	10	22	371	29.
30.	21	23	14	17	16	14	16	17	14	15	12	8	8	305	30.
31.	10	11	8	9	13	13	9	11	8	12	10	11	12	249	31.
Sums.	152	152	133	151	145	144	144	150	123	119	117	120	158	3,544	Sums.

Monthly Sums.	479	489	476	464	451	420	420	420	389	360	364	378	392	407	426	479	511	498	495	478	465	465	488	10,793	Monthly Sums.
Means.	15.5	15.8	15.4	15.0	14.6	13.5	13.5	13.5	12.5	11.6	11.7	12.2	12.7	13.1	13.7	15.4	16.5	16.1	16.0	15.5	15.0	15.0	15.8	14.5	Means.



# AUGUST.

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Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
1.	16	15	13	13	13	11	10	6	3	4	7	8	9	9	10	10	10	14	18	18	18	18	17	15	282	1.
2.	13	12	12	14	13	6	4	4	9	15	17	19	14	22	24	24	23	23	22	17	22	25	21	20	398	2.
3.	23	22	27	24	20	21	20	19	20	29	30	24	31	34	36	39	26	29	26	24	22	25	24	23	618	3.
4.	4	26	25	26	22	21	25	15	20	22	22	20	16	13	13	15	16	14	13	15	15	15	13	19	446	4.
5.	19	18	18	17	17	16	16	13	10	8	5	8	9	11	12	13	14	14	16	15	14	16	14	8	321	5.
6.	10	9	11	4	3	3	7	10	6	8	6	6	6	6	6	5	8	9	11	8	12	15	12	11	192	6.
7.	9	9	4	3	3	3	6	10	11	13	11	13	15	17	16	17	20	20	21	21	24	21	21	22	333	7.
8.	28	32	37	29	24	21	27	23	20	17	18	16	11	6	4	8	9	6	8	12	17	17	17	20	422	8.
9.	20	20	18	18	14	17	17	16	10	9	8	12	16	16	16	17	18	18	17	20	19	21	20	20	397	9.
10.	18	17	22	21	17	16	21	18	15	16	16	20	21	21	22	24	23	26	23	20	21	20	19	15	472	10.
Sums.	182	179	187	169	149	135	133	134	124	141	140	146	148	155	159	174	169	173	174	171	184	193	178	169	3,881	Sums.

11.	21	19	21	21	24	22	19	17	17	16	12	15	14	16	15	18	16	20	20	16	17	20	16	15	427	11.
12.	18	18	21	20	18	6	8	7	16	14	14	17	16	11	14	13	11	18	12	11	11	7	11	9	353	12.
13.	10	10	11	9	8	6	8	8	7	7	10	12	17	17	20	19	15	15	17	16	21	24	25	24	338	13.
14.	24	24	26	23	25	23	20	22	22	23	19	23	24	21	20	11	17	20	17	18	17	22	22	19	502	14.
15.	6	6	4	2	5	6	2	1	4	5	10	11	15	14	18	15	14	11	10	11	9	8	9	6	424	15.
16.	33	25	27	29	24	27	24	27	23	20	20	11	15	14	24	27	23	23	20	25	29	29	31	38	365	16.
17.	6	4	4	4	2	8	11	10	12	11	12	14	11	15	10	10	8	7	7	6	7	9	9	7	405	17.
18.	11	13	11	12	14	11	12	13	10	9	8	9	10	11	10	10	7	10	11	10	8	9	9	11	214	18.
19.	9	7	8	4	2	4	5	5	6	6	5	6	6	7	8	10	14	11	9	11	10	10	11	11	253	19.
20.	9	7	8	4	2	4	5	5	6	6	5	6	7	5	8	10	13	12	14	17	18	20	18	16	225	20.
Sums.	162	152	154	147	146	146	138	138	143	138	134	142	141	137	153	142	145	148	137	141	147	158	161	136	3,508	Sums.

21.	14	13	7	8	7	6	6	4	4	3	5	7	9	9	6	12	16	17	16	17	19	16	15	16	252	21.	
22.	12	10	10	5	6	12	16	17	13	19	20	22	23	27	26	21	19	16	17	15	18	19	17	18	16	398	22.
23.	13	16	17	16	15	15	12	12	9	6	10	9	9	9	10	10	10	17	16	13	15	13	13	11	11	302	23.
24.	4	6	10	14	16	19	18	16	5	7	10	17	16	13	14	16	9	9	15	16	12	11	7	4	4	306	24.
25.	16	20	18	16	16	19	21	27	27	28	32	28	32	34	29	31	25	24	25	22	21	19	13	13	519	25.	
26.	15	15	17	15	18	16	17	10	11	10	14	16	15	13	12	14	17	17	18	17	18	17	14	14	359	26.	
27.	15	16	14	11	18	6	17	14	12	15	10	5	4	7	7	11	14	12	12	14	20	22	22	18	330	27.	
28.	12	11	12	11	11	6	12	13	11	10	9	4	3	5	6	7	4	4	7	8	9	10	9	9	209	28.	
29.	1	3	4	5	6	4	5	7	5	4	3	7	16	18	18	18	14	11	10	11	14	10	6	2	302	29.	
30.	1	15	15	16	14	15	12	13	12	15	16	17	10	8	11	11	12	14	15	16	19	21	20	19	237	30.	
31.	15	15	15	16	14	15	14	18	17	16	21	28	26	26	23	16	13	16	17	22	20	18	15	15	434	31.	
Sums.	137	137	136	127	131	143	140	151	126	133	150	160	163	167	162	167	162	157	168	171	185	176	160	141	3,648	Sums.	

Monthly Sums.	481	468	477	443	426	424	431	423	393	412	424	448	452	459	474	483	476	478	479	483	516	527	499	466	11,037	Monthly Sums.
Means.	15.5	15.1	15.4	14.3	13.7	13.7	13.9	13.6	12.7	13.3	13.7	14.4	14.6	14.8	15.3	15.6	15.4	15.5	15.5	15.6	16.6	17.0	16.1	15.0	14.8	Means.



# SEPTEMBER.

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Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
1.	14	17	13	13	16	15	17	16	16	16	25	24	27	23	22	20	17	16	11	18	16	17	14	13	416	1.
2.	14	13	14	18	11	17	15	11	8	6	6	3	3	6	6	8	6	4	8	10	17	15	15	15	256	2.
3.	15	14	12	17	15	14	17	15	17	18	18	17	15	17	15	13	12	15	16	13	13	16	16	14	304	3.
4.	13	14	13	17	17	15	16	17	17	15	16	16	16	17	17	16	16	14	13	14	15	12	10	8	354	4.
5.	9	10	8	10	11	10	9	9	8	10	9	9	10	8	7	7	7	6	8	10	8	6	4	4	197	5.
6.	5	4	5	5	5	7	7	6	4	5	6	4	9	10	9	10	13	15	14	16	16	15	12	12	212	6.
7.	12	12	10	10	8	7	6	6	5	6	8	10	14	14	14	16	18	19	19	16	17	17	15	15	294	7.
8.	16	16	15	15	13	17	18	17	19	20	17	17	22	23	24	24	23	24	20	22	20	21	20	20	463	8.
9.	20	22	23	19	15	14	16	16	16	13	15	17	17	16	18	20	16	19	20	15	16	12	11	7	393	9.
10.	10	5	9	16	21	24	21	18	15	14	14	10	9	6	6	6	4	6	6	3	4	1	2	6	236	10.
Sums.	128	127	122	140	139	138	142	131	125	123	134	127	142	140	138	140	132	138	135	137	142	132	119	114	3,185	Sums.

11.	7	9	14	12	10	12	15	17	15	14	13	13	25	24	21	21	19	14	14	16	17	20	21	18	393	11.
12.	14	7	6	8	4	8	12	19	19	21	25	26	24	24	35	30	32	30	33	34	35	35	33	30	547	12.
13.	21	22	11	12	14	21	21	13	17	19	25	17	22	22	21	23	25	24	27	17	19	23	21	8	422	13.
14.	2	3	3	7	15	13	14	9	7	8	8	32	29	32	34	30	29	24	27	24	27	23	21	20	536	14.
15.	18	16	15	14	14	13	14	14	15	17	17	12	17	14	20	20	20	16	18	19	22	20	19	17	376	15.
16.	18	17	14	16	18	16	18	14	18	14	17	16	17	24	11	11	11	14	17	17	22	22	24	20	393	16.
17.	17	17	16	17	14	16	19	20	34	29	21	17	22	24	25	26	23	29	26	20	17	20	20	18	473	17.
18.	14	15	18	23	21	28	30	30	22	25	21	21	18	18	21	19	15	8	9	10	9	7	6	5	429	18.
19.	6	11	10	16	19	16	19	19	27	27	25	24	22	16	27	35	30	33	35	36	31	32	33	36	561	19.
20.	33	35	29	24	23	24	22	23	28	32	28	33	34	29	32	38	33	36	36	20	15	15	16	15	634	20.
Sums.	150	152	136	134	141	166	190	192	202	206	201	223	227	231	246	250	237	239	240	213	212	211	205	187	4,786	Sums.

21.	16	18	18	19	16	18	19	18	16	15	19	19	25	24	20	23	25	25	14	16	19	20	24	24	471	21.
22.	23	20	11	17	16	18	16	11	11	13	12	11	8	9	9	9	9	6	6	7	9	11	13	15	310	22.
23.	16	13	16	14	17	16	17	11	14	16	11	6	7	25	22	16	20	20	18	19	18	18	18	16	428	23.
24.	14	11	13	12	12	10	8	7	21	11	11	25	12	10	8	10	10	14	14	19	20	19	22	21	299	24.
25.	17	22	24	22	20	21	27	22	24	24	26	31	34	28	11	26	27	29	27	27	18	33	29	27	420	25.
26.	21	21	22	18	18	16	17	18	17	13	13	14	15	13	14	14	9	18	23	25	27	21	19	18	638	26.
27.	25	24	15	16	15	16	15	7	9	12	11	9	7	12	11	13	6	5	4	5	3	5	9	14	428	27.
28.	14	17	26	16	13	16	21	24	22	26	23	21	19	22	13	8	10	8	3	4	8	16	13	9	254	28.
29.	20	24	8	27	24	22	21	10	9	7	10	9	9	9	9	12	13	12	11	11	9	9	12	12	413	29.
30.	6	8	8	10	12	13	9	10	9	7	10	9	9	9	9	12	13	12	11	11	9	9	12	12	241	30.
Sums.	172	183	178	175	172	173	171	166	154	157	171	161	168	165	141	140	141	151	137	152	160	170	177	177	3,902	Sums.

Monthly Sums.	450	462	436	449	452	477	503	489	481	486	506	511	537	536	525	530	510	528	512	502	514	513	501	478	11,873	Monthly Sums.
Means.	15.0	15.4	14.5	15.0	15.1	15.9	16.8	16.3	16.0	16.2	16.9	17.0	17.9	17.9	17.5	17.7	17.0	17.6	17.1	16.7	17.1	17.1	16.7	15.9	16.5	Means.



# OCTOBER.

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Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
1.	13	16	12	10	9	5	7	11	10	14	14	17	15	23	28	32	31	24	33	31	29	27	25	26	462	1.
2.	16	16	18	20	16	18	13	13	14	15	14	18	19	21	21	22	20	19	19	17	17	17	14	14	411	2.
3.	14	12	8	7	4	1	5	7	8	8	8	8	10	9	10	10	12	12	14	15	14	18	21	25	260	3.
4.	21	24	23	19	19	20	17	24	20	15	16	14	18	15	19	17	18	16	14	17	19	19	19	23	446	4.
5.	14	11	14	19	22	21	20	21	18	19	24	28	21	20	19	14	13	8	7	6	7	8	6	9	364	5.
6.	1	5	3	5	7	15	12	10	6	9	9	5	4	6	6	6	7	8	10	7	5	7	4	9	167	6.
7.	14	19	18	21	23	22	21	23	24	25	28	32	29	29	23	23	19	16	15	15	13	10	10	10	484	7.
8.	9	9	19	7	9	8	9	7	5	6	6	5	4	4	6	7	8	7	13	17	16	16	22	25	233	8.
9.	22	25	19	19	18	18	19	19	19	15	11	9	10	8	8	10	10	9	13	13	16	20	18	16	355	9.
10.	19	23	20	19	18	17	15	13	15	16	15	10	10	7	7	6	6	8	8	8	10	20	13	11	304	10.
<b>Sums.</b>	<b>143</b>	<b>160</b>	<b>144</b>	<b>146</b>	<b>145</b>	<b>145</b>	<b>138</b>	<b>148</b>	<b>139</b>	<b>141</b>	<b>143</b>	<b>146</b>	<b>140</b>	<b>142</b>	<b>147</b>	<b>144</b>	<b>127</b>	<b>146</b>	<b>146</b>	<b>146</b>	<b>142</b>	<b>155</b>	<b>163</b>	<b>3,486</b>	<b>Sums.</b>	

11.	11	13	12	16	15	17	16	17	19	16	14	14	15	17	16	20	18	19	18	15	20	18	19	20	395	11.	
12.	20	22	24	21	23	21	20	18	12	12	12	12	12	14	14	14	17	16	17	22	28	13	21	17	430	12.	
13.	19	24	27	32	27	21	22	18	19	20	18	19	19	15	12	11	12	10	9	8	9	8	8	8	398	13.	
14.	8	8	6	9	8	14	16	16	14	13	14	11	13	16	19	20	22	19	23	18	18	24	32	34	380	14.	
15.	34	35	37	38	36	38	34	26	24	24	38	40	25	27	29	23	28	34	36	36	32	35	32	24	23	745	15.
16.	33	27	36	27	26	30	36	28	30	38	38	40	40	40	31	28	28	28	22	18	22	23	24	23	717	16.	
17.	23	19	18	12	10	12	7	8	4	4	5	8	10	15	16	16	23	23	20	18	19	17	19	19	342	17.	
18.	21	25	24	26	22	20	22	17	13	10	10	8	12	14	15	15	12	15	11	8	11	14	14	13	367	18.	
19.	13	13	9	8	7	10	10	11	11	11	7	9	9	10	10	8	7	9	15	18	19	15	16	16	275	19.	
20.	17	16	15	15	15	15	15	17	18	11	13	15	15	18	17	18	19	18	20	20	23	22	23	23	418	20.	
<b>Sums.</b>	<b>199</b>	<b>202</b>	<b>208</b>	<b>204</b>	<b>189</b>	<b>198</b>	<b>199</b>	<b>176</b>	<b>169</b>	<b>159</b>	<b>155</b>	<b>162</b>	<b>170</b>	<b>182</b>	<b>180</b>	<b>176</b>	<b>186</b>	<b>191</b>	<b>191</b>	<b>201</b>	<b>188</b>	<b>196</b>	<b>205</b>	<b>4,467</b>	<b>Sums.</b>		

21.	24	25	24	28	22	23	26	29	26	29	29	28	26	31	31	34	30	30	25	20	17	18	17	20	612	21.
22.	22	17	14	14	9	8	9	9	9	12	12	16	19	21	23	25	26	24	25	20	27	21	21	26	409	22.
23.	26	21	23	22	24	24	24	20	19	25	25	22	19	17	17	14	13	8	7	9	7	7	14	19	434	23.
24.	20	19	18	18	17	16	17	16	16	17	19	19	16	16	14	14	12	12	11	10	13	14	17	19	383	24.
25.	19	19	17	14	13	13	14	15	20	21	26	27	27	25	25	22	18	23	21	20	16	20	18	20	437	25.
26.	17	16	17	14	13	10	9	10	15	21	26	29	24	21	21	23	23	23	21	20	18	20	17	22	444	26.
27.	23	26	23	22	20	23	25	23	23	24	25	29	26	27	32	35	33	32	32	26	30	31	29	27	646	27.
28.	25	27	26	24	28	24	24	19	18	17	19	24	21	21	21	21	21	21	23	28	24	22	24	24	546	28.
29.	25	26	27	22	23	26	26	30	28	33	31	33	31	30	32	31	33	36	31	33	30	22	31	34	732	29.
30.	35	32	38	36	34	35	37	33	37	25	28	30	28	29	24	29	30	24	25	32	34	33	35	37	760	30.
31.	35	43	41	40	25	22	19	23	23	20	17	17	18	19	20	17	19	21	22	18	21	21	22	22	561	31.
<b>Sums.</b>	<b>271</b>	<b>271</b>	<b>268</b>	<b>247</b>	<b>227</b>	<b>224</b>	<b>229</b>	<b>229</b>	<b>234</b>	<b>243</b>	<b>253</b>	<b>264</b>	<b>255</b>	<b>257</b>	<b>264</b>	<b>268</b>	<b>258</b>	<b>244</b>	<b>235</b>	<b>240</b>	<b>234</b>	<b>235</b>	<b>246</b>	<b>268</b>	<b>5,964</b>	<b>Sums.</b>

Monthly Sums.	613	633	620	597	561	567	566	553	542	543	551	572	565	581	591	591	588	562	572	567	581	565	597	636	13,917	Monthly Sums.
Means.	19.8	20.4	20.0	19.3	18.1	18.3	17.8	17.8	17.5	17.5	17.8	18.4	18.2	18.8	19.1	19.1	19.0	18.1	18.4	18.3	18.8	18.2	19.3	20.5	18.7	Means.



# NOVEMBER.

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Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
1.	20	22	19	21	19	18	21	17	16	18	17	11	290	1.
2.	19	19	19	19	20	12	19	15	16	12	12	8	293	2.
3.	15	16	14	15	15	15	15	15	16	15	16	18	414	3.
4.	22	24	26	29	27	24	21	21	24	14	37	31	630	4.
5.	14	18	18	13	9	9	8	7	9	20	14	20	441	5.
6.	21	23	23	21	14	18	17	17	20	20	21	16	520	6.
7.	14	19	17	27	42	39	34	43	39	45	50	21	804	7.
8.	18	19	19	20	22	23	25	23	21	23	22	26	542	8.
9.	23	26	22	20	22	20	19	20	20	20	21	19	489	9.
10.	17	13	14	11	10	17	17	16	16	17	15	12	297	10.
Sums.	183	199	189	196	198	192	196	194	197	208	225	212	4740	Sums.

Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
11.	15	16	11	11	12	13	11	10	13	11	17	14	313	11.
12.	16	18	21	22	19	3	5	4	16	11	14	14	337	12.
13.	28	38	38	41	40	44	49	36	30	36	34	22	741	13.
14.	25	31	32	31	37	35	37	37	34	41	40	29	818	14.
15.	25	30	29	29	30	25	27	29	23	24	19	21	613	15.
16.	23	20	27	22	22	19	19	16	14	15	11	18	402	16.
17.	2	6	10	13	13	12	12	11	15	16	20	6	385	17.
18.	29	32	30	34	40	40	44	50	49	53	29	22	1013	18.
19.	35	34	31	29	32	27	33	31	33	34	41	40	853	19.
20.	37	29	30	36	28	29	21	23	25	27	25	12	493	20.
Sums.	235	244	259	268	273	260	271	262	252	269	277	274	5308	Sums.

Date.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Total.	Date.
21.	18	20	19	20	21	19	18	20	20	17	24	10	483	21.
22.	11	16	17	13	17	19	19	19	23	22	17	10	386	22.
23.	10	9	11	18	20	33	33	31	30	32	33	33	631	23.
24.	37	34	41	42	42	38	27	20	26	27	28	13	687	24.
25.	16	20	16	17	12	11	5	9	6	4	5	25	367	25.
26.	7	30	36	41	34	31	33	25	30	29	33	16	635	26.
27.	20	19	18	17	15	15	12	9	30	7	21	17	314	27.
28.	8	10	10	9	9	12	6	16	17	14	14	15	377	28.
29.	17	17	17	17	17	20	24	23	25	25	24	20	377	29.
30.	21	21	19	15	11	6	5	3	3	6	7	16	313	30.
Sums.	165	196	204	209	198	192	176	179	181	179	189	179	4748	Sums.

Monthly Sums.	19.4	21.3	639	652	673	669	644	643	635	630	656	691	684	713	727	713	619	654	612	617	601	585	555	575	586	15,456	Monthly Sums.
Means.	19.4	21.3	639	652	673	669	644	643	635	630	656	691	684	713	727	713	619	654	612	617	601	585	555	575	586	15,456	Monthly Sums.
																											Means.







# ANNUAL SUMMARY.

P. M.

A. M.

P. M.

Month.	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	Totals.	Means.
January * . . . . .	19.4	21.6	22.0	22.3	22.9	23.0	22.6	21.9	21.6	21.4	21.5	22.1	20.8	20.6	20.4	20.7	19.7	18.9	19.4	19.9	20.4	20.0	19.6	19.7	502.2	20.9
February . . . . .	24.7	26.4	25.3	25.1	26.1	26.9	25.9	26.1	25.4	24.4	25.1	24.8	26.2	26.3	25.4	26.6	26.3	26.5	27.8	28.8	28.6	28.2	28.4	26.9	633.1	26.4
March . . . . .	21.0	21.2	21.6	21.1	21.0	20.8	21.1	21.1	21.6	22.0	23.3	21.4	22.6	24.3	24.3	24.8	25.4	24.6	23.8	23.5	23.6	23.9	22.5	21.8	542.6	22.6
April . . . . .	16.5	16.7	16.6	17.3	17.3	16.8	17.6	16.6	15.5	16.7	17.0	16.9	16.5	17.8	17.5	18.9	18.5	17.8	16.6	15.4	15.2	14.1	15.3	14.7	399.1	16.6
May . . . . .	17.0	17.8	17.5	18.3	18.7	17.8	17.7	17.5	17.1	17.3	17.1	17.8	17.8	18.1	19.0	19.1	20.4	20.2	19.1	18.2	18.2	17.9	16.8	16.5	431.7	18.0
June . . . . .	16.4	17.0	17.3	16.3	15.7	15.5	14.8	14.0	12.8	13.5	13.4	13.9	13.7	14.1	14.6	14.8	16.3	15.3	15.4	15.1	15.5	16.3	17.1	16.7	365.6	15.2
July . . . . .	15.5	15.8	15.4	15.0	14.6	14.8	13.5	13.5	12.5	11.6	11.7	12.2	12.7	13.1	13.7	15.4	16.5	16.1	16.0	15.0	15.5	16.0	16.3	15.8	348.2	14.5
August . . . . .	15.5	15.1	15.4	14.3	13.7	13.7	13.9	13.6	12.7	13.3	13.7	14.4	14.6	14.8	15.3	15.6	15.4	15.5	15.5	15.6	16.6	17.0	16.1	15.0	356.0	14.8
September . . . . .	15.0	15.4	14.5	15.0	15.1	15.9	16.8	16.3	16.0	16.2	16.9	17.0	17.9	17.9	17.5	17.7	17.0	17.6	17.1	16.7	17.1	17.1	16.7	15.9	395.8	16.5
October . . . . .	19.8	20.4	20.0	19.3	18.1	18.3	18.3	17.8	17.5	17.5	17.8	18.4	18.2	18.8	19.1	19.1	19.0	18.1	18.4	18.3	18.8	18.2	19.3	20.5	448.9	18.7
November . . . . .	19.4	21.3	21.7	22.4	22.3	21.5	21.4	21.2	21.0	21.9	23.0	22.8	23.8	24.2	23.8	20.6	21.8	20.4	20.6	20.0	19.5	18.5	19.2	19.5	515.2	21.5
December . . . . .	21.6	22.3	21.3	21.5	22.2	22.2	22.5	22.8	23.3	23.4	23.1	22.7	23.1	24.0	23.9	22.8	22.1	22.0	22.2	21.6	22.7	23.1	23.1	21.9	540.5	22.5
Annual Sums . . . . .	221.8	231.0	228.6	227.9	227.8	227.2	226.1	222.4	217.0	219.2	223.6	224.4	227.9	234.0	234.5	236.1	238.4	233.0	231.9	228.1	231.5	230.3	229.4	224.9	5,478.9	228.2
Means . . . . .	18.5	19.2	19.1	19.0	19.0	18.9	18.8	18.5	18.1	18.3	18.6	18.7	19.0	19.5	19.6	19.7	19.9	19.4	19.3	19.0	19.3	19.2	19.1	18.7	456.6	19.0

\* Twenty-seven days.



HOURLY VALUES IN INCHES OF MERCURY

[*REDUCED TO 32° FAHRENHEIT*]

OF THE

ATMOSPHERIC PRESSURE,

FOR

EACH DAY, MONTH, AND THE YEAR 1886,

AS DERIVED FROM THE RECORDS OF THE DRAPER BAROGRAPH.



# JANUARY.

P. M.

A. M.

P. M.

Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.	
1.	28.950	28.951	28.974	28.993	29.018	29.061	29.092	29.131	29.160	29.216	29.251	29.256	29.258	29.268	29.283	29.322	29.345	29.380	29.397	29.427	29.440	29.440	29.460	29.475	29.489	1.
2.	29.507	29.517	29.532	29.539	29.549	29.579	29.592	29.621	29.649	29.671	29.674	29.679	29.658	29.671	29.684	29.690	29.702	29.720	29.727	29.722	29.722	29.742	29.742	29.738	2.	
3.	30.735	30.736	30.742	30.753	30.758	30.775	30.760	30.778	30.783	30.788	30.792	30.792	30.781	30.781	30.781	30.781	30.781	30.781	30.781	30.781	30.781	30.781	30.781	30.781	30.781	3.
4.	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	4.
5.	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	5.
6.	28.791	28.801	28.822	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	28.829	6.
7.	28.812	28.811	28.820	28.817	28.818	28.826	28.835	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	28.833	7.
8.	29.085	29.102	29.128	29.147	29.154	29.169	29.184	29.184	29.210	29.248	29.268	29.260	29.210	29.204	29.225	29.226	29.237	29.260	29.255	29.243	29.225	29.191	29.152	29.081	8.	
9.	29.007	28.901	28.752	28.672	28.500	28.420	28.410	28.271	28.145	28.156	28.136	28.148	28.125	28.092	28.041	28.015	28.107	28.180	28.230	28.246	28.238	28.218	28.232	28.260	9.	
10.	28.266	28.267	28.304	28.328	28.343	28.368	28.396	28.437	28.467	28.510	28.516	28.530	28.534	28.552	28.582	28.612	28.645	28.667	28.723	28.743	28.777	28.795	28.820	28.849	10.	
Sum.	290.958	290.850	290.824	290.785	290.624	290.644	290.642	290.861	290.842	290.679	290.546	290.459	290.461	290.498	290.461	290.498	290.757	290.815	290.934	291.020	291.032	291.037	291.034	290.939	Sum.	

11.	28.870	28.891	28.910	28.927	28.941	28.956	28.994	29.028	29.055	29.092	29.127	29.135	29.135	29.135	29.154	29.179	29.195	29.232	29.262	29.290	29.312	29.336	29.351	29.354	11.
12.	7.16	7.20	7.48	7.63	7.71	7.75	7.90	8.02	8.15	8.38	8.54	8.48	8.38	8.31	8.30	8.33	8.30	8.36	8.53	8.77	8.98	9.02	9.20	9.33	12.
13.	9.35	9.43	9.50	9.62	9.71	9.83	9.90	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	13.
14.	9.90	9.90	9.93	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	14.
15.	7.16	7.02	6.86	6.73	6.47	6.41	6.23	6.32	6.20	6.19	6.15	5.95	5.52	4.92	4.86	4.45	4.70	4.45	4.25	4.11	3.85	3.40	3.15	2.92	15.
16.	2.22	2.07	1.85	1.57	1.27	1.13	0.98	0.84	0.73	0.64	0.56	0.50	0.30	0.15	0.02	0.06	0.36	0.86	0.65	0.77	0.83	0.94	1.05	1.08	17.
17.	1.31	1.33	1.60	1.76	2.02	2.25	2.77	3.04	3.63	3.91	4.10	4.06	3.98	3.86	3.93	4.27	4.50	4.52	4.80	5.11	5.27	5.35	5.45	5.53	18.
18.	5.55	5.41	5.65	5.60	5.51	5.46	5.46	5.46	5.40	5.10	4.93	4.80	3.78	3.10	2.32	1.81	1.20	0.63	0.12	0.00	0.33	0.94	1.30	1.58	19.
19.	1.88	2.27	2.74	3.26	3.63	4.00	4.47	5.02	5.49	6.00	6.24	6.24	6.24	6.45	6.45	6.72	7.04	7.20	7.28	7.30	7.37	7.52	7.51	7.43	20.
Sum.	294.685	294.703	294.811	294.875	294.911	294.978	295.145	295.334	295.505	295.681	295.744	295.594	295.407	295.238	295.146	295.211	295.223	295.207	295.257	295.402	295.499	295.560	295.606	295.611	Sum.

21.	29.713	29.678	29.665	29.645	29.630	29.590	29.570	29.552	29.545	29.530	29.523	29.453	29.420	29.345	29.342	29.332	29.332	29.319	29.318	29.310	29.301	29.282	29.267	29.271	21.
22.	2.75	2.80	2.78	2.68	2.77	2.74	2.74	2.76	2.71	2.73	2.68	2.29	2.02	1.80	1.58	1.39	1.39	1.140	1.143	1.140	1.127	1.145	1.114	1.06	22.
23.	1.01	0.78	0.76	0.80	0.82	1.14	1.55	2.14	2.70	3.27	3.76	3.97	4.10	4.31	4.60	4.99	5.24	5.48	6.10	6.50	6.65	6.81	7.00	7.00	23.
24.	7.05	6.98	7.09	7.22	7.28	7.37	7.40	7.52	7.60	7.75	7.88	7.72	7.38	7.18	7.13	7.13	7.22	7.34	7.50	7.65	7.63	7.76	7.63	7.62	24.
25.	7.55	7.44	7.44	7.35	7.34	7.37	7.40	7.47	7.58	7.53	7.50	7.39	6.95	6.62	6.39	6.14	6.04	5.80	5.70	5.50	5.12	4.74	4.44	3.98	25.
26.	3.75	3.25	3.12	3.01	3.02	2.96	3.10	3.30	3.50	3.80	3.98	4.01	3.99	3.96	4.10	4.36	4.58	4.83	5.08	5.18	5.40	5.58	5.62	5.54	26.
27.	5.62	5.53	5.52	5.51	5.43	5.47	5.54	5.64	5.50	5.53	5.43	5.26	5.05	4.76	4.63	4.51	4.36	4.25	4.22	4.16	4.14	3.93	3.61	3.34	27.
28.	3.08	2.84	2.61	2.32	2.17	2.26	2.08	2.04	1.93	1.80	1.76	1.48	1.10	0.70	0.43	0.40	0.40	0.27	0.07	0.00	28.989	28.965	28.941	28.	
29.	28.920	28.898	28.874	28.860	28.847	28.840	28.816	28.816	28.795	28.770	28.742	28.742	28.742	28.690	28.690	28.674	28.686	28.698	28.695	28.695	28.700	28.706	28.710	28.710	29.
30.	28.716	28.720	28.716	28.712	28.734	28.737	28.747	28.751	28.774	28.786	28.800	28.792	28.771	28.740	28.720	28.704	28.704	28.685	28.670	28.650	28.631	28.610	28.610	28.642	30.
31.	28.653	28.703	28.740	28.788	28.832	28.886	28.918	28.956	28.992	29.026	29.052	29.062	29.050	29.037	29.039	29.047	29.055	29.061	29.075	29.094	29.095	29.092	29.089	29.099	31.
Sum.	322.080	321.961	321.931	321.894	321.926	321.984	322.038	322.172	322.258	322.375	322.454	322.309	322.042	321.745	321.677	321.649	321.690	321.700	321.768	321.788	321.782	321.666	321.565	321.517	Sum.

Monthly Sums.	907.723	907.514	907.566	907.554	907.427	907.532	907.827	908.148	908.387	908.917	909.040	908.582	907.995	907.442	907.284	907.358	907.670	907.722	907.959	908.210	908.263	908.205	908.067	908.067	Monthly Sums.
Means.	29.281	29.274	29.276	29.276	29.272	29.275	29.285	29.295	29.303	29.320	29.324	29.309	29.290	29.272	29.267	29.269	29.280	29.281	29.289	29.297	29.299	29.299	29.297	29.298	Means.



# FEBRUARY.

P. M.

A. M.

P. M.

Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.
1.	29,093	29,092	29,093	29,095	29,095	29,099	29,106	29,134	29,146	29,160	29,163	29,177	29,170	29,161	29,159	29,163	29,172	29,173	29,181	29,200	29,206	29,212	29,213	29,212	1.
2.	217	219	222	220	225	258	279	307	329	360	385	383	382	376	359	364	384	400	415	416	412	412	417	410	2.
3.	422	438	455	470	495	504	536	558	567	567	572	570	562	552	531	512	509	502	501	474	462	453	445	417	3.
4.	378	346	317	291	294	292	274	273	255	255	234	231	205	182	172	176	178	186	210	215	228	250	269	271	4.
5.	286	295	306	320	326	337	378	429	441	470	501	505	494	494	495	503	512	533	549	567	579	565	565	565	5.
6.	574	580	586	583	576	580	590	596	604	608	604	598	582	551	533	515	509	504	497	490	494	486	473	469	7.
7.	455	454	423	403	405	403	403	405	422	416	416	412	392	370	362	360	354	361	373	380	378	385	373	351	6.
8.	348	315	312	302	286	288	276	280	276	275	264	246	204	201	171	174	177	178	187	190	205	207	200	200	8.
9.	206	210	216	230	252	275	297	329	350	364	380	397	395	390	386	396	415	432	458	486	513	515	539	556	9.
10.	578	585	610	634	639	689	713	733	759	784	816	838	835	836	835	852	869	882	902	926	935	937	940	945	10.
Summs.	293,557	293,514	293,541	293,548	293,613	293,745	293,852	294,044	294,149	294,260	294,335	294,357	294,221	294,113	294,003	294,015	294,079	294,151	294,273	294,344	294,397	294,434	294,411	294,396	Summs.

11.	29,938	29,947	29,952	29,950	29,958	29,949	29,953	29,961	29,966	29,969	29,967	29,955	29,932	29,900	29,884	29,880	29,870	29,870	29,870	29,853	29,854	29,820	29,787	29,764	29,748	11.
12.	735	707	680	648	610	574	573	542	533	513	501	490	433	409	379	365	340	318	308	292	258	223	219	193	12.	
13.	167	112	085	040	031	002	28,980	28,965	28,954	28,924	28,876	28,858	28,836	28,818	28,797	28,785	28,783	28,784	28,794	28,794	28,793	28,797	28,798	28,808	13.	
14.	28,831	28,802	28,807	28,914	28,950	28,988	29,029	29,064	29,091	29,111	29,131	29,147	29,137	29,133	29,131	29,130	29,141	29,143	29,142	29,142	29,153	29,157	29,161	29,165	14.	
15.	29,189	29,202	29,223	29,226	29,253	29,273	286	326	357	359	334	317	286	257	211	171	164	138	088	037	014	030	031	048	15.	
16.	085	139	168	200	231	271	303	331	349	359	357	363	355	340	340	344	356	379	442	482	520	531	543	566	16.	
17.	573	573	592	604	618	641	657	665	675	680	672	668	646	605	576	541	517	496	494	493	476	465	447	473	17.	
18.	406	388	376	355	350	353	351	356	371	379	385	383	365	342	366	366	381	405	418	433	446	465	472	417	18.	
19.	472	401	450	428	419	405	383	385	382	362	341	303	240	199	136	116	086	012	28,940	28,883	28,811	28,771	28,709	28,675	19.	
20.	28,660	28,650	28,645	28,629	28,616	28,613	28,596	28,600	28,603	28,596	28,588	28,573	28,536	28,518	28,522	28,524	28,554	28,568	28,628	28,653	28,739	28,771	28,839	28,888	20.	
Summs.	293,056	293,041	293,068	292,994	293,037	293,069	293,111	293,195	293,281	293,252	293,151	293,057	292,766	292,521	292,338	292,222	292,192	292,133	292,107	292,102	292,020	292,000	291,983	291,981	Summs.	

21.	28,928	28,908	29,004	29,037	29,083	29,115	29,177	29,224	29,241	29,237	29,283	29,226	29,200	29,181	29,171	29,171	29,171	29,170	29,176	29,176	29,182	29,190	29,191	29,194	21.
22.	29,201	29,205	210	212	223	239	267	309	346	365	391	402	400	392	387	380	384	383	388	381	379	375	368	349	22.
23.	328	315	279	253	244	239	237	235	236	229	223	214	198	176	169	172	192	230	276	296	306	334	394	415	23.
24.	431	431	496	511	533	596	618	669	690	701	700	700	697	682	671	675	672	669	674	684	683	673	674	660	24.
25.	618	609	595	566	550	526	506	500	489	441	405	348	275	192	115	082	28,931	28,895	28,849	28,791	28,717	28,643	28,596	28,552	25.
26.	28,925	28,452	28,403	28,343	28,304	28,266	28,254	28,244	28,260	28,261	28,277	28,279	28,290	28,300	28,316	28,331	28,330	28,331	28,307	28,446	28,480	28,504	28,538	28,541	26.
27.	28,561	28,570	28,570	28,570	28,553	28,578	28,588	28,615	28,636	28,662	28,660	28,672	28,660	28,680	28,668	28,716	28,708	28,760	28,802	28,824	28,866	28,888	28,906	28,906	27.
28.	28,896	28,903	28,882	28,889	28,875	28,880	28,881	28,857	28,876	28,911	28,909	28,923	28,904	28,886	28,902	28,931	28,935	28,973	28,980	29,012	29,040	29,040	29,043	29,061	28.
Summs.	232,488	232,479	232,439	232,381	232,388	232,439	232,528	232,653	232,774	232,808	232,848	232,764	232,624	232,489	232,400	232,413	232,323	232,461	232,552	232,646	232,669	232,687	232,692	232,678	Summs.

Monthly Summs.	819,101	819,034	819,048	818,923	819,038	819,253	819,491	819,892	820,204	820,320	820,334	820,178	819,611	819,123	818,741	818,650	818,594	818,745	818,932	819,092	819,086	819,121	819,116	819,055	Monthly Summs.
Means.	29,254	29,251	29,252	29,247	29,251	29,259	29,267	29,280	29,293	29,297	29,298	29,292	29,271	29,254	29,241	29,237	29,225	29,241	29,247	29,253	29,253	29,254	29,254	29,252	Means.



# MARCH.

P. M.

A. M.

P. M.

Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.	
1.	29,065	29,075	29,106	29,106	29,122	29,145	29,144	29,160	29,140	29,115	29,104	29,064	29,037	29,008	28,956	28,913	28,903	28,878	28,869	28,878	28,872	28,844	28,819	28,808	1.	
2.	28,782	28,732	28,730	28,708	28,696	28,706	28,705	28,705	28,715	28,729	28,723	28,117	28,707	28,685	28,685	28,690	28,704	28,710	28,710	28,733	28,737	28,744	28,756	28,753	2.	
3.	28,765	28,767	28,768	28,776	28,790	28,812	28,844	28,872	28,885	28,918	28,929	28,952	28,950	28,939	28,968	28,982	28,982	28,992	29,016	29,029	29,045	29,057	29,067	29,074	3.	
4.	29,080	29,081	29,078	29,082	29,083	29,093	29,104	29,112	29,116	29,124	29,134	29,135	29,123	20,108	29,094	29,090	29,101	29,116	29,116	29,134	29,139	29,154	29,157	29,153	4.	
5.	150	149	143	145	147	155	155	132	135	122	114	109	103	075	055	051	046	056	066	073	080	090	093	090	090	5.
6.	090	087	085	084	078	085	090	098	094	085	087	087	057	047	025	026	049	062	080	093	102	147	162	170	6.	
7.	178	183	187	186	191	197	222	242	240	239	244	236	217	200	200	200	203	214	217	231	233	239	235	233	7.	
8.	133	234	231	225	222	216	212	225	218	213	201	188	177	152	131	118	110	106	110	111	103	095	080	061	8.	
9.	041	033	013	005	002	001	000	010	023	038	054	072	078	083	108	120	137	147	170	196	205	212	215	228	9.	
10.	228	231	238	241	239	247	260	283	280	283	284	287	277	244	230	220	210	205	202	204	205	216	216	213	10.	
Sums.	290,612	290,572	290,570	290,558	290,570	290,654	290,736	290,836	290,846	290,866	290,874	290,834	290,726	290,561	290,452	290,410	290,445	290,489	290,564	290,685	290,721	290,798	290,801	290,783	Sums.	

11.	29,212	29,232	29,232	29,236	29,249	29,264	29,282	29,300	29,312	29,307	29,297	29,289	29,275	29,236	29,223	29,209	29,202	29,202	29,202	29,206	29,201	29,192	29,181	29,158	11.
12.	147	127	109	086	083	087	073	051	043	014	28,974	28,956	28,911	28,866	28,832	28,780	28,758	28,737	28,736	28,738	28,738	28,737	28,747	28,743	12.
13.	28,573	28,608	28,637	28,690	28,746	28,800	28,875	28,937	28,734	28,723	28,715	28,695	28,675	28,630	28,597	28,592	28,578	28,565	28,551	28,554	28,551	28,552	28,554	28,558	13.
14.	29,364	29,379	29,382	29,383	29,389	29,400	29,417	29,433	29,436	29,042	29,080	29,040	29,104	20,128	29,139	29,160	29,190	29,221	29,254	29,280	29,293	29,317	29,336	29,350	14.
15.	266	261	239	208	197	174	166	152	148	437	432	414	390	366	343	326	305	309	300	306	313	313	307	287	15.
16.	304	387	393	403	415	444	471	488	515	528	536	532	537	530	522	514	520	531	535	543	545	550	549	549	16.
17.	544	531	514	501	505	502	507	516	519	510	502	479	452	423	401	384	378	388	391	400	411	412	424	423	17.
18.	433	440	443	441	445	450	456	464	471	463	462	452	440	423	390	380	376	373	376	369	380	372	377	349	18.
19.	342	333	320	282	263	264	279	264	257	254	218	210	198	185	141	149	155	151	161	194	190	179	167	161	19.
20.	292,022	292,045	292,007	291,952	292,001	292,106	292,259	292,340	292,432	292,435	292,330	292,232	292,099	291,891	291,649	291,588	291,617	291,677	291,749	291,872	291,948	291,972	292,012	291,969	Sums.

21.	29,130	29,061	29,038	29,024	28,967	28,900	28,840	28,810	28,753	28,740	28,722	28,706	28,710	28,714	28,715	28,725	28,727	28,740	28,735	28,740	28,734	28,716	28,667	28,627	21.	
22.	28,606	28,650	28,603	28,588	28,574	28,584	28,591	28,593	28,600	28,610	28,610	28,612	28,610	28,594	28,590	28,592	28,602	28,602	28,607	28,614	28,620	28,645	28,667	28,681	22.	
23.	28,694	28,705	28,702	28,702	28,705	28,710	28,723	28,735	28,747	28,759	28,759	28,756	28,743	28,738	28,730	28,725	28,730	28,730	28,750	28,774	28,784	28,834	28,860	28,875	23.	
24.	28,889	28,902	28,907	28,914	28,929	28,954	28,986	29,011	29,028	29,054	29,069	29,082	29,088	29,096	29,112	29,125	29,151	29,182	29,182	29,226	29,256	29,300	29,330	29,352	29,371	24.
25.	29,391	29,396	29,410	29,416	29,435	29,431	29,423	421	405	407	394	365	327	283	252	228	204	190	167	175	165	167	160	167	25.	
26.	146	142	145	154	162	170	194	212	226	229	226	226	205	187	182	178	203	215	243	296	333	368	390	412	26.	
27.	433	442	443	446	460	489	519	530	540	537	534	530	534	520	506	500	503	501	494	490	479	491	477	463	27.	
28.	466	452	443	435	446	466	483	507	540	563	595	611	630	640	648	657	672	685	694	714	734	762	778	786	28.	
29.	793	809	773	789	825	813	830	837	843	826	822	825	807	777	734	717	714	710	695	683	656	580	581	556	29.	
30.	519	483	443	403	373	362	366	378	401	409	413	415	403	380	364	358	340	334	342	352	367	372	378	379	30.	
31.	380	364	372	351	341	345	351	364	363	363	365	363	351	342	314	302	282	268	266	250	231	207	180	152	31.	
Sums.	321,447	321,407	321,279	321,222	321,217	321,224	321,306	321,418	321,439	321,517	321,509	321,491	321,408	321,271	321,147	321,107	321,128	321,182	321,249	321,360	321,437	321,472	321,490	321,489	Sums.	

Monthly Sums.	904,081	904,024	903,855	903,732	903,788	903,984	904,301	904,594	904,717	904,818	904,713	904,537	904,235	903,723	903,248	903,107	903,190	903,348	903,562	903,917	904,106	904,242	904,303	904,221	Monthly Sums.
Means.	29,164	162	157	153	155	161	171	180	185	188	184	179	169	152	137	132	135	140	147	159	165	169	171	168	Means.



# APRIL.

A. M.

P. M.

Date.	13	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.	
1.	29.105	29.065	29.032	29.000	29.012	29.010	29.043	29.050	29.067	29.100	29.110	29.098	29.096	29.086	29.081	29.088	29.088	29.102	29.110	29.110	29.153	29.175	29.185	29.118	29.134	1.
2.	.284	.235	.230	.226	.217	.228	.235	.240	.241	.242	.225	.215	.198	.197	.190	.213	.223	.249	.270	.270	.308	.343	.357	.376	.383	2.
3.	.389	.403	.388	.392	.404	.411	.447	.455	.453	.450	.442	.431	.431	.417	.404	.388	.379	.375	.372	.372	.393	.403	.417	.423	.432	3.
4.	.431	.430	.434	.435	.455	.469	.471	.503	.513	.512	.533	.515	.521	.506	.502	.496	.500	.500	.508	.508	.513	.519	.523	.527	.519	4.
5.	.513	.508	.522	.522	.538	.545	.567	.564	.563	.582	.585	.595	.600	.588	.571	.568	.566	.562	.554	.547	.547	.540	.540	.514	.514	5.
6.	.495	.453	.408	.374	.364	.345	.320	.303	.260	.268	.226	.200	.161	.095	.039	.28.980	.28.914	.28.865	.28.860	.28.860	.28.860	.28.873	.28.877	.28.884	.28.884	6.
7.	28.900	28.907	28.918	28.926	28.940	28.962	28.980	.000	.012	.040	.061	.068	.073	.094	.105	.29.115	.29.115	.29.115	.29.143	.29.143	.29.170	.29.192	.29.193	.29.205	.29.210	7.
8.	29.210	29.210	29.210	29.206	29.206	29.225	29.253	.265	.267	.270	.272	.280	.283	.288	.289	.290	.305	.319	.334	.334	.345	.370	.386	.397	.401	8.
9.	.403	.405	.404	.407	.416	.430	.444	.464	.468	.470	.468	.464	.445	.432	.412	.401	.400	.414	.425	.425	.429	.444	.452	.445	.445	9.
10.	.442	.434	.429	.425	.420	.425	.428	.430	.430	.424	.417	.400	.380	.368	.360	.348	.360	.400	.425	.425	.473	.530	.560	.605	.605	10.
Sums.	293.122	293.050	292.975	292.913	292.972	293.048	293.178	293.274	293.274	<b>293.558</b>	293.339	293.266	293.188	293.071	292.973	292.877	292.853	292.902	293.002	293.133	293.389	293.490	293.479	<b>293.527</b>	Sums.	

11.	29.621	29.640	29.658	29.680	29.700	29.730	29.774	29.801	29.828	29.860	29.869	29.874	29.872	29.867	29.864	29.862	29.871	29.880	29.889	29.889	29.891	29.890	29.887	29.880	29.886	11.
12.	.888	.880	.869	.864	.861	.862	.866	.869	.866	.858	.850	.821	.790	.770	.740	.720	.707	.690	.683	.683	.681	.675	.674	.665	.652	12.
13.	.650	.634	.614	.594	.585	.590	.591	.592	.585	.580	.562	.545	.521	.497	.476	.460	.460	.456	.458	.458	.464	.473	.475	.477	.477	13.
14.	.483	.477	.475	.480	.498	.518	.540	.552	.570	.585	.587	.586	.593	.598	.594	.595	.594	.589	.595	.595	.595	.595	.595	.595	.595	14.
15.	.598	.597	.594	.594	.595	.610	.636	.649	.648	.648	.649	.633	.618	.600	.600	.600	.600	.624	.624	.624	.674	.742	.742	.757	.778	15.
16.	.805	.803	.805	.814	.814	.834	.846	.865	.875	.883	.883	.880	.870	.828	.828	.828	.828	.826	.829	.829	.840	.854	.850	.843	.840	16.
17.	.846	.845	.846	.846	.850	.851	.850	.857	.860	.870	.865	.860	.850	.840	.822	.820	.794	.794	.790	.790	.798	.798	.790	.788	.788	17.
18.	.780	.763	.750	.740	.731	.730	.734	.737	.736	.736	.734	.718	.699	.682	.668	.650	.642	.631	.634	.634	.638	.643	.638	.625	.610	18.
19.	.607	.587	.569	.563	.560	.567	.573	.580	.578	.577	.569	.557	.545	.541	.536	.531	.530	.529	.529	.529	.529	.529	.529	.529	.529	19.
20.	.560	.558	.554	.556	.559	.566	.580	.600	.600	.618	.630	.626	.615	.611	.599	.582	.570	.563	.559	.559	.548	.551	.550	.548	.536	20.
Sums.	<b>296.888</b>	296.784	296.734	296.730	296.853	296.858	296.990	297.102	297.146	<b>297.215</b>	297.198	297.100	296.973	296.879	296.747	296.637	296.596	296.582	296.611	296.656	296.727	296.766	296.740	296.712	Sums.	

21.	29.529	29.521	29.517	29.504	29.493	29.486	29.480	29.480	29.473	29.459	29.436	29.418	29.410	29.393	29.373	29.353	29.347	29.343	29.340	29.340	29.348	29.353	29.350	29.346	29.335	21.
22.	.334	.323	.319	.320	.328	.337	.353	.366	.378	.385	.390	.391	.390	.389	.376	.361	.352	.345	.341	.341	.345	.348	.345	.334	.332	22.
23.	.323	.312	.310	.285	.275	.266	.268	.265	.260	.240	.223	.189	.160	.135	.116	.098	.088	.085	.078	.078	.075	.078	.072	.061	.053	23.
24.	.040	.020	.006	.000	.007	.019	.037	.049	.047	.061	.083	.115	.120	.128	.128	.126	.134	.160	.192	.192	.210	.252	.259	.282	.287	24.
25.	.293	.294	.305	.317	.329	.341	.368	.388	.405	.414	.416	.410	.390	.386	.378	.350	.349	.338	.340	.338	.350	.355	.355	.354	.350	25.
26.	.341	.325	.320	.305	.294	.296	.298	.304	.310	.288	.270	.245	.200	.172	.144	.125	.125	.130	.138	.138	.160	.182	.203	.222	.241	26.
27.	.263	.262	.263	.269	.285	.300	.312	.323	.330	.320	.300	.290	.284	.274	.260	.245	.230	.225	.210	.210	.230	.253	.263	.246	.246	27.
28.	.243	.211	.211	.205	.205	.193	.187	.185	.191	.197	.200	.194	.193	.186	.167	.170	.166	.180	.183	.183	.211	.233	.250	.234	.234	28.
29.	.232	.214	.210	.225	.230	.240	.250	.260	.262	.270	.280	.289	.280	.284	.282	.278	.275	.277	.278	.278	.279	.287	.298	.292	.292	29.
30.	.312	.307	.288	.270	.260	.290	.305	.315	.318	.324	.330	.330	.335	.330	.325	.316	.317	.323	.324	.324	.325	.325	.325	.318	.318	30.
Sums.	<b>292.910</b>	292.780	292.749	292.700	292.706	292.768	292.858	292.935	292.974	<b>292.958</b>	292.928	292.871	292.762	292.677	292.549	292.422	292.374	292.406	292.424	292.533	292.661	292.690	292.693	292.709	Sums.	

Monthly Sums.	882.870	882.623	882.458	882.343	882.531	882.674	883.026	883.311	883.394	<b>883.531</b>	883.465	883.237	882.923	882.627	882.269	881.936	881.823	881.890	882.037	882.355	882.708	882.946	882.912	<b>882.948</b>	Monthly Sums.
Means.	29.429	.421	.415	.411	.418	.422	.434	.444	.446	<b>.451</b>	.449	.441	.431	.421	.409	.398	.394	.396	.401	.413	.423	.431	.430	.432	Means.



MAY.

P. M.

A. M.

P. M.

Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.
1.	29.314	29.304	29.293	29.286	29.280	29.270	29.293	29.296	29.300	29.303	29.300	29.290	29.274	29.262	29.250	29.237	29.236	29.236	29.247	29.243	29.242	29.248	29.235	29.230	1.
2.	229	214	200	189	190	200	213	230	238	247	258	248	235	238	238	243	244	245	260	257	276	291	300	29.230	2.
3.	311	311	312	312	317	335	350	366	381	392	398	381	365	351	351	340	345	340	340	340	335	367	361	306	3.
4.	350	344	346	339	338	336	334	330	329	329	330	307	307	255	244	233	230	222	227	236	236	220	220	366	4.
5.	218	190	192	169	155	162	155	160	160	147	134	122	100	87	73	70	63	685	130	133	100	100	125	138	5.
6.	143	145	150	158	172	178	203	217	218	216	216	213	210	200	199	197	195	200	212	222	231	258	258	26.	
7.	261	263	260	256	262	274	280	284	297	296	288	286	280	274	262	260	270	275	282	294	310	306	300	296	7.
8.	292	275	272	244	222	212	202	175	133	996	882	862	829	810	800	800	890	891	890	892	892	892	892	892	8.
9.	28.962	28.956	28.928	28.903	28.918	28.960	28.974	28.982	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	28.992	9.
10.	29.283	29.295	29.300	29.313	29.333	29.358	29.388	29.398	29.400	404	406	385	370	354	348	340	345	347	345	348	368	372	365	369	10.
Sums.	292.363	292.297	292.253	292.169	292.187	292.285	292.392	292.438	292.448	292.440	292.430	292.310	292.157	292.051	291.997	291.965	291.996	292.031	292.167	292.235	292.341	292.392	292.370	292.415	Sums.

11.	29.362	29.338	29.335	29.325	29.326	29.357	29.368	29.355	29.362	29.374	29.353	29.361	29.360	29.350	29.351	29.330	29.329	29.340	29.348	29.345	29.340	29.342	29.350	29.350	11.
12.	338	325	336	339	321	336	345	345	357	344	333	336	330	320	310	300	301	298	298	287	300	310	302	276	12.
13.	292	270	287	281	278	283	279	287	285	290	290	290	290	260	252	258	257	264	263	268	275	283	285	262	13.
14.	270	290	285	285	288	292	290	334	316	354	346	347	350	360	371	370	370	374	370	372	381	388	370	355	14.
15.	342	357	352	345	360	351	360	350	350	342	352	338	300	282	255	230	222	228	235	233	216	209	207	185	15.
16.	177	145	122	106	100	099	095	090	094	102	109	100	110	105	100	098	096	110	130	152	173	260	265	270	16.
17.	289	302	302	320	342	362	390	408	416	413	420	431	430	432	462	467	473	474	492	520	551	572	566	564	17.
18.	564	568	571	578	604	620	640	644	647	646	648	640	634	620	606	595	591	583	580	590	600	598	594	592	18.
19.	585	575	560	550	549	557	560	560	560	556	550	542	532	521	500	486	466	446	446	443	467	466	436	426	19.
20.	417	406	395	376	370	358	351	336	315	296	283	260	231	210	177	150	128	108	157	140	148	157	167	20.	
Sums.	293.636	293.576	293.546	293.505	293.538	293.615	293.678	293.709	293.702	293.717	293.684	293.645	293.567	293.460	293.384	293.284	293.283	293.221	293.319	293.349	293.446	293.578	293.532	293.447	Sums.

21.	29.170	29.176	29.175	29.176	29.176	29.181	29.199	29.209	29.217	29.215	29.214	29.212	29.215	29.204	29.207	29.205	29.200	29.201	29.230	29.245	29.266	29.283	29.284	29.278	21.
22.	278	278	271	258	254	250	232	223	230	206	192	190	174	160	143	128	122	112	118	120	120	123	118	110	22.
23.	110	104	092	084	096	103	106	106	104	102	100	094	085	075	071	070	070	068	076	093	102	118	133	134	23.
24.	124	113	108	105	095	091	093	081	090	083	077	071	060	044	031	030	030	030	025	011	015	010	003	28.995	24.
25.	28.980	28.964	28.958	28.940	28.928	28.915	28.894	28.891	28.872	28.846	28.839	28.821	28.796	28.794	28.790	28.784	28.791	28.801	28.811	28.831	28.857	28.860	28.863	28.866	25.
26.	28.865	28.863	28.871	28.872	28.877	28.878	28.902	28.901	28.908	28.902	28.910	28.913	28.924	28.955	28.952	28.971	28.992	28.991	28.998	29.020	29.034	29.037	29.036	29.027	26.
27.	29.028	29.026	29.023	29.024	29.027	29.037	29.048	29.056	29.054	29.055	29.047	29.037	29.030	29.020	29.005	28.982	28.961	28.951	28.950	28.941	28.980	28.930	28.932	28.928	27.
28.	28.935	28.940	28.943	28.964	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.987	28.
29.	29.193	29.197	29.198	29.206	29.212	29.228	29.235	29.255	29.270	280	285	270	254	235	213	205	198	188	200	202	200	204	204	200	29.
30.	185	180	170	160	159	160	165	172	170	165	165	147	132	120	108	092	089	086	115	130	145	156	144	135	30.
31.	136	136	136	146	148	194	189	194	212	224	247	250	249	245	241	235	235	250	274	285	296	302	306	334	31.
m s.	320.004	319.977	319.948	319.934	319.959	320.049	320.091	320.134	320.187	320.151	320.167	320.103	320.108	319.939	319.848	319.791	319.778	319.774	319.921	320.015	320.130	320.202	320.201	320.191	Sums.

Monthly Sums.	906.003	905.850	905.747	905.608	905.682	905.949	906.161	906.281	906.337	906.308	906.281	906.058	905.832	905.450	905.229	905.040	905.007	905.026	905.407	905.598	905.917	906.170	906.109	906.053	Monthly Sums.
Means.	29.226	221	218	213	215	224	231	235	237	236	235	228	220	208	201	195	194	194	207	213	223	231	229	227	Means.



Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.													
1.	29.334	29.336	29.338	29.343	29.346	29.358	29.382	29.417	29.434	29.448	29.452	29.449	29.438	29.428	29.419	29.415	29.409	29.414	29.427	29.428	29.430	29.440	29.439	29.438	1.	29.438	29.428	29.419	29.415	29.409	29.414	29.427	29.428	29.430	29.440	29.439	29.438	1.												
2.	434	425	415	411	407	416	421	423	425	421	412	400	375	358	345	330	325	312	296	289	285	278	251	253	2.	375	358	345	330	325	312	296	289	285	278	251	253	2.												
3.	241	222	199	180	174	165	153	147	140	127	128	128	128	128	120	122	137	147	166	185	202	245	281	3.	128	128	120	122	137	147	166	185	202	245	281	3.														
4.	295	306	325	341	352	377	392	411	419	423	421	415	412	393	397	380	379	378	381	388	390	394	400	4.	412	393	397	380	379	378	381	388	390	394	400	4.														
5.	402	398	390	390	390	392	394	402	402	402	401	395	390	384	377	373	372	371	373	375	383	388	389	5.	390	384	377	373	372	371	373	375	383	388	389	386	5.													
6.	382	375	370	371	385	388	390	408	417	419	421	416	415	414	414	416	415	424	432	438	444	454	456	6.	415	414	414	416	415	424	432	438	444	454	456	458	6.													
7.	461	463	463	464	474	474	474	489	489	494	492	483	460	444	421	400	374	360	350	336	336	330	294	7.	460	444	421	400	374	360	350	336	336	330	294	7.														
8.	282	280	290	283	291	300	310	318	320	322	329	331	330	326	312	308	314	322	333	341	354	362	371	8.	330	326	312	308	314	322	333	341	354	362	371	298	8.													
9.	374	369	365	371	371	374	376	370	360	336	325	305	284	256	240	214	196	187	177	167	164	160	148	9.	284	256	240	214	196	187	177	167	164	160	148	137	9.													
10.	113	089	071	050	037	022	014	013	010	004	003	000	28.995	28.981	28.976	28.971	28.971	28.980	28.992	010	044	041	042	10.	28.995	28.981	28.976	28.971	28.971	28.980	28.992	010	044	041	042	045	10.													
Sums.	293.318	293.263	293.227	293.204	293.217	293.266	293.306	293.385	293.416	293.396	293.384	293.323	293.227	293.104	293.022	292.929	292.892	292.895	292.927	292.957	293.081	293.092	293.089	293.068	Sums.	293.318	293.263	293.227	293.204	293.217	293.266	293.306	293.385	293.416	293.396	293.384	293.323	293.227	293.104	293.022	292.929	292.892	292.895	292.927	292.957	293.081	293.092	293.089	293.068	Sums.

11.	29.056	29.057	29.064	29.074	29.098	29.130	29.132	29.148	29.172	29.185	29.188	29.191	29.190	29.195	29.195	29.195	29.198	29.205	29.222	29.237	29.255	29.285	29.292	11.	29.190	29.185	29.188	29.191	29.195	29.195	29.198	29.205	29.222	29.237	29.255	29.285	29.292	29.296	11.
12.	303	312	312	312	333	355	390	418	430	431	440	448	442	443	443	444	441	442	450	453	455	460	458	12.	442	443	443	448	443	444	441	442	450	453	455	460	458	463	12.
13.	455	450	445	445	445	447	456	472	450	455	454	448	433	418	402	388	390	393	390	393	386	395	404	13.	433	418	402	388	390	393	390	393	386	395	404	404	404	13.	
14.	403	392	394	388	392	399	378	384	386	394	404	412	410	400	395	380	381	372	375	376	374	361	342	14.	410	400	395	380	381	372	375	376	374	361	342	345	14.		
15.	350	341	332	320	322	343	351	359	355	354	353	353	352	340	327	318	316	313	300	300	300	300	300	15.	353	352	340	327	318	316	313	300	300	300	300	292	276	15.	
16.	278	278	275	275	248	244	250	254	246	230	222	202	177	148	139	118	102	090	093	092	082	084	078	16.	177	148	139	118	102	090	093	092	082	084	084	078	063	16.	
17.	063	065	043	028	021	022	019	013	003	28.974	28.960	28.944	28.923	28.876	28.864	28.823	28.806	28.806	28.788	28.785	28.786	28.792	17.	28.923	28.876	28.864	28.823	28.806	28.806	28.788	28.785	28.786	28.792	28.788	28.786	28.786	17.		
18.	28.797	28.806	28.818	28.823	28.846	28.874	28.917	28.928	28.956	28.976	29.000	29.006	29.050	29.059	29.070	29.088	29.111	29.143	29.172	29.200	29.232	29.262	18.	29.050	29.059	29.070	29.088	29.111	29.143	29.172	29.200	29.232	29.262	29.273	29.292	18.			
19.	29.308	29.320	29.332	29.346	29.365	29.376	29.407	29.413	29.416	29.419	427	433	433	429	428	435	436	429	431	430	431	443	19.	433	429	428	435	436	429	431	430	431	443	443	451	19.			
20.	453	463	464	475	488	498	506	516	521	518	521	524	520	505	502	504	511	513	520	525	531	546	20.	520	518	521	524	511	513	520	525	531	546	554	558	20.			
Sums.	292.461	292.474	292.449	292.436	292.528	292.659	292.806	292.905	292.935	292.936	292.909	292.955	292.930	292.815	292.765	292.698	292.709	292.706	292.741	292.791	292.832	292.928	Sums.	292.930	292.815	292.765	292.698	292.709	292.706	292.741	292.791	292.832	292.928	292.924	292.934	Sums.			

21.	29.567	29.568	29.566	29.567	29.568	29.570	29.580	29.594	29.601	29.602	29.604	29.602	29.596	29.582	29.564	29.551	29.547	29.542	29.541	29.543	29.546	29.553	21.	29.596	29.582	29.564	29.551	29.547	29.542	29.541	29.543	29.546	29.553	29.543	29.534	21.
22.	530	520	502	489	493	496	493	490	480	472	456	442	423	411	402	385	381	375	376	363	358	370	22.	423	411	402	385	381	375	376	363	358	370	352	22.	
23.	342	336	315	307	305	304	300	292	290	290	287	283	285	278	267	256	250	256	258	255	259	263	23.	285	278	267	256	250	256	258	255	259	263	260	252	23.
24.	248	242	240	240	241	248	260	263	268	268	268	270	266	267	265	262	264	265	264	265	265	264	24.	266	267	265	262	264	265	264	265	265	264	259	260	24.
25.	251	250	248	237	230	225	233	235	233	232	227	220	205	193	174	163	153	140	157	161	165	171	25.	205	193	174	163	153	140	157	161	165	171	156	141	25.
26.	114	106	096	078	064	088	073	072	070	061	051	041	010	28.998	28.984	28.974	28.976	28.980	28.996	000	005	005	26.	010	28.998	28.984	28.974	28.976	28.980	28.996	000	005	005	005	004	26.
27.	007	28.995	28.994	28.990	001	021	032	041	042	048	048	068	060	29.074	29.083	29.105	29.124	29.136	29.163	180	211	221	27.	060	29.074	29.083	29.105	29.124	29.136	29.163	29.180	211	221	228	240	27.
28.	242	29.251	29.256	29.264	291	274	280	301	299	307	310	325	326	320	320	314	311	310	302	334	341	341	28.	326	320	320	314	311	310	302	334	341	342	331	28.	
29.	328	330	318	304	306	303	306	303	292	256	233	208	178	148	125	113	116	112	121	135	149	188	29.	178	148	125	113	116	112	121	135	149	188	230	260	29.
30.	281	303	315	343	353	376	376	410	409	417	428	436	440																							



# JULY.

P. M.

A. M.

P. M.

Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.
1.	29.494	29.496	29.498	29.498	29.510	29.530	29.544	29.553	29.555	29.553	29.545	29.544	29.538	29.528	29.518	29.507	29.494	29.487	29.490	29.488	29.491	29.492	29.488	29.487	1.
2.	.487	.490	.485	.479	.475	.477	.480	.481	.475	.465	.469	.464	.425	.424	.402	.400	.371	.368	.362	.359	.359	.358	.354	.349	2.
3.	.342	.328	.317	.320	.320	.319	.320	.324	.341	.343	.352	.353	.351	.347	.344	.337	.321	.331	.340	.347	.359	.369	.373	.376	3.
4.	.387	.390	.391	.396	.426	.440	.451	.464	.466	.466	.472	.474	.466	.462	.451	.441	.441	.437	.441	.448	.454	.466	.475	.477	4.
5.	.481	.482	.476	.476	.477	.477	.494	.500	.503	.503	.504	.508	.504	.491	.480	.475	.461	.452	.448	.443	.465	.470	.461	.454	5.
6.	.452	.437	.439	.437	.438	.437	.435	.435	.423	.421	.413	.400	.374	.363	.346	.334	.323	.316	.316	.305	.271	.262	.260	.255	6.
7.	.248	.234	.220	.199	.192	.177	.172	.171	.153	.138	.125	.113	.100	.092	.074	.070	.058	.070	.080	.092	.107	.116	.118	.138	7.
8.	.162	.163	.169	.155	.185	.171	.240	.264	.280	.285	.288	.286	.286	.279	.274	.273	.280	.285	.300	.323	.345	.356	.362	.377	8.
9.	.374	.373	.373	.381	.385	.400	.404	.406	.414	.421	.421	.420	.408	.398	.396	.381	.374	.370	.361	.358	.347	.346	.346	.338	9.
10.	.328	.313	.294	.281	.280	.272	.264	.276	.270	.234	.224	.203	.205	.187	.188	.187	.180	.173	.166	.162	.167	.179	.176	.174	10.
Sums.	<b>293.755</b>	<b>293.706</b>	<b>293.662</b>	<b>293.539</b>	<b>293.688</b>	<b>293.746</b>	<b>293.806</b>	<b>293.884</b>	<b>293.880</b>	<b>293.829</b>	<b>293.813</b>	<b>293.765</b>	<b>293.657</b>	<b>293.571</b>	<b>293.473</b>	<b>293.405</b>	<b>293.304</b>	<b>293.289</b>	<b>293.304</b>	<b>293.325</b>	<b>293.365</b>	<b>293.414</b>	<b>293.413</b>	<b>293.425</b>	Sums.

11.	29.168	29.161	29.152	29.146	29.141	29.149	29.134	29.130	29.125	29.118	29.116	29.117	29.114	29.107	29.100	29.093	29.089	29.089	29.091	29.094	29.118	29.138	29.158	29.175	11.
12.	.184	.191	.200	.198	.205	.214	.228	.242	.248	.258	.245	.231	.226	.214	.207	.202	.198	.198	.212	.228	.246	.263	.271	.271	12.
13.	.273	.275	.276	.280	.290	.298	.313	.332	.349	.350	.345	.337	.329	.314	.311	.304	.296	.296	.331	.348	.352	.368	.378	.378	13.
14.	.387	.381	.378	.381	.378	.368	.371	.403	.393	.391	.388	.397	.396	.390	.380	.362	.353	.359	.355	.355	.365	.375	.384	.384	14.
15.	.347	.313	.277	.262	.263	.263	.267	.267	.277	.276	.276	.262	.250	.244	.235	.241	.245	.240	.243	.250	.261	.275	.278	.284	15.
16.	.291	.290	.282	.271	.269	.259	.267	.265	.253	.249	.249	.261	.246	.240	.225	.222	.224	.236	.236	.237	.239	.256	.256	.256	16.
17.	.258	.250	.241	.238	.232	.240	.243	.246	.251	.246	.249	.247	.246	.230	.225	.222	.224	.228	.239	.248	.265	.279	.284	.286	17.
18.	.286	.285	.280	.279	.280	.284	.291	.290	.290	.290	.289	.284	.260	.228	.228	.223	.222	.221	.214	.218	.208	.206	.190	.189	18.
19.	.176	.162	.161	.148	.149	.139	.146	.149	.136	.126	.130	.115	.104	.088	.070	.060	.050	.047	.052	.063	.072	.082	.080	.076	19.
20.	.077	.068	.080	.076	.080	.080	.080	.080	.072	.072	.066	.063	.052	.040	.033	.020	.020	.021	.068	.071	.074	.080	.080	.101	20.
Sums.	<b>292.447</b>	<b>292.376</b>	<b>292.327</b>	<b>292.279</b>	<b>292.285</b>	<b>292.294</b>	<b>292.326</b>	<b>292.404</b>	<b>292.394</b>	<b>292.376</b>	<b>292.364</b>	<b>292.317</b>	<b>292.219</b>	<b>292.095</b>	<b>292.035</b>	<b>291.969</b>	<b>291.938</b>	<b>291.936</b>	<b>292.042</b>	<b>292.112</b>	<b>292.200</b>	<b>292.311</b>	<b>292.325</b>	<b>292.361</b>	Sums.

21.	29.102	29.100	29.108	29.115	29.128	29.135	29.142	29.155	29.158	29.154	29.175	29.161	29.156	29.147	29.140	29.132	29.131	29.133	29.132	29.125	29.129	29.126	29.124	29.119	21.
22.	.122	.114	.105	.097	.095	.104	.107	.118	.127	.127	.140	.143	.146	.146	.146	.148	.151	.153	.174	.200	.226	.251	.260	.271	22.
23.	.281	.281	.282	.291	.316	.331	.342	.364	.382	.381	.377	.368	.366	.363	.349	.340	.340	.346	.356	.376	.388	.396	.398	.403	23.
24.	.413	.411	.413	.414	.426	.435	.445	.446	.439	.430	.420	.409	.407	.388	.385	.380	.377	.372	.377	.382	.387	.391	.388	.387	24.
25.	.386	.386	.385	.381	.380	.378	.380	.379	.377	.366	.353	.348	.339	.338	.329	.314	.314	.315	.312	.312	.306	.295	.289	.292	25.
26.	.270	.264	.239	.226	.225	.225	.229	.238	.230	.230	.225	.217	.216	.210	.202	.199	.181	.172	.177	.180	.193	.190	.176	.166	26.
27.	.152	.148	.133	.123	.106	.106	.106	.106	.103	.094	.081	.065	.050	.050	.047	.041	.040	.040	.042	.044	.050	.060	.061	.066	27.
28.	.069	.069	.070	.083	.086	.096	.118	.129	.136	.141	.142	.139	.136	.131	.128	.126	.123	.125	.138	.142	.165	.176	.182	.188	28.
29.	.188	.178	.181	.187	.187	.191	.199	.213	.218	.212	.210	.206	.194	.192	.185	.180	.182	.172	.174	.164	.176	.181	.181	.176	29.
30.	.176	.182	.180	.185	.178	.184	.188	.183	.196	.209	.235	.222	.219	.219	.217	.203	.198	.196	.196	.203	.202	.221	.230	.231	30.
31.	.240	.236	.230	.227	.231	.226	.249	.265	.292	.292	.289	.288	.289	.293	.282	.271	.264	.261	.268	.274	.283	.286	.285	.285	31.
Sums.	<b>321.499</b>	<b>321.369</b>	<b>321.326</b>	<b>321.319</b>	<b>321.358</b>	<b>321.411</b>	<b>321.505</b>	<b>321.596</b>	<b>321.658</b>	<b>321.636</b>	<b>321.646</b>	<b>321.566</b>	<b>321.518</b>	<b>321.477</b>	<b>321.410</b>	<b>321.334</b>	<b>321.301</b>	<b>321.285</b>	<b>321.347</b>	<b>321.402</b>	<b>321.505</b>	<b>321.573</b>	<b>321.574</b>	<b>321.584</b>	Sums.

Monthly Sums.	<b>907.101</b>	<b>907.451</b>	<b>907.315</b>	<b>907.137</b>	<b>907.331</b>	<b>907.451</b>	<b>907.637</b>	<b>907.884</b>	<b>907.932</b>	<b>907.841</b>	<b>907.825</b>	<b>907.648</b>	<b>907.394</b>	<b>907.143</b>	<b>906.918</b>	<b>906.708</b>	<b>906.543</b>	<b>906.530</b>	<b>906.633</b>	<b>906.839</b>	<b>907.070</b>	<b>907.295</b>	<b>907.312</b>	<b>907.370</b>	Monthly Sums.
Means.	<b>29.281</b>	<b>27.2</b>	<b>26.8</b>	<b>26.2</b>	<b>26.9</b>	<b>27.3</b>	<b>27.9</b>	<b>28.7</b>	<b>28.8</b>	<b>28.5</b>	<b>28.5</b>	<b>27.9</b>	<b>27.1</b>	<b>26.3</b>	<b>25.5</b>	<b>24.9</b>	<b>24.4</b>	<b>24.3</b>	<b>24.8</b>	<b>25.3</b>	<b>26.0</b>	<b>26.7</b>	<b>26.8</b>	<b>27.0</b>	Means.



# AUGUST.

P. M.

A. M.

P. M.

Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	Sums.	
1.	29.287	29.282	29.276	29.275	29.271	29.271	29.271	29.271	29.271	29.271	29.266	29.247	29.234	29.214	29.205	29.182	29.162	29.151	29.142	29.145	29.126	29.126	29.145	29.142	29.145	29.101	29.065
2.	.046	.005	28.968	28.932	28.912	28.914	28.896	28.885	28.886	28.867	28.865	28.865	28.850	28.830	28.828	28.831	28.840	28.851	28.868	28.875	28.886	28.886	28.875	28.868	28.850	28.830	28.806
3.	28.914	28.910	28.910	28.909	28.927	28.940	28.960	28.973	28.963	28.964	28.967	28.967	28.966	28.951	28.964	28.967	29.002	29.027	29.044	29.065	29.096	29.109	29.114	29.114	29.114	29.114	29.114
4.	29.125	29.137	29.137	29.146	29.161	29.175	29.195	29.214	29.228	29.241	29.244	29.248	29.248	29.251	29.242	29.251	29.256	29.267	29.274	29.274	29.274	29.274	29.274	29.274	29.274	29.274	29.274
5.	.313	.306	.306	.308	.314	.321	.324	.328	.333	.337	.339	.341	.348	.346	.340	.338	.337	.338	.337	.337	.336	.335	.336	.337	.338	.338	.338
6.	.362	.362	.362	.362	.360	.360	.360	.360	.358	.360	.358	.351	.348	.343	.337	.336	.336	.339	.342	.343	.352	.360	.360	.360	.362	.362	.362
7.	.363	.363	.363	.363	.362	.368	.370	.373	.378	.383	.387	.388	.381	.370	.361	.348	.333	.327	.327	.326	.321	.304	.301	.301	.301	.301	.301
8.	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266	.266
9.	.556	.556	.556	.556	.557	.587	.612	.623	.627	.638	.635	.626	.615	.604	.595	.588	.586	.586	.595	.598	.612	.621	.617	.607	.607	.607	.607
10.	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603	.603
Sums.	292.721	292.785	292.681	292.660	292.730	292.805	292.878	292.968	293.018	293.053	293.050	292.990	292.919	292.819	292.761	292.713	292.713	292.731	292.778	292.849	292.939	292.990	292.962	292.901	292.901	292.901	292.901

11.	29.325	29.307	29.287	29.265	29.251	29.243	29.237	29.227	29.219	29.211	29.202	29.190	29.171	29.157	29.140	29.113	29.091	29.076	29.080	29.075	29.078	29.074	29.067	29.058	29.058
12.	.046	.041	.028	.010	.013	.037	.050	.067	.063	.063	.102	.102	.101	.100	.098	.100	.099	.127	.148	.175	.207	.227	.232	.255	.255
13.	.255	.261	.266	.270	.288	.300	.314	.339	.341	.352	.331	.309	.296	.291	.281	.268	.261	.247	.242	.236	.241	.227	.213	.198	.183
14.	.176	.152	.136	.121	.101	.085	.072	.061	.050	.046	.025	.006	28.988	28.970	28.968	28.965	28.964	28.976	.004	.033	.057	.081	.105	.121	.14.
15.	.135	.155	.176	.188	.192	.232	.251	.268	.281	.300	.308	.298	29.300	29.300	29.301	29.301	29.300	29.300	.302	.312	.348	.358	.359	.379	.15.
16.	.386	.391	.382	.386	.387	.409	.412	.422	.415	.416	.400	.400	.380	.361	.333	.310	.278	.262	.262	.193	.150	.100	.052	28.962	16.
17.	28.965	28.934	28.941	28.934	28.949	28.995	.023	.056	.096	.115	.139	.162	.178	.198	.215	.220	.238	.255	.268	.285	.300	.309	.333	29.345	17.
18.	29.352	29.370	29.378	29.380	29.384	29.401	.412	.436	.446	.464	.481	.476	.464	.463	.463	.463	.458	.457	.459	.463	.484	.494	.496	497	18.
19.	.500	.502	.504	.513	.512	.520	.532	.537	.540	.542	.543	.541	.545	.545	.545	.550	.555	.564	.579	.588	.605	.614	.624	.624	19.
20.	.627	.627	.630	.630	.631	.649	.662	.683	.689	.694	.700	.694	.686	.674	.663	.651	.645	.643	.640	.640	.645	.646	.647	.644	20.
Sums.	292.767	292.762	292.738	292.697	292.708	292.871	292.965	293.096	293.140	293.242	293.247	293.178	293.109	293.059	293.007	292.941	292.889	292.907	292.978	293.000	293.120	293.130	293.128	293.073	293.073

21.	29.644	29.640	29.634	29.635	29.633	29.634	29.637	29.640	29.644	29.644	29.640	29.630	29.610	29.589	29.569	29.561	29.550	29.545	29.546	29.542	29.546	29.528	29.517	29.500	21.
22.	.483	.466	.461	.455	.450	.440	.425	.423	.420	.407	.401	.372	.350	.337	.320	.308	.286	.275	.251	.256	.251	.232	.226	.200	22.
23.	.218	.210	.206	.203	.205	.210	.221	.236	.240	.248	.248	.246	.243	.241	.242	.242	.249	.243	.251	.261	.274	.273	.269	.269	23.
24.	.270	.270	.263	.257	.257	.262	.283	.297	.314	.322	.321	.326	.327	.319	.317	.312	.315	.321	.340	.338	.340	.338	.351	.352	24.
25.	.350	.345	.343	.340	.336	.340	.340	.350	.355	.360	.372	.370	.369	.362	.352	.349	.354	.348	.356	.344	.362	.356	.354	.351	25.
26.	.341	.340	.345	.350	.350	.343	.346	.352	.350	.330	.309	.291	.271	.266	.235	.221	.212	.211	.227	.215	.227	.229	.232	.235	26.
27.	.239	.236	.237	.238	.240	.249	.260	.273	.285	.286	.285	.283	.274	.268	.261	.247	.244	.238	.241	.239	.241	.244	.240	.238	27.
28.	.236	.230	.230	.229	.226	.226	.230	.230	.232	.233	.231	.232	.222	.214	.204	.190	.188	.186	.188	.188	.204	.204	.206	.208	28.
29.	.206	.202	.200	.189	.189	.194	.202	.214	.225	.237	.249	.251	.254	.254	.252	.246	.250	.253	.258	.263	.265	.285	.288	.304	29.
30.	.302	.298	.292	.281	.277	.274	.293	.299	.293	.287	.277	.270	.252	.232	.212	.187	.170	.167	.163	.165	.165	.155	.135	.119	30.
31.	.104	.088	.073	.068	.068	.067	.066	.068	.073	.073	.070	.046	.030	.029	.034	.042	.062	.084	.074	.101	.123	.137	.153	.172	31.
Sums.	322.393	322.325	322.284	322.245	322.231	322.239	322.303	322.382	322.431	322.427	322.403	322.317	322.202	322.111	321.998	321.905	321.873	321.866	321.856	321.912	322.000	321.981	321.970	321.948	321.948

Monthly Sums.	907.881	907.872	907.693	907.602	907.669	907.915	908.146	908.446	908.589	908.725	908.700	908.485	908.230	907.989	907.766	907.559	907.475	907.504	907.612	907.734	908.035	908.065	908.061	907.922	Monthly Sums.
Means.	29.286	28.6	28.1	27.7	27.9	28.7	29.5	30.5	30.9	31.4	31.3	30.6	29.8	29.0	28.3	27.6	27.3	27.4	27.8	28.2	29.1	29.2	29.2	28.8	Means.











# NOVEMBER.

A. M.

P. M.

Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.	
1.	29,227	29,223	29,220	29,224	29,224	29,230	29,240	29,254	29,260	29,264	29,262	29,260	29,248	29,244	29,236	29,238	29,248	29,261	29,270	29,282	29,296	29,305	29,306	29,306	29,306	1.
2.	.314	.321	.337	.356	.373	.388	.403	.415	.416	.428	.440	.434	.426	.416	.410	.410	.423	.416	.423	.429	.432	.436	.432	.432	.432	2.
3.	.431	.425	.416	.409	.414	.415	.415	.415	.415	.415	.412	.385	.345	.339	.320	.320	.289	.288	.283	.290	.287	.280	.255	.233	.233	3.
4.	.494	.515	.534	.554	.559	.565	.574	.584	.577	.588	.589	.584	.567	.547	.527	.520	.513	.523	.389	.411	.441	.467	.480	.498	.498	4.
5.	.513	.505	.493	.493	.479	.469	.460	.467	.455	.450	.430	.404	.340	.314	.245	.182	.150	.121	.113	.101	.060	.027	.516	.513	.513	5.
6.	28,920	28,845	28,742	28,555	28,580	28,530	28,000	28,000	28,686	28,727	28,764	28,800	28,830	28,850	28,862	28,893	28,933	28,962	28,993	0.17	0.42	0.63	28,988	28,980	28,980	6.
7.	29,105	29,116	29,116	29,117	29,120	29,120	29,132	29,154	29,171	29,173	28,749	28,800	28,830	28,850	28,862	28,893	28,933	28,962	28,993	0.17	0.42	0.63	29,080	29,092	29,092	7.
8.	.335	.343	.358	.369	.383	.391	.407	.427	.427	.436	.437	.431	.408	.402	.402	.406	.412	.414	.430	.440	.277	.250	.245	.313	.313	8.
9.	.451	.450	.442	.443	.447	.450	.456	.456	.466	.464	.465	.446	.417	.403	.395	.390	.386	.384	.381	.369	.363	.363	.360	.350	.350	9.
10.																										10.
Sums.	293,001	292,933	292,848	292,688	292,654	292,719	292,707	292,860	292,996	293,102	293,162	293,115	292,940	292,892	292,810	292,815	292,860	292,950	293,055	293,110	293,160	293,104	293,151	293,176	Sums.	

11.	29,352	29,345	29,346	29,342	29,348	29,348	29,351	29,355	29,363	29,368	29,388	29,377	29,356	29,343	29,344	29,351	29,362	29,365	29,385	29,386	29,393	29,408	29,420	29,430	29,430	11.
12.	.425	.420	.425	.418	.425	.426	.432	.438	.451	.456	.463	.450	.435	.428	.424	.412	.402	.395	.375	.341	.302	.285	.283	.205	.205	12.
13.	.125	.053	.000	28,925	28,907	28,852	28,834	28,825	28,798	28,760	28,749	28,710	28,692	28,685	28,676	28,662	28,660	28,668	28,675	28,682	28,691	28,700	28,715	28,722	28,722	13.
14.	28,758	28,776	28,804	28,813	28,844	28,858	28,903	28,928	28,932	28,967	28,980	28,985	28,983	28,990	29,001	29,027	29,049	29,069	29,102	29,130	29,147	29,160	29,170	29,176	29,176	14.
15.	29,177	29,182	29,183	29,180	29,210	29,225	29,263	29,263	29,262	29,318	29,335	29,335	29,325	29,325	325	.334	.354	.375	.395	.420	.435	.462	.468	.473	.473	15.
16.	.484	.500	.525	.560	.578	.603	.623	.649	.660	.667	.679	.686	.682	.682	.678	.691	.686	.702	.703	.704	.704	.724	.706	.696	.696	16.
17.	.688	.671	.667	.651	.646	.643	.635	.631	.615	.612	.592	.528	.528	.503	.474	.461	.453	.450	.442	.426	.394	.380	.360	.338	.338	17.
18.	.328	.285	.276	.245	.203	.155	.120	.088	.070	.050	28,995	28,908	28,830	28,740	28,722	28,757	28,786	28,811	28,835	28,860	28,886	28,916	28,935	28,929	28,929	18.
19.	28,952	28,965	28,983	28,976	28,968	28,973	28,970	28,978	28,975	28,968	28,970	28,965	28,983	28,987	28,988	29,004	29,035	29,065	29,091	29,113	29,140	29,150	29,133	29,148	29,148	19.
20.	29,131	29,158	29,160	29,171	29,170	29,171	29,180	29,180	29,176	29,174	29,160	29,135	29,106	29,076	29,064	.058	.057	.062	.076	.083	.084	.093	.096	.103	.103	20.
Sums.	292,420	292,355	292,369	292,281	292,279	292,239	292,273	292,335	292,352	292,340	292,311	292,111	291,922	291,759	291,616	291,727	291,854	291,962	292,079	292,145	292,176	292,278	292,286	292,220	Sums.	

21.	29,115	29,124	29,140	29,150	29,162	29,181	29,205	29,220	29,254	29,254	29,253	29,250	29,243	29,246	29,245	29,256	29,272	29,291	29,320	29,350	29,360	29,368	29,373	29,381	29,381	21.
22.	.374	.392	.402	.407	.408	.422	.434	.455	.480	.494	.483	.474	.463	.455	.467	.484	.502	.517	.525	.545	.530	.527	.530	.528	.528	22.
23.	.508	.497	.470	.448	.437	.400	.370	.336	.324	.278	.226	.153	.075	.044	.044	28,913	28,850	28,890	28,872	28,850	28,828	28,816	28,787	28,754	28,754	23.
24.	28,713	28,709	28,692	28,680	28,683	28,706	28,706	28,706	28,833	28,843	28,880	28,890	28,888	28,921	28,956	29,005	29,063	29,092	29,125	29,158	29,195	29,215	29,245	29,273	29,273	24.
25.	29,268	29,268	29,268	29,301	29,319	29,337	29,355	29,358	29,352	29,358	29,345	29,344	29,275	29,248	29,248	.178	.078	.082	.007	28,820	28,750	28,704	28,722	28,724	28,724	25.
26.	28,758	28,815	28,883	28,948	29,030	29,105	29,173	29,219	29,268	29,313	322	.329	.351	.368	.385	.420	.447	.456	.483	29,509	29,534	29,542	29,553	29,568	29,568	26.
27.	29,566	29,557	29,568	29,567	.569	.570	.588	.595	.607	.607	.603	.576	.556	.543	.534	.531	.520	.529	.530	.529	.526	.528	.522	.522	.522	27.
28.	.505	.501	.506	.495	.487	.480	.488	.486	.480	.486	.474	.450	.433	.421	.408	.404	.393	.393	.401	.406	.403	.400	.395	.394	.394	28.
29.	.390	.382	.374	.350	.347	.331	.324	.323	.313	.300	.286	.259	.223	.203	.185	.172	.175	.176	.168	.168	.178	.177	.177	.177	.177	29.
30.	.180	.182	.191	.185	.180	.180	.188	.198	.201	.206	.200	.170	.150	.130	.107	.104	.085	.060	.031	.002	.007	.007	.007	.007	.007	30.
Sums.	292,377	292,450	292,524	292,540	292,622	292,706	292,801	292,965	293,114	293,139	293,072	292,895	292,657	292,579	292,442	292,467	292,445	292,436	292,462	292,348	292,311	292,232	292,211	292,185	Sums.	

Monthly Sums.	877,798	877,778	877,741	877,509	877,555	877,664	877,871	878,190	878,462	878,581	878,543	878,121	877,519	877,230	876,868	877,009	877,159	877,348	877,596	877,603	877,647	877,614	877,678	877,581	Monthly Sums.
Means.	29,260	29,259	29,258	29,250	29,252	29,255	29,262	29,273	29,282	29,286	29,285	29,271	29,251	29,241	29,229	29,234	29,239	29,245	29,253	29,253	29,253	29,254	29,256	29,258	Means.



# DECEMBER.

A. M.

P. M.

P. M.

Date.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Date.		
1.	28.830	28.759	28.766	28.765	28.772	28.805	28.839	28.870	28.889	28.905	28.922	28.928	28.928	28.926	28.946	28.956	28.966	28.968	28.976	28.976	28.974	28.972	28.972	28.961	28.954	1.	
2.	28.948	28.934	28.910	28.872	28.840	28.806	28.797	28.793	28.801	28.800	28.795	28.786	28.786	28.786	28.796	28.815	28.832	28.851	28.878	28.878	28.898	28.912	28.910	28.910	28.937	2.	
3.	28.952	28.957	28.972	28.907	29.020	29.045	29.078	29.120	29.135	29.145	29.135	29.133	29.133	29.134	29.150	29.186	29.200	29.238	29.300	29.300	29.325	29.353	29.380	29.400	29.400	3.	
4.	29.436	29.453	29.460	29.507	29.538	29.543	29.565	29.595	29.633	29.649	29.677	29.677	29.677	29.665	29.665	29.693	29.715	29.748	29.801	29.801	29.805	29.808	29.808	29.816	29.845	4.	
5.	859	856	866	878	884	861	866	863	868	868	868	868	868	868	868	868	868	868	868	868	868	868	868	868	868	868	5.
6.	432	400	377	343	361	396	400	413	433	451	467	467	467	442	448	450	460	450	458	458	467	455	475	478	466	6.	
7.	405	458	452	392	375	386	346	328	349	315	324	275	275	244	222	225	210	211	215	220	223	223	225	225	230	7.	
8.	234	258	280	283	296	318	350	369	410	425	420	402	402	394	390	395	423	438	478	478	481	495	507	516	516	8.	
9.	518	514	512	535	555	571	590	605	625	645	623	606	606	589	601	623	635	643	682	698	698	708	718	721	721	9.	
10.	718	720	721	708	698	698	698	700	701	700	670	640	640	600	586	583	580	567	555	555	548	530	508	496	496	10.	
Sums.	293.352	293.309	293.346	293.320	293.264	293.324	293.480	293.693	293.860	293.923	293.830	293.670	293.501	293.518	293.501	293.616	293.711	293.782	293.840	293.925	293.954	293.962	293.978	294.128	294.128	Sums.	

11.	29.485	29.454	29.452	29.441	29.438	29.432	29.441	29.454	29.455	29.458	29.455	29.452	29.452	29.453	29.453	29.464	29.474	29.476	29.483	29.507	29.505	29.513	29.513	29.533	29.543	11.
12.	540	522	521	522	513	493	500	522	515	491	460	460	460	475	435	423	413	392	389	367	357	350	322	298	298	12.
13.	246	232	201	165	132	115	97	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	13.
14.	28.651	28.692	28.625	28.621	28.623	28.643	28.658	28.674	28.713	28.735	28.774	28.774	28.774	28.780	28.814	28.854	28.895	28.943	28.975	29.005	29.030	29.031	29.042	29.042	29.042	14.
15.	29.013	29.005	29.005	28.980	28.962	28.964	28.966	28.960	28.972	28.982	28.962	28.950	28.950	28.936	28.936	28.947	28.963	28.963	28.960	28.965	28.947	28.936	28.930	28.904	28.904	15.
16.	28.878	28.845	28.846	28.820	28.798	28.782	28.808	28.798	28.746	28.701	28.701	28.701	28.701	28.740	28.778	28.824	28.890	28.922	29.006	29.103	29.135	29.203	29.245	29.292	29.292	16.
17.	29.309	29.342	29.373	29.398	29.423	29.442	29.480	29.536	29.571	29.583	29.562	29.555	29.555	29.541	29.540	29.566	29.575	29.581	598	609	610	610	598	610	610	17.
18.	376	360	358	318	282	248	218	196	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	18.
19.	144	121	134	145	154	173	205	265	323	311	300	300	300	303	320	331	336	370	395	403	412	400	412	418	418	19.
20.	420	412	407	420	415	433	439	465	473	482	454	435	435	422	404	422	422	423	428	445	445	464	466	455	455	20.
Sums.	292.292	292.115	292.122	292.030	291.940	291.953	291.952	292.020	292.065	292.183	292.211	292.012	291.852	291.834	291.805	291.943	292.055	292.111	292.224	292.253	292.346	292.365	292.374	292.351	292.351	Sums.

21.	29.470	29.482	29.483	29.482	29.473	29.475	29.480	29.480	29.480	29.490	29.491	29.474	29.474	29.474	29.474	29.474	29.474	29.474	29.474	29.474	29.474	29.474	29.474	29.474	29.474	29.474	21.
22.	470	470	496	498	498	520	533	546	556	560	560	545	526	514	516	523	540	559	576	588	592	604	614	620	620	22.	
23.	623	620	638	673	695	719	755	750	790	794	760	734	734	713	715	745	732	713	707	701	702	691	653	625	625	23.	
24.	593	577	557	533	492	448	434	413	414	386	338	338	287	260	238	239	170	139	112	090	048	048	048	048	048	24.	
25.	28.917	28.864	28.882	28.884	28.921	28.958	28.998	030	098	122	128	130	130	190	221	280	320	360	405	415	440	440	440	440	440	25.	
26.	29.514	29.532	29.551	29.564	29.571	29.558	29.569	590	580	588	578	534	534	496	467	452	438	419	442	425	385	386	377	333	333	26.	
27.	311	282	300	260	268	271	292	296	295	292	223	227	227	242	259	266	301	320	368	376	392	402	421	435	435	27.	
28.	445	445	467	461	480	515	536	550	554	549	521	498	498	486	467	474	476	488	488	494	495	494	483	477	477	28.	
29.	457	441	440	427	426	433	448	467	492	510	497	487	487	490	515	548	573	602	623	639	645	660	678	687	687	29.	
30.	683	688	706	695	693	703	710	710	719	733	713	686	686	676	686	686	685	683	684	679	680	680	678	673	673	30.	
31.	634	627	633	605	580	579	573	570	566	555	517	466	466	433	410	393	361	311	283	237	177	140	114	099	099	31.	
Sums.	324.117	324.038	324.126	324.087	324.050	324.182	324.328	324.402	324.554	324.552	324.294	324.029	323.905	323.905	323.868	324.003	323.997	323.991	324.099	324.079	324.003	323.959	323.924	323.862	323.862	Sums.	

Monthly Sums.	909.711	909.402	909.594	909.437	909.254	909.364	909.623	909.908	910.190	910.599	910.696	910.136	909.551	909.257	909.174	909.562	909.763	909.884	910.163	910.257	910.303	910.286	910.276	910.341	910.341	Monthly Sums.
Means.	29.345	29.338	29.342	29.337	29.330	29.334	29.343	29.352	29.361	29.374	29.377	29.359	29.340	29.331	29.328	29.341	29.347	29.351	29.360	29.363	29.365	29.364	29.364	29.364	29.364	Means.



# ANNUAL SUMMARY.

P. M.

A. M.

P. M.

Month.	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	
January.....	29.281	29.274	29.276	29.276	29.272	29.275	29.285	29.295	29.303	29.320	<b>29.324</b>	29.309	29.290	29.272	29.267	29.269	29.280	29.281	29.289	29.297	<b>29.299</b>	<b>29.299</b>	29.297	29.297	29.298
February....	.254	.251	.252	.247	.251	.259	.267	.280	.293	.297	<b>.298</b>	.292	.271	.254	.241	.237	.225	.241	.247	.247	.253	<b>.254</b>	.254	.254	.252
March.....	.164	.162	.157	.153	.155	.161	.171	.180	.185	.188	.184	.179	.169	.152	.137	.132	.135	.140	.147	.147	.159	.165	.169	.171	.168
April.....	.429	.421	.415	.411	.418	.422	.434	.444	.446	<b>.451</b>	.449	.441	.431	.421	.409	.398	.394	.396	.401	.401	.413	.423	.431	.430	<b>.432</b>
May.....	.226	.221	.218	.213	.215	.224	.231	.235	<b>.237</b>	.236	.235	.228	.220	.208	.201	.195	.194	.194	.207	.207	.213	.223	<b>.231</b>	.229	.227
June.....	.290	.288	.284	.282	.286	.294	.301	.309	<b>.311</b>	.309	.308	.305	.298	.287	.280	.273	.272	.271	.274	.274	.281	.287	.295	.294	<b>.296</b>
July.....	.281	.272	.268	.262	.269	.273	.279	.287	<b>.288</b>	.285	.285	.379	.271	.263	.255	.249	.244	.243	.248	.248	.253	.260	.267	.268	.270
August.....	.286	.286	.281	.277	.279	.287	.295	.305	.309	<b>.314</b>	.313	.306	.298	.290	.283	.276	.273	.274	.278	.278	.282	.291	<b>.292</b>	.292	.288
September..	<b>.445</b>	.444	.440	.438	.439	.448	.462	.469	.476	<b>.479</b>	.474	.465	.454	.440	.432	.424	.422	.424	.427	.427	.434	.439	.432	.443	.440
October.....	.455	.453	.449	.447	.454	.460	.467	.479	.486	<b>.489</b>	.488	.483	.465	.452	.446	.444	.443	.449	.459	.459	.461	.464	<b>.468</b>	.465	.459
November...	<b>.260</b>	.259	.258	.250	.252	.255	.262	.273	.282	<b>.286</b>	.285	.271	.251	.241	.229	.234	.239	.245	.253	.253	.253	.255	.254	.256	.253
December...	.345	.338	.342	.337	.330	.334	.343	.352	.361	<b>.374</b>	<b>.377</b>	.359	.340	.331	.328	.341	.347	.351	.360	.360	.363	.365	.364	.364	<b>.366</b>
Annual Sums....	351.716	351.669	351.640	351.593	351.620	351.692	351.797	351.908	351.977	<b>352.028</b>	352.020	351.917	351.757	351.611	351.508	351.472	351.468	351.509	351.590	351.590	351.662	351.724	<b>351.766</b>	351.763	351.744
Means.....	29.310	.305	.303	.299	.302	.308	.316	.326	.331	<b>.336</b>	.335	.326	.313	.301	.292	.289	.289	.292	.299	.299	.305	.310	<b>.314</b>	.314	.312



TRACINGS

FROM THE

SELF-RECORDING INSTRUMENTS,

TO ILLUSTRATE CERTAIN

METEOROLOGICAL PHENOMENA

DURING THE

YEAR 1886.



THE tracings on Plates Nos. 1 and 1 A show the barometer corrected to 32° Fahrenheit. This correction is made automatically by the barograph. Plates Nos. 4 and 5 give the relative humidities in percentages of saturation.

Curve 1, Plate No. 1 A, shows the barograph trace on Jan. 9, during a remarkable cyclonic storm which, moving northeastward along the Atlantic coast, apparently passed centrally over this station, and the barometer reached the lowest point yet recorded. Plate No. 6 shows the tracing of the Draper anemograph on this day. The lull in the wind in the middle of the day was coincident with or immediately preceded the passage of the cyclone centre, as well as can be determined from synoptic charts; but this lull preceded the occurrence of the minimum pressure recorded at this station by nearly two hours. Plate No. 7 shows the changes in wind direction during this cyclone. The sinuous line on this plate was traced through the centre of the oscillations of the wind vane, as shown on the original anemoscope sheet. (The vane is never steady during high winds, but continuously oscillates, first to one side, then to the other, making a broad trace on the anemoscope sheet.) The results of a special study of this cyclone are given by Prof. Upton in the *American Meteorological Journal*, Vol. III., No. 8.

Curve 2, Plate No. 1, shows the tracing of the barograph on the morning of Feb. 27, during one of the severest gales on record. The sharp depression at 10.20 A. M. was coincident with the opening of a trap door in the top of the tower, and the other less marked sharp depressions were noted by the observer as being coincident with severe gusts of wind. The pressure gauge shows the pressure during some of the gusts to have been over forty pounds per square foot, which is equivalent to a velocity of about 90 miles per hour. The total wind movement for the day was 1,467 miles. The barograph tracing is but a sample of what occurred in a less marked degree during all of the severe gales of the year. (For further information, see *Science*, Vol. VIII., page 325.)

Curve 3, Plate No. 1 A, shows the barograph trace during four hours, ending at 3 A. M., of March 22. There was also a slight upward swell of the temperature curve during these hours. An inappreciable quantity of snow fell, and bright flashes of lightning were seen about 1 A. M., but no thunder was heard. Severe thunderstorms were, however, reported from distant points on this night. The wind suddenly backed for a brief interval from northeast to west at 12.15 A. M., then, returning to northeast, slowly backed during the night to west. A decided decrease in wind velocity between 12.30 and 2 A. M. accompanied the rise in pressure.

Curves 1, Plates Nos. 2 and 4, show tracings of the thermograph and self-recording hygrometer, respectively, from 10 A. M. to 12 M. of April 7. The sudden rise in temperature and fall in humidity at 11.20 A. M. was coincident with a brief clearing of the sky near the zenith and the appearance of the sun, the observatory during the rest of the day being enveloped in a dense fog. Accompanying these phenomena, there was a sudden shift of the wind from southwest to north. Similar appearances of sunshine during the year did not produce similar effects on the temperature and humidity, and it is suggested that in this case the phenomena may have arisen from a brief, local descending current of air.

Curves 2, Plates Nos. 2 and 4, show the sudden fall of temperature and sudden rise of humidity which accompanied a thunder-storm between 4.45 and 6.20 P. M. of May 5. There was also a slight rise of the barograph curve. The wind suddenly shifted from south to northwest at 4.45 P. M., after which it slowly backed again to south. No noticeable change in wind velocity occurred. Rain fell from 4.45 to 8.40 P. M., and amounted to 0.42 inch. Curve 1, Plate No. 8, shows the tracing of the self-recording rain gauge during the time.

Curves 4, Plate No. 1 A, 3, Plates Nos. 2 and 4, show the tracings of the barograph, thermograph, and hygrometer, respectively, between 3 and 6 A. M. of May 31. Thunder was first heard on this morning about 3 A. M. Rain began at 4.15, and ended at 5.20 A. M., and 0.35 inch fell. Curve 2, Plate No. 8, shows the tracing of the self-recording rain gauge. The wind suddenly shifted from west to north at 3.30 A. M., then returned to west at 4 A. M., but again shifted to north at 5 A. M. The wind velocity decreased both before and after the storm, but blew with a velocity of about twenty-five miles per hour from the north during the storm.

Curves 4, Plates Nos. 2 and 4, show the tracings of the thermograph and hygrometer on June 10 between 7 and 10 P. M., during which time a light thunder-shower passed over the observatory. The clouds attending this shower were broken and not well developed. There was an outspreading top, but no cirrus fringe. About 0.10 inch of rain fell, most of which came in a sudden down-pour between 8.5 and 8.10 P. M. See curve 3, Plate No. 9. During the storm the wind veered from northeast to southwest, and there was an increase in velocity at 7.55 P. M., lasting about five minutes. Thunder was not heard until the rain had nearly ceased, but continued for about half an hour as the storm passed to the east, apparently increasing in intensity.

Curve 5, Plate No. 1, shows the tracing of the barograph between 2 and 4 A. M., July 30, during which time a thunder-storm passed over the observatory, attended by a most brilliant and almost continuous display of



lightning and loud thunder. Several houses in the neighboring towns were set on fire by the lightning. 0.10 inch of rain fell; most of it, as shown by the self-recording rain gauge in Plate No. 9, curve 4, fell between 2.45 and 2.50 A. M. The wind veered from southwest to northwest during the passage of the storm, and backed to south after the storm passed. There was a slight decrease in wind velocity for a short while preceding and following the storm, and a decided increase during its passage. Both the temperature and humidity were high, and showed no marked changes during the passage of the storm.

Curves 6, Plate No. 1 A, 5 (dotted), Plate No. 2, and 5, Plate No. 5, show the tracings of the barograph, thermograph, and hygrometer, between 3 and 6 P. M. of Aug. 12. A thunder-storm passed over the observatory immediately after 4 P. M., attended by a heavy shower of rain and a little hail. Almost the whole of the rain (0.42 inch) fell in a rapid down-pour, lasting from 4.05 to 4.25 P. M. See tracing of the self-recording gauge, curve 5, Plate No. 9. The wind oscillated between north and west during the passage of the storm, and blew with a decidedly increased velocity from 4.15 to 4.20 P. M.

Plate No. 3 shows some inversions of temperature between the summit and base of the hill. Curve 1 shows the tracing of the thermograph at the summit from noon of Aug. 22 to noon of Aug. 23. Curve 2 (dotted) shows the tracing of a Draper thermograph at the base, or rather on the slope of the hill, four hundred feet beneath the summit. The time scale of this latter tracing is enlarged to make it correspond with the tracing at the summit. It is seen that the temperature was higher at the base during the day and decidedly lower at night. The temperature at the base continued to fall until sunrise of the 23d, while at the summit it rose after 11 P. M. of the 22d. This inversion occurred on an unusually clear, quiet night, and is a marked example of what almost invariably occurs on such nights. (For further information see *Science*, Vol. VIII., pp. 233 and 281.)

In a similar manner curves 3 and 4 (dotted) show the tracings of the thermographs at the summit and at the base of the hill, respectively, from 11 A. M. of Nov. 17 to noon of Nov. 18. It is seen that the temperature at the summit rose continuously, while the temperature at the base fell from 1 P. M. of the 17th to near 3 A. M. of the 18th, when it was 20° lower than at the summit. This was caused by the not uncommon occurrence of a flow of cold northerly winds around the base, while a strong southerly wind prevailed at the summit. At 10 P. M. of the 17th the wind was blowing three miles per hour from the northwest at the Boston Signal Office, which is ten miles north of Blue Hill Observatory, and about five hundred feet lower; while on Blue Hill it was blowing at the rate of twenty-eight miles an hour from the south. Reports from other stations show that this thin cool northerly current overspread the whole of New England, and was accompanied by a dense fog. Between 3 and 4 P. M. of the 17th these two currents were fighting for the mastery at the summit of Blue Hill, and its effects are seen on the thermograph curve and on the hygrometer curve, 9, Plate No. 5. During this time a cool, damp, foggy current would roll in, lasting five or ten minutes; then it would be displaced by a warmer current from the south lasting about the same interval. This alternate action lasted over half an hour, after which the southerly current remained permanently.

Curve 6, Plate No. 4, shows a marked example of the rapid fall in humidity which usually follows the passage of a storm. Curve 6, Plate No. 2, shows the temperature during this interval. These curves are from tracings of the hygrometer and thermograph from 9 A. M. to 3 P. M. of Sept. 24. Curve 7, Plate No. 5, which exhibits the tracing of the hygrometer from 7 A. M. to noon of Nov. 4, shows another marked example of the rapid fall of humidity immediately following the passage of the line of minimum pressure in a storm.

Curves 7, Plates Nos. 1 and 2, show the tracings of the barograph and thermograph during the passage of a thunder-storm on Nov. 6. Rain fell continuously from noon to 4.30 P. M. of this date, ending with a thunder-storm which passed over to the east. There was a slight increase in wind velocity during the passage of the storm, but no marked change in direction.

Curves 8, on Plates Nos. 1 A, 2, and 5, show the tracings of the barograph, thermograph, and hygrometer, respectively, on the early morning of Nov. 7, when a thunder-storm of moderate intensity passed over the observatory. The wind oscillated between southeast and southwest during the night, and slightly increased in velocity for a short while about 4 A. M. Heavy rain fell from midnight to 4 A. M.

Curve 9, Plate No. 2, shows a rapid rise in temperature which was coincident with the occurrence of the time of minimum pressure in a storm which, moving northeasterly along the Atlantic coast, passed centrally over this region about 9 P. M. of Nov. 25. Curve 9, Plate No. 1, shows the fall of the barometer on this date from 12 M. to 11 P. M. This curve shows small wave-like oscillations which are not uncommonly shown by the barograph curve at this observatory.

Curve 10, Plate No. 1 A, gives a rather striking example of these short wave-like undulations which occurred between 7 A. M. and noon of Dec. 7. The cause of these undulations is not clearly understood, since they cannot be directly connected with changes of the wind velocity, or with any of the meteorological elements.

H. HELM CLAYTON.















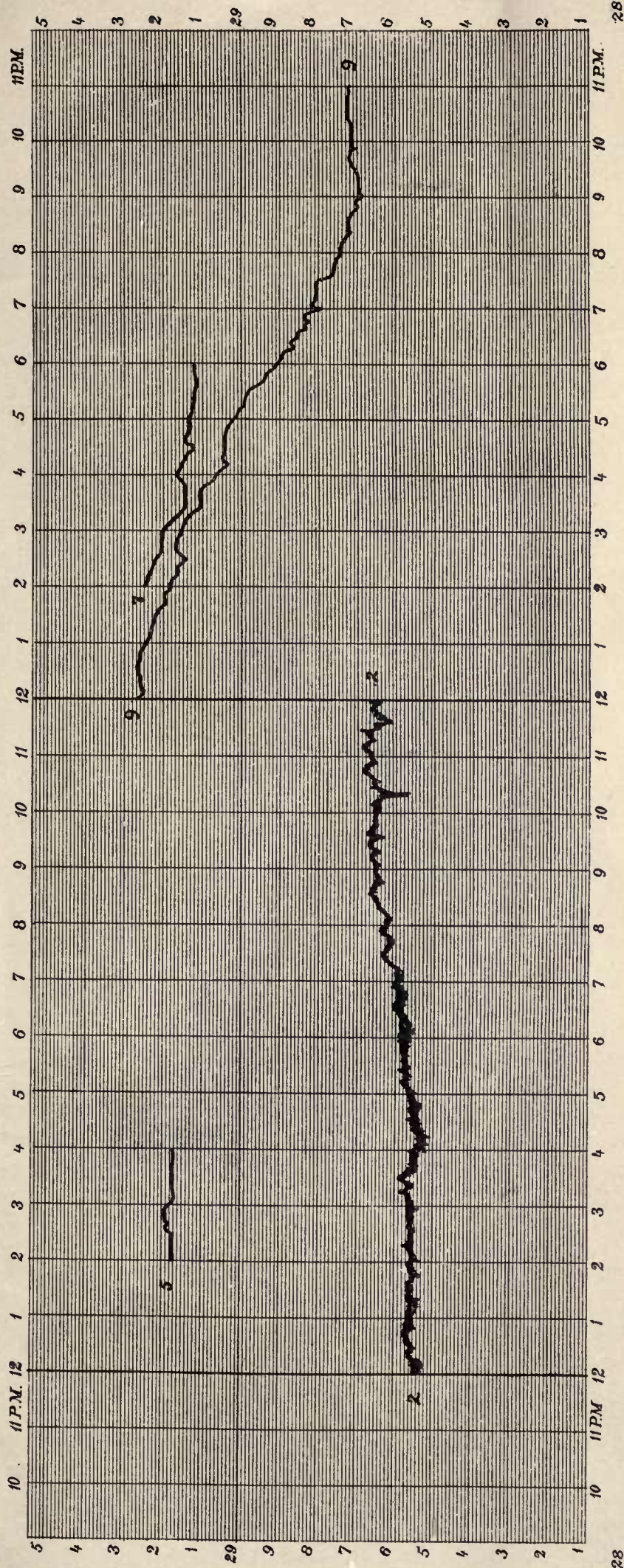
No. 1.

# BLUE HILL METEOROLOGICAL OBSERVATORY. BAROMETER.

PRESSURE OF THE ATMOSPHERE AT BLUE HILL, NORFOLK CO., MASS.

Recorded by Draper's Self-recording Pencil Barometer.

1886



Constructed by  
Black & Fisher,  
New York City

The barometer is here multiplying three times.



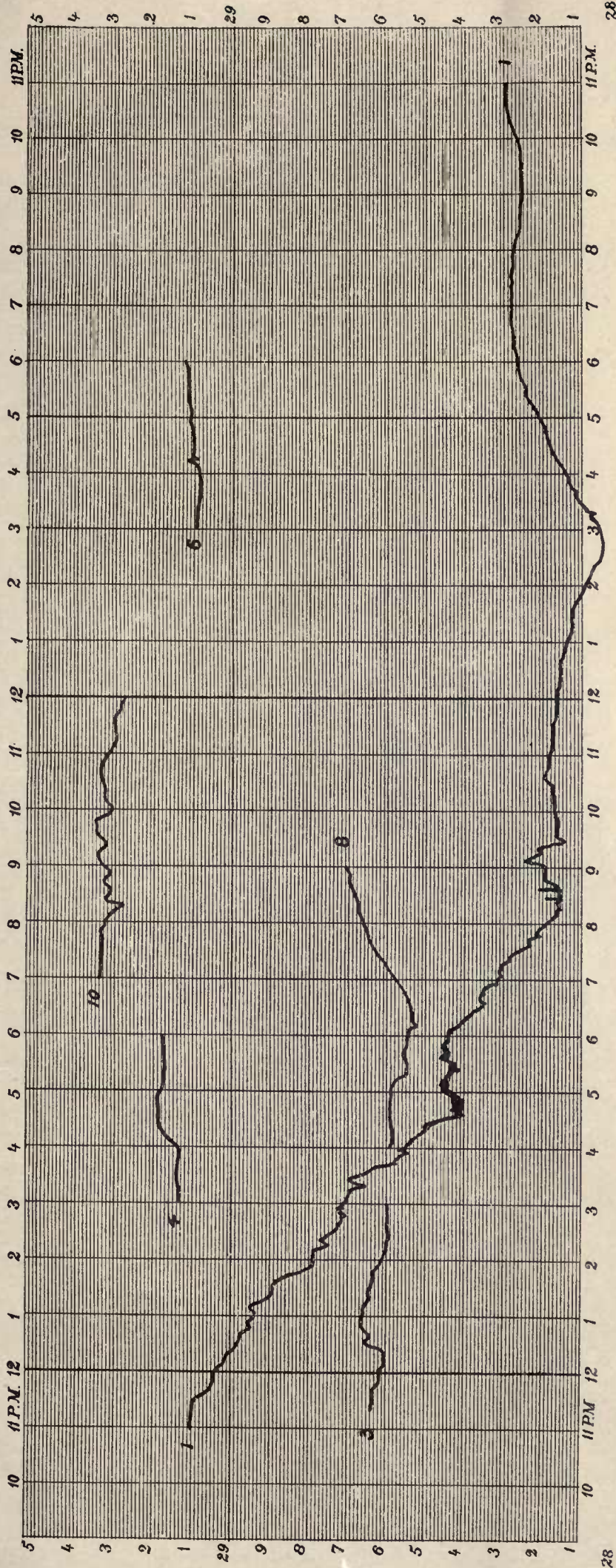




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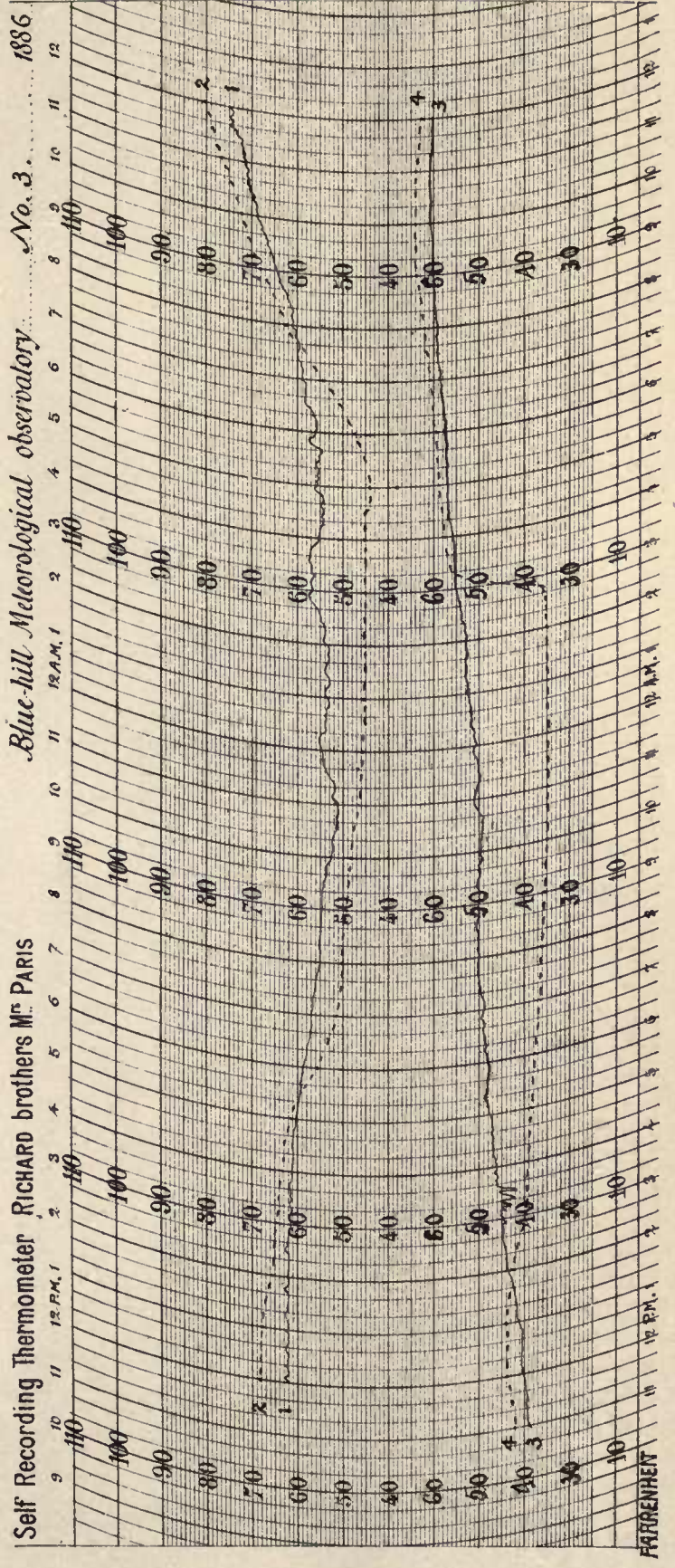
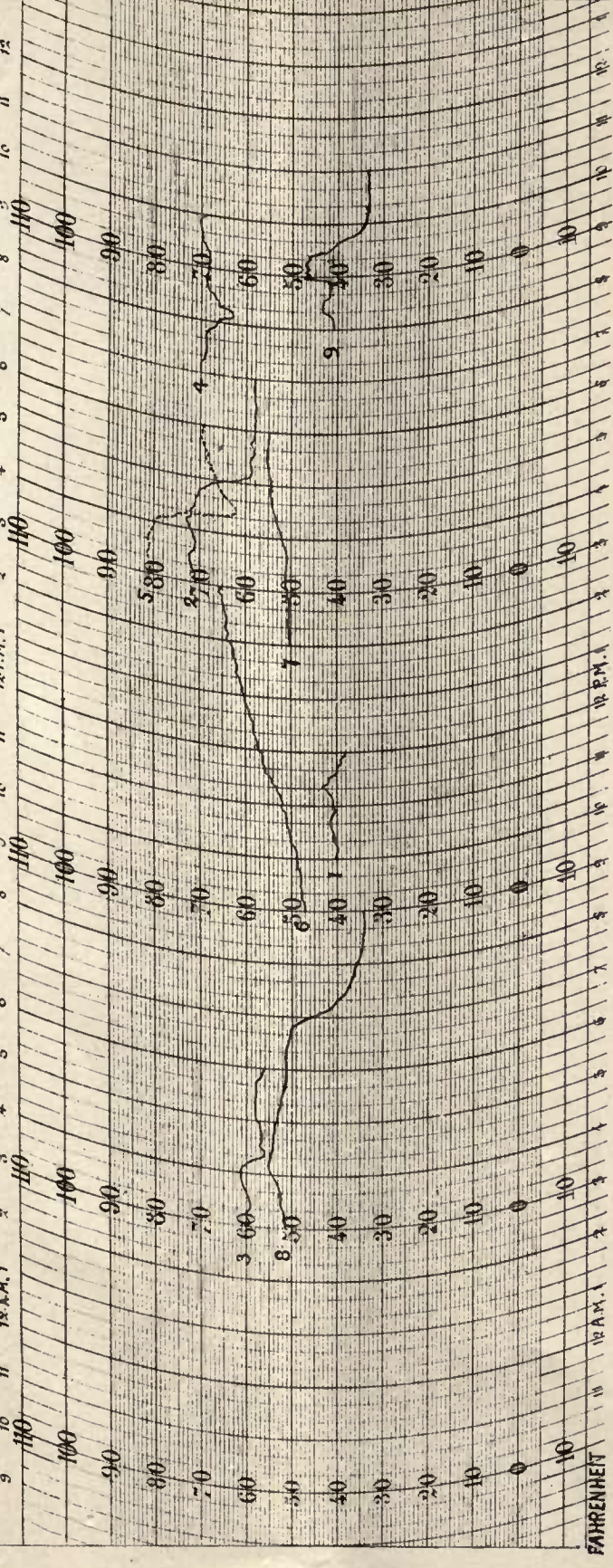
*The barometer is here multiplying three times.*

*Constructed by  
Blanch & Flister  
New York City*





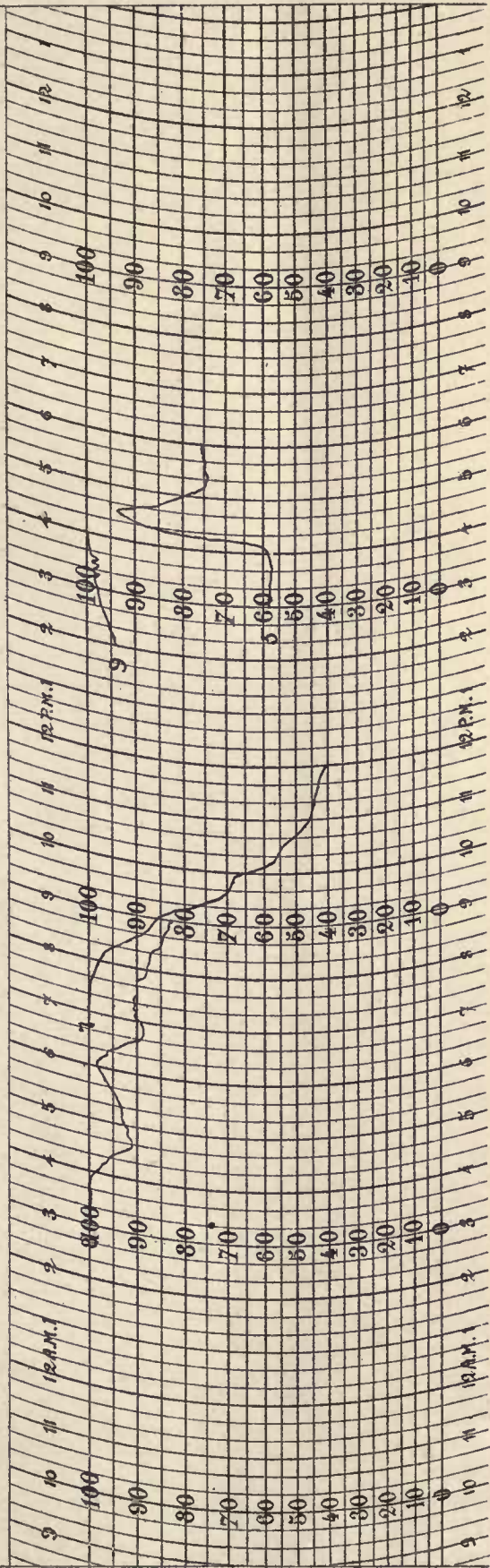
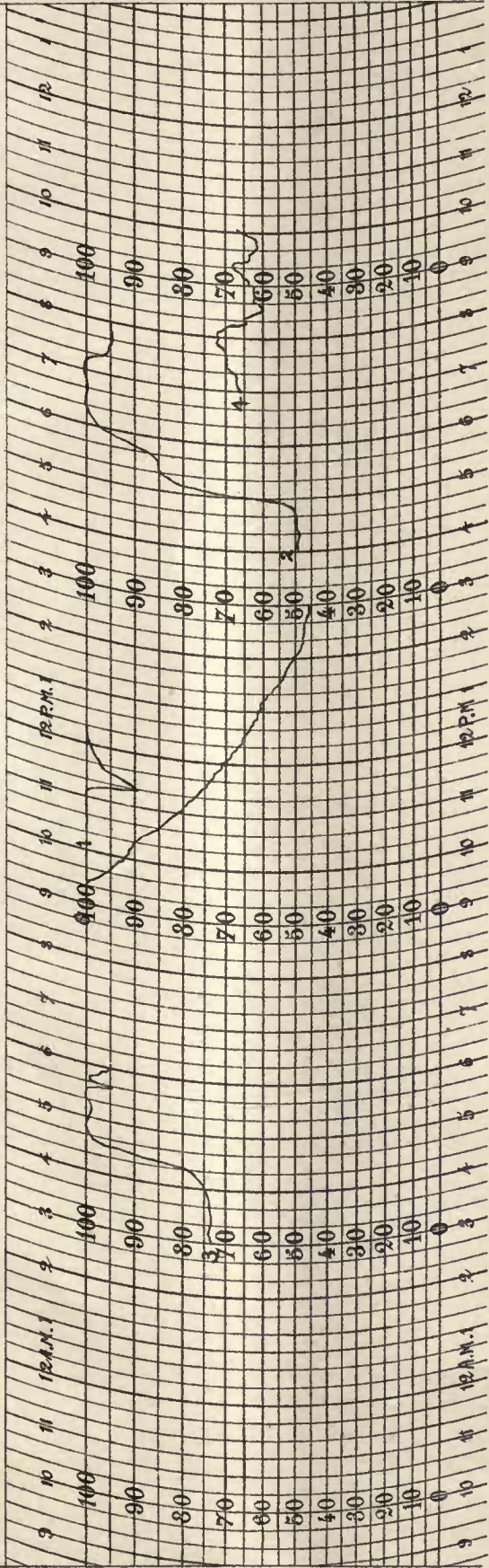
















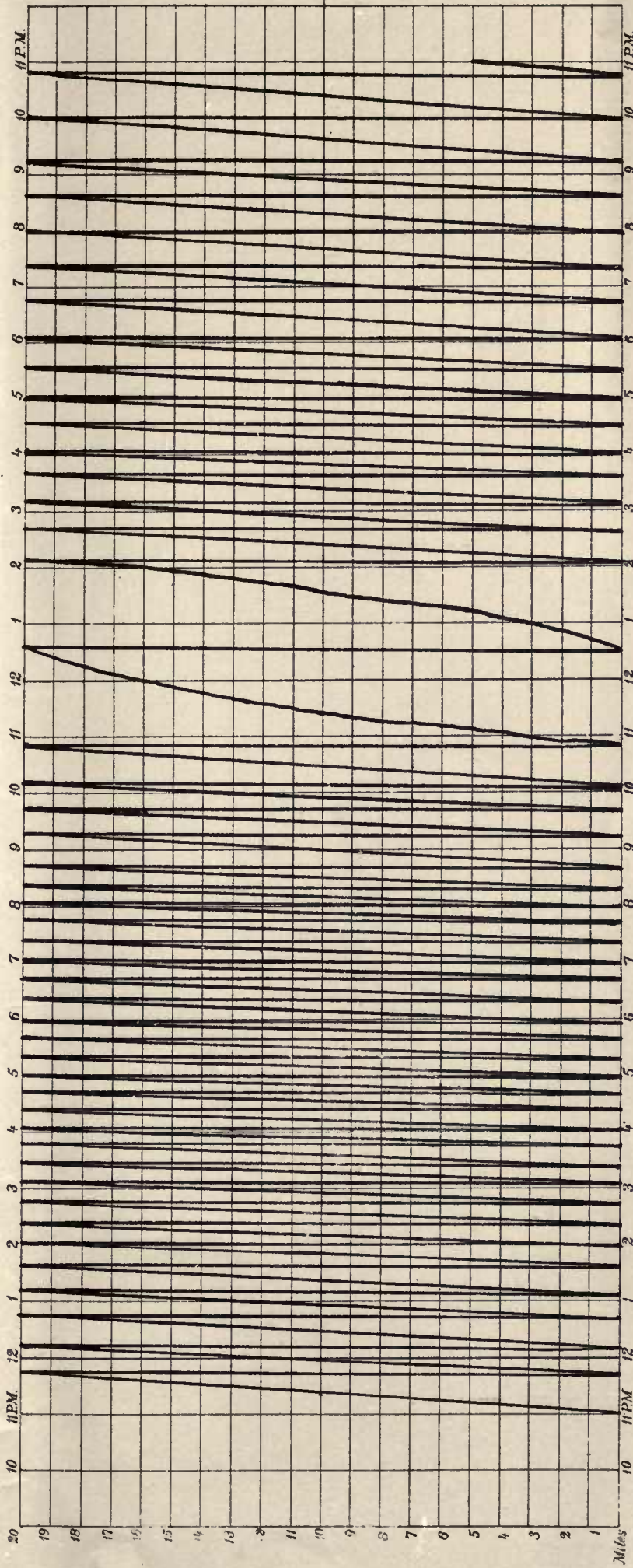


No. 6.

# BLUE HILL METEOROLOGICAL OBSERVATORY. ANEMOMETER.

VELOCITY OF THE WIND AT BLUE HILL, NORFOLK CO., MASS.

Recorded by Draper's Self-recording Pencil Anemometer. JANUARY 9, 1886



*The hours are marked by the vertical lines.  
The distance travelled in miles by the horizontal lines.*

*Constructed by  
Black & Fisher  
New York City*







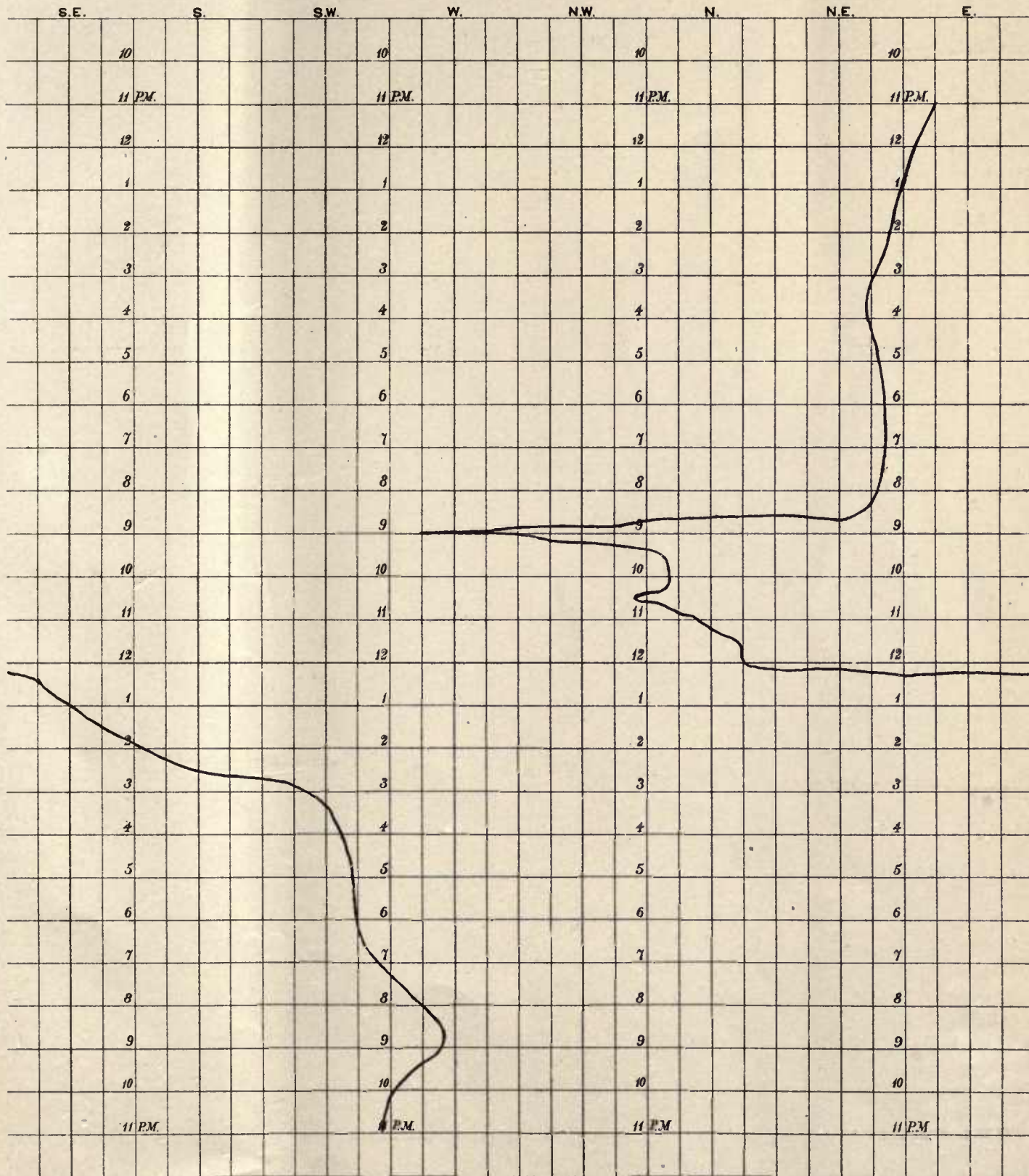
No. 7.

# BLUE HILL METEOROLOGICAL OBSERVATORY. ANEMOSCOPE.

DIRECTION OF THE WIND AT BLUE HILL, NORFOLK CO., MASS.

Recorded by Draper's Self-recording Pencil Anemoscope.

JANUARY 9, 1886



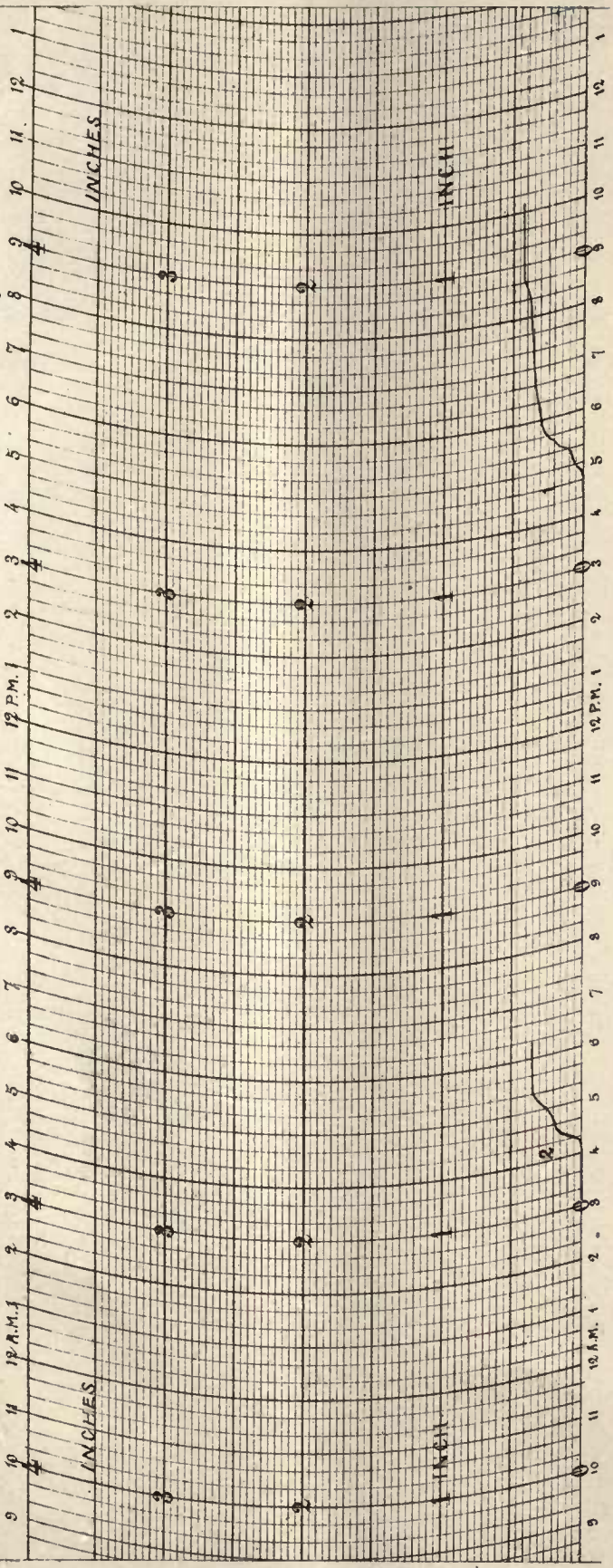






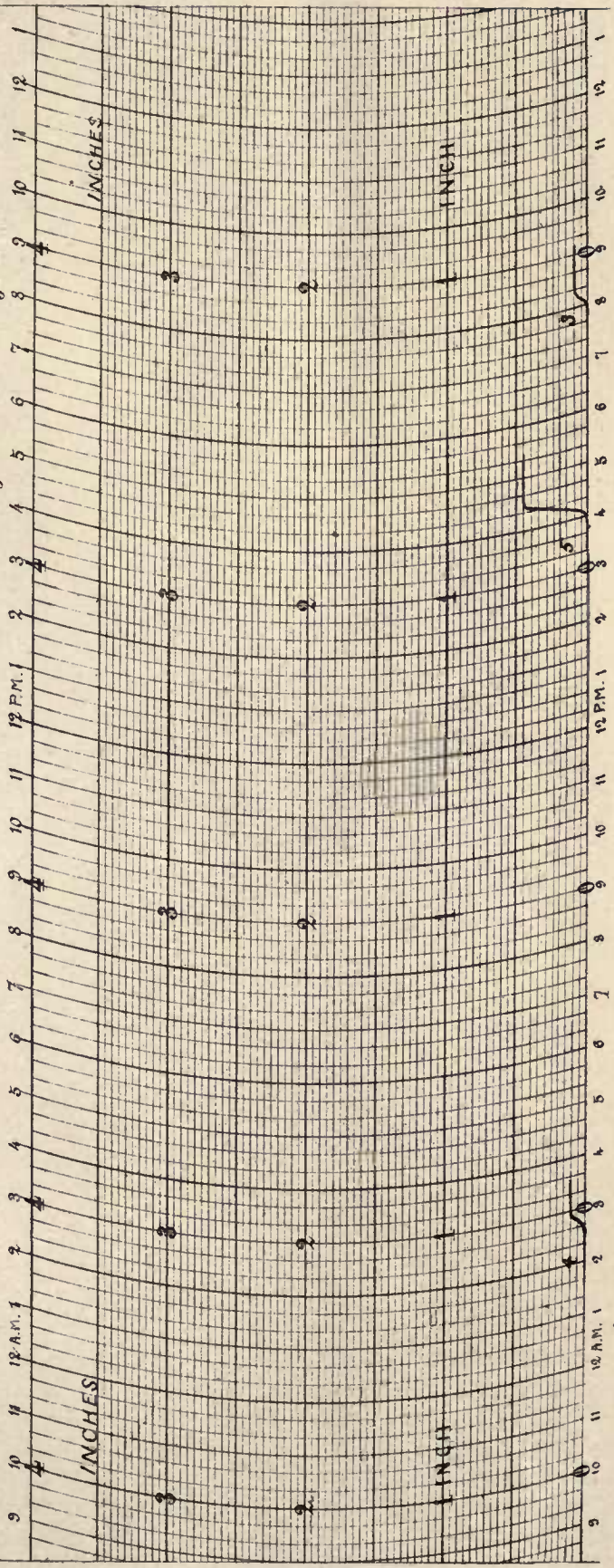
Self Recording rain-gauge RICHARD brothers Man<sup>rs</sup> PARIS

Blue-hill Meteorological observatory No. 8 1886



Self Recording rain-gauge RICHARD brothers Man<sup>rs</sup> PARIS

Blue-hill Meteorological observatory No. 9 1886

























Blue Hill meteorological  
observatory  
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