



STONYHURST COLLEGE  
OBSERVATORY.

# RESULTS

OF

METEOROLOGICAL & MAGNETICAL  
OBSERVATIONS

WITH REPORT AND NOTES OF THE DIRECTOR,

REV. W. SIDGREAVES, S.J., F.R.A.S.

1897.

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1898.



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## REPORT AND NOTES.

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ALL the meteorological self-recording instruments have been working well during the year. The photographic curves of atmospheric pressure and temperature have been uniformly clean and strong, excepting those of the last ten days of April, which were weak, and those for May 4th and 12th, September 3rd and 11th, which were lost when alterations had to be made at the gas works.

The mechanical traces of wind, velocity and direction, are clear, but not very strong in calm weather.

The pluviometer lines have been very clear and strong since August, 1896, when the Brevetée plume was substituted for the pencil.

The sunshine recorder was found to be somewhat out of level, owing to subsidence of the masonry on which it was mounted, and was re-set on July 12.

The usual meteorological reports have been forwarded regularly to the Meteorological Office, and to the Registrar General; and occasional detailed reports have been sent to applications

The most noteworthy barometric depression of the year accompanied the gale of wind on November 28th, 29th, when the mercury fell from 29·356 at midnight, 27th, to 28·583 inches at half-past eleven p.m., 28th, half-an-hour before the gale reached its highest velocity of 49 miles per hour. The strongest gale of the year occurred in February, on the 21st. March was the roughest month; and December took the second place.

A tabular summary of recorded sunshine during the last 17 years is given on page 38. The table has been compiled directly from the records, without reference to previous publications. The percentage figures will be found to be lower generally than the corresponding previous quotations, up to January, 1891. Before that year a computing table was used which seems to have been formed upon an estimated total of *recordable* instead of *possible* sunshine. The figures now are formed upon the ratio of the recorded number of hours of sunshine to the aggregate number of

hours during which the sun was apparently above the horizon at sea level, in each month.

The photo magnetograms have been on the whole very satisfactory. Occasionally, the impressions have been weak through variation of gas pressure; and they were wholly lost between April 30th and May 4th, and on September 2nd and 3rd.

A day-table of magnetic disturbances is given on page 52. In this table an attempt is made at a general statement of the magnetic state of the day. It cannot claim great accuracy; for it is impossible to draw the line neatly between the several successive conditions of a *calm*, and a *small, moderate, and greater* disturbance. These appellations refer rather to the general character of the day than to any particular movement of the magnet; and supplement the tabulated measures on page 50.

Last year surprise was expressed that our magnetic instruments gave no indication of the December earthquake. It may therefore be well to point out why such indication is not to be expected. The reason may be stated briefly thus:—If the spot of light upon the photographic paper were given directly by a concave mirror attached to the magnet (as in mirror-galvanometers), the position of the spot would alter with every pendular movement of the suspended magnet. But this is not the case with our magnetographs: the mirror attached to the magnet gives an image, not of a spot, but of a vertical illuminated slit as a rather long vertical line of light: the greater part of this is stopped, and only a small length about the middle is brought to a point or spot on the paper, by a hemicylindrical lens which covers the whole width of the paper. By this arrangement, the only effect of a pendular motion is a change of the part of the vertical line of light which goes to form the spot in precisely the same position on the paper: so that no other than horizontal movements of the spot of light are possible. Now the only movements of the earth's crust, which can effect this horizontal displacement, are  $1^\circ$  a rise or fall, sufficient to affect the torsion constant of the suspended threads; which, though possible, is not to be expected apart from great disturbances; and  $2^\circ$  a twist upon a centre so near the Observatory that no delicate instruments would be needed for indication. A twist

about a distant centre would be a small arc to a long radius equivalent to a straight line, which would give only a *pendular* motion to the magnet.

Preparation was made for a possible photographic impression of the trails of the November meteors. Five cameras were mounted round the object glass of the equatorial, trained so as to cover a large field about the probable radiant point. Persistent cloud made all attempts impossible, until the morning of the 15th, when the sky suddenly cleared just too late to catch the one Leonid seen, while getting ready.

The grating of the Solar Spectrograph was cleaned on October 14th; and the result has been a marked improvement in the photographs. Of the 54 plates exposed since the date of cleaning, about half were well timed exposures, and all of these show the fine bright calcium reversals in K, with the more refrangible one the stronger. And, so far, the comparison of plates goes to show that only the best photographs are of real value for observing the changes in these lines

174 Drawings of Solar Spots and Faculae have been made during the year; and a tabulae list of the times of the drawings is given on page 43. A series of enlarged drawings of spots near the solar limb was commenced in September, with the hope of obtaining clearer evidence about the level of the Umbra.

240 plates have been exposed in the stellar spectrograph. This is a smaller number than in former years; and the reason is, apart from more unfavourable weather, that we have already in our collection more plates than our limited time enables us to study. The greater number of exposures are repetitions upon certain stars, suggested by a preliminary examination of the plates already in hand. Our present work is directed to the sequence of spectral differences of the yellow and the red stars, from those of the Solar type to the type of  $\alpha$  Herculis.

Complete wave-length charts have been made of Arcturus, Capella,  $\alpha$  Ursae Majoris,  $\gamma$  Aquilae,  $\alpha$  Tauri,  $\alpha$  Orionis,  $\beta$  Pegasi,  $\alpha$  Herculis, and  $\sigma$  Ceti; also of  $\alpha$  Persei,  $\beta$  Cassiopeiae,  $\alpha$  Aquilae,  $\alpha$  Ophiuchi,  $\beta$  Leonis, and  $\gamma$  Orionis.

WALTER SIDGREAVES, S.J.

# Stonyhurst Observatory.

Lat 53° 50' 40" N. Long. 9m. 52<sup>s</sup>. 68. W. Height of the Barometer  
above the sea 381 ft.

## METEOROLOGICAL REPORT.

JANUARY, 1897.

| Results of Observations taken during the Month.             | Mean for the last 50 years. |          |
|---|-----------------------------|----------|
| Mean Reading of the Barometer . . . . . inches              | 29·499                      | 29·447   |
| Highest " on the 1st " ,                                    | 30·082                      | 30·282   |
| Lowest " on the 30th " ,                                    | 28·896                      | 28·596   |
| Range of Barometer Readings . . . . . " ,                   | 1·186                       | 1·686    |
| Highest Reading of a Max. Therm. on the 4th                 | 45·5                        | 51·3     |
| Lowest Reading of a Min. Therm. on the 23rd                 | 21·0                        | 20·4     |
| Range of Thermometer Readings . . . . .                     | 24·5                        | 30·9     |
| Mean of all the Highest Readings . . . . .                  | 39·3                        | 42·1     |
| Mean of all the Lowest Readings . . . . .                   | 29·0                        | 32·3     |
| Mean Daily Range . . . . .                                  | 10·3                        | 9·8      |
| Deduced Monthly Mean (from Mean of Max. and Min.) . . . . . | 34·0                        | 36·9     |
| Mean Temperature from Dry Bulb . . . . .                    | 34·4                        | 37·0     |
| Adopted Mean Temperature . . . . .                          | 34·2                        | 37·0     |
| Mean Temperature of Evaporation . . . . .                   | 32·7                        | 35·8     |
| Mean Temperature of Dew Point . . . . .                     | 30·2                        | 33·6     |
| Mean elastic force of Vapour . . . . .                      | 0·169 in                    | 0·194 in |
| Mean weight of Vapour in a cub. ft. of air . . . . .        | 2·0 gr                      | 2·4 gr   |
| Mean additional weight required for saturation . . . . .    | 0·3 gr                      | 0·4 gr   |
| Mean degree of Humidity (saturation 1·00) . . . . .         | 0·85                        | 0·86     |
| Mean weight of a cubic foot of air . . . . .                | 554·2 gr                    | 549·8 gr |
| Fall of Rain . . . . .                                      | 1·265 in                    | 4·04 in  |
| Number of days on which Rain fell . . . . .                 | 14                          | 19·6     |

## JANUARY, 1897.

| No. of days in the month on which the prevailing wind was | N    | NE   | E    | SE | S    | SW  | W    | NW  |
|---|------|------|------|----|------|-----|------|-----|
|   | 9    | 6    | 3    | 0  | 3    | 2   | 5    | 3   |
| Mean Velocity in miles per hour                           | 7.0  | 7.3  | 15.7 | 0  | 11.8 | 5.4 | 10.1 | 6.9 |
| Total No. of miles for each Direction.                    | 1502 | 1048 | 1131 | 0  | 850  | 260 | 1213 | 494 |

The total No. of miles registered during the month was 6498.

The max. Velocity of the wind was 33 miles per hour, W.N.W. on the 25th at Noon, and at 2.0 p.m.

Mean amount of Cloud (an overcast sky being indicated by 10.0) 7.4

In the month of January the highest reading of the Barometer during 50 years, was on the 9th, in 1896, and was .. 30.597

The lowest                    ,,                    26th, 1884                    ,,                    .... 27.803

The highest Temperature                    7th, 1887                    ,,                    .... 59.9

The lowest                    ,,                    15th, 1881                    ,,                    .... 4.6

The highest adopted mean temperature of the month, 1875 42.5

The lowest                    ,,                    ,,                    1881.... 29.2

### TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|   |     |   |              |
|---|-----|---|--------------|
| Mean barometric pressure ...  | ... | + | 0.052 inches |
| Monthly range                    ,,                    ...                          | ... | — | 0.500    ,,  |
| Mean of highest temperatures  | ... | — | 2.8 degrees  |
| Mean of lowest                    ,,                    ...                         | ... | — | 3.3    ,,    |
| Mean daily range                    ,,                    ...                       | ... | + | 0.5    ,,    |
| Adopted mean temperature  | ... | — | 2.8    ,,    |
| Total rainfall                    ...                    ...                    ... | ... | — | 2.776 inches |

Ground frost on the 1st, 3rd, 5th, 9th, 10th, 13th—31st. Snow on the 8th, 9th, 14th, 20th, 22nd—25th, 28th and 29th. Hail on the 15th, 25th, and 31st. Aurora Borealis on the 2nd at 10.15 p.m.

## FEBRUARY, 1897.

| Results of Observations taken during the Month.         | Mean for the last 50 years. |         |
|---|-----------------------------|---------|
| Mean Reading of the Barometer .....inches               | 29·610                      | 29·519  |
| Highest            "            on the 22nd    "        | 30·166                      | 30·074  |
| Lowest            "            on the 2nd     "         | 28·814                      | 28·705  |
| Range of Barometer Readings .....                       | 1·352                       | 1·369   |
| Highest Reading of a Max. Therm. on the 26th            | 55·8                        | 52·1    |
| Lowest Reading of a Min. Therm. on the 6th              | 27·0                        | 22·2    |
| Range of Thermometer Readings .....                     | 28·8                        | 29·9    |
| Mean of all the Highest Readings.....                   | 46·1                        | 44·2    |
| Mean of all the Lowest Readings.....                    | 35·1                        | 33·5    |
| Mean Daily Range .....                                  | 11·0                        | 10·7    |
| Deduced Monthly Mean (from Mean of Max. and Min.) ..... | 40·2                        | 38·2    |
| Mean Temperature from Dry Bulb.....                     | 40·9                        | 38·3    |
| Adopted Mean Temperature .....                          | 40·6                        | 38·2    |
| Mean Temperature of Evaporation.....                    | 39·1                        | 36·8    |
| Mean Temperature of Dew Point .....                     | 37·2                        | 34·6    |
| Mean elastic force of Vapour .....                      | 0·222in                     | 0·193in |
| Mean weight of Vapour in a cub. ft. of air .....        | 2·6gr                       | 2·4gr   |
| Mean additional weight required for saturation          | 0·4gr                       | 0·4gr   |
| Mean degree of Humidity (saturation 1·00)...            | 0·88                        | 0·87    |
| Mean weight of a cubic foot of air.....                 | 548·8gr                     | 549·0gr |
| Fall of Rain.....                                       | 4·170in                     | 3·491in |
| Number of days on which Rain fell.....                  | 20                          | 16·9    |

| No. of days in the month on which the prevailing wind was | N   | NE  | E   | SE | S    | SW   | W    | NW |
|---|-----|-----|-----|----|------|------|------|----|
|   | 4   | 4   | 1   | 0  | 3    | 6    | 10   | 0  |
| Mean Velocity in miles per hour                           | 5·2 | 4·8 | 7·9 | 0  | 11·5 | 12·8 | 12·5 | 0  |
| Total No. of miles for each direction                     | 501 | 458 | 190 | 0  | 828  | 1845 | 3011 | 0  |

The total number of miles registered during the month was 6833.  
The max. Velocity of the wind was 56 miles per hour, W., on the 21st, at 2·0 a.m.

FEBRUARY, 1897.

|  |        |
|--|--------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)   | 8·9    |
| In the month of February, the highest reading of the Barometer during 50 years, was on the 11th, in 1849, and was .. | 30·452 |
| The lowest                    ,,                    6th, 1867                    ,,                    ....          | 28·208 |
| The highest Temperature       8th, 1877                    ,,                    ....                                | 58·3   |
| The lowest                    ,,                    18th, 1895                    ,,                    ....         | 8·0    |
| The highest adopted mean temperature of the month, 1869....  | 44·0   |
| The lowest                    "                    "                    1855....                                     | 28·6   |

TABLE OF DIFFERENCES.

The signs + and - mean respectively above and below the monthly average.

|                              |    |    |   |              |
|------------------------------|----|----|---|--------------|
| Mean barometric pressure     | .. | .. | + | ·091 inches  |
| Monthly range        ,,      | .. | .. | - | ·017    ,,   |
| Mean of highest temperatures | .. | .. | + | 1·9 degrees  |
| Mean of lowest        ,,     | .. | .. | + | 1·6    ,,    |
| Mean daily range    ,,       | .. | .. | + | 0·3    ,,    |
| Adopted mean temperature     | .. | .. | + | 2·4    ,,    |
| Total rainfall        ,,     | .. | .. | + | 0·679 inches |

Ground Frost on the 1st—4th, 6th—8th, 10th—12th, 16th—18th, 27th and 28th   Snow on the 1st—4th.   Hail on the 3rd. Heavy Rain on the 4th and 25th.   Gale of Wind on the 21st.   Fog on the 9th and 13th.

## MARCH, 1897.

| Results of Observations taken during the Month.             | Mean for the last 50 years. |          |
|---|-----------------------------|----------|
| Mean Reading of the Barometer . . . . . inches              | 29·145                      | 29·460   |
| Highest                    "            on the 7th    "     | 29·719                      | 30·069   |
| Lowest                    "            on the 3rd    "      | 28·157                      | 28·655   |
| Range of Barometer Readings . . . . . "                     | 1·562                       | 1·414    |
| Highest Reading of a Max. Ther. on the 21st & 23rd          | 56·0                        | 57·2     |
| Lowest Reading of a Min. Therm. on the 29th                 | 24·2                        | 22·5     |
| Range of Thermometer Readings . . . . .                     | 31·8                        | 34·7     |
| Mean of all the Highest Readings . . . . .                  | 48·9                        | 47·3     |
| Mean of all the Lowest Readings . . . . .                   | 36·6                        | 34·1     |
| Mean Daily Range . . . . .                                  | 12·3                        | 13·2     |
| Deduced Monthly Mean (from Mean of Max. and Min.) . . . . . | 41·8                        | 39·8     |
| Mean Temperature from Dry Bulb . . . . .                    | 42·2                        | 40·0     |
| Adopted Mean Temperature . . . . .                          | 42·0                        | 39·9     |
| Mean Temperature of Evaporation . . . . .                   | 40·0                        | 38·0     |
| Mean Temperature of Dew Point . . . . .                     | 37·5                        | 35·5     |
| Mean elastic force of Vapour . . . . .                      | 0·225 in                    | 0·206 in |
| Mean weight of Vapour in a cub. ft. of air . . . .          | 2·6 gr                      | 2·4 gr   |
| Mean additional weight required for saturation              | 0·5 gr                      | 0·5 gr   |
| Mean degree of Humidity (saturation 100) . .                | 0·85                        | 0·85     |
| Mean weight of a cubic foot of air . . . . .                | 538·6 gr                    | 546·3 gr |
| Fall of Rain . . . . .                                      | 5·393 in                    | 3·246 in |
| Number of days on which Rain fell . . . . .                 | 27                          | 17·8     |

| No. of days in the month on which the prevailing wind was | N   | NE   | E   | SE  | S    | SW   | W    | NW |
|---|-----|------|-----|-----|------|------|------|----|
|   | 1   | 1    | 3   | 1   | 9    | 6    | 10   | 0  |
| Mean Velocity in miles per hour                           | 5·0 | 10·1 | 8·4 | 6·2 | 16·5 | 14·5 | 19·2 | 0  |
| Total No. of miles for each Direction                     | 120 | 242  | 604 | 149 | 3558 | 2094 | 4611 | 0  |

The total number of miles registered during the month was 11378.  
The max. Velocity of the wind was 50 miles per hour, W.S.W.,  
on the 19th at 1·0 p.m.

## MARCH, 1897.

|  |        |
|--|--------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)   | 9·2    |
| In the month of March, the highest reading of the Barometer during 50 years, was on the 6th in 1852, and was....           | 30·401 |
| The lowest                   ,,                   3rd, 1897                   ,,                   ..                      | 28·157 |
| The highest Temperature   ,,                   25th, 1871                   ,,                   ..                        | 68·0   |
| The lowest                   ,,                   ,,                   6th, 1886                   ,,                   .. | 11·5   |
| The highest adopted mean temperature of the month, 1871..  | 44·0   |
| The lowest                   ,,                   ,,                   1855 and 1892 ..                                    | 35·6   |

## TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|                             |       |   |              |
|-----------------------------|-------|---|--------------|
| Mean barometric pressure    | ..    | — | 0·315 inches |
| Monthly range               | ,, .. | + | 0·148 ,,     |
| Mean of highest temperature | ..    | + | 1·6 degrees  |
| Mean of lowest              | ,, .. | + | 2·5 ,,       |
| Mean daily range            | ,, .. | — | 0·9 ,,       |
| Adopted mean temperature    | .. .. | + | 2·1 ,,       |
| Total rainfall              | .. .. | + | 2·147 inches |

The lowest reading of the barometer during the month of March for the last 50 years occurred on the 3rd, when the mercury stood at 28·157 inches. Ground frost on the 1st, 2nd, 4th, 6th—8th, 10th, 11th, 14th, 16th and 29th—31st. Snow on the 2nd, 12th, 15th, 29th and 30th. Hail on the 1st, 3rd, 4th, 5th, 10th and 12th. Heavy rain on the 4th and 26th. Gales of wind on the 2nd, 3rd, 4th, 17th, 18th, 19th and 24th—28th. Thunder on the 16th.

## APRIL, 1897.

| Results of Observations taken during the Month          | Mean for the last 50 years. |          |
|---|-----------------------------|----------|
| Mean Reading of the Barometer..... inches               | 29.432                      | 29.488   |
| Highest „ on the 22nd „                                 | 29.857                      | 29.969   |
| Lowest „ on the 1st „                                   | 28.766                      | 28.810   |
| Range of Barometer Readings .....                       | 1.091                       | 1.159    |
| Highest Reading of a Max. Therm. on the 28th            | 62.1                        | 66.0     |
| Lowest Reading of a Min. Therm. on the 4th              | 26.8                        | 28.1     |
| Range of Thermometer Readings .....                     | 35.3                        | 37.9     |
| Mean of all the Highest Readings .....                  | 52.5                        | 55.9     |
| Mean of all the Lowest Readings .....                   | 35.7                        | 37.8     |
| Mean Daily Range.....                                   | 16.8                        | 18.1     |
| Deduced Monthly Mean (from Mean of Max. and Min.) ..... | 42.6                        | 44.5     |
| Mean Temperature from Dry Bulb .....                    | 43.3                        | 44.6     |
| Adopted Mean Temperature.....                           | 43.0                        | 44.5     |
| Mean Temperature of Evaporation .....                   | 40.1                        | 41.7     |
| Mean Temperature of Dew Point .....                     | 36.6                        | 38.2     |
| Mean elastic force of Vapour .....                      | 0.217 in                    | 0.236 in |
| Mean weight of Vapour in a cub. ft. of air.....         | 2.5 gr                      | 2.7 gr   |
| Mean additional weight required for saturation          | 0.7 gr                      | 0.7 gr   |
| Mean degree of Humidity (saturation 1.00)..             | 0.79                        | 0.80     |
| Mean weight of a cubic foot of air .....                | 542.9 gr                    | 542.1 gr |
| Fall of Rain.....                                       | 3.045 in                    | 2.299 in |
| Number of days on which Rain fell .....                 | 15                          | 14.6     |

| No. of days in the month on which the prevailing wind was | N   | NE   | E    | SE   | S    | SW   | W    | NW  |
|---|-----|------|------|------|------|------|------|-----|
|   | 3   | 5    | 7    | 1    | 2    | 3    | 8    | 1   |
| Mean Velocity in miles per hour                           | 7.6 | 9.3  | 10.9 | 13.5 | 17.7 | 10.7 | 13.2 | 6.8 |
| Total No. of miles for each Direction                     | 548 | 1118 | 1824 | 325  | 849  | 767  | 2528 | 164 |

The total No. of miles registered during the month was 8123.  
The max. Velocity of the wind was 35 miles per hour, S., on the 11th at 3-0 p.m.

## APRIL, 1897.

|   |   |            |           |        |
|---|---|------------|-----------|--------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)  |   |            |           | 7·5    |
| In the month of April, the highest reading of the Barometer during 50 years, was on the 17th, in 1887, and was..... |   |            |           | 30 251 |
| The lowest  | „ | 20th, 1868 | „         | 28 358 |
| The highest Temperature   |   | 14th, 1852 | „         | 74·1   |
| The lowest  | „ | 13th, 1892 | „         | 20·8   |
| The highest adopted mean temperature of the month, 1865....   |   |            |           | 48·5   |
| The lowest  | „ | „          | 1879 .... | 40·7   |

## TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|                                  |   |              |
|----------------------------------|---|--------------|
| Mean barometric pressure ... ..  | — | 0·056 inches |
| Monthly range „ ... ..           | — | 0·068 „      |
| Mean of highest temperatures . . | — | 3·4 degrees  |
| Mean of lowest „ ... ..          | — | 2·1 „        |
| Mean daily range „ ... ..        | — | 1·3 „        |
| Adopted mean temperature ... ..  | — | 1·5 „        |
| Total rainfall ... ..            | + | 0·746 inches |

Ground frost on the 1st—8th, 10th, 11th, 15th, 22nd, 23rd and 25th. Snow on the 4th and 15th. Hail on the 1st, 14th and 15th. Heavy Rain on the 13th and 17th. Thunder on the 14th. Lightning on the 14th.

## MAY, 1897.

| Results of observations taken during the Month.        | Mean for the last 50 years. |          |
|--|-----------------------------|----------|
| Mean Reading of the Barometer..... inches              | 29.553                      | 29.517   |
| Highest " on the 16th "                                | 30.080                      | 29.955   |
| Lowest " on the 28th "                                 | 28.873                      | 28.955   |
| Range of Barometer Readings..... "                     | 1.207                       | 1.000    |
| Highest Reading of a Max. Therm. on the 24th           | 70.4                        | 72.1     |
| Lowest Reading of a Min. Therm. on the 10th            | 29.8                        | 31.3     |
| Range of Thermometer Readings .....                    | 40.6                        | 40.8     |
| Mean of all the Highest Readings.....                  | 59.5                        | 59.9     |
| Mean of all the Lowest Readings .....                  | 39.7                        | 42.0     |
| Mean Daily Range .....                                 | 19.8                        | 17.9     |
| Deduced Monthly Mean (from Mean of Max. and Min.)..... | 47.9                        | 49.1     |
| Mean Temperature from Dry Bulb .....                   | 48.7                        | 49.6     |
| Adopted Mean Temperature .....                         | 48.3                        | 49.4     |
| Mean Temperature of Evaporation.....                   | 44.2                        | 46.1     |
| Mean Temperature of Dew Point .....                    | 39.7                        | 42.5     |
| Mean elastic force of Vapour .....                     | 0.245 in                    | 0.276 in |
| Mean weight of Vapour in a cub. ft. of air ....        | 2.8 gr                      | 3.1 gr   |
| Mean additional weight required for saturation         | 1.1 gr                      | 0.9 gr   |
| Mean degree of Humidity (saturation 1.00)..            | 0.72                        | 0.76     |
| Mean weight of a cubic foot of air.....                | 539.3 gr                    | 537.1 gr |
| Fall of Rain.....                                      | 3.524 in                    | 2.572 in |
| Number of days on which Rain fell.....                 | 17                          | 15.1     |

| No. of days in the month on which the prevailing wind was | N | NE   | E   | SE | S    | SW   | W    | NW   |
|---|---|------|-----|----|------|------|------|------|
|   | 0 | 8    | 3   | 0  | 2    | 3    | 13   | 2    |
| Mean Velocity in miles per hour                           | 0 | 9.4  | 9.0 | 0  | 13.3 | 14.8 | 11.2 | 11.5 |
| Total No. of miles for each Direction                     | 0 | 1812 | 649 | 0  | 636  | 1062 | 3491 | 554  |

The total number of miles registered during the month was 8204.  
The max. Velocity of the wind was 32 miles per hour, W.S.W., on the 5th at noon.



## JUNE, 1897.

| Results of Observations taken during the Month.             | Mean for the last 50 years. |          |
|---|-----------------------------|----------|
| Mean Reading of the Barometer . . . inches                  | 29·604                      | 29·544   |
| Highest                    "                    on the 12th | 29·853                      | 29·895   |
| Lowest                    "                    on the 18th  | 28·902                      | 29·034   |
| Range of Barometer Readings .....                           | 0·951                       | 0·861    |
| Highest Reading of a Max. Therm. on the 23rd                | 81·6                        | 77·6     |
| Lowest Reading of a Min. Ther. on the 16th ..               | 40·2                        | 38·9     |
| Range of Thermometer Readings .....                         | 41·4                        | 38·7     |
| Mean of all the Highest Readings .....                      | 67·4                        | 65·9     |
| Mean of all the Lowest Readings .....                       | 50·2                        | 47·9     |
| Mean Daily Range .....                                      | 17·2                        | 18·0     |
| Deduced Monthly Mean (from Mean of Max. and Min.) .....     | 57·0                        | 55·1     |
| Mean Temperature from Dry Bulb .....                        | 56·6                        | 55·2     |
| Adopted Mean Temperature .....                              | 56·8                        | 55·1     |
| Mean Temperature of Evaporation .....                       | 53·9                        | 52·1     |
| Mean Temperature of Dew Point .....                         | 51·2                        | 48·7     |
| Mean elastic force of Vapour .....                          | 0·377 in                    | 0·355 in |
| Mean weight of Vapour in a cub. ft. of air ....             | 4·2gr                       | 3·9gr    |
| Mean additional weight required for saturation              | 1·0gr                       | 0·9gr    |
| Mean degree of Humidity (saturation 1·00) ..                | 0·82                        | 0·79     |
| Mean weight of a cubic foot of air .....                    | 530·6gr                     | 531·2gr  |
| Fall of Rain .....  | 4·832 in                    | 3·642 in |
| Number of days on which Rain fell .....                     | 18                          | 15·9     |

| No. of days in the month on which the prevailing wind was | N   | NE   | E   | SE | S   | SW  | W    | NW   |
|---|-----|------|-----|----|-----|-----|------|------|
|   | 4   | 6    | 2   | 0  | 2   | 3   | 12   | 1    |
| Mean Velocity in miles per hour                           | 5·8 | 7·4  | 9·2 | 0  | 6·3 | 6·5 | 10·4 | 13·2 |
| Total No. of miles for each Direction                     | 558 | 1068 | 440 | 0  | 304 | 466 | 2993 | 317  |

The total number of miles registered during the month was 6146.

The max. Velocity of the wind was 45 miles per hour, W., on the 16th, at 1 p.m.

## JUNE, 1897.

|   |        |
|---|--------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)  | 8·8    |
| In the month of June, the highest reading of the Barometer during 50 years, was on the 15th, in 1874, and was ..... | 30·219 |
| The lowest                    ,,                    23rd, 1893                    ,,                    .....       | 28·813 |
| The highest Temperature    18th, 1893                    ,,                    .....                                | 88·7   |
| The lowest                    ,,                    17th, 1892                    ,,                    .....       | 34·1   |
| The highest adopted mean temperature of the month, 1858 ..  | 59·0   |
| The lowest                    ,,                    ,,                    1856 and 1860..                           | 52·2   |

## TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|  |                |
|--|----------------|
| Mean barometric pressure ... ..                                  | + 0·060 inches |
| Monthly range                    ,,                    ... ..    | + 0·090    ,,  |
| Mean of highest temperatures ... ..                              | + 1·5 degrees  |
| Mean of lowest                    ,,                    ... ..   | + 2·3    ,,    |
| Mean daily range                    ,,                    ... .. | — 0·8    ,,    |
| Adopted mean temperature ... ..                                  | + 1·7    ,,    |
| Total rainfall                    ... ..                         | + 1·190 inches |

Heavy Rain on the 1st, 17th and 19th. Gale of Wind on the 16th. Thunder on the 1st and 29th. Lightning on the 1st.

## JULY, 1897.

| Results of Observations taken during the Month.                   | Mean for the last 50 years |          |
|---|----------------------------|----------|
| Mean Reading of the Barometer ..... inches                        | 29·597                     | 29·504   |
| Highest                    "                    on the 11th    ,, | 29·979                     | 29·881   |
| Lowest                    "                    on the 20th    ,,  | 29·223                     | 28·999   |
| Range of Barometer Readings.....            ,,                    | 0·756                      | 0·882    |
| Highest Reading of a Max. Therm. on the 16th                      | 80·0                       | 78·8     |
| Lowest Reading of a Min. Therm. on the 6th                        | 43·0                       | 42·1     |
| Range of Thermometer Readings .....                               | 37·0                       | 36·7     |
| Mean of all the Highest Readings .....                            | 70·5                       | 67·9     |
| Mean of all the Lowest Readings .....                             | 50·6                       | 50·7     |
| Mean Daily Range..... ..  | 19·9                       | 17·2     |
| Deduced Monthly Mean (from Mean of Max. and Min.) .....           | 58·7                       | 57·7     |
| Mean Temperature from Dry Bulb.....                               | 59·2                       | 57·8     |
| Adopted Mean Temperature .....                                    | 59·0                       | 57·8     |
| Mean Temperature of Evaporation .....                             | 55·4                       | 54·7     |
| Mean Temperature of Dew Point .....                               | 52·2                       | 52·1     |
| Mean elastic force of Vapour .....                                | 0·391 in                   | 0·389 in |
| Mean weight of Vapour in a cubic ft. of air .....                 | 4·4 gr                     | 4·5 gr   |
| Mean additional weight required for saturation                    | 1·2 gr                     | 1·0 gr   |
| Mean degree of Humidity (saturation 1·00)...                      | 0·78                       | 0·82     |
| Mean weight of a cubic foot of air .....                          | 528·0 gr                   | 527·4 gr |
| Fall of Rain.....   | 2·743 in                   | 4·184 in |
| Number of days on which Rain fell.....                            | 11                         | 17·9     |

| No. of days in the month on which the prevailing wind was | N   | NE  | E    | SE | S   | SW  | W    | NW |
|---|-----|-----|------|----|-----|-----|------|----|
|   |     | 2   | 5    | 3  | 0   | 1   | 3    | 17 |
| Mean Velocity in miles per hour                           | 3·6 | 5·2 | 10·0 | 0  | 7·6 | 9·8 | 12·7 | 0  |
| Total No. of miles for each Direction                     | 171 | 621 | 718  | 0  | 182 | 706 | 5182 | 0  |

The total number of miles registered during the month was 7580.  
The max. Velocity of the wind was 30 miles per hour, W., on the 7th, at Noon, and at 1 p.m.

## JULY, 1897.

|   |        |
|---|--------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)  | 6·9    |
| In the month of July, the highest reading of the Barometer during 50 years, was on the 24th, in 1868, and was ..... |        |
| 30·112  |        |
| The lowest " 15th, 1877 " .....   | 28·564 |
| The highest Temperature 22nd, 1873 " .....  | 88·2   |
| The lowest " 1st, 1857 " .....  | 36·0   |
| The highest adopted mean temperature of the month, 1852 ..  | 63·0   |
| The lowest " " 1888 ....  | 54·5   |

### TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|                                    |                |
|------------------------------------|----------------|
| Mean barometric pressure .. ..     | + 0·093 inches |
| Monthly Range " .. ..              | — 0·126 "      |
| Mean of highest temperatures .. .. | + 2·6 degrees  |
| Mean of lowest " .. ..             | + 0·1 "        |
| Mean daily range " .. ..           | + 2·7 "        |
| Adopted mean temperature .. ..     | + 1·2 "        |
| Total rainfall .. ..               | — 1·441 inches |

Hail on the 25th. Heavy Rain on the 8th and 25th. Thunder on the 25th. Lightning on the 25th.

## AUGUST, 1897.

| Results of Observations taken during the Month.              | Mean for the last 50 years. |          |
|--|-----------------------------|----------|
| Mean Reading of the Barometer ..... inches                   | 29·351                      | 29·487   |
| Highest                   "                   on the 3rd   " | 29·831                      | 29·883   |
| Lowest                   "                   on the 21st  "  | 28·911                      | 28·949   |
| Range of Barometer Readings.....   "                         | 0·920                       | 0·934    |
| Highest Reading of a Max. Therm. on the 2nd                  | 83·8                        | 77·1     |
| Lowest Reading of a Min. Ther. on the 26th & 28th            | 45·0                        | 41·3     |
| Range of Thermometer Readings .....                          | 38·8                        | 35·8     |
| Mean of all the Highest Readings .....                       | 70·0                        | 67·2     |
| Mean of all the Lowest Readings .....                        | 51·9                        | 50·4     |
| Mean Daily Range .....                                       | 18·1                        | 16·8     |
| Deduced Monthly Mean (from Mean of Max. and Min.) .....      | 59·3                        | 57·1     |
| Mean Temperature from Dry Bulb.....                          | 60·1                        | 57·5     |
| Adopted Mean Temperature .....                               | 59·7                        | 57·3     |
| Mean Temperature of Evaporation .....                        | 56·1                        | 54·5     |
| Mean Temperature of Dew Point .....                          | 52·9                        | 51·8     |
| Mean elastic force of Vapour .....                           | 0·402 in                    | 0·387 in |
| Mean weight of Vapour in a cub. ft. of air.....              | 4·5 gr                      | 4·3 gr   |
| Mean additional weight required for saturation               | 1·3 gr                      | 0·9 gr   |
| Mean degree of Humidity (saturation 1·00)..                  | 0·79                        | 0·82     |
| Mean weight of a cubic foot of air .....                     | 522·7 gr                    | 527·3 gr |
| Fall of Rain.....  | 7·685 in                    | 5·089 in |
| Number of days on which Rain fell.....                       | 24                          | 19·2     |

| No. of days in the month on which the prevailing wind was | N   | NE  | E   | SE  | S    | SW   | W    | NW |
|---|-----|-----|-----|-----|------|------|------|----|
|   |     | 2   | 2   | 2   | 4    | 5    | 6    | 10 |
| Mean Velocity in miles per hour                           | 2·6 | 4·5 | 6·0 | 8·4 | 9·1  | 11·0 | 8·9  | 0  |
| Total No. of miles for each Direction                     | 127 | 216 | 285 | 802 | 1097 | 1581 | 2134 | 0  |

The total number of miles registered during the month was 6242.  
The max. Velocity of the wind was 29 miles per hour, S. b E.,  
on the 20th at 11-0 a. m.

## AUGUST, 1897.

|   |        |
|---|--------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)  | 8·4    |
| In the month of August, the highest reading of the Barometer during 50 years, was on the 21st, in 1874, and was . . . . | 30·114 |
| The lowest                    ,,                    31st, 1876                    ,,                    ..              | 28·555 |
| The highest Temperature                    2nd, 1868                    ,,                    ....                      | 88·0   |
| The lowest                    ,,                    13th, 1887                    ,,                    ....            | 33·4   |
| The highest adopted mean temperature of the month, 1857 & '84   | 61·0   |
| The lowest                    ,,                    ,,                    1848 . . . .                                  | 52·5   |

## TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|  |                |
|--|----------------|
| Mean barometric pressure .. .. .                 | — 0·136 inches |
| Monthly range                    ,, .. .. .      | — 0·014    ,,  |
| Mean of highest temperatures .. .. .             | + 2·8 degrees  |
| Mean of the lowest                    ,, .. .. . | + 1·5    ,,    |
| Mean daily range                    ,, .. .. .   | + 1·3    ,,    |
| Adopted mean temperature .. .. .                 | + 2·4    ,,    |
| Total rainfall                    .. .. .        | + 2·596 inches |

Heavy Rain on the 6th, 10th, 17th, 20th and 21st. Thunder on the 4th, 5th, 6th, 11th, 21st, 22nd, 24th, 28th, 30th and 31st. Lightning on the 4th, 5th, 6th, 11th and 18th.

## SEPTEMBER, 1897.

| Result of Observations taken during the Month.               | Mean for the last 50 years |
|--|----------------------------|
| Mean Reading of the Barometer ..... inches 29.545            | 29.517                     |
| Highest .. on the 13th ,, 30.144                             | 30.028                     |
| Lowest .. on the 2nd ,, 28.735                               | 28.846                     |
| Range of Barometer Readings ..... ,, 1.409                   | 1.182                      |
| Highest Reading of a Max. Therm. on the 13th 70.4            | 72.5                       |
| Lowest Reading of a Min. Therm. on the 17th 32.0             | 36.4                       |
| Range of Thermometer Readings ..... 38.4                     | 36.1                       |
| Mean of all the Highest Readings ..... 62.2                  | 62.3                       |
| Mean of all the Lowest Readings ..... 44.2                   | 47.0                       |
| Mean Daily Range ..... 18.0                                  | 15.3                       |
| Deduced Monthly Mean (from Mean of Max. and Min.) ..... 51.9 | 53.5                       |
| Mean Temperature from Dry Bulb ..... 53.2                    | 54.0                       |
| Adopted Mean Temperature..... 52.6                           | 53.7                       |
| Mean Temperature of Evaporation..... 49.3                    | 51.0                       |
| Mean Temperature of Dew Point ..... 46.0                     | 48.3                       |
| Mean elastic force of Vapour ..... 0.311 in                  | 0.339 in                   |
| Mean weight of Vapour in a cub. ft. of air ... 3.5gr         | 4.0gr                      |
| Mean additional weight required for saturation 1.0gr         | 0.8gr                      |
| Mean degree of Humidity (saturation 1.00) ... 0.79           | 0.82                       |
| Mean weight of a cubic foot of air ..... 534.3gr             | 532.3gr                    |
| Fall of Rain ..... 5.733 in                                  | 4.620 in                   |
| Number of days on which Rain fell ..... 18                   | 17.9                       |

| No. of days in the month on which the prevailing wind was | N   | NE  | E | SE | S   | SW   | W    | NW  |
|---|-----|-----|---|----|-----|------|------|-----|
|   | 5   | 3   | 0 | 0  | 2   | 5    | 14   | 1   |
| Mean Velocity in miles per hour                           | 3.2 | 4.2 | 0 | 0  | 6.8 | 11.2 | 10.6 | 9.2 |
| Total No. of miles for each Direction                     | 379 | 300 | 0 | 0  | 325 | 1349 | 3565 | 221 |

The total number of miles registered during the month was 6139.  
The max. Velocity of the wind was 38 miles per hour on the 21st.  
Direction W.N.W. at noon.

## SEPTEMBER, 1897.

|   |                               |
|---|-------------------------------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)  | 7·0                           |
| In the month of September, the highest reading of the Barometer during 50 years, was on the 15th, in 1851, and was... |                               |
| 30·274  |                               |
| The lowest  | 25th, 1896                    |
| 28·314  |                               |
| The highest Temperature   | 6th, 1868                     |
| 85·0  |                               |
| The lowest  | 25th, 1885, and 30th, 1888... |
| 29·8  |                               |
| The highest adopted mean temperature of the month, 1865   | 59·1                          |
| The lowest  | 1863                          |
| 50·9  |                               |

### TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|                              |         |         |
|------------------------------|---------|---------|
| Mean barometric pressure     | + 0·028 | inches  |
| Monthly range                | + 0·227 | ,,      |
| Mean of highest temperatures | — 0·1   | degrees |
| Mean of lowest               | — 2·8   | ,,      |
| Mean daily range             | + 2·7   | ,,      |
| Adopted mean temperature     | — 1·1   | ,,      |
| Total rainfall               | + 1·113 | inches  |

Ground Frost on the 10th, 18th and 19th. Hail on the 3rd.  
 Heavy Rain on the 1st, 2nd, 3rd, 4th, 23rd and 24th. Gales of  
 Wind on the 21st. Fog on the 14th and 26th. Lightning  
 on the 16th.

## OCTOBER, 1897.

| Results of Observations taken during the Month.         | Mean for the last 50 years. |         |
|---|-----------------------------|---------|
| Mean Reading of the Barometer .....inches               | 29.732                      | 29.426  |
| Highest ,, on the 21st ,,                               | 30.207                      | 30.023  |
| Lowest ,, on the 16th ,,                                | 28.865                      | 28.645  |
| Range of Barometer Readings .....                       | 1.342                       | 1.378   |
| Highest Reading of a Max. Therm. on the 1st             | 66.9                        | 64.3    |
| Lowest Reading of a Min. Therm. on the 11th             | 31.7                        | 28.7    |
| Range of Thermometer Readings.....                      | 35.2                        | 35.6    |
| Mean of all the Highest Readings.....                   | 57.7                        | 54.5    |
| Mean of all the Lowest Readings.....                    | 42.5                        | 41.4    |
| Mean Daily Range... ..                                  | 15.2                        | 13.1    |
| Deduced Monthly Mean (from Mean of Max. and Min.) ..... | 49.1                        | 47.0    |
| Mean Temperature from Dry Bulb.....                     | 49.5                        | 47.6    |
| Adopted Mean Temperature.....                           | 49.3                        | 47.3    |
| Mean Temperature of Evaporation .....                   | 46.4                        | 45.1    |
| Mean Temperature of Dew Point.....                      | 43.3                        | 42.6    |
| Mean elastic force of Vapour .....                      | 0.282in                     | 0.274in |
| Mean weight of Vapour in a cub. ft. of air.....         | 3.2gr                       | 3.1gr   |
| Mean additional weight required for saturation          | 0.8gr                       | 0.6gr   |
| Mean degree of Humidity (saturation 1.00)...            | 0.80                        | 0.84    |
| Mean weight of a cubic foot of air.....                 | 541.1gr                     | 537.7gr |
| Fall of Rain .....                                      | 2.698in                     | 5.015in |
| Number of days on which Rain fell.....                  | 12                          | 21.4    |

| No. of days in the month on which the prevailing wind was | N   | NE  | E   | SE | S    | SW   | W   | NW  |
|---|-----|-----|-----|----|------|------|-----|-----|
|   | 7   | 3   | 4   | 0  | 4    | 6    | 5   | 2   |
| Mean Velocity in miles per hour                           | 5.8 | 4.7 | 9.0 | 0  | 13.8 | 7.9  | 7.6 | 3.6 |
| Total No. of miles for each Direction.                    | 978 | 341 | 861 | 0  | 1326 | 1132 | 910 | 171 |

The total number of miles registered during the month was 5719.  
 The max. Velocity of the wind was 44 miles per hour, S., on the 17th at noon.

## OCTOBER, 1897.

|  |                           |
|--|---------------------------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)   | 6·8                       |
| In the month of October, the highest reading of the Barometer during 50 years, was on the 5th, in 1884, and was .... |                           |
| The lowest   | 19th, 1862 ,, .... 28·139 |
| The highest Temperature  | 9th, 1869 ,, .... 72·8    |
| The lowest   | 28th, 1895 ,, .... 17·8   |
| The highest adopted mean temperature of the month, 1861 & 76   |                           |
| The lowest   | 1895.... 42·8             |

---

**TABLE OF DIFFERENCES.**

The signs + and — mean respectively above and below the monthly average.

|                                    |                |
|------------------------------------|----------------|
| Mean barometric pressure .. ..     | + 0·306 inches |
| Monthly range ,, .. ..             | — 0·036 ,,     |
| Mean of highest temperatures .. .. | + 3·2 degrees  |
| Mean of lowest ,, .. ..            | + 1·1 ,,       |
| Mean daily range ,, .. ..          | + 2·1 ,,       |
| Adopted mean temperature .. ..     | + 2·0 ,,       |
| Total rainfall .. .. ..            | — 2·317 inches |

Ground Frost from the 12th—14th. Heavy Rain on the 14th and 15th. Gales of Wind on the 10th and 17th. Thunder on the 15th and 17th. Lightning on the 15th.

## NOVEMBER, 1897.

| Results of Observations taken during the Month         | Mean for the last 50 years. |          |
|--|-----------------------------|----------|
| Mean Reading of the Barometer..... inches              | 29·731                      | 29·339   |
| Highest ,, on the 20th ,,                              | 30·272                      | 30·063   |
| Lowest ,, on the 28th ,,                               | 28·592                      | 28·564   |
| Range of Barometer Readings .....                      | 1·680                       | 1·499    |
| Highest Reading of a Max. Therm. on the 13th           | 57·3                        | 55·8     |
| Lowest Reading of a Min. Therm. on the 30th            | 31·0                        | 25·5     |
| Range of Thermometer Readings .....                    | 26·3                        | 30·3     |
| Mean of all the Highest Readings.....                  | 51·2                        | 47·2     |
| Mean of all the Lowest Readings .....                  | 40·9                        | 36·4     |
| Mean Daily Range .....                                 | 10·3                        | 10·8     |
| Deduced Monthly Mean (from Mean of Max and Min.) ..... | 45·7                        | 41·4     |
| Mean Temperature from Dry Bulb .....                   | 45·6                        | 41·7     |
| Adopted Mean Temperature .....                         | 45·7                        | 41·6     |
| Mean Temperature of Evaporation.....                   | 44·5                        | 39·3     |
| Mean Temperature of Dew Point .....                    | 43·1                        | 38·0     |
| Mean elastic force of Vapour .....                     | 0·279 in                    | 0·230 in |
| Mean weight of Vapour in a cub. ft. of air ....        | 3·2gr                       | 2·6gr    |
| Mean additional weight required for saturation         | 0·5gr                       | 0·4gr    |
| Mean degree of Humidity (saturation 1·00)..            | 0·91                        | 0·87     |
| Mean weight of a cubic foot of air .....               | 545·5gr                     | 545·0gr  |
| Fall of rain .....                                     | 5·835 in                    | 4·247 in |
| Number of Days on which rain fell .....                | 14                          | 19·3     |

| No. of days in the month on which the prevailing wind was | N   | NE  | E    | SE | S    | SW  | W    | NW   |
|---|-----|-----|------|----|------|-----|------|------|
|   | 3   | 3   | 8    | 0  | 4    | 6   | 5    | 1    |
| Mean Velocity in miles per hour                           | 5·5 | 2·4 | 7·1  | 0  | 13·8 | 6·2 | 13·5 | 21·8 |
| Total No. of miles for each Direction                     | 396 | 174 | 1371 | 0  | 1324 | 886 | 1624 | 523  |

The total number of miles registered during the month was 6298.  
The max. Velocity of the wind was 48 miles per hour, N.W. by W., on the 29th at 1 and 3 a.m.

## NOVEMBER, 1897.

|   |                   |
|---|-------------------|
| Mean amount of Cloud (an overcast sky being indicated by 10·0)  | 8·2               |
| In the month of November, the highest reading of the Barometer during 50 years was on the 12th, in 1857, and was 30·350 |                   |
| The lowest  | 11th, 1891 27 938 |
| The highest Temperature   | 2nd, 1894 62·0    |
| The lowest  | 17th, 1861 19·1   |
| The highest adopted mean temperature of the month, 1881   | 47·0              |
| The lowest  | 1851 36·7         |

## TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|                              |        |                |
|------------------------------|--------|----------------|
| Mean barometric pressure     | ... .. | + 0·392 inches |
| Monthly range                | ... .. | + 0·181 ,,     |
| Mean of highest temperatures | ... .. | + 4·0 degrees  |
| Mean of lowest               | ... .. | + 4·5 ,,       |
| Mean daily range             | ... .. | — 0·5 ,,       |
| Adopted mean temperature     | ... .. | + 4·1 ,,       |
| Total rainfall               | ... .. | + 1·588 inches |

Ground Frost on the 15th, 16th, 23rd, 24th, and 28th—31st.  
 Hoar Frost on the 24th Hail on the 28th. Heavy Rain on the  
 17th, 26th, 28th, and 30th. Gales of Wind on the 28th and 29th.  
 Fog on the 22nd and 23rd. Thunder on the 28th. Lightning on the  
 28th.

## DECEMBER, 1897.

| Results of Observations taken during the Month.         | Mean for the last 50 years |          |
|---|----------------------------|----------|
| Mean Reading of the Barometer . . . . . inches          | 29.409                     | 29.454   |
| Highest           ,,           on the 22nd   ,,         | 30.255                     | 30.075   |
| Lowest           ,,           on the 10th   ,,          | 28.458                     | 28.587   |
| Range of Barometer Readings.....   ,,                   | 1.797                      | 1.488    |
| Highest Reading of a Max Therm. on the 16th             | 57.0                       | 53.1     |
| Lowest Reading of a Min. Therm. on the 22nd             | 20.3                       | 20.2     |
| Range of Thermometer Readings .....                     | 36.7                       | 32.9     |
| Mean of all the Highest Readings .....                  | 46.2                       | 43.1     |
| Mean of all the Lowest Readings.....                    | 24.3                       | 32.9     |
| Mean Daily Range.....                                   | 11.9                       | 10.2     |
| Deduced Monthly Mean (from Mean of Max. and Min.) ..... | 40.3                       | 38.0     |
| Mean Temperature from Dry Bulb.....                     | 41.4                       | 38.7     |
| Adopted Mean Temperature .....                          | 40.9                       | 38.3     |
| Mean Temperature of Evaporation .....                   | 38.8                       | 36.8     |
| Mean Temperature of Dew Point .....                     | 36.2                       | 34.9     |
| Mean elastic force of Vapour.....                       | 0.213 in                   | 0.205 in |
| Mean weight of Vapour in a cub. ft. of air ....         | 2.5 gr                     | 2.4 gr   |
| Mean additional weight required for saturation          | 0.5 gr                     | 0.4 gr   |
| Mean degree of Humidity (saturation 1.00) ..            | 0.84                       | 0.87     |
| Mean weight of a cubic foot of air.....                 | 545.0 gr                   | 548.3 gr |
| Fall of Rain.....                                       | 4.699 in                   | 5.264 in |
| Number of Days on which rain fell.....                  | 20                         | 19.0     |

| No. of days in the month on which the prevailing wind was | N   | NE  | E    | SE  | S    | SW   | W    | NW |
|---|-----|-----|------|-----|------|------|------|----|
|   | 2   | 1   | 3    | 3   | 10   | 7    | 5    | 0  |
| Mean Velocity in miles per hour                           | 6.3 | 5.6 | 11.0 | 6.3 | 16.4 | 11.4 | 20.2 | 0  |
| Total No. of miles for each Direction                     | 302 | 135 | 795  | 455 | 3927 | 1914 | 2426 | 0  |

The total number of miles registered during the month was 9944.  
The max. Velocity of the wind was 51 miles per hour, S. b E., on the 30th at 3-0 a.m.

## DECEMBER, 1897.

Mean amount of Cloud (an overcast sky being indicated by 10·0) 7·4

In the Month of December, the highest reading of the Barometer during 50 years, was on the 22nd, in 1849, and was 30·378

The lowest ,, 8th, 1886 ,, .... 27·350

The highest Temperature 9th, 1876 ,, .... 58·1

The lowest ,, 24th, 1860 ,, .... 6·7

The highest adopted mean temperature of the month 1857.. 44·6

The lowest ,, 1878 ,, .... 30·3

## TABLE OF DIFFERENCES.

The signs + and — mean respectively above and below the monthly average.

|                                 |   |              |
|---------------------------------|---|--------------|
| Mean barometric pressure .. ..  | — | 0·045 inches |
| Monthly range ,, .. ..          | + | 0·309 ,,     |
| Mean of highest temperatures .. | + | 3·1 degrees  |
| Mean of lowest ,, .. ..         | + | 1·4 ,,       |
| Mean daily range ,, .. ..       | + | 1·7 ,,       |
| Adopted mean temperatures .. .. | + | 2·6 ,,       |
| Total rainfall .. .. ..         | — | 0·565 inches |

Ground Frost from the 1st—4th, 12th—15th, 21st—26th, and on the 29th. Snow on the 1st, 2nd, and 8th. Hail on the 6th, 8th, 11th, 14th and 15th. Heavy Rain on the 5th and 7th. Gales of wind on the 8th, 9th, 27th, 29th, 30th and 31st. Fog on the 3rd. Lightning on the 30th.

## Summary of Observations FOR 1897.

| Results of Observations taken during the Year.                 | Mean for the<br>last<br>50 years. |
|--|-----------------------------------|
| Mean Reading of the Barometer.....inches 29·517                | 29·491                            |
| Highest ,, on November 20th ,, 30·272                          | 30·283                            |
| Lowest ,, on March 3rd ,, 28·157                               | 28·262                            |
| Range of Barometer Readings ..... ,, 2·115                     | 2·021                             |
| Highest Reading of Max. Ther. on Aug. 2nd 83·8                 | 81·7                              |
| Lowest Reading of a Min. Therm. on Dec. 22nd 20·3              | 15·4                              |
| Range of Thermometer Readings ..... 63·5                       | 66·3                              |
| Mean of all the Highest Readings ..... 56·0                    | 54·8                              |
| Mean of all the Lowest Readings ..... 40·9                     | 40·6                              |
| Mean Daily Range..... 15·1                                     | 14·2                              |
| Deduced yearly Mean (from Mean of Max.<br>and Min.) ..... 47·4 | 46·8                              |
| Mean Temperature from dry bulb ..... 47·9                      | 46·7                              |
| Adopted Mean Temperature ..... 47·7                            | 46·8                              |
| Mean Temperature of Evaporation ..... 45·0                     | 44·5                              |
| Mean Temperature of Dew Point ..... 42·2                       | 42·1                              |
| Mean elastic force of Vapour ..... 0·278 in                    | 0·273 in                          |
| Mean weight of Vapour in a cub. ft. of air .... 3·2 gr         | 3·3 gr                            |
| Mean additional weight required for saturation 0·8 gr          | 0·7 gr                            |
| Mean degree of Humidity (saturation 1 00) .. 0·82              | 0·84                              |
| Mean weight of a cubic foot of air..... 539·3 gr               | 539·2 gr                          |
| Total fall of rain in the year..... 51·622 in                  | 47·261 in                         |
| Number of days per month on which rain fell 17·5               | 18·0                              |

The Maximum monthly mean height of the Barometer was  
in February, 1891, and was ..... inches 29·997

The Minimum ,, ,, in December, 1868, and was 28·984

The Maximum yearly mean height of the Barometer was in  
1896, and was..... 29·584

The Minimum ,, ,, in 1866, and was..... 29·389

## SUMMARY, 1897.

|   |                       |          |
|---|-----------------------|----------|
| The greatest monthly range of the Barometer was in<br>January, 1884, and was .....              | inches                | 2·409    |
| The least ,, ,, in July, 1852, and was .....  | ,,                    | 0·505    |
| The highest reading of the Barometer during 50 years was<br>on January 9th, 1896, and was ..... | inches                | 30·597   |
| The lowest ,, ,, on December 8th, 1886, and was   |                       | 27·350   |
| Extreme range .....   | inches                | 3·247    |
| The highest temperature was on June 18th, 1893, and was..                                       |                       | 88·7     |
| The lowest ,, ,, January 15th, 1881.....  |                       | 4·6      |
| The highest adopted mean temperature of a month, July,<br>1868, and was .....                   |                       | 62·4     |
| The lowest ,, ,, ,, February, 1855, ..  |                       | 28·6     |
| The highest adopted mean temperatures of a year, 1868..   |                       | 49·1     |
| The lowest ,, ,, ,, ,, 1879..   |                       | 44·1     |
| The greatest monthly mean weight of vapour }<br>in a cubic foot of air .....                    | July, 1852..          | 5·1gr    |
| The least ,, ,, February, 1855 and 1895   |                       | 1·4gr    |
| The greatest fall of rain in a month, was in October, 1870,<br>and was .....                    |                       | 13 437in |
| The least ,, ,, ,, March, 1852  |                       | 0 047    |
| The greatest number of days on which }<br>rain fell in one month .....                          | July, 1861, Dec. 1868 | 31       |
| The least ,, ,, ,, March 1852   |                       | 3        |

## SUMMARY OF WIND.

| No of days in the year on<br>which the prevailing wind<br>was ..... | N    | NE   | E    | SE   | S     | SW    | W     | NW   |
|---|------|------|------|------|-------|-------|-------|------|
|   | 42   | 47   | 39   | 9    | 47    | 56    | 114   | 11   |
| Mean Velocity in miles per<br>hour .....                            | 5·5  | 6·7  | 9·5  | 8·0  | 13·5  | 10·5  | 12·3  | 9·3  |
| Total No. of miles for each<br>Direction .....                      | 5582 | 7533 | 8868 | 1721 | 15206 | 14062 | 33688 | 2444 |

The total No. of miles registered during the year was 89104.

The max. Velocity of the wind was 56 miles per hour, W., on  
February 21st, at 2 a.m.

# DATES OF OCCASIONAL PHENOMENA.

| 1897.     | Frost.                              | Hoar Frost. | Snow.                           | Hail.              | Heavy Rain.        |             |
|-----------|-------------------------------------|-------------|---------------------------------|--------------------|--------------------|-------------|
| January   | 1-3, 5, 9, 10, 13-31                |             | 8, 9, 14, 20, 22-25, 28, 29     | 15, 25, 31         |                    |             |
| February  | 1-4, 6-8, 10-12, 16-18, 27, 28      |             | 1 4                             | 3                  | 4, 25              |             |
| March     | 1, 2, 4, 6-8, 10, 11, 14, 16, 29-31 |             | 2, 12, 15, 29, 30               | 1, 3, 4, 5, 10, 12 | 4, 26              |             |
| April     | 1-8, 10, 11, 15, 22, 23, 25         |             | 4, 15                           | 1, 14, 15          | 13, 17             |             |
| May       | 1, 4, 10-12, 23                     |             | 10, 12                          | 5, 6, 10, 29       | 28                 |             |
| June      |                                     |             |                                 |                    | 1, 17, 19          |             |
| July      |                                     |             |                                 | 25                 | 8, 25              |             |
| August    | 10, 18, 19                          |             |                                 | 3                  | 6, 10, 17, 20, 21  |             |
| September | 12-14                               |             |                                 |                    | 1, 2, 3, 4, 23, 24 |             |
| October   | 15, 16, 23, 24, 28-31               | 24          |                                 | 28                 | 14, 15             |             |
| November  | 1-4, 12-15, 21-26, 29               |             | 1, 2, 8                         | 6, 8, 11, 14, 15   | 17, 26, 28, 30     |             |
| December  |                                     |             |                                 |                    | 5, 7               |             |
| 1897.     | Gales of Wind.                      | Fog.        | Thunder.                        | Lightning.         | Lunar Halo.        | Solar Halo. |
| January   |                                     |             |                                 |                    |                    |             |
| February  | 21                                  | 9, 13       | 16                              | 14                 |                    |             |
| March     | 2, 3, 4, 17, 18, 19, 24-28          |             | 14                              | 28                 |                    |             |
| April     |                                     |             | 9, 28, 29                       | 1                  |                    |             |
| May       |                                     |             | 1, 29                           | 25                 |                    |             |
| June      | 16                                  |             | 25                              | 4, 5, 6, 11, 18    |                    |             |
| July      |                                     |             | 4-6, 11, 21, 22, 24, 28, 30, 31 | 16                 |                    |             |
| August    |                                     | 14, 26      | 15, 17                          | 15                 |                    |             |
| September | 21                                  |             | 28                              | 28                 |                    |             |
| October   | 10, 17                              |             |                                 | 30                 |                    |             |
| November  | 28, 29                              |             |                                 |                    |                    |             |
| December  | 8, 9, 14, 27, 29, 30, 31            |             |                                 |                    |                    |             |

Aurora Borealis on January 2nd, at 10-15 p.m.

## MONTHLY TABLES FOR EACH HOUR OF RECORDED SUNSHINE

| Local apparent time. | 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 |   |
|----------------------|-----|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-----|-----|---|
| January              | 0   | 0    | 0    | 0    | 2.0  | 4.5   | 7.7   | 8.7   | 8.9   | 9.4   | 3.9   | 1.4   | 0    | 0    | 0    | 0   | 0   | 0 |
| February             | 0   | 0    | 0    | 0.5  | 2.1  | 5.3   | 5.9   | 5.7   | 5.8   | 3.8   | 1.8   | 1.0   | 0    | 0    | 0    | 0   | 0   | 0 |
| March                | 0   | 0    | 0.7  | 2.5  | 4.6  | 8.5   | 9.9   | 8.7   | 11.0  | 10.6  | 11.9  | 10.0  | 4.7  | 0.3  | 0    | 0   | 0   | 0 |
| April                | 0   | 1.2  | 7.0  | 9.3  | 13.5 | 14.4  | 13.8  | 13.9  | 13.2  | 12.9  | 12.9  | 12.5  | 13.2 | 10.1 | 5.3  | 0   | 0   | 0 |
| May                  | 2.3 | 10.7 | 16.3 | 19.6 | 17.7 | 19.3  | 21.3  | 20.6  | 20.4  | 20.4  | 20.9  | 20.3  | 21.1 | 15.5 | 12.5 | 4.4 | 0   | 0 |
| June                 | 1.1 | 4.3  | 6.7  | 9.4  | 10.1 | 10.7  | 12.6  | 12.5  | 13.5  | 11.3  | 13.4  | 12.5  | 11.0 | 12.0 | 6.8  | 0.9 | 0   | 0 |
| July                 | 2.7 | 8.5  | 12.7 | 12.9 | 12.9 | 14.1  | 15.4  | 17.1  | 19.0  | 18.6  | 17.8  | 18.6  | 16.1 | 16.2 | 12.1 | 4.4 | 0   | 0 |
| August               | 0   | 2.3  | 7.1  | 10.8 | 13.3 | 15.8  | 16.6  | 17.1  | 16.9  | 15.3  | 16.0  | 12.6  | 10.4 | 7.5  | 3.1  | 0.2 | 0   | 0 |
| September            | 0   | 0    | 2.8  | 8.0  | 13.0 | 14.9  | 16.4  | 15.4  | 16.2  | 13.3  | 11.0  | 11.4  | 7.9  | 2.7  | 0    | 0   | 0   | 0 |
| October              | 0   | 0    | 0.2  | 2.4  | 6.3  | 11.6  | 14.3  | 16.2  | 15.3  | 12.2  | 12.4  | 9.4   | 2.8  | 0.6  | 0    | 0   | 0   | 0 |
| November             | 0   | 0    | 0    | 0    | 1.8  | 3.8   | 5.6   | 6.0   | 6.6   | 6.5   | 4.8   | 2.4   | 0    | 0    | 0    | 0   | 0   | 0 |
| December             | 0   | 0    | 0    | 0    | 0.5  | 1.6   | 3.1   | 4.8   | 6.6   | 5.5   | 2.2   | 0     | 0    | 0    | 0    | 0   | 0   | 0 |
| Total                | 6.1 | 27.0 | 53.5 | 75.4 | 97.8 | 124.5 | 142.6 | 146.7 | 153.4 | 139.8 | 129.0 | 112.1 | 87.2 | 64.9 | 39.8 | 9.9 | 0   | 0 |

## TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.

| MONTH.    | 1    | 2    | 3    | 4    | 5   | 6    | 7   | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   |
|-----------|------|------|------|------|-----|------|-----|------|------|------|------|------|------|------|------|------|------|
| January   | 4.6  | 1.4  | 0.8  | 0    | 0   | 0    | 0   | 0    | 0    | 0    | 0    | 0    | 0.1  | 0.3  | 2.4  | 0    | 5.9  |
| February  | 0    | 0    | 0    | 0    | 0   | 0.6  | 3.8 | 0    | 0    | 0    | 3.4  | 0    | 0    | 0.6  | 0    | 4.5  | 3.5  |
| March     | 7.0  | 2.0  | 4.5  | 2.5  | 1.7 | 3.5  | 1.0 | 5.1  | 0    | 5.8  | 2.5  | 0    | 0.4  | 0    | 0    | 3.2  | 1.4  |
| April     | 5.4  | 8.2  | 6.4  | 9.3  | 6.4 | 0    | 1.2 | 10.3 | 0    | 11.1 | 3.7  | 0    | 0.3  | 0    | 9.2  | 4.2  | 0    |
| May       | 11.7 | 0    | 10.8 | 7.9  | 8.6 | 9.2  | 2.6 | 0    | 10.3 | 5.5  | 7.3  | 5.1  | 11.4 | 1.4  | 2.3  | 13.9 | 14.0 |
| June      | 0    | 4.4  | 0    | 9.5  | 9.8 | 4.0  | 0.2 | 0    | 4.3  | 6.3  | 7.0  | 12.3 | 8.0  | 7.2  | 8.7  | 1.8  | 4.1  |
| July      | 3.0  | 8.0  | 2.7  | 4.2  | 0.5 | 10.5 | 6.3 | 4.1  | 2.4  | 13.2 | 11.9 | 15.0 | 14.9 | 15.2 | 15.1 | 13.3 | 0    |
| August    | 11.7 | 12.7 | 11.8 | 11.4 | 5.5 | 4.6  | 2.2 | 0.6  | 11.7 | 4.4  | 2.2  | 4.2  | 0    | 7.0  | 1.4  | 8.4  | 1.6  |
| September | 0.3  | 0    | 8.7  | 5.8  | 0   | 7.3  | 1.0 | 8.2  | 9.4  | 6.5  | 5.6  | 8.7  | 0    | 0    | 1.2  | 5.4  | 3.9  |
| October   | 8.6  | 0    | 7.5  | 2.6  | 3.8 | 0    | 2.4 | 0    | 0.5  | 0    | 3.4  | 6.1  | 6.8  | 0    | 0    | 5.8  | 0.4  |
| November  | 4.8  | 3.4  | 6.7  | 0    | 0   | 0    | 0   | 0    | 0    | 1.1  | 0    | 0    | 0    | 0    | 7.0  | 0    | 0    |
| December  | 1.5  | 6.0  | 0.4  | 0    | 0   | 0.5  | 0   | 1.2  | 0.4  | 0    | 0    | 0    | 0    | 1.4  | 1.9  | 1.4  | 0    |

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.  
(Continued.)

| MONTH.    | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25  | 26   | 27  | 28  | 29  | 30  | 31   | Monthly Total. | Per centage each month. |
|-----------|------|------|------|------|------|------|------|-----|------|-----|-----|-----|-----|------|----------------|-------------------------|
| January   | 1.2  | 1.4  | 1.9  | 0.2  | 2.1  | 5.6  | 0    | 3.9 | 5.6  | 4.4 | 1.9 | 2.8 | 0   | 0    | 46.5           | 18.7                    |
| February  | 0.8  | 0    | 4.2  | 0.5  | 0    | 0.3  | 1.0  | 0   | 0.4  | 8.0 | 0.3 | 0   | 0   | 0    | 31.9           | 11.7                    |
| March     | 3.6  | 5.8  | 1.0  | 2.6  | 0    | 1.8  | 0.1  | 3.8 | 1.8  | 3.3 | 0.7 | 8.2 | 9.7 | 0.4  | 83.4           | 22.8                    |
| April     | 9.0  | 0    | 10.4 | 0    | 13.3 | 5.8  | 11.5 | 3.7 | 8.8  | 2.8 | 1.8 | 5.0 | 5.4 | 0    | 153.2          | 36.5                    |
| May       | 12.6 | 14.6 | 11.4 | 14.0 | 14.4 | 15.2 | 14.4 | 0   | 11.3 | 3.7 | 1.7 | 8.2 | 7.5 | 11.4 | 263.3          | 53.3                    |
| June      | 0    | 9.0  | 2.8  | 1.7  | 9.4  | 13.3 | 2.4  | 0   | 7.2  | 5.2 | 2.2 | 0   | 8.0 | 0    | 148.8          | 29.3                    |
| July      | 8.7  | 14.0 | 0    | 0.5  | 3.0  | 7.8  | 1.8  | 6.2 | 5.3  | 7.3 | 2.7 | 3.8 | 8.2 | 9.5  | 219.1          | 43.0                    |
| August    | 6.4  | 10.3 | 1.7  | 6.1  | 2.5  | 0.4  | 2.7  | 1.2 | 5.3  | 7.6 | 2.0 | 0.8 | 8.8 | 7.8  | 165.0          | 36.1                    |
| September | 9.2  | 9.4  | 7.3  | 7.6  | 0    | 0    | 0    | 9.8 | 5.8  | 6.3 | 0   | 0   | 5.3 | 0    | 133.0          | 35.1                    |
| October   | 6.0  | 4.0  | 6.8  | 5.4  | 6.8  | 0.6  | 2.2  | 5.1 | 2.6  | 1.9 | 4.4 | 5.1 | 1.0 | 3.9  | 103.7          | 31.9                    |
| November  | 5.4  | 0    | 2.2  | 0    | 0.7  | 0    | 0    | 0   | 0    | 0   | 0   | 6.2 | 0   | 0    | 37.5           | 14.7                    |
| December  | 0    | 4.0  | 2.0  | 0    | 0    | 0    | 0.4  | 1.3 | 0    | 0   | 1.2 | 0   | 0.7 | 0    | 24.3           | 10.5                    |

## SUMMARY OF SUNSHINE.

| 1897.        | Number of days on which Sunshine was recorded. | Amount or Total Number of Hours | Per centage of possible Sunshine. | Mean for the last 17 Years. |              |                                  |
|--------------|--|---------------------------------|-----------------------------------|-----------------------------|--------------|----------------------------------|
|              |  |                                 |                                   | Days.                       | Amount hours | Per centage of possible Sunshine |
| January ...  | 18   | 46 5                            | 18·7                              | 14·1                        | 36·4         | 14·7                             |
| February ... | 14   | 31·9                            | 11·7                              | 17 4                        | 57·1         | 20·8                             |
| March ...    | 26   | 83·4                            | 22·8                              | 23 5                        | 104·3        | 28 5                             |
| April ...    | 23   | 153·2                           | 36 5                              | 25·8                        | 146·8        | 35·0                             |
| May ...      | 28   | 263·3                           | 53·3                              | 28·0                        | 197·8        | 40 2                             |
| June ...     | 24   | 148 8                           | 29·3                              | 27·4                        | 190 6        | 37·5                             |
| July ...     | 29   | 219·1                           | 43·0                              | 28·4                        | 173·1        | 34·0                             |
| August ...   | 30   | 165·0                           | 36·1                              | 27·6                        | 142·1        | 31·1                             |
| September    | 21   | 133·0                           | 35·1                              | 25·2                        | 122·9        | 32·4                             |
| October ...  | 25   | 103·7                           | 31·9                              | 23·1                        | 86·8         | 26·6                             |
| November     | 9  | 37 5                            | 14·7                              | 16·4                        | 43·5         | 17·0                             |
| December     | 15   | 24·3                            | 10·5                              | 12·9                        | 26·5         | 11 5                             |
| Year         | 262  | 1409·7                          | 31·6                              | 269·8                       | 1327·9       | 29·7                             |

## SUMMARY OF SUNSHINE

(Continued)

## EXTREMES FOR THE LAST 17 YEARS.

| MONTH | Number of Days on which Sunshine was recorded. |  |       |                                | Amount or Total number of Hours. |      |        |      | Percentage of possible Sunshine. |      |       |      |
|-------|--|--|-------|--------------------------------|----------------------------------|------|--------|------|----------------------------------|------|-------|------|
|       | GREATEST                                       |  | LEAST |                                | GREATEST                         |      | LEAST  |      | GREATEST                         |      | LEAST |      |
|       | Days   | Year                                   | Days  | Year                           | Hours                            | Year | Hours  | Year | o/o                              | Year | o/o   | Year |
| Jan.  | 21   | 1881                                   | 9     | { 1885<br>1889                 | 64.2                             | 1881 | 14.9   | 1885 | 24.8                             | 1881 | 5.8   | 1885 |
| Feb.  | 24   | 1895                                   | 11    | 1882                           | 89.3                             | 1887 | 29.6   | 1882 | 32.1                             | 1887 | 10.6  | 1882 |
| Mar.  | 28   | 1894                                   | 19    | { 1881<br>1882                 | 162.1                            | 1893 | 67.0   | 1895 | 44.2                             | 1893 | 18.3  | 1895 |
| Apr.  | 28   | { 1884<br>1887<br>1892<br>1893<br>1896 | 23    | { 1883<br>1885<br>1888<br>1897 | 223.7                            | 1893 | 95.7   | 1889 | 53.9                             | 1893 | 23.1  | 1889 |
| May   | 30   | { 1881<br>1884<br>1888                 | 22    | 1886                           | 266.6                            | 1881 | 127.0  | 1886 | 55.3                             | 1881 | 26.3  | 1886 |
| June  | 30   | 1896                                   | 24    | { 1888<br>1897                 | 272.5                            | 1887 | 115.0  | 1890 | 55.2                             | 1887 | 23.3  | 1890 |
| July  | 31   | 1882                                   | 25    | 1888                           | 247.2                            | 1887 | 98.0   | 1888 | 49.8                             | 1887 | 19.7  | 1888 |
| Aug.  | 31   | { 1886<br>1893                         | 23    | 1894                           | 194.8                            | 1893 | 88.4   | 1891 | 43.5                             | 1893 | 19.5  | 1891 |
| Sept. | 29   | 1895                                   | 21    | 1897                           | 170.0                            | 1895 | 62.9   | 1896 | 45.1                             | 1895 | 16.7  | 1896 |
| Oct.  | 28   | 1891                                   | 17    | 1889                           | 119.2                            | 1881 | 50.0   | 1889 | 36.1                             | 1881 | 15.2  | 1889 |
| Nov.  | 23   | 1883                                   | 9     | 1897                           | 60.5                             | 1884 | 18.5   | 1891 | 23.0                             | 1884 | 7.0   | 1891 |
| Dec.  | 18   | 1886                                   | 6     | 1882                           | 60.1                             | 1886 | 14.5   | 1882 | 24.8                             | 1886 | 6.0   | 1882 |
| Year  | 290  | 1887                                   | 252   | 1885                           | 1613.7                           | 1887 | 1132.1 | 1888 | 36.3                             | 1887 | 25.4  | 1888 |

## OBSERVATIONS OF UPPER CLOUDS (CIRRUS)

| Date.<br>1897. | G M. T. | Cloud.     |                    | Wind.      |                   | Direction<br>of Lower<br>Clouds. |        |
|----------------|---------|------------|--------------------|------------|-------------------|----------------------------------|--------|
|                |         | Direction. | V'locity<br>(0-6.) | Direction. | Force.<br>(0-12.) |                                  |        |
| January        | 4       | 4 40pm     | S b W              | 3          | S b E             | 3                                | SW     |
| "              | 15      | 8 40am     | NNW                | 2          | NNE               | 1                                | NE     |
| "              | 16      | 9-0am      | SE b S             | 3          | ENE               | 0                                | NW     |
| "              | 21      | Noon       | NNW                | 2          | NW                | 3                                | N      |
| "              | 27      | Noon       | NW b N             | 2          | NNW               | 2                                | NW     |
| "              | 29      | 8 45am     | NW b N             | 3          | W b S             | 0                                |        |
| February       | 1       | 8 45am     | N                  | 2          | N b E             | 1                                | NE b N |
| "              | 11      | 7-30am     | W                  | 3          | N b W             | 1                                |        |
| "              | 16      | Noon       | NW                 | 2          | WSW               | 3                                | SW     |
| "              | 17      | Noon       | SW                 | 2          | SW                | 1                                |        |
| "              | 21      | 9-15am     | NW                 | 3          | W                 | 4                                | W b S  |
| "              | 23      | 1-40pm     | NW                 | 2          | WSW               | 4                                | SW     |
| "              | 27      | 7-30am     | S b W              | 2          | W b N             | 1                                |        |
| March          | 3       | Noon       | NW                 | 3          | WNW               | 7                                | W b N  |
| "              | 5       | 5-10pm     | N                  | 2          | SW b W            | 2                                |        |
| "              | 16      | 5-15pm     | NNE                | 3          | SW b S            | 5                                | SSW    |
| "              | 19      | 5-10pm     | W b N              | 3          | W b S             | 6                                | W      |
| "              | 23      | 2-20pm     | W                  | 3          | WSW               | 3                                | SW     |
| "              | 25      | 3 20pm     | NW                 | 2          | W b S             | 5                                | W      |
| "              | 29      | 4-0pm      | SW                 | 3          | NW                | 2                                | NW     |
| "              | 30      | Noon       | WSW                | 2          | W b S             | 2                                |        |
| April          | 1       | 7-30am     | SW                 | 3          | NE b N            | 1                                |        |
| "              | 3       | 9-0am      | W b N              | 2          | E                 | 3                                | E      |
| "              | 4       | 10-0am     | SW                 | 2          | ENE               | 1                                | E      |
| "              | 15      | 3 0pm      | NW                 | 3          | WSW               | 5                                | SW     |
| "              | 20      | 11-30am    | NW                 | 3          | W b S             | 3                                | NW     |
| "              | 24      | 9-15am     | NW                 | 3          | NWE               | 2                                | NE     |
| "              | 26      | 4-0pm      | NW                 | 3          | ENE               | 3                                |        |
| May            | 6       | 9-40am     | NW                 | 2          | WNW               | 4                                | W b N  |
| "              | 7       | 9-30am     | SW                 | 2          | W b S             | 1                                | W      |
| "              | 10      | 9-10am     | SW                 | 2          | W b N             | 2                                | W      |
| "              | 11      | 11-50am    | NW b N             | 2          | NW b W            | 3                                | NW     |
| "              | 16      | 11-30am    | W                  | 2          | NE                | 2                                | NE     |
| "              | 19      | 8-30am     | W                  | 2          | ENE               | 2                                | NE     |
| "              | 26      | 4-0pm      | W b S              | 2          | WSW               | 3                                | SW     |
| "              | 27      | 1-45pm     | E                  | 3          | E b S             | 2                                | SW     |
| June           | 4       | 8-20am     | S                  | 3          | NE b N            | 1                                |        |
| "              | 5       | 9-10am     | S b E              | 3          | N b E             | 0                                | N      |
| "              | 9       | 4 0pm      | W b N              | 2          | E b N             | 2                                | E      |
| "              | 10      | 9-0am      | SW                 | 2          | ESE               | 1                                | E      |

## OBSERVATIONS OF UPPER CLOUDS (Continued).

| Date.<br>1897. | G. M. T. | Cloud.     |                    | Wind.     |                  | Direction<br>of Lower<br>Clouds. |        |
|----------------|----------|------------|--------------------|-----------|------------------|----------------------------------|--------|
|                |          | Direction. | Velocity<br>(0-6). | Direction | (Forc.<br>0-12.) |                                  |        |
| June           | 12       | 10-30am    | S b W              | 2         | SW               | 1                                |        |
| "              | 12       | Noon       | SW                 | 2         | SSW              | 2                                | S      |
| "              | 15       | Noon       | NE                 | 3         | W                | 2                                | W b S  |
| "              | 19       | 9-0am      | NW b W             | 2         | NW b W           | 3                                | NW     |
| "              | 22       | 4-0pm      | W b S              | 2         | WSW              | 2                                | SW     |
| "              | 26       | 10-50am    | SSE                | 2         | NNE              | 1                                |        |
| July           | 2        | Noon       | SW                 | 2         | SW               | 2                                |        |
| "              | 4        | 6-0pm      | NW                 | 2         | W b S            | 2                                | SW     |
| "              | 12       | 4-0pm      | NE                 | 2         | E b S            | 2                                |        |
| "              | 15       | 10 0am     | SE b E             | 2         | NW b N           | 1                                |        |
| "              | 16       | 5-0pm      | NW b W             | 2         | SW               | 1                                | W      |
| "              | 19       | 7-30am     | ENE                | 2         | NNE              | 1                                |        |
| "              | 22       | 7-30am     | NW                 | 2         | WSW              | 1                                |        |
| "              | 26       | 2-0pm      | NE                 | 3         | WSW              | 4                                | SW     |
| "              | 27       | 2-30pm     | NW                 | 2         | W                | 3                                | W      |
| "              | 31       | 11 15am    | SW                 | 2         | NE b N           | 1                                |        |
| August         | 1        | 9-0am      | N                  | 2         | NE b N           | 1                                |        |
| "              | 2        | 9-0am      | N b E              | 2         | NNE              | 1                                |        |
| "              | 3        | 4-0pm      | W                  | 3         | ESE              | 1                                |        |
| "              | 10       | 8 0am      | NW                 | 2         | E b N            | 1                                |        |
| "              | 14       | 1-0pm      | N b E              | 2         | SW               | 2                                | SW b W |
| "              | 16       | 3-0pm      | NW                 | 2         | SW b W           | 3                                | SW     |
| "              | 18       | 7-20pm     | NW b W             | 2         | WNW              | 1                                | W      |
| "              | 19       | 9-30am     | NW b W             | 2         | W b S            | 1                                | W      |
| "              | 21       | 11-0am     | NE                 | 2         | SW b W           | 4                                | SW     |
| "              | 24       | 3-0pm      | S b E              | 3         | E                | 3                                | E b N  |
| "              | 28       | 8-0am      | S                  | 2         | S b W            | 2                                | S      |
| "              | 30       | Noon       | NNW                | 3         | S b E            | 4                                | SW     |
| "              | 31       | 4-0pm      | NE b E             | 2         | SW               | 3                                | SW     |
| Sept.          | 4        | 11-30am    | N b W              | 3         | WNW              | 3                                | W      |
| "              | 8        | 7 30am     | W                  | 3         | NNW              | 0                                |        |
| "              | 16       | 4-40pm     | N                  | 3         | WSW              | 2                                | W      |
| "              | 17       | 8-0am      | NE b E             | 2         | W                | 3                                | W      |
| "              | 19       | 9-0am      | SE b S             | 2         | WSW              | 0                                | NE     |
| "              | 20       | 10-0am     | NW b W             | 2         | W b S            | 1                                | N      |
| Oct.           | 1        | Noon       | NNW                | 3         | ESE              | 0                                | N      |
| "              | 5        | 7-0am      | SSE                | 2         | E b S            | 0                                | SE     |
| "              | 12       | Noon       | NW                 | 2         | WNW              | 3                                | NW     |
| "              | 13       | 9-0am      | W                  | 3         | NW b W           | 1                                |        |
| "              | 19       | 4-0pm      | NNW                | 3         | WNW              | 2                                | SW     |
| "              | 20       | 8-0am      | NW b N             | 3         | SW b W           | 0                                | SW     |

## OBSERVATIONS OF UPPER CLOUDS (Continued).

| Date.<br>1897. | G. M. T. | Cloud.    |                    | Wind.      |                  | Direction<br>of Lower<br>Clouds |       |
|----------------|----------|-----------|--------------------|------------|------------------|---------------------------------|-------|
|                |          | Direction | Velocity<br>(0-6). | Direction. | Force.<br>(0-12) |                                 |       |
| Oct.           | 27       | 10-0am    | N                  | 2          | NNE              | 1                               | N b W |
| "              | 28       | 9-0am     | NW                 | 3          | NNE              | 1                               |       |
| "              | 29       | 10-0am    | N                  | 2          | NNE              | 1                               |       |
| "              | 30       | 10-0am    | N                  | 2          | N b E            | 0                               |       |
| "              | 31       | 9 0am     | N                  | 2          | N b E            | 1                               |       |
| Nov.           | 10       | 11-0am    | N b E              | 2          | NE b N           | 1                               | NE    |
| "              | 15       | 9-0am     | N                  | 2          | NW               | 1                               |       |
| "              | 18       | 4-0pm     | N                  | 2          | W b S            | 2                               |       |
| "              | 20       | 1-30pm    | NNW                | 2          | W b S            | 2                               | W     |
| Dec.           | 1        | 1-20pm    | N                  | 2          | NNW              | 0                               | NE    |
| "              | 3        | 8-15am    | N b E              | 3          | NNE              | 0                               |       |
| "              | 9        | 12-10pm   | E                  | 2          | W b S            | 7                               | WSW   |
| "              | 16       | 11-45am   | NE b N             | 2          | S b E            | 6                               | S     |
| "              | 23       | 2-15pm    | N                  | 2          | NNE              | 0                               | NE    |
| "              | 24       | 10-10am   | NW                 | 2          | NE b N           | 0                               | NE    |
| "              | 25       | 9-45am    | SE                 | 1          | SSW              | 1                               |       |
| "              | 26       | 9-10am    | N                  | 2          | SW b S           | 1                               | S     |
| "              | 28       | 9-10am    | N                  | 2          | S                | 3                               | S     |
| "              | 30       | 9-0am     | NW N               | 2          | SSW              | 7                               | S     |

## DAYS OF SOLAR DRAWINGS.

The figures express, in hundredths of a day, the Greenwich Civil time at which the drawing was made.

| 1897. | January | February | March | April | May | June | July | August | September | October   | November | December  |
|-------|---------|----------|-------|-------|-----|------|------|--------|-----------|-----------|----------|-----------|
| 1     |         |          | .50   | .39   | .40 |      | .48  | .37    |           | .38       | .51      | .54       |
| 2     | .41     |          | .45   | .32   |     |      | .44  | .38    |           |           | .62      | .44       |
| 3     |         |          | .42   | .40   | .34 |      |      | .37    | .48       | .52       | .39      | .44       |
| 4     |         |          |       | .35   | .43 | .31  |      | .31    | .39       | .41       |          |           |
| 5     |         |          | .44   | .48   | .79 | .39  |      | .40    | .39       | .45       |          |           |
| 6     |         | .42      |       |       | .52 | .41  | .40  | .40    | .39       | .52       |          | .48       |
| 7     |         |          | .38   | .41   |     |      | .51  |        | .67       |           |          |           |
| 8     |         |          |       |       |     |      |      | .37    | .37       |           |          |           |
| 9     |         |          | .43   | .49   | .50 | .71  | .30  | .37    | .37 & .67 |           |          |           |
| 10    |         |          |       | .47   | .34 |      | .42  | .34    | .39       |           | .52      |           |
| 11    |         | .39      |       |       | .67 | .66  | .65  |        | .38       | .65       |          |           |
| 12    |         |          |       | .47   | .52 | .41  | .35  |        | .40       | .37       |          |           |
| 13    | .65     |          |       |       |     | .42  | .30  | .54    |           | .40       |          |           |
| 14    | .39     |          |       |       |     | .52  | .55  |        | .67       |           |          | .54 & .58 |
| 15    | .47     |          | .46   | .45   | .40 |      | .42  |        | .41       |           | .43      | .60       |
| 16    |         |          |       | .72   | .34 | .51  | .42  |        | .41       |           |          |           |
| 17    | .39     |          |       |       | .39 |      | .33  | .44    | .38       | .39       | .45      |           |
| 18    |         |          |       |       | .34 | .30  |      |        | .51       |           |          |           |
| 19    |         |          |       |       | .40 |      |      |        | .38       | .42       | .46      | .40       |
| 20    | .50     | .45      |       | .45   |     |      |      |        | .39       | .41       |          |           |
| 21    |         |          |       |       | .34 |      |      |        | .39       |           |          |           |
| 22    | .45     |          |       | .76   | .36 |      | .66  |        | .38       | .42       |          | .42       |
| 23    | .47     |          | .44   | .35   | .41 | .33  | .36  |        | .39       | .41       | .49      |           |
| 24    |         |          |       |       | .36 | .66  |      |        | .38       |           |          |           |
| 25    |         |          |       | .42   |     |      | .51  |        |           |           |          | .58       |
| 26    | .40     |          | .65   | .52   | .69 | .42  | .41  | .41    | .39       | .52       |          | .46       |
| 27    | .52     | .40      |       |       |     | .37  |      | .34    | .39       | .51       |          |           |
| 28    | .44     |          |       | .73   |     |      |      |        | .42       | .42       |          |           |
| 29    | .40     |          | .34   |       | .45 |      | .54  |        |           | .44       | .44      | .40       |
| 30    |         |          | .34   |       | .41 |      | .49  |        | .38       | .53       |          |           |
| 31    |         |          |       |       |     |      |      |        |           | .45 & .60 |          | .51       |

## OBSERVATIONS OF EARTH-MAGNETISM.

ABSOLUTE measures of Horizontal Magnetic Force have been made once each month, by the method of Vibration and Deflection.

In these observations the same Magnet has been employed from the beginning of the series in March. 1863. The weight of the Magnet with its stirrup is 825 grains, and its length 3.94 inches nearly. Its moment of inertia, measured by the method of vibrations, with and without a known increase of the moment, is 5.27303 to the English foot—second—grain units, at the temperature 35° Fahr., and its rate of increase is 0.00073 for increase of 10°

The temperature corrections have been obtained from the formula  $q(t^\circ - 32^\circ) + q'(t^\circ - 32^\circ)^2$ , where  $t^\circ$  is the observed temperature and 32° Fahr. the adopted standard temperature. The values of the co-efficient  $q$  and  $q'$  are respectively 0.0001128 and 0.000000436.

The induction co-efficient  $\mu$  is 0.000244.

The correction for error of graduation of the Deflection bar at 1.0 foot is + 0.00004ft. at 1.3 + 0.000064 ft.

The observed times of vibration are entered in the Table without corrections.

The time of one vibration has been obtained each month from the mean of twelve determinations of the time of 100 vibrations.

The angles of deflection are each the mean of two sets of readings.

In deducing from these observations the ratio and product of the magnetic moment  $m$  of the magnet, and the earth's horizontal magnetic intensity  $X$ , the induction and temperature corrections have always been applied, and the observed time of vibration has been corrected for the effect of torsion of the suspending thread; but no correction has been required for the rate of the chronometer, or for the arc of vibration, the former having been always under 1.5s and the latter never over 50'.

The average deflection of the magnet caused by a twist of the torsion circle through 90° has been about 11'.2 of arc.

In the calculations of the ratio  $\frac{m}{X}$ , the third and subsequent

terms of the series  $1 + \frac{P}{r^2} + \frac{Q}{r^4} + \dots$ , have always been omitted.

The value of the constant P was found to be—0·00096.

The Vertical and Total Forces are deduced from the measures of the Horizontal Force, and the Angle of Inclination or Dip.

All the computations are in English foot—second—grain units; and in the final table the results are given also in C. G. S. units, in parallel columns.

The Dip, or angle between the direction of total force, and that of its horizontal component, has been measured with Barrow's Circle, once each month by two needles, always when possible on the days of vibration and deflection observations.

The Declination has been observed at the beginning of each week, usually on Mondays at 4 p.m. and is quoted as the angle between the horizontal direction of force and the Astronomical Meridian, measured from the North Point.

The Differential Instruments, or Photo-Magnetographs, are of the same pattern as those at the Kew Observatory, except that the radial distances between the centres of the magnets and the surfaces of the respective cylinders are shorter, and the clock is not provided with an automatic light-cut-off, for the timescale. The "cut-offs" are made by hand at the hours 0, 2, 20, and 22 of the astronomical day, to furnish two time marks at each end of the day's curves, the changes being made between 10-30 and 11 a.m., civil time.

The scale value of the Bifilar horizontal force torsion balance, has remained very constant at 0·00051 C. G. S. for one centimetre, during the last five years

The scale value of the Unifilar Declination Magnet is 11'·28 arc per centimetre.

The corrections for diurnal range, employed in the tables, are taken from the Kew Reports 1891-96.

## OBSERVATIONS OF DECLINATION AND DIP.

| 1897<br>MONTH | G.M.T.<br>CIVIL DAY | WEST DECLINATION |               | MAGNETIC DIP. |          |                     |
|---------------|---------------------|------------------|---------------|---------------|----------|---------------------|
|               |                     | Observations.    | Monthly Mean. | Needle        | DIP.     | G.M.T.<br>CIVIL DAY |
|               | D. H. M.            | ° ' "            | ° ' "         |               | ° ' "    | D. H. M.            |
| Jan.          | 4 16 5              | 18 29.2          | 18 30.6       | 1             | 68 49.5  | 16 9 24             |
|               | 11 16 5             | 18 29.7          |               |               |          |                     |
|               | 18 16 0             | 18 28.7          |               | 3             | 68 56.9  | ,, 10 9             |
|               | 25 16 0             | 18 34.6          |               |               |          |                     |
| Feb.          | 1 16 40             | 18 28.2          | 18 29.7       | 1             | 68 51.1  | 16 11 43            |
|               | 8 16 0              | 18 28.1          |               |               |          |                     |
|               | 15 16 0             | 18 28.2          |               | 3             | 68 59.8  | ,, 12 18            |
|               | 22 16 0             | 18 34.2          |               |               |          |                     |
| March         | 1 16 0              | 18 30.7          | 18 28.9       | 1             | 68 54.6  | 20 11 7             |
|               | 8 16 0              | 18 31.7          |               |               |          |                     |
|               | 15 16 20            | 18 21.5          |               | 3             | 68 59.1  | ,, 11 54            |
|               | 22 16 0             | 18 26.3          |               |               |          |                     |
| April         | 29 16 0             | 18 34.2          |               |               |          |                     |
|               | 5 16 0              | 18 31.0          | 18 29.0       | 1             | 68 54.0  | 21 9 8              |
|               | 12 16 5             | 18 30.1          |               |               |          |                     |
| 26 16 0       | 18 25.9             | 3                |               | 68 55.8       | ,, 9 43  |                     |
| May           | 3 16 0              |                  | 18 30.4       |               |          | 18 27.4             |
|               | 10 16 0             | 18 25.9          |               |               |          |                     |
|               | 25 16 5             | 18 29.6          | 3             | 68 57.8       | ,, 11 18 |                     |
|               | 31 16 0             | 18 23.7          |               |               |          |                     |
| June          | 7 16 20             | 18 26.7          | 18 28.6       | 1             | 68 39.7  | 19 10 26            |
|               | 14 16 15            | 18 29.6          |               |               |          |                     |
|               | 21 16 10            | 18 27.6          |               | 3             | 68 55.2  | ,, 10 54            |
| 28 16 0       | 18 30.5             |                  |               |               |          |                     |
| July          | 5 16 0              | 18 25.6          | 18 28.5       | 1             | 68 52.2  | 17 10 8             |
|               | 19 16 0             | 18 33.9          |               |               |          |                     |
|               | 26 16 0             | 18 26.1          |               | 3             | 68 56.3  | ,, 10 41            |

## OBSERVATIONS OF DECLINATION AND DIP.

*(Continued.)*

| 1897<br>MONTH | G.M.T.<br>CIVIL DAY | WEST DECLINATION |               | MAGNETIC DIP. |                    |                      |
|---------------|---------------------|------------------|---------------|---------------|--------------------|----------------------|
|               |                     | Observations.    | Monthly Mean. | Needle        | DIP.               | G.M.T.<br>CIVIL DAY  |
|               | D. H. M.            | ° ' "            | ° ' "         |               | ° ' "              | D. H. M.             |
| Aug.          | 2 16 20             | 18 28.4          | } 18 27.7     | 1<br>3        | 68 49.2<br>68 55.7 | 16 11 3<br>,, 12 20  |
|               | 9 16 0              | 18 29.2          |               |               |                    |                      |
|               | 16 16 5             | 18 28.4          |               |               |                    |                      |
|               | 23 16 0             | 18 23.9          |               |               |                    |                      |
|               | 30 16 25            | 18 28.5          |               |               |                    |                      |
| Sept.         | 13 16 5             | 18 26.7          | } 18 25.7     | 1<br>3        | 68 58.0<br>69 0.2  | 20 11 39<br>,, 12 13 |
|               | 20 16 0             | 18 24.5          |               |               |                    |                      |
|               | 27 16 0             | 18 26.0          |               |               |                    |                      |
| Oct.          | 4 16 0              | 18 29.2          | } 18 25.4     | 1<br>3        | 68 42.5<br>68 53.5 | 20 11 18<br>,, 11 53 |
|               | 11 16 5             | 18 27.3          |               |               |                    |                      |
|               | 18 15 50            | 18 22.6          |               |               |                    |                      |
|               | 25 16 0             | 18 22.4          |               |               |                    |                      |
| Nov.          | 3 16 0              | 18 23.7          | } 18 23.7     | 1<br>3        | 68 46.6<br>68 58.0 | 19 11 9<br>,, 11 52  |
|               | 8 16 0              | 18 25.2          |               |               |                    |                      |
|               | 15 16 0             | 18 22.2          |               |               |                    |                      |
|               | 22 16 0             | 18 20.7          |               |               |                    |                      |
| Dec.          | 29 16 0             | 18 26.7          | } 18 26.1     | 1<br>3        | 68 51.6<br>68 58.9 | 18 9 25<br>,, 10 3   |
|               | 6 16 0              | 18 24.6          |               |               |                    |                      |
|               | 13 16 15            | 18 26.8          |               |               |                    |                      |
|               | 27 16 0             | 18 26.9          |               |               |                    |                      |
| Yearly Mean   |                     |                  | 18 27.6       |               | 68 53.9            |                      |

OBSERVATIONS OF VIBRATIONS AND DEFLECTIONS  
FOR ABSOLUTE MEASURE OF MAGNETIC FORCE.

| 1897<br>Month. | G. M. T.<br>(Civil Day). | Temp. | Time<br>of one<br>vibration | G. M. T.            | Temp.        | Observed<br>Deflection<br>at 1.0 ft.<br>at 1.3 ft. | Value of m |
|----------------|--------------------------|-------|-----------------------------|---------------------|--------------|--|------------|
|                | D. H. M.                 | °     |                             | D. H. M.            | °            | ° ' "  |            |
| Jan.           | 15 9 51                  | 35.0  | 5.9834                      | 15 { 10 35<br>10 50 | 38.0<br>38.0 | 11 57.4<br>5 24.3                                  | 0.38750    |
| Feb.           | 16 9 39                  | 49.3  | 5.9810                      | 16 { 10 48<br>10 51 | 50.5<br>50.9 | 11 55.8<br>5 24.7                                  | 0.38793    |
| Mar.           | 20 9 31                  | 46.6  | 5.9868                      | 20 { 10 20<br>10 20 | 49.5<br>49.9 | 11 54.8<br>5 24.2                                  | 0.38714    |
| Apr.           | 17 8 38                  | 46.7  | 5.9888                      | 17 { 9 32<br>9 48   | 48.0<br>48.0 | 11 57.4<br>5 23.2                                  | 0.38765    |
| May            | 15 8 10                  | 50.0  | 5.9907                      | 15 { 9 59<br>9 59   | 52.9<br>52.9 | 11 55.6<br>5 23.8                                  | 0.38728    |
| June           | 19 8 34                  | 52.0  | 5.9878                      | 19 { 9 49<br>9 50   | 52.5<br>52.9 | 11 55.0<br>5 24.0                                  | 0.38735    |
| July           | 17 8 18                  | 59.3  | 5.9867                      | 17 { 9 36<br>9 36   | 62.0<br>62.0 | 11 53.9<br>5 23.1                                  | 0.38769    |
| Aug.           | 16 10 50                 | 62.0  | 5.9931                      | 16 { 11 36<br>11 35 | 61.9<br>62.1 | 11 53.5<br>5 23.7                                  | 0.38735    |
| Sept.          | 20 10 23                 | 56.0  | 5.9873                      | 20 { 11 11<br>11 11 | 58.1<br>58.4 | 11 53.3<br>5 23.2                                  | 0.38730    |
| Oct.           | 20 8 16                  | 51.2  | 5.9856                      | 20 { 9 30<br>9 30   | 56.8<br>56.3 | 11 55.0<br>5 24.1                                  | 0.38778    |
| Nov.           | 18 10 13                 | 49.0  | 5.9952                      | 18 { 11 44<br>11 45 | 59.0<br>59.0 | 11 53.2<br>5 23.2                                  | 0.38667    |
| Dec.           | 14 10 38                 | 43.5  | 5.9863                      | 14 { 11 45<br>11 47 | 46.0<br>46.0 | 11 54.3<br>5 23.4                                  | 0.38698    |

## MAGNETIC INTENSITY.

| BRITISH UNITS. |                   |                 |              | C. G. S. UNITS.   |                 |              |
|----------------|-------------------|-----------------|--------------|-------------------|-----------------|--------------|
| 1897           | Horizontal Force. | Vertical Force. | Total Force. | Horizontal Force. | Vertical Force. | Total Force. |
| Jan. ...       | 3·7368            | 9·6773          | 10·3737      | 0·17230           | 0·44620         | 0·47830      |
| Feb. ..        | 3·7388            | 9·7014          | 10·3969      | 0·17239           | 0·44731         | 0·47937      |
| Mar. ...       | 3·7371            | 9·7087          | 10·4031      | 0·17231           | 0·44765         | 0·47966      |
| April ...      | 3·7357            | 9·6891          | 10·3845      | 0·17225           | 0·44674         | 0·47880      |
| May ...        | 3·7342            | 9·7051          | 10·3988      | 0·17218           | 0·44748         | 0·47946      |
| June ...       | 3·7371            | 9·6301          | 10·3298      | 0·17231           | 0·44402         | 0·47628      |
| July ..        | 3·7416            | 9·6987          | 10·3954      | 0·17252           | 0·44718         | 0·47931      |
| Aug. ...       | 3·7380            | 9·6744          | 10·3713      | 0·17235           | 0·44606         | 0·47820      |
| Sept. ...      | 3·7424            | 9·7416          | 10·4357      | 0·17255           | 0·44916         | 0·48116      |
| Oct. ...       | 3·7386            | 9·6333          | 10·3380      | 0·17238           | 0·44440         | 0·47666      |
| Nov. ...       | 3·7361            | 9·6683          | 10·3651      | 0·17227           | 0·44578         | 0·47791      |
| Dec. ...       | 3·7417            | 9·7076          | 10·4038      | 0·17252           | 0·44759         | 0·47970      |
| Means          | 3·7382            | 9·6867          | 10·3830      | 0·17236           | 0·44663         | 0·47873      |

# HORIZONTAL MAGNETIC DIRECTION.

Horizontal Magnetic Direction, west of north, (from daily measures of the continuous curves.)

|                              | Mean of the highest daily readings. (a) | Mean of the lowest daily readings (b) | Means of $a$ and $b$ . (c) | Means of daily readings at 4a.m. & 4p.m. (d) | Differences $d-c$ . | Difference of $a$ and $b$ , or Mean daily range. | Highest reading of the month. | Lowest reading of the month. | Monthly range. |
|------------------------------|---|---------------------------------------|----------------------------|--|---------------------|--|-------------------------------|------------------------------|----------------|
| 1897                         | 18°+                                    |                                       |                            |  |                     |  |                               |                              |                |
| January                      | 34.4                                    | 24.5                                  | 29.5                       | 29.8   | .3                  | 9.9  | 53.0                          | 6.5                          | 46.5           |
| February                     | 33.7                                    | 21.3                                  | 27.5                       | 28.8   | 1.3                 | 12.4   | 38.5                          | 9.0                          | 29.5           |
| March                        | 35.6                                    | 19.4                                  | 27.5                       | 28.7   | 1.2                 | 16.2   | 42.3                          | 5.0                          | 37.3           |
| April                        | 35.8                                    | 18.1                                  | 27.0                       | 28.3   | 1.3                 | 17.7   | 46.3                          | 7.0                          | 39.3           |
| May                          | 34.1                                    | 20.1                                  | 27.1                       | 27.4   | .3                  | 14.0   | 49.6                          | 8.0                          | 41.6           |
| June                         | 31.3                                    | 18.6                                  | 25.0                       | 25.7   | .7                  | 12.7   | 35.3                          | 10.2                         | 25.1           |
| July                         | 30.8                                    | 17.9                                  | 24.4                       | 24.9   | .5                  | 12.9   | 45.0                          | 5.0                          | 40.0           |
| August                       | 31.2                                    | 17.9                                  | 24.6                       | 24.2   | +.4                 | 13.3   | 37.6                          | 12.0                         | 25.6           |
| September                    | 30.6                                    | 17.8                                  | 24.2                       | 23.8   | +.4                 | 12.8   | 36.5                          | 8.0                          | 28.5           |
| October                      | 29.1                                    | 16.3                                  | 22.7                       | 23.9   | 1.2                 | 12.8   | 33.0                          | 3.5                          | 29.5           |
| November                     | 28.3                                    | 17.2                                  | 22.8                       | 24.0   | 1.2                 | 11.1   | 37.3                          | 6.0                          | 31.3           |
| December                     | 29.6                                    | 14.5                                  | 22.1                       | 24.0   | 1.9                 | 15.1   | 56.4                          | -15.5                        | 71.9           |
| Means                        | 32.0                                    | 18.6                                  | 25.3                       | 26.1   | .8                  | 13.4   | 42.6                          | 5.4                          | 37.2           |
| Correction for diurnal range |   |                                       |                            |  |                     |  |                               |                              | —·3            |
| Mean for the year            |   |                                       |                            |  |                     |  |                               |                              | 18° 25' .8     |

# HORIZONTAL MAGNETIC FORCE.

Horizontal Magnetic Force in C. G. S. units (from daily measures of the continuous curves.)

The figures in the columns are entered to the unit 10<sup>-5</sup> C. G. S.

| 1897.       | Mean of the highest daily readings. | Mean of the lowest daily readings. | Means of <i>a</i> and <i>b</i> . | Means of daily readings 4a m. & 4p. m. | Differences of <i>a</i> and <i>b</i> or Mean daily Range. | Highest reading of the Month. | Lowest reading of the Month. | Monthly Range. |
|-------------|-------------------------------------|------------------------------------|----------------------------------|--|---|-------------------------------|------------------------------|----------------|
|             | (a)                                 | (b)                                | (c)                              | (d)                                    | <i>d</i> - <i>c</i>                                       | 17000+                        | 17000+                       | 0+             |
| January -   | 277                                 | 238                                | 258                              | 261                                    | 3   | 290                           | 151                          | 139            |
| February -  | 289                                 | 235                                | 262                              | 263                                    | 1   | 356                           | 91                           | 265            |
| March -     | 291                                 | 234                                | 263                              | 268                                    | 5   | 336                           | 206                          | 130            |
| April -     | 303                                 | 213                                | 258                              | 268                                    | 10  | 372                           | 121                          | 251            |
| May -       | 293                                 | 217                                | 255                              | 260                                    | 5   | 348                           | 166                          | 182            |
| June -      | 287                                 | 225                                | 256                              | 260                                    | 4   | 326                           | 181                          | 145            |
| July -      | 277                                 | 211                                | 244                              | 253                                    | 9   | 326                           | 146                          | 180            |
| August -    | 267                                 | 207                                | 237                              | 241                                    | 4   | 294                           | 136                          | 158            |
| September - | 267                                 | 212                                | 240                              | 245                                    | 5   | 304                           | 171                          | 133            |
| October -   | 272                                 | 216                                | 244                              | 245                                    | 1   | 313                           | 191                          | 122            |
| November -  | 265                                 | 222                                | 244                              | 246                                    | 2   | 296                           | 174                          | 122            |
| December -  | 283                                 | 216                                | 250                              | 245                                    | -5  | 431                           | 126                          | 305            |
| Means -     | 281                                 | 221                                | 251                              | 255                                    | 4   | 333                           | 155                          | 178            |

Correction for diurnal range

-3

Mean Horizontal Force for the year 0.17252 C.G.S. units.

## DATES OF MAGNETIC DISTURBANCES, 1897.

The disturbances are divided generally into three classes, *small*, *moderate*, and *greater*; these are indicated by the initial letters of the classes, and the letter *c* denotes *calm*. Very great disturbances are marked *vg*. The days are reckoned astronomically from noon to noon. The asterisk signifies that the record was partly or wholly lost, according as it stands with or without an initial letter.

| Month. | Jan. | Feb. | March | April | May         | June | July | August | Sept.      | Oct. | Nov. | Dec. |
|--------|------|------|-------|-------|-------------|------|------|--------|------------|------|------|------|
| Day 1  | m    | s    | m     | g     | *           | s    | c    | m      | s          | m    | s    | s    |
| 2      | g    | s    | s     | s     | s           | s    | s    | s      | *s         | m    | s    | s    |
| 3      | m    | m    | m     | s     | *c          | m    | s    | s      | *s         | s    | c    | s    |
| 4      | s    | m    | m     | s     | s           | m    | s    | c      | m          | s    | s    | s    |
| 5      | s    | m    | s     | m     | s           | s    | s    | c      | s          | s    | s    | s    |
| 6      | s    | s    | s     | m     | s           | s    | s    | c      | s          | s    | s    | s    |
| 7      | s    | s    | s     | m     | c           | s    | s    | s      | s          | c    | s    | s    |
| 8      | s    | s    | m     | m     | c           | s    | s    | s      | s          | c    | s    | c    |
| 9      | c    | s    | m     | m     | s           | c    | c    | m      | c          | s    | s    | c    |
| 10     | s    | m    | m     | s     | s           | s    | c    | s      | m          | m    | s    | m    |
| 11     | s    | s    | s     | s     | s           | c    | s    | s      | m          | s    | s    | m    |
| 12     | m    | s    | m     | s     | s           | s    | s    | s      | s          | s    | c    | s    |
| 13     | s    | m    | s     | m     | m           | s    | s    | s      | c          | s    | s    | c    |
| 14     | s    | m    | s     | s     | m           | s    | m    | s      | s          | c    | s    | s    |
| 15     | c    | s    | s     | c     | s           | m    | s    | m      | s          | s    | c    | m    |
| 16     | s    | c    | c     | m     | s           | m    | s    | c      | s          | s    | s    | s    |
| 17     | s    | c    | c     | m     | g           | m    | m    | c      | s          | m    | m    | m    |
| 18     | s    | c    | c     | m     | m           | m    | c    | s      | s          | m    | m    | s    |
| 19     | c    | c    | c     | m     | m           | m    | s    | m      | s          | c    | c    | g    |
| 20     | c    | c    | c     | m     | m           | s    | s    | s      | s          | c    | m    | m    |
| 21     | c    | c    | s     | c     | m           | s    | m    | s      | s          | c    | s    | g    |
| 22     | c    | s    | m     | s     | m           | s    | m    | s      | s          | s    | c    | m    |
| 23     | c    | m    | s     | g     | m           | s    | s    | s      | s          | s    | s    | s    |
| 24     | c    | s    | m     | s     | s           | s    | s    | c      | s          | s    | s    | s    |
| 25     | s    | m    | c     | m     | s           | s    | c    | c      | s          | s    | m    | s    |
| 26     | c    | m    | c     | m     | s           | s    | m    | s      | c          | s    | m    | c    |
| 27     | s    | m    | s     | s     | s           | s    | s    | s      | c          | m    | s    | c    |
| 28     | m    | s    | s     | s     | s           | s    | s    | c      | c          | m    | s    | s    |
| 29     | m    |      | m     | s     | m           | c    | c    | s      | c          | m    | s    | m    |
| 30     | m    |      | s     | *     | s           | c    | c    | s      | c          | s    | c    | m    |
| 31     | s    |      | m     |       | s           |      | m    | s      | s          | s    |      | m    |
| Totals | c    | 9    | 5     | 5     | lost        | 4    | 5    | 5      | 7          | 6    | 6    | 5    |
|        | s    | 15   | 13    | 15    | 11          | 18   | 21   | 22     | 19         | 17   | 18   | 16   |
|        | m    | 6    | 10    | 11    | 14          | 8    | 5    | 4      | 3          | 8    | 6    | 9    |
|        | g    | 1    | 0     | 0     | 2           | 0    | 0    | 0      | 0          | 0    | 0    | 1    |
|        | vg   | 0    | 0     | 0     | 2 days lost | 0    | 0    | 0      | 1 day lost | 0    | 0    | 0    |

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| Bollettino Mensuale dell'oss. Central del R. Col. Carlo Alberto in Moncalieri 1896-7 - - -   | "            |

|   |              |
|---|--------------|
| Determinazioni assolute della declina-<br>zione Magnetica nel R. Osserva-<br>torio di Capodimonte 1892-93-96<br>Nota del Dr. F. Angelitti - - - | Osservatorio |
| Variations della declinazione Magnetica<br>1892 dal medesimo - - -  | „            |
| Osservazioni Meteoriche 1894-6. dal<br>medesimo - - -   | „            |
| Riassunti decadici e mensuali delle<br>osservazioni Meteoriche 1893 Nota<br>di F. Brioschi, 1894-95 di Dr. V.<br>Alberti - - -                  | Il Autore    |
| Determinazioni Assolute dalla Inclina-<br>zione magnetica eseguite negli<br>anni 1892-93-95, dal Dr. F.<br>Cantarino - - -                      | Autore       |
| Su di un Metodo per Determinare la<br>Latitude Geografica indipente-<br>mente dai piccoli errori delle<br>coordinate delle stelle dal medesimo  | „            |
| Sopra un antico Sismometro a mercurio<br>ideato dall' Abate A Cavalli, da<br>Giovanni Agamennone - - -  | „            |
| Terremoto Siculo-Calabro della notte<br>dall' 11 al 12 Febbraio 1897, dal<br>medesimo - - -   | „            |
| Rubra Canicula, Nuove considerazioni<br>circa la Mutazione di colore che<br>si dice avvenuta in Sirio da Gio-<br>vani Schiaparelli - - -        | „            |
| Osservazioni Astronomiche e Fisiche<br>sul'asse di Rotazione e sulla Topo-<br>grafia del Pianeta Marte dal<br>medesimo - - -                    | „            |

APPENDIX

RESULTS

OF

METEOROLOGICAL OBSERVATIONS

TAKEN AT

ST. IGNATIUS' COLLEGE, MALTA

BY THE

REV. J. F. DOBSON, S.J.

1897.

# ST. IGNATIUS' COLLEGE, MALTA.

Lat. 35° 55' N.

Long. 14° 29' E.

Barometer Readings reduced to 32° F. at sea level.

## METEOROLOGICAL REPORT.

JANUARY, 1897.

| Results of Observations taken during the Month.   | Mean for the<br>last<br>14<br>years |        |
|---|-------------------------------------|--------|
| Mean Reading of the Barometer . . . . . inches    | 29.998                              | 30.034 |
| Highest           ,,           on the 6th   ,,    | 30.298                              | 30.421 |
| Lowest           ,,           on the 22nd  ,,     | 29.423                              | 29.570 |
| Range of Barometer Readings.....   ,,             | 0.875                               | 0.851  |
| Highest Reading of a Max. Therm. on the 9th       | 66.6                                | 65.0   |
| Lowest Reading of a Min. Therm. on the 31st       | 39.4                                | 41.3   |
| Range of Thermometer Readings .....               | 27.2                                | 23.7   |
| Greatest Range in 24 hours on the 31st ....       | 16.3                                | 18.4   |
| Mean of all the Highest Readings .....            | 60.1                                | 58.9   |
| Mean of all the Lowest Readings .....             | 49.1                                | 48.3   |
| Mean Daily Range .....                            | 11.0                                | 10.6   |
| Mean Temperature (deduced from Max. & Min.)       | 53.9                                | 52.9   |
| Mean Temperature deduced (from Dry Bulb)          | 53.7                                | 52.6   |
| Adopted Mean Temperature .....                    | 53.8                                | 52.8   |
| Mean Temperature of Evaporation .... ..           | 49.8                                | 48.4   |
| Mean Temperature of Dew Point .....               | 47.2                                | 45.2   |
| Mean elastic force of Vapour .. . . . . inches    | 0.325                               | 0.301  |
| Mean weight of Vapour in a cub. ft. of air grains | 3.7                                 | 3.4    |
| Mean additional weight required for saturation,,  | 0.8                                 | 0.9    |
| Mean degree of Humidity .....                     | 82                                  | 80     |
| Mean weight of a cubic foot of air .. grains      | 540.4                               | 542.3  |
| Fall of Rain .. . . . . . inches                  | 1.051                               | 3.680  |
| Number of days on which Rain fell .....           | 10                                  | 14     |
| Mean amount of Cloud (an overcast sky=10)         | 5.6                                 | 5.3    |
| Total number of miles of Wind indicated ....      | 8614                                | 8442   |
| Mean Velocity of Wind per hour.....miles          | 11.6                                | 11.3   |

## FEBRUARY, 1897.

| Results of Observations taken during the Month.           | Mean for the last 14 years. |        |
|---|-----------------------------|--------|
| Mean Reading of the Barometer .....inches                 | 30·229                      | 30·031 |
| Highest                    "            on the 19th    ,, | 30·488                      | 30·329 |
| Lowest                    "            on the 1st     ,,  | 29·582                      | 29·630 |
| Range of Barometer Readings .....                         | 0·906                       | 0·699  |
| Highest Reading of a Max. Ther. on the 22nd&23rd          | 63·0                        | 67·1   |
| Lowest Reading of a Min. Therm. on the 19th               | 43·2                        | 41·1   |
| Range of Thermometer Readings .....                       | 19·8                        | 26·0   |
| Greatest Range in 24 hours on the 19th.....               | 18·1                        | 19·4   |
| Mean of all the Highest Readings.....                     | 60·8                        | 60·2   |
| Mean of all the Lowest Readings.....                      | 50·8                        | 49·2   |
| Mean Daily Range .....                                    | 10·0                        | 11·0   |
| Mean Temperature (deduced from Max. & Min.)               | 54·8                        | 53·7   |
| Mean Temperature (deduced from Dry Bulb)                  | 55·7                        | 53·9   |
| Adopted Mean Temperature .....                            | 55·3                        | 53·8   |
| Mean Temperature of Evaporation.....                      | 50·2                        | 49·6   |
| Mean Temperature of Dew Point .....                       | 48·5                        | 46·7   |
| Mean elastic force of Vapour .....inches                  | 0·342                       | 0·320  |
| Mean weight of Vapour in a cub. ft. of airgrains          | 3·5                         | 3·6    |
| Mean additional weight required for saturation,,          | 1·1                         | 0·8    |
| Mean degree of Humidity .....                             | 75                          | 82     |
| Mean weight of a cubic foot of air.....grains             | 542·9                       | 540·9  |
| Fall of Rain.....inches                                   | 0·492                       | 2·144  |
| Number of days on which Rain fell.....                    | 4                           | 9      |
| Mean amount of Cloud (an overcast sky=10)                 | 5·5                         | 5·0    |
| Total Number of Miles of Wind indicated ...               | 8626                        | 7826   |
| Mean Velocity of Wind per hour .....miles                 | 12·8                        | 11·7   |

## MARCH, 1897.

| Results of Observations taken during the Month.           | Mean for the last 14 years. |        |
|---|-----------------------------|--------|
| Mean Reading of the Barometer .....inches                 | 30·062                      | 29·995 |
| Highest                    "            on the 11th    ,, | 30·327                      | 30·349 |
| Lowest                     "            on the 16th    ,, | 29·563                      | 29·535 |
| Range of Barometer Readings .....                         | 0·764                       | 0·814  |
| Highest Reading of a Max. Therm. on the 29th              | 79·2                        | 73·7   |
| Lowest Reading of a Min. Therm. on the 9th                | 44·1                        | 43·1   |
| Range of Thermometer Readings.....                        | 35·1                        | 30·6   |
| Greatest Range in 24 hours on the 29th.....               | 21·1                        | 22·7   |
| Mean of all the Highest Readings.....                     | 64·1                        | 63·2   |
| Mean of all the Lowest Readings.....                      | 51·5                        | 50·9   |
| Mean Daily Range.....                                     | 12·6                        | 12·3   |
| Mean Temperature (deduced from Max. & Min.)               | 57·1                        | 56·2   |
| Mean Temperature (deduced from Dry Bulb)                  | 56·0                        | 55·2   |
| Adopted Mean Temperature .....                            | 56·6                        | 55·7   |
| Mean Temperature of Evaporation .....                     | 52·4                        | 51·6   |
| Mean Temperature of Dew Point .....                       | 49·3                        | 48·4   |
| Mean elastic force of Vapour .....inches                  | 0·352                       | 0·341  |
| Mean weight of Vapour in a cub.ft. of air grains          | 3·9                         | 3·8    |
| Mean additional weight required for saturation,,          | 1·0                         | 1·1    |
| Mean degree of Humidity .....                             | 79                          | 79     |
| Mean weight of a cubic foot of air..grains                | 537·8                       | 537·3  |
| Fall of Rain .....  | inches 0·751                | 1·039  |
| Number of days on which Rain fell .....                   | 7                           | 7      |
| Mean amount of Cloud (an overcast sky=10)                 | 4·5                         | 4·6    |
| Total number of miles of Wind indicated ...               | 8810                        | 8150   |
| Mean Velocity of Wind per hour.....miles                  | 11·8                        | 10·9   |

## APRIL, 1897.

| Results of Observations taken during the Month    | Mean for the last 14 years. |        |
|---|-----------------------------|--------|
| Mean Reading of the Barometer..... inches         | 29.990                      | 29.947 |
| Highest " on the 29th "                           | 30.328                      | 30.251 |
| Lowest " on the 24th "                            | 29.597                      | 29.542 |
| Range of Barometer Readings .....                 | 0.731                       | 0.709  |
| Highest Reading of a Max. Therm. on the 24th      | 78.8                        | 76.3   |
| Lowest Reading of a Min. Therm. on the 3rd        | 47.0                        | 47.9   |
| Range of Thermometer Readings .....               | 31.8                        | 28.4   |
| Greatest Range in 24 hours on the 13th ....       | 18.9                        | 21.8   |
| Mean of all the Highest Readings .....            | 66.6                        | 67.2   |
| Mean of all the Lowest Readings .....             | 54.8                        | 54.1   |
| Mean Daily Range.....                             | 11.8                        | 13.1   |
| Mean Temperature (deduced from Max. & Min.)       | 59.7                        | 59.7   |
| Mean Temperature (deduced from Dry Bulb)          | 58.9                        | 59.4   |
| Adopted Mean Temperature.....                     | 59.3                        | 59.6   |
| Mean Temperature of Evaporation .....             | 55.0                        | 55.5   |
| Mean Temperature of Dew Point .....               | 51.5                        | 52.1   |
| Mean elastic force of Vapour .....                | 0.381                       | 0.390  |
| Mean weight of Vapour in a cub. ft. of air grains | 4.2                         | 4.4    |
| Mean additional weight required for saturation,,  | 1.4                         | 1.3    |
| Mean degree of Humidity .....                     | 77                          | 78     |
| Mean weight of a cubic foot of air .... grains    | 533.0                       | 531.7  |
| Fall of Rain .....                                | 1.847                       | 0.921  |
| Number of days on which Rain fell .....           | 9                           | 6      |
| Mean amount of Cloud (an overcast sky=10)         | 5.8                         | 4.6    |
| Total number of miles of Wind indicated....       | 9535                        | 8275   |
| Mean Velocity of Wind per hour .....miles         | 13.2                        | 11.5   |

## MAY, 1897.

| Results of observations taken during the Month.         | Mean for the last 14 years. |        |
|---|-----------------------------|--------|
| Mean Reading of the Barometer..... inches               | 29·903                      | 29·987 |
| Highest                    "            on the 7th    " | 30·086                      | 30·181 |
| Lowest                    "            on the 27th  "   | 29·527                      | 29·632 |
| Range of Barometer Readings.....   "                    | 0·559                       | 0·549  |
| Highest Reading of a Max. Therm. on the 30th            | 79·3                        | 81·7   |
| Lowest Reading of a Min. Therm. on the 17th             | 50·1                        | 53·5   |
| Range of Thermometer Readings .....                     | 29·2                        | 28·2   |
| Greatest Range in 24 hours on the 30th ....             | 22·0                        | 23·5   |
| Mean of all the Highest Readings.....                   | 70·7                        | 72·5   |
| Mean of all the Lowest Readings .....                   | 58·0                        | 58·4   |
| Mean Daily Range .....                                  | 12·7                        | 14·1   |
| Mean Temperature (deduced from Max. & Min.)             | 63·4                        | 64·3   |
| Mean Temperature (deduced from Dry Bulb)                | 62·3                        | 63·8   |
| Adopted Mean Temperature .....                          | 62·9                        | 64·1   |
| Mean Temperature of Evaporation.....                    | 58·7                        | 60·1   |
| Mean Temperature of Dew Point .....                     | 55·1                        | 56·5   |
| Mean elastic force of Vapour ..... inches               | 0·434                       | 0·458  |
| Mean weight of Vapour in a cub.ft. of air grains        | 4·9                         | 5·0    |
| Mean additional weight required for saturation.,        | 1·5                         | 1·7    |
| Mean degree of Humidity.....                            | 76                          | 76     |
| Mean weight of a cubic foot of air.... grains           | 527·1                       | 526·9  |
| Fall of Rain .....                                      | 1·411                       | 0·664  |
| Number of days on which Rain fell.....                  | 8                           | 3      |
| Mean amount of Cloud (an overcast sky = 10)..           | 5·3                         | 4·0    |
| Total number of miles of Wind indicated ..              | 8953                        | 7361   |
| Mean Velocity of Wind per hour..... miles               | 12                          | 9·9    |

## JUNE, 1897.

| Results of Observations taken during the Month.             |        | Mean for the<br>last<br>14 years. |
|---|--------|-----------------------------------|
| Mean Reading of the Barometer .... inches                   | 30.032 | 30.015                            |
| Highest                    "                    on the 27th | 30.172 | 30.175                            |
| Lowest                    "                    on the 4th   | 29.819 | 29.803                            |
| Range of Barometer Readings .....                           | 0.353  | 0.372                             |
| Highest Reading of a Max. Therm. on the 28th                | 92.8   | 90.3                              |
| Lowest Reading of a Min. Therm. on the 2nd ..               | 57.7   | 58.6                              |
| Range of Thermometer Readings .....                         | 35.1   | 31.7                              |
| Greatest Range in 24 hours on the 28th .....                | 27.7   | 25.4                              |
| Mean of all the Highest Readings .....                      | 80.5   | 80.6                              |
| Mean of all the Lowest Readings .....                       | 63.8   | 64.8                              |
| Mean Daily Range .....                                      | 16.7   | 15.8                              |
| Mean Temperature (deduced from Max & Min)                   | 71.4   | 71.9                              |
| Mean Temperature (deduced from Dry Bulb)                    | 70.5   | 71.2                              |
| Adopted Mean Temperature .....                              | 71.0   | 71.6                              |
| Mean Temperature of Evaporation .....                       | 65.0   | 66.0                              |
| Mean Temperature of Dew Point .....                         | 60.5   | 61.9                              |
| Mean elastic force of Vapour ..... inches                   | 0.528  | 0.554                             |
| Mean weight of Vapour in a cub.ft. of air grains            | 5.7    | 6.0                               |
| Mean additional weight required for saturation,,            | 2.6    | 2.4                               |
| Mean degree of Humidity.....                                | 70     | 72                                |
| Mean weight of a cubic foot of air....grains                | 520.7  | 519.7                             |
| Fall of Rain .....  | 0.0    | 0.068                             |
| Number of days on which Rain fell .....                     | ..     | 1                                 |
| Mean amount of Cloud (an overcast sky=10)                   | 2.4    | 2.2                               |
| Total number of miles of wind indicated .....               | 5989   | 6266                              |
| Mean Velocity of Wind per hour .....                        | 8.3    | 8.7                               |

## JULY, 1897.

| Results of Observations taken during the Month.    | Mean for the last 14 years |        |
|--|----------------------------|--------|
| Mean Reading of the Barometer ..... inches         | 29·949                     | 30·008 |
| Highest ,, on the 24th ,,                          | 30·108                     | 30·147 |
| Lowest ,, on the 5th ,,                            | 29·788                     | 29·836 |
| Range of Barometer Readings..... ,,                | 0·320                      | 0·311  |
| Highest Reading of a Max. Therm. on the 15th       | 97·0                       | 97·9   |
| Lowest Reading of a Min. Therm. on the 31st        | 66·3                       | 64·6   |
| Range of Thermometer Readings .....                | 30·7                       | 33·3   |
| Greatest Range in 24 hours on the 3rd .....        | 26 0                       | 27·2   |
| Mean of all the Highest Readings .....             | 88·2                       | 87·0   |
| Mean of all the Lowest Readings .....              | 71·5                       | 69·7   |
| Mean Daily Range..... ..                           | 16·7                       | 17·3   |
| Mean Temperature (deduced from Max.& Min)          | 79·4                       | 77·9   |
| Mean Temperature (deduced from Dry Bulb)           | 77·4                       | 77·0   |
| Adopted Mean Temperature .....                     | 78·4                       | 77·5   |
| Mean Temperature of Evaporation .....              | 71·5                       | 70·4   |
| Mean Temperature of Dew Point .....                | 67·0                       | 65·7   |
| Mean elastic force of Vapour .....inches           | 0·661                      | 0·635  |
| Mean weight of Vapour in a cubic ft. of air grains | 7·1                        | 6·8    |
| Mean additional weight required for saturation,,   | 3·2                        | 3·4    |
| Mean degree of Humidity .....                      | 69                         | 67     |
| Mean weight of a cubic foot of air .....grains     | 511·5                      | 513·4  |
| Fall of Rain .....inches                           | 0·090                      | 0 033  |
| Number of days on which Rain fell.....             | 2                          | 0·14   |
| Mean amount of Cloud (an overcast sky=10)          | 2·0                        | 0 9    |
| Total number of miles of wind indicated ....       | 6363                       | 5495   |
| Mean Velocity of Wind per hour .....miles          | 8·6                        | 7 4    |

## AUGUST, 1897.

| Results of Observations taken during the Month.   | Mean for the last 14 years. |        |
|---|-----------------------------|--------|
| Mean Reading of the Barometer .....inches         | 30·007                      | 30·013 |
| Highest ,, on the 13th ,,                         | 30·118                      | 30·163 |
| Lowest ,, on the 1st ,,                           | 29·888                      | 29·861 |
| Range of Barometer Readings..... ,,               | 0·230                       | 0·302  |
| Highest Reading of a Max. Therm. on the 25th      | 90·2                        | 96·9   |
| Lowest Reading of a Min. Therm. on the 2nd & 31st | 66·2                        | 65·3   |
| Range of Thermometer Readings .....               | 24·0                        | 31·6   |
| Greatest Range in 24 hours on the 3rd.....        | 23·2                        | 26·0   |
| Mean of all the Highest Readings .....            | 86·3                        | 87·1   |
| Mean of all the Lowest Readings .....             | 70·5                        | 70·8   |
| Mean Daily Range .....                            | 15·8                        | 16·3   |
| Mean Temperature (deduced from Max. & Min.)       | 77·6                        | 78·2   |
| Mean Temperature (deduced from Dry Bulb)          | 76·4                        | 78·1   |
| Adopted Mean Temperature .....                    | 77·0                        | 78·2   |
| Mean Temperature of Evaporation .....             | 71·1                        | 71·4   |
| Mean Temperature of Dew Point .....               | 67·2                        | 66·7   |
| Mean elastic force of Vapour ..... inches         | 0·666                       | 0·655  |
| Mean weight of Vapour in a cub. ft. of air grains | 7·2                         | 7·0    |
| Mean additional weight required for saturation,,  | 2·7                         | 3·4    |
| Mean degree of Humidity .....                     | 73                          | 68     |
| Mean weight of a cubic foot of air .... grains    | 514·1                       | 512·4  |
| Fall of Rain..... inches                          | ....                        | 0·103  |
| Number of days on which Rain fell.....            | ....                        | 1      |
| Mean amount of Cloud (an overcast sky=10)         | 1·2                         | 1·1    |
| Total number of miles of Wind indicated ..        | 5121                        | 5462   |
| Mean Velocity of Wind per hour..... miles         | 6·9                         | 7·3    |

## SEPTEMBER, 1897.

| Result of Observations taken during the Month.    | Mean for the last 14 years |
|---|----------------------------|
| Mean Reading of the Barometer ..... inches        | 30·038                     |
| Highest ,, on the 25th ,,                         | 30·250                     |
| Lowest ,, on the 20th ,,                          | 29·841                     |
| Range of Barometer Readings .....                 | 0·409                      |
| Highest Reading of a Max. Therm. on the 14th      | 97·8                       |
| Lowest Reading of a Min. Therm. on the 19th       | 62·2                       |
| Range of Thermometer Readings .....               | 29·9                       |
| Greatest Range in 24 hours on the 15th .....      | 24·8                       |
| Mean of all the Highest Readings .....            | 84·3                       |
| Mean of all the Lowest Readings .....             | 69·5                       |
| Mean Daily Range .....                            | 14·8                       |
| Mean Temperature (deduced from Max. & Min.)       | 76·0                       |
| Mean Temperature (deduced from Dry Bulb)          | 74·1                       |
| Adopted Mean Temperature.....                     | 75·1                       |
| Mean Temperature of Evaporation.....              | 68·4                       |
| Mean Temperature of Dew Point .....               | 64·1                       |
| Mean elastic force of Vapour .....inches          | 0·598                      |
| Mean weight of Vapour in a cub. ft. of air grains | 6·5                        |
| Mean additional weight required for saturation    | 2·6                        |
| Mean degree of Humidity.....                      | 71                         |
| Mean weight of a cubic foot of air .....grains    | 517·0                      |
| Fall of Rain .....inches                          | 0·050                      |
| Number of days on which Rain fell .....           | 1                          |
| Mean amount of Cloud (an overcast sky = 10)       | 2·4                        |
| Total number of miles of Wind indicated.....      | 6830                       |
| Mean Velocity of Wind per hour.....miles          | 9·5                        |
|   | 7·7                        |

## OCTOBER, 1897.

| Results of Observations taken during the Month.   | Mean for the last 14 years. |        |
|---|-----------------------------|--------|
| Mean Reading of the Barometer . . . . . inches    | 30·069                      | 30·046 |
| Highest „ on the 29th „                           | 30·359                      | 30·261 |
| Lowest „ on the 4th „                             | 29·713                      | 29·747 |
| Range of Barometer Readings .....                 | 0·646                       | 0·514  |
| Highest Reading of a Max. Therm. on the 23rd      | 84·2                        | 87·9   |
| Lowest Reading of a Min. Therm. on the 13th       | 53·3                        | 55·9   |
| Range of Thermometer Readings .....               | 30·9                        | 32 0   |
| Greatest Range in 24 hours on the 13th .....      | 17·3                        | 19 8   |
| Mean of all the Highest Readings.....             | 72·3                        | 76·9   |
| Mean of all the Lowest Readings.....              | 62 0                        | 64·6   |
| Mean Daily Range... ..                            | 10·3                        | 12·3   |
| Mean Temperature (deduced from Max. & Min.)       | 67·1                        | 69·9   |
| Mean Temperature (deduced from Dry Bulb)          | 66·3                        | 69·0   |
| Adopted Mean Temperature.....                     | 66 7                        | 69·4   |
| Mean Temperature of Evaporation .....             | 60·8                        | 64·8   |
| Mean Temperature of Dew Point.....                | 57·1                        | 61·2   |
| Mean elastic force of Vapour .....                | 0·467                       | 0·546  |
| Mean weight of Vapour in a cub. ft. of air grains | 5·2                         | 5·9    |
| Mean additional weight required for saturation,,  | 1·7                         | 1·7    |
| Mean degree of Humidity .....                     | 75                          | 77     |
| Mean weight of a cubic foot of air... grains      | 529·0                       | 523·0  |
| Fall of Rain .....                                | 2·867                       | 2·767  |
| Number of days on which Rain fell.....            | 9                           | 7      |
| Mean amount of Cloud (an overcast sky=10)         | 5·2                         | 4·3    |
| Total number of miles of Wind indicated . . .     | 8041                        | 6634   |
| Mean Velocity of Wind per hour . . . . . miles    | 10·8                        | 8·9    |

## NOVEMBER, 1897.

| Results of Observations taken during the Month    | Mean for the last 14 years. |        |
|---|-----------------------------|--------|
| Mean Reading of the Barometer..... inches         | 30·247                      | 30·067 |
| Highest ,, on the 12th ,,                         | 30·452                      | 30·315 |
| Lowest ,, on the 29th ,,                          | 29·820                      | 29·706 |
| Range of Barometer Readings .....                 | 0·632                       | 0·609  |
| Highest Reading of a Max. Therm. on the 15th      | 72·1                        | 77·2   |
| Lowest Reading of a Min. Therm. on the 28th       | 50·2                        | 50·0   |
| Range of Thermometer Readings .....               | 21·9                        | 27·2   |
| Greatest Range in 24 hours on the 2nd.....        | 19·6                        | 18·2   |
| Mean of all the Highest Readings.....             | 67·0                        | 68·9   |
| Mean of all the Lowest Readings .....             | 55·9                        | 57·8   |
| Mean Daily Range .....                            | 11·1                        | 11·1   |
| Mean Temperature (deduced from Max & Min)         | 60·4                        | 62·5   |
| Mean Temperature (deduced from Dry Bulb)          | 58·3                        | 61·9   |
| Adopted Mean Temperature .....                    | 59·4                        | 62·2   |
| Mean Temperature of Evaporation.....              | 55·4                        | 57·6   |
| Mean Temperature of Dew Point .....               | 52·1                        | 54·2   |
| Mean elastic force of Vapour .....inches          | 0·389                       | 0·421  |
| Mean weight of Vapour in a cub. ft. of air grains | 4·4                         | 4·8    |
| Mean additional weight required for saturation,,  | 1·2                         | 1·3    |
| Mean degree of Humidity .....                     | 78                          | 79     |
| Mean weight of a cubic foot of air ....grains     | 537·5                       | 531·7  |
| Fall of rain .....                                | 1·687                       | 3·416  |
| Number of Days on which rain fell .....           | 11                          | 11     |
| Mean amount of Cloud (an overcast sky=10)         | 5·6                         | 5·3    |
| Total number of miles of Wind indicated ..        | 6607                        | 6719   |
| Mean Velocity of Wind per hour .... miles         | 9·2                         | 9·3    |

## DECEMBER, 1898.

| Results of Observations taken during the Month.                   | Mean for the last 14 years |        |
|---|----------------------------|--------|
| Mean Reading of the Barometer .....inches                         | 30·170                     | 30·036 |
| Highest                    ,,                    on the 27th   ,, | 30·596                     | 30·380 |
| Lowest                    ,,                    on the 4th   ,,   | 29·611                     | 29·574 |
| Range of Barometer Readings.....   ,,                             | 0·985                      | 0·606  |
| Highest Reading of a Max Therm. on the 4th                        | 66·5                       | 68·7   |
| Lowest Reading of a Min. Therm. on the 20th                       | 45·6                       | 43·7   |
| Range of Thermometer Readings .....                               | 20·9                       | 25·0   |
| Greatest Range in 24 hours on the 7th .....                       | 16·9                       | 17·6   |
| Mean of all the Highest Readings .....                            | 60·7                       | 61·9   |
| Mean of all the Lowest Readings.....                              | 51·6                       | 52·3   |
| Mean Daily Range.....   | 9·1                        | 9·6    |
| Mean Temperature (deduced from Max.& Min.)                        | 55·5                       | 56·4   |
| Mean Temperature (deduced from Dry Bulb)                          | 55·1                       | 56·1   |
| Adopted Mean Temperature .....                                    | 55·3                       | 56·2   |
| Mean Temperature of Evaporation .....                             | 54·1                       | 51·9   |
| Mean Temperature of Dew Point .....                               | 48·0                       | 48·7   |
| Mean elastic force of Vapour..... inches                          | 0·335                      | 0·344  |
| Mean weight of Vapour in a cub.ft.of air grains                   | 3·8                        | 3·9    |
| Mean additional weight required for saturation,,                  | 1·0                        | 1·1    |
| Mean degree of Humidity.....                                      | 79                         | 79     |
| Mean weight of a cubic foot of air.... grains                     | 541·4                      | 538·3  |
| Fall of Rain..... inches  | 3·970                      | 4·193  |
| Number of Days on which rain fell.....                            | 20                         | 14     |
| Mean amount of Cloud (an overcast sky=10)                         | 6·8                        | 5·8    |
| Total number of miles of Wind indicated ..                        | 8166                       | 8286   |
| Mean Velocity of Wind per hour .....miles                         | 11·0                       | 11·1   |

## Summary of Observations FOR 1897.

| Results of Observations taken during the Year.    | Mean for the<br>last<br>14 years. |        |
|---|-----------------------------------|--------|
| Mean Reading of the Barometer.....inches          | 30 058                            | 30·022 |
| Highest           ,,     on December 27th ,,      | 30·596                            | 30·494 |
| Lowest           ,,     on January 22nd ,,        | 29 423                            | 29·381 |
| Range of Barometer Readings .....                 | 1·173                             | 1·113  |
| Highest Reading of Max. Therm. on Sept. 14th      | 97·8                              | 99·7   |
| Lowest Reading of a Min. Therm. on Jan. 31st      | 39·4                              | 40·3   |
| Range of Thermometer Readings .....               | 58·4                              | 59·4   |
| Greatest Range in 24 hours on June 28th....       | 27·7                              | 28·9   |
| Mean of all the Highest Readings .....            | 71·8                              | 72·5   |
| Mean of all the Lowest Readings .....             | 59·1                              | 59·3   |
| Mean Daily Range.....                             | 12 7                              | 13·2   |
| Mean Temperature(deduced from Max.& Min.)         | 64·7                              | 65·0   |
| Mean Temperature (deduced from dry bulb)          | 63 7                              | 64·5   |
| Adopted Mean Temperature .....                    | 64·2                              | 64·7   |
| Mean Temperature of Evaporation .....             | 59·1                              | 59·8   |
| Mean Temperature of Dew Point .....               | 55·6                              | 56 1   |
| Mean elastic force of Vapour .....                | 0·456                             | 0·456  |
| Mean weight of Vapour in a cub. ft. of air grains | 5·0                               | 5·1    |
| Mean additional weight required for saturation.,  | 1·7                               | 1·8    |
| Mean degree of Humidity.....                      | 75                                | 76     |
| Mean weight of a cubic foot of air .... grains    | 529·4                             | 527·8  |
| Fall of rain .....                                | 14·216                            | 19·701 |
| Number of days on which rain fell.....            | 81                                | 77     |
| Mean amount of Cloud (an overcast sky=10)         | 4·3                               | 3·8    |
| Total number of miles of wind indicated ....      | 91655                             | 84351  |
| Mean Velocity of Wind per hour .....              | 10 5                              | 9·6    |

SINCE MAY, 1883.

The Maximum monthly mean height of the Barometer was  
in November, 1889, and was ..... inches 30·249  
The Minimum       ,,       ,,       in January, 1886, and was 29 844

|  |                    |        |
|--|--------------------|--------|
| The Maximum yearly mean height of the Barometer was in 1897, and was.....                  | inches             | 30-058 |
| The Minimum ,, ,, in 1890, and was.....  |                    | 29-996 |
| The greatest monthly range of the Barometer was in January, 1886, and was .....            |                    | 1-201  |
| The least ,, ,, in August, 1883, and was .....   |                    | 0-188  |
| The highest reading of the Barometer was on January 26th, 1887, and was.....               |                    | 30-627 |
| The lowest ,, ,, on January 17th, 1886, and was  |                    | 29-155 |
| Extreme range .....  | inches             | 1-472  |
| The highest temperature was on August 11th, 1896, and was                                  |                    | 104-8  |
| The lowest ,, ,, February 19th, 1895 .....   |                    | 34-2   |
| The highest mean temperature of a month, was in August, 1885, and was .....                |                    | 83-2   |
| The lowest ,, ,, ,, February, 1891, ..   |                    | 49-5   |
| The greatest monthly mean weight of vapour }<br>in a cubic foot of air .....               | August, 1885       | 7-9    |
| The least ,, January and February, 1891, and was grs                                       |                    | 3-0    |
| The highest observed Dew point was on August 30th, 1885, and was .....                     |                    | 78-7   |
| The lowest ,, ,, February 19th, 1895, and was  |                    | 27-9   |
| The greatest fall of rain in a month, was in December, 1889, and was .....                 | inches             | 8-952  |
| The greatest number of days on which }<br>rain fell in one month .....                     | January, 1889 .... | 24     |
| The greatest fall of rain in a year was in 1889 and was                                    | inches             | 26-044 |
| The smallest ,, ,, ,, 1895 ,, ,,   |                    | 11-384 |
| The greatest number of rainy days in a year was in 1894 and was                            |                    | 90     |
| The least ,, ,, ,, ,, 1888   |                    | 59     |
| The highest temperature registered in sunshine was on the 15th July, 1897, and was.....    |                    | 159-7  |
| The lowest temperature registered on ground was on the 19th February, 1895, and was .....  |                    | 31-7   |
| The highest observed sea temperature was on the 5th August, 1887, and was.....             |                    | 85-0   |
| The lowest ,, ,, 30th January, 1895, and was   |                    | 55-5   |
| The smallest mean amount of cloud observed in one month was in August, 1890, and was ..... |                    | 0-0    |
| The greatest ,, ,, in January, 1894, and was   |                    | 7-2    |

## NOTES FOR THE SEPARATE MONTHS.

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### JANUARY.

THE Dew-point ranged between  $37\cdot6^{\circ}$  on the 6th, and  $54\cdot6^{\circ}$  on the 16th.

In Sunshine, the highest reading was  $124\cdot3^{\circ}$  on the 19th.\*

On Ground, the lowest reading was  $32\cdot3^{\circ}$  on the 6th.\*

The Sea has fallen to  $56\cdot8^{\circ}$ , averaging  $59\cdot0^{\circ}$ .

Thunderstorms passed on the 19th.

Lightning was seen on the 4th, 12th, 13th, and 22nd.

Hail fell on the 23rd.

Total Rainfall since last June  $12\cdot655$  inches ; the average of 14 years,  $15\cdot201$  inches.

\* No readings on 23rd and subsequent days. Unprecedentedly severe hailstorm at 1·5 a.m. on 23rd. Hailstones of dense ice, reaching in size to that of a hen's egg, fell for several minutes. Much damage was done to skylights and windows of Westerly aspect.

### FEBRUARY.

The Dew-Point ranged between  $38\cdot8^{\circ}$  on the 9th and  $54\cdot2^{\circ}$  on the 23rd.

\*In Sunshine, the highest reading was  $136\cdot5^{\circ}$  on the 25th.

\*On Ground, the lowest reading was .. on the ...

The Sea has risen to  $60\cdot1$ , averaging  $59\cdot1$ .

Thunderstorms passed on the 9th.

Total Rainfall since last June,  $13\cdot147$  inches ; the average of 14 years,  $17\cdot345$  inches.

\* No readings from 1st to 20th inclusive.

## MARCH.

The Dew-point ranged between 38·4° on the 9th, and 57·7° on the 30th.

In Sunshine, the highest reading was 154·1° on the 27th.

On Ground, the lowest reading was 41·0° on the 9th.

The Sea has risen to 62·3°, averaging 60·8°.

Thunderstorms passed on the 8th.

Lightning was seen on the 6th, 7th, 9th, and 31st.

Total Rainfall since last June 13·898 inches ; the average of 14 years, 18·384 inches.

## APRIL.

The Dew-point ranged between 40·6° on the 3rd, and 59·1° on the 28th.

In Sunshine, the highest reading was 145·5° on the 19th.

On Ground, the lowest reading was 44·0° on the 13th.

The Sea has risen to 62·5°, averaging 61·7°.

Thunderstorms passed on the 3rd and 10th.

Lightning was seen on the 5th, 6th, 9th, 18th, and 28th.

Total Rainfall since last June 15·745 inches ; the average of 14 years, 19·305 inches.

## MAY.

The Dew-point ranged between 44·8° on the 8th and 62·6° on the 31st.

In Sunshine, the highest reading was 150·0° on the 5th

On Ground, the lowest reading was 45·5° on the 17th.

The Sea has risen to 67·3°, averaging 66·0°.

Thunderstorms passed on the 4th and 24th.

Lightning was seen on the 28th.

Hail fell on the 24th.

Total Rainfall since last June 17·156 inches ; the average of 14 years, 19·969 inches.

Slight earthquake shocks were felt throughout the island, about 11·45 p.m. on the 27th, lasting three or four seconds. No damage is reported.

## JUNE.

The Dew-point ranged between  $53.1^{\circ}$  on the 13th and  $69.1^{\circ}$  on the 29th.

In Sunshine, the highest reading was  $154.4^{\circ}$  on the 7th.

On Ground, the lowest reading was  $52.3^{\circ}$  on the 2nd.

The Sea has risen to  $76.0^{\circ}$ , averaging  $71.0^{\circ}$ .

Lightning was seen on the 6th, 7th and 8th.

## JULY.

The Dew-point ranged between  $72.3^{\circ}$  on the 7th, and  $58.4^{\circ}$  on the 28th.

In Sunshine, the highest reading was  $159.7^{\circ}$  on the 15th.

On Ground, the lowest reading was  $62.4^{\circ}$  on the 31st.

The Sea has risen to  $82.1^{\circ}$ , averaging  $80.0^{\circ}$ .

Thunderstorms passed on the 5th.

Lightning was seen on the 6th.

## AUGUST.

The Dew-point ranged between  $59.3^{\circ}$  on the 1st, and  $71.9^{\circ}$  on the 5th.

In Sunshine the highest reading was  $157.9^{\circ}$  on the 6th.

On Ground the lowest reading was  $61.8^{\circ}$  on the 2nd.

The Sea has averaged  $80.0^{\circ}$ .

Lightning was seen on the 4th, 16th, and 20th.

## SEPTEMBER.

The Dew-point ranged between  $73.9^{\circ}$  on the 11th, and  $50.6^{\circ}$  on the 21st.

In Sunshine the highest reading was  $156.4^{\circ}$  on the 14th.

On Ground, the lowest reading was  $56.7^{\circ}$  on the 19th.

The Sea has fallen to  $75.0^{\circ}$ , averaging  $78.0^{\circ}$ .

Thunderstorms passed on the 20th and 28th.

Lightning was seen on the 18th, 26th, 27th, 29th and 30th.

Total Rainfall since last June  $0.142$  inches ; the average of 14 years  $1.144$  inches.

## OCTOBER.

The Dew-Point ranged between  $69.3^{\circ}$  on the 2nd and  $44.7^{\circ}$  on the 26th and 27th.

In Sunshine, the highest reading was  $151.1^{\circ}$  on the 2nd.

On Ground, the lowest reading was  $47.7^{\circ}$  on the 13th.

The Sea has fallen to  $67.0^{\circ}$ , averaging  $69.5$ .

Thunderstorms passed on the 3rd, and 6th.

Lightning was seen on the 2nd, 4th, 14th, 15th, 19th, 20th, 21st, 22nd, and 23rd.

Hail fell on the 6th.

Total Rainfall since last June  $3.009$  inches ; the average of 14 years,  $3.911$  inches.

## NOVEMBER.

The Dew-point ranged between  $60.7^{\circ}$  on the 4th, and  $41.3^{\circ}$  on the 28th.

In Sunshine, the highest reading was  $138.6^{\circ}$  on the 14th.

On Ground, the lowest reading was  $44.5^{\circ}$  on the 10th.

The Sea has fallen to  $65.0^{\circ}$ , averaging  $66.0^{\circ}$ .

Thunderstorms passed on the 20th, 22nd, 26th.

Lightning was seen on the 21st, and 30th.

Hail fell on the 26th and 30th.

Total Rainfall since last June  $4.696$  inches ; the average of 14 years,  $7.327$  inches.

## DECEMBER.

The Dew-point ranged between  $39.9^{\circ}$  on the 1st, and  $55.0^{\circ}$  on the 16th.

In Sunshine, the highest reading was  $130.2^{\circ}$  on the 20th.

On Ground, the lowest reading was  $40.3^{\circ}$  on the 20th.

The Sea has fallen to  $60.0^{\circ}$ , averaging  $62.0$ .

Lightning was seen on the 1st, 4th, 7th, and 8th.

Total Rainfall since last June,  $8.666$  inches ; the average of 14 years,  $11.520$  inches.

## NOTES FOR THE YEAR.

The Dew-point ranged between  $37.6^{\circ}$  on the 6th January, and  $73.9^{\circ}$  on the 11th September.

In Sunshine, the highest reading was  $159.7^{\circ}$  on the 15th July.

\*On Ground, the lowest reading was  $32.3^{\circ}$  on the 6th January.

The Sea has ranged from  $56.8^{\circ}$  in January to  $82.1^{\circ}$  in July.

Thunderstorms passed on 15 days.

Lightning was seen on 41 days.

Hail fell on 5 days.

\* No readings of the minimum temperature on the ground were taken from January 23rd to February 20th inclusive.

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CORRIGENDA.

In the Summary of Observations for the year 1896 (page 74) the mean temperature of evaporation was given 69.6, should be 59.6.

In the table of Maxima and Minima (page 75) the lowest mean temperature of a month (February 1891) was given 49.8, should be 49.5.

J. F. DOBSON, S.J.