STONYHURST COLLEGE

OBSERVATORY.

RESULTS

OF

METEOROLOGICAL, MAGNETICAL,

AND

SOLAR OBSERVATIONS

BY THE

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1894.

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INTRODUCTION.

The work of the Meteorological and Magnetical department of the Observatory has been carried on as described in the introduction to the report of 1892. It was there mentioned that the recording apparatus of the Robinson Anemometer had not been working satisfactorily. It was sent to R. Munro, Engineer, of London, on April 9th, and was replaced by another of the same dimensions on August 5th. The usual wind-synopsis is, therefore, wanting in our weather reports of these and the intervening months.

The annual inspection of the Meteorological instruments belonging to the Board of Trade, was made on the 18th and 19th of September, by Mr. Baker, of the Kew Observatory.

The heavy gale of December 22nd, gave us our highest recorded velocity, at 72 miles an hour. The details of the storm are given in the December report, page 31.

The scale co-efficient of the Bifilar magnetometer was tested again in October, as in the previous year, and was found to have suffered no appreciable change. The exact value of one centimeter displacement of the spot of light upon the photographic paper

is now,	1894,	0,000512	C.G.S. units
and was in	1893,	0.000511	,,
and in	1892,	0.000515	,,

The most remarkable disturbance of the magnets during the year occurred on November 13, beginning abruptly at 2 p.m. A comparison with the Kew record of the same disturbances shows that the changes of force

and direction were much greater at Stonyhurst than at Kew, from 3 p.m. to midnight. At 8-15 p.m. a very sudden increase of horizontal force was shown by the Bifilar magnetometer, the spot of light moving off through 6·0 centimeters and back again in five minutes, and continuing its rapid movement, responding to decreasing force, through 4·6 centimeters in another two minutes, when it left the the cylinder and did not return for 20 minutes. If we suppose that the rest of this movement as closely resembled that of the smaller oscillation at Kew, as the recorded part of it, the complete swing of the light-spot, from maximum to minimum of force, would be through 15·2 centimeters in 12 minutes, just three times that of the Kew curve. The Unifilar magnetograph shows also considerably greater changes of direction at Stonyhurst than at Kew.* Smooth curves drawn through the oscillations would show, in general, westerly deflection corresponding with increase of horizontal force; but many of the quicker oscillations show decrease of force with westerly deflection.

The subject has been mentioned, informally, at a meeting of the Royal Astronomical Society; and it is hoped that the means may be found by one or more of the Scientific Societies for the multiplication of Magnetic Observatories, with the object of determining, for the greater disturbances, the terrestrial position of maximum effect. To know this, is a necessary step for the advancement of our knowledge about the causes of these unexplained storms; and a single instrument of simple make, the Unifilar magnetograph, at each station would be enough for the purpose.

The interruption of the Solar Chromospheric measurements, mentioned in our report of last year, has led to its discontinuance, on the grounds that the work is being carried on at Rome under much more favourable conditions by Professor Tacchini, and that in the varying state of our own inconstant climate, the average length of the chromospheric line C appears to be as much a measure of the transparency of our atmosphere as of the depth of the Solar chromosphere.

* The Bifilar instruments at the two observatories are practically of the same sensibility, the one at Kew being a trifle more sensitive. The Unifilar at Kew is more sensitive than the Stonyhurst instrument in the proportion of 11·3: 8·7.

The drawings of the Sun spots and faculæ have been continued as formerly, notwithstanding the completeness of the series of photographic pictures of them collected at Greenwich ; because there is reason to believe that the visual and photographic images are not identical.

Our conclusions from a study of the Solar Drawings, made during 1889, the year of least spot-frequency, of the magnetic curves of the same period, and of our recent photographs of the spectra of Sun-spots and faculæ, have been given in a communication to the Royal Astronomical Society, published in the November number of the Monthly Notices.

The entire collection of Sun spot drawings is now under examination, with the object of testing the Wilson Theory of "Cavities." The work of mapping the spectra of the brighter stars from the photographic plates, obtained with the old 8 inch-objective of the Equatorial telescope, is nearly complete. The results of both these studies will also be communicated to the R. A. S. when ready.

The stellar work of the Father Perry-Memorial-objective has been carried on without the loss of any available clear night, and the large number of photographs of the spectra of stars, made during the year, shows our gain in time by the greater aperture. But only a few of these plates will be of service for future study ; all the work having been expended upon a long series of experiments connected with the perfection of our small photo-spectrograph. The photographs have been from the beginning stronger, and have extended further into the violet end of the spectrum, than was possible with the 8 inch glass ; but it is only recently that the sharpness of the definition has been brought up to match the delicate markings on the photographs given by the old objective. These experiments and their results will be given in detail when complete. But it may be mentioned here, to guard against misinterpretation, that in our method of photographing the spectra of stars, without a slit, it was not expected that the greater light power and longer focal length of the new glass would give as perfect definition as the weaker instrument when employed upon a star of sufficient brightness.

WALTER SIDGREAVES, S.J.

Stonyhurst Observatory.

Lat. 53° 50′ 40″ N. Long. 9m. 52s. 68w. Height of the Barometer above the sea 381ft.

METEOROLOGICAL REPORT.

JANUARY, 1894.

Results of Observations taken during the Month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·327	29·439
Highest ,, on the 3rd.....	30·241	30·281
Lowest ,, on the 20th	28·824	28·587
Range of Barometer Readings.....	1·417	1·694
Highest Reading of a Max. Therm. on the 11th	52·8	51·6
Lowest Reading of a Min. Therm. on the 5th	10 0	20·4
Range of Thermometer Readings	42·8	31·2
Mean of all the Highest Readings	42·9	42·2
Mean of all the Lowest Readings.....	31·3	32·5
Mean Daily Range.....	11·6	9·7
Deduced Monthly Mean (from Mean of Max. and Min.)	36·9	37·1
Mean Temperature from Dry Bulb.....	37·4	37·1
Adopted Mean Temperature.....	37·2	37·1
Mean Temperature of Evaporation.....	35·6	35·9
Mean Temperature of Dew Point	33·3	33·8
Mean elastic force of Vapour.....	0·191in	0·195in
Mean weight of Vapour in a cub. ft. of air ..	2·2gr	2·4 gr
Mean additional weight required for saturation	0·4gr	0·4 gr
Mean degree of Humidity (saturation 1·00) ..	0·86	0.86
Mean weight of a cubic foot of air	547·4gr	549·5 gr
Fall of rain	4·617in	4·141in
Number of Days on which rain fell	28	19·8

JANUARY, 1894.

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	1	1	6	7	2	7	6	1
Mean Velocity in miles per hour	7·9	9·3	10·1	14·1	18·0	16·3	18·8	4·8
Total No. of miles for each Direction	189	222	1452	2372	863	2739	2710	114

The total No. of miles registered during the month was 10661.

The max. Velocity of the wind was 45 miles per hour.. Direction S by E. on the 29th at 9 p m.

Mean amount of Cloud (an overcast sky being indicated by 10·0) 8·3

In the month of January, the highest reading of the Barometer during 47 years, was on the 18th in 1882, and was 30·480

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

January opened this year, as last year, with a very cold week. The coldest period of the frost covered the three days, 5th. 6th, and 7th; during which the highest temperature was 27°, the lowest 10°, and the mean temperatures approximately 19°, 20°, and 21°. The barometer stood high during the first 4 days; it then fell below the annual mean, and remained low for the rest of the month, with short oscillations, never reaching 29·7 inches, and only 5 times rising above 29·5. Ground frost on 17 days. Snow on 10 days. Hail on 3 days.

FEBRUARY, 1894.

Results of Observations taken during the Month		Mean for the last 47 years.
Mean Reading of the Barometer	29·482	29·506
Highest ,, on the 18th	30·116	30·064
Lowest ,, on the 11th	28·376	28·681
Range of Barometer Readings	1·740	1·383
Highest Reading of a Max. Therm. on the 7th	53·6	52·1
Lowest Reading of a Min. Therm. on the 18th	23·5	22·4
Range of Thermometer Readings	30·1	29·7
Mean of all the Highest Readings	45·6	44·3
Mean of all the Lowest Readings	33·7	33·6
Mean Daily Range	11·9	10·7
Deduced Monthly Mean (from Mean of Max. and Min)	39·3	38·4
Mean Temperature from Dry Bulb	39·9	38·4
Adopted Mean Temperature	39·6	38·4
Mean Temperature of Evaporation	37·9	36·9
Mean Temperature of Dew Point	35·7	34·7
Mean elastic force of Vapour	0·210in	0·193in
Mean weight of Vapour in a cub. ft. of air	2·4gr	2·4gr
Mean additional weight required for saturation	0·4gr	0·4gr
Mean degree of Humidity (saturation 1·00 ..)	0·86	0·87
Mean weight of a cubic foot of air	547·6gr	548·6gr
Fall of Rain	6·783in	3·556in
Number of days on which Rain fell	23	17·2

	N	NE	E	SE	S	SW	W	NW
No of days in the month on which the prevailing wind was	0	3	2	1	2	8	12	0
Mean Velocity in miles per hour	0	4·0	6·6	9·2	11·3	17·5	18·4	0
Total No. of miles for each Direction	0	291	315	220	542	3358	5299	0

The total number of miles registered during the month was 10025. The max. Velocity of the wind was 59 miles per hour. Direction W., at 5 a.m., on the 12th.

FEBRUARY, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)				8·1
In the month of February, the highest reading of the Barometer during 47 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,	1892	,, ...	8·1
The highest adopted mean temperature of the month,			1869....	44·0
The lowest	,,	,,	1855....	28·6

A wet month, with nearly double the average rainfall. The heaviest fall, 1½ inch, occurred on the 10th, preceding the gale of 11th, 12th. The barometer reached its lowest reading 28 376 between the rain and the wind storms; but the weather had been generally rough from the 5th. Ground frost on 18 days. Snow on 3 days. Aurora borealis seen on 2 days.

MARCH, 1894.

Results of Observations taken during the month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·477	29·474
Highest ,, on the 23rd	30·091	30 083
Lowest ,, on the 13th	28·370	28·685
Range of Barometer Readings	1·721	1·398
Highest Reading of a Max. Therm. on the 27th	65.3	57·2
Lowest Reading of a Min. Therm. on the 16th	25·0	22·4
Range of Thermometer Readings	40·3	34·9
Mean of all the Highest Readings	52·9	47·2
Mean of all the Lowest Readings	34·7	34·0
Mean Daily Range	18·2	13·2
Deduced Monthly Mean (from Mean of Max. and Min.)	42·8	39·7
Mean Temperature from dry bulb	43·1	39·9
Adopted Mean Temperature	43·0	39·8
Mean Temperature of Evaporation	40·6	37·9
Mean Temperature of Dew Point	37·7	35·4
Mean elastic force of Vapour	0·226in	0·205in
Mean weight of Vapour in a cub. ft. of air	2·6gr	2·4gr
Mean additional weight required for saturation	0·6gr	0·5gr
Mean degree of Humidity (saturation 1·00)	0·82	0·85
Mean weight of a cubic foot of air	543·7gr	546·7gr
Fall of Rain	3·902in	3·094in
Number of days on which Rain fell	14	17·3

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	0	6	3	1	2	4	14	1
Mean Velocity in miles per hour	0	6·1	4·5	7·1	18·1	16·6	13·5	2·5
Total No. of miles for each Direction.	0	876	322	170	867	1590	4530	59

The total number of miles registered during the month was 8414.
The max. Velocity of the wind was 47 miles per hour. Direction S.S.W., on the 1st, at 9 a.m.

MARCH, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			5·8
In the month of March, the highest reading of the Barometer during 47 years, was on the	6th,	in 1852, and was ..	30·401
The lowest ,,	31st,	1860 ,, ..	28·199
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

An average month except for the temperature, which was 3·2 above the mean. The rainfall was nearly all in the first half of the month, with a generally low barometric pressure; the latter half being fine with high barometer readings.

Ground frost on 23 days. Snow once. Hail on 5 days. Fine Aurora borealis seen on the 30th.

APRIL, 1894.

Results of Observations taken during the Month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·443	29·485
Highest ,, on the 30th	29·945	29·969
Lowest ,, on the 16th	28·839	28·804
Range of Barometer Readings	1·106	1·165
Highest Reading of a Max. Therm. on the 11th	68·6	66·2
Lowest Reading of a Min. Therm. on the 19th	31·1	28·1
Range of Thermometer Readings	37·5	38·1
Mean of all the Highest Readings.....	57·9	55·9
Mean of all the Lowest Readings	40·1	37·8
Mean Daily Range.....	17·8	18·1
Deduced Monthly Mean (from Mean of Max. and Min.).....	47·5	44·4
Mean Temperature from Dry Bulb	47·6	44·6
Adopted Mean Temperature	47·6	44·5
Mean Temperature of Evaporation	44·6	41·7
Mean Temperature of Dew Point	41·3	38·1
Mean elastic force of Vapour	0·260in	0·235in
Mean weight of Vapour in a cub. ft. of air ..	3·0gr	2·7gr
Mean additonal weight required for saturation	0·7gr	0·7gr
Mean degree of Humidity (saturation 1·00)..	0·79	0·80
Mean weight of a cubic foot of air.....	537·9gr	542·0gr
Fall of Rain.....	1·925in	2·258in
Number of Days on which rain fell	18	14·6

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	2	11	5	3	4	3	2	0
Mean Velocity in miles per hour	7·0	14·2	9·8	15·0	14·9	6·1	3·2	0
Total No. of miles for each Direction								

Anemograph dismounted.

The numbers in the table are the means of eye observations, taken daily at 8, 9, and 10 a.m. noon, 2, 4, and 9 p m.

APRIL, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)				6·9
In the month of April, the highest reading of the Barometer during 47 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

The mean temperature shows a comparatively warm month; but it was a degree less than in April of last year, while the rainfall was an inch more on fewer days. The general changes of barometric pressure are shown by three wave crests about the 5th, 20th, and 30th, with low hollows about the 16th and 26th. Ground frost on 12 days. Hail on one day. Lunar halo on one day.

MAY, 1894.

Results of Observations taken during the Month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·532	29·505
Highest ,, on the 24th	30·044	29·944
Lowest ,, on the 28th	29·092	28·940
Range of Barometer Readings	0·952	1·004
Highest Reading of a Max. Therm. on the 25th	64·4	71·9
Lowest Reading of a Min. Therm. on the 20th	27 0	31·3
Range of Thermometer Readings	37·4	40·6
Mean of all the Highest Readings	56·9	59 7
Mean of all the Lowest Readings	38·6	42·0
Mean Daily Range	18·3	17·7
Deduced Monthly Mean (from Mean of Max. and Min.)	46 1	49·0
Mean Temperature from Dry Bulb	47 0	49·5
Adopted Mean Temperature	46·6	49·3
Mean Temperature of Evaporation	42·8	46·1
Mean Temperature of Dew Point	38·6	42·5
Mean elastic force of Vapour	0·233in	0.276in
Mean weight of Vapour in a cub. ft. of air	2·7gr	2·3gr
Mean additional weight required for saturation	1·0gr	0·9gr
Mean degree of Humidity (saturation 1·00)	0·74	0·76
Mean weight of a cubic foot of air	540·6gr	537·0gr
Fall of Rain	3·158in	2·635in
Number of days on which Rain fell	22	15·4

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	4	8	1	2	0	5	9	2
Mean Velocity in miles per hour	5·0	9·4	10·0	12·3	0	13·2	14·3	13·0
Total No. of miles for each Direction								

Anemograph Dismounted.

The numbers in the table are the means of eye observations taken daily at 8, 9, and 10 a.m. Noon, 2, 4, and 9 p.m.

MAY, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)				7·6
In the month of May, the highest reading of the Barometer during 47 years, was on the 22nd in 1855, and was			.....	30·124
The lowest	,, 28th, 1877	,,	.....	28·559
The highest Temperature	19th, 1864	,,	.....	82·5
The lowest	,, 4th, 1855	,,	.....	23·5
The highest adopted mean temperature of the month,		1848	....	55·1
The lowest	,, ,,	1855	....	45 0

A cold wet month, beginning with a high but falling barometer. The falling continued till the 10th, when a fairly steady rise set in, and settled at a high pressure state from the 16th to the 25th with fine but cold weather. Ground frost on 13 days. Snow on one day. Hail on one day. Solar halo on one day.

JUNE, 1894.

Results of Observations taken during the Month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·577	29·541
Highest ,, on the 30th	30·033	29·894
Lowest ,, on the 2nd	29·161	29·033
Range of Barometer Readings	0·872	0·861
Highest Reading of a Max. Therm. on the 3rd	79·5	77·3
Lowest Reading of a Min. Therm. on the 6th	35·6	38·8
Range of Thermometer Readings	43·9	38·5
Mean of all the Highest Readings	65·7	65·7
Mean of all the Lowest Readings	47·6	47·9
Mean Daily Range	18·1	17·8
Deduced Monthly Mean (from Mean of Max. and Min)	54·9	55·0
Mean Temperature from Dry Bulb	54·2	55·0
Adopted Mean Temperature	54·6	55·0
Mean Temperature of Evaporation	51·1	52·0
Mean Temperature of Dew Point	47·8	48·6
Mean elastic force of Vapour	0·330in	0·354in
Mean weight of Vapour in a cub. ft. of air	3·8gr	3·9gr
Mean additional weight required for saturation	1·1gr	0·9gr
Mean degree of Humidity (saturation 1·00)	0·77	0·79
Mean weight of a cubic foot of air	532·4gr	531·2gr
Fall of Rain	3·625in	3·622in
Number of days on which Rain fell	18	16·2

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	1	6	1	1	1	9	7	4
Mean Velocity in miles per hour	5·2	10·3	7·4	3·6	6·3	15·8	8·7	12·5
Total No. of miles for each direction								

Anemograph Dismounted.

The numbers in the table are the means of eye observations taken daily at 8, 9, and 10 a.m. Noon, 2, 4, and 9 p.m.

JUNE, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)				7·7
In the month of June, the highest reading of the Barometer during 47 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

The first half of the month was wet, with lower readings of the barometer and thermometer. Fine and warm weather came with the generally higher pressure in the second half. But only the last five days showed a steady high barometer ; and these were very warm days, the maximum temperatures of the air increasing daily from 71°·2 to 79°·5.

JULY, 1894.

Results of Observations taken during the Month		Mean for the last 47 years.
Mean Reading of the Barometer	29·447	29·502
Highest ,, on the 1st	29·955	29·879
Lowest ,, on the 12th	28·870	28·991
Range of Barometer Readings	1·085	0·888
Highest Reading of a Max. Therm. on the 1st	80·5	78·8
Lowest Reading of a Min. Therm. on the 13th	43·2	42.1
Range of Thermometer Readings	37·3	36·7
Mean of all the Highest Readings	70·2	67·8
Mean of all the Lowest Readings.	51·3	50.7
Mean Daily Range	18·9	17·1
Deduced Monthly Mean (from Mean of Max. and Min.)	59·0	57·7
Mean Temperature from Dry Bulb	58·2	57·8
Adopted Mean Temperature	58·6	57·8
Mean Temperature of Evaporation	55·4	54·8
Mean Temperature of Dew Point	52·6	52·1
Mean elastic force of Vapour	0·396 in	0·389 in
Mean weight of Vapour in a cubic ft. of air	4·4gr	4·5gr
Mean additional weight required for saturation	1·1gr	1·0gr
Mean degree of Humidity (saturation 1·00)	0·80	0·82
Mean weight of a cubic foot of air	526·9gr	527·3gr
Fall of Rain	4·329in	4·224in
Number of days on which Rain fell	18	18·1

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	1	4	3	2	2	9	10	0
Mean Velocity in miles per hour	10·3	11·4	11·6	8·6	5·0	13·4	21·2	0
Total No. of miles for each Direction								

Anemograph dismounted.

The numbers in the table are the means of observations taken daily at 8, 9, and 10 a.m., noon, 2, 4, and 9 p m.

JULY, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)				7·5
In the Month of July, the highest reading of the Barometer during 47 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

The high barometric pressure at the end of last month fell steadily at an average rate of 0·1 inch, to the lowest reading of the month on the 12th. Rain fell on four of these days to the amount of 1·16 inch; but no rain fell on the 10th or 11th, and only 0·2 inch fell during the low pressure condition from the 10th to the 14th inclusive. The barometer remained fluctuating below 29·5 till the 22nd, and between 29·5 and 29·72 the rest of the month.

AUGUST, 1894.

Results of Observations taken during the Month		Mean for the last 47 years
Mean Reading of the Barometer.....	29·463	29·488
Highest ,, on the 29th	29·854	29·885
Lowest ,, on the 15th	28·893	28·947
Range of Barometer Readings	0·961	0·938
Highest Reading of a Max. Therm. on the 8th	68·9	77·0
Lowest Reading of a Min. Therm. on the 20th	40·0	41·2
Range of Thermometer Readings	28·9	35·8
Mean of all the Highest Readings.....	64·1	67·2
Mean of all the Lowest Readings	49·8	56·4
Mean Daily Range.....	14·3	16 8
Deduced Monthly Mean (from Mean of Max. and Min.)	55·5	57·1
Mean Temperature (deduced from Dry Bulb)	55·7	57·5
Adopted Mean Temperature	55·6	57·3
Mean Temperature of Evaporation	53·2	54·5
Mean Temperature of Dew Point	51·0	51·8
Mean elastic force of Vapour	0·375in	0·387in
Mean weight of Vapour in a cub. ft. of air ...	4·2gr	4·3 gr
Mean additional weight required for saturation	0·8gr	0·9gr
Mean degree of Humidity (saturation 1·00)...	0·84	0·82
Mean weight of a cubic foot of air	529·1gr	527·4gr
Fall of Rain	8·377in	5·069 in
Number of days on which Rain fell	23	19·1

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	4	2	0	0	0	10	15	0
Mean Velocity in miles per hour	6·8	6·2	0	0	0	9·8	11·7	0
Total No. of miles for each Direction.	649	491	0	0	0	2350	4209	0

The total number of miles registered during the month was 7699.
The max. Velocity of the wind was 30 miles per hour. Direction W.S.W. on the 15th at noon.

AUGUST, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)				8·9
In the month of August, the highest reading of the Barometer during 47 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

A very wet month. Over an inch of rain fell on the 1st and 14th, nearly an inch on the 2nd and 8th, and over ½ an inch on the 12th, 19th, and 25th. The barometer remained generally low till the 24th, when it rose above 29·7 inches for the first time, and remained steady with finer weather to the end of the month. The weather generally was colder than would appear from the mean temperature, the highest temperature in the shade being 8° below the average maximum, and the solar rediation thermometer showing a mean daily maximum only 3° higher than that of April.

SEPTEMBER, 1894.

Results of Observations taken during the Month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·773	29·518
Highest ,, on the 30th	30·130	30·026
Lowest ,, on the 25th.....	29·343	28·854
Range of Barometer Readings	0·787	1·172
Highest Reading of a Max. Therm. on the 15th	69·2	72·4
Lowest Reading of a Min. Therm. on the 27th	31·0	36·4
Range of Thermometer Readings	38·2	36·0
Mean of all the Highest Readings.....	62·1	62·2
Mean of all the Lowest Readings.....	44·4	46·9
Mean Daily Range	17·7	15·3
Deduced Monthly Mean (from Mean of Max. and Min.)	52·0	53·4
Mean Temperature from dry bulb	52·0	54·0
Adopted Mean Temperature	52·0	53·7
Mean Temperature of Evaporation	48·6	50·9
Mean Temperature of Dew Point	45·1	48·3
Mean elastic force of Vapour	0·301in	0·338in
Mean weight of Vapour in a cub. ft. of air	3·4gr	4·0gr
Mean additional weight required for saturation	1·0gr	0·8gr
Mean degree of Humidity (saturation 1·00)	0·78	0·82
Mean weight of a cubic foot of air	530·0gr	532·4gr
Fall of Rain	0·801in.	4·599in
Number of Days on which rain fell	6	17·9

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	12	9	3	0	0	1	4	1
Mean Velocity in miles per hour	5·2	5·7	8·5	0	0	5·4	7·8	12·3
Total No. of miles for each Direction	1500	1239	612	0	0	130	750	294

The total number of miles registered during the month was 4525. The max. Velocity of the wind was 24 miles per hour. Direction E.N.E., on the 22nd, at 10 p.m.

SEPTEMBER, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			5·8
In the month of September, the highest reading of the Barometer during 47 years, was on the	15th, in	1851, and was	...30·274
The lowest ,,	2nd, 1883	,,	...28·323
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

A remarkably fine and dry month; but with a mean temperature below the average, owing to the Northerly winds all through the month. The mean reading of the barometer was $\frac{1}{4}$ inch above the average, and was nearly equal to the highest reading of August. The rainfall was only one-fifth of the average. Ground frost on 4 days. Hail on one day.

OCTOBER, 1894.

Results of Observations taken during the Month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·485	29·423
Highest ,, on the 1st	30·117	30·015
Lowest ,, on the 24th	28·346	28·639
Range of Barometer Readings	1·771	1·376
Highest Reading of a Max. Therm. on the 11th	63·0	64·2
Lowest Reading of a Min. Therm. on the 21st	25·5	29·0
Range of Thermometer Readings	37·5	35·2
Mean of all the Highest Readings	55·2	54·6
Mean of all the Lowest Readings	41·0	41·6
Mean Daily Range	14·2	13·0
Deduced Monthly Mean (from Mean of Max. and Min.)	47·1	47·2
Mean Temperature from Dry Bulb	47·2	47·7
Adopted Mean Temperature	47·2	47·4
Mean Temperature of Evaporation	46·0	45·2
Mean Temperature of Dew Point	44·7	42·9
Mean elastic force of Vapour	0·295 in	0·276 in
Mean weight of Vapour in a cub. ft. of air	3·4 gr	3·2 gr
Mean additional weight required for saturation	0·4 gr	0.6 gr
Mean degree of Humidity (saturation 1·00)	0·92	0·84
Mean weight of a cubic foot of air	538·7 gr	537·4 gr
Fall of Rain	4·217 in	5·067 in
Number of days on which Rain fell	15	21·7

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	7	11	1	1	2	4	3	2
Mean Velocity in miles per hour	7·0	6·1	10·6	8·7	10·8	10·7	6·8	2·0
Total No. of miles for each Direction	1173	1599	255	209	887	1028	492	94

The total number of miles registered during the month was 5737.
The max. Velocity of the wind was 42 miles per hour. Direction S.W., on the 24th at 10 p.m.

OCTOBER, 1894.

Mean amount of Cloud an (overcast sky being indicated by 10·0)			7·9
In the month of October, the highest reading of the Barometer during 47 years, was on the 5th, in 1884, and was			30·306
The lowest ,,	19th, 1862	,, ...	28·139
The highest Temperature	9th, 1869	,, ...	72·8
The lowest ,,	24th, 1892	,, ...	22·8
The highest adopted mean temperature of the month,		1861 & '76	51·6
The lowest ,,	,,	1880....	43·1

The high barometric pressure of last month was maintained till the 17th of October, when a decided fall commenced; but the northerly winds prevailed up to the 23rd, when the mercury went down rapidly before a moderate gale of wind on the 24th, and heavy rain fell on the 23rd and three following days, to the amount of 2·8 inches.

Ground frost on 5 days. Hail on one day.

NOVEMBER, 1894.

Results of Observations taken during the Month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·467	29·320
Highest ,, on the 30th	30·134	30·053
Lowest ,, on the 14th	28·502	28·563
Range of Barometer Readings	1·632	1·490
Highest Reading of a Max. Therm. on the 2nd	62·0	55·7
Lowest Reading of a Min. Therm. on the 30th	29·0	25·4
Range of Thermometer Readings	33·0	30·3
Mean of all the Highest Readings	52·1	47·1
Mean of all the Lowest Readings	40·5	36·3
Mean Daily Range	11·6	10.8
Deduced Monthly Mean (from Mean of Max. and Min.)	45·9	41·3
Mean Temperature from Dry Bulb	45·1	41·6
Adopted Mean Temperature	45·5	41·4
Mean Temperature of Evaporation	44·2	39·2
Mean Temperature of Dew Point	42·6	37·9
Mean elastic force of Vapour	0·274in	0·229 in
Mean weight of Vapour in a cub. ft. of air	3·1gr	2·6 gr
Mean additional weight required for saturation	0·5gr	0·4 gr
Mean degree of Humidity (saturation 1·00)	0·90	0·87
Mean weight of a cubic foot of air	540·7gr	544·9 gr
Fall of Rain	3·546in	4·281 in
Number of days on which Rain fell	20	19·6

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	0	0	4	0	11	11	4	0
Mean Velocity in miles per hour	0	0	9·4	0	13·9	7·5	14·1	0
Total No. of miles for each Direction	0	0	906	0	3676	2087	1352	0

The total number of miles registered during the month was 8021. The max. Velocity of the wind was 42 miles per hour. Direction S. by E., on the 14th, at 2 a.m.

NOVEMBER, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)				8·3
In the month of November, the highest reading of the Barometer during 47 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

A warm November with a mean temperature 4 ·1 above the average. The mean temperature of the first three days was above the mean temperature of last August. The barometer remained low until the 17th; it reached its lowest dip on the 14th, with an inch of rain on the 13th, and then started on a steady rise from 28·57 on the 14th to 29·97 on the 21st, and remained high through the rest of the month.

DECEMBER, 1894.

Results of Observations taken during the Month.		Mean for the last 47 years.
Mean Reading of the Barometer	29·524	29·461
Highest ,, on the 27th ..	30·246	30·076
Lowest ,, on the 22nd ..	28·482	28·595
Range of Barometer Readings	1·764	1·481
Highest Reading of a Max. Therm. on the 13th	53 4	53·0
Lowest Reading of a Min. Therm. on the 31st	25·0	20·1
Range of Thermometer Readings.....	28·4	32·9
Mean of all the Highest Readings	46·2	43·0
Mean of all the Lowest Readings	35·1	32·8
Mean Daily Range	11·1	10·2
Deducted Monthly Mean (from Mean of Max. and Min.)	40·7	37·9
Mean Temperature from Dry Bulb	40·5	38·6
Adopted Mean Temperature	40·6	38·3
MeanTemperature of Evaporation	39 0	36 7
Mean Temperature of Dew Point.....	37·0	34·9
Mean elastic force of Vapour.....	0·219in	0·205in
Mean weight of Vapour in a cub. ft. of air.....	2·5gr	2·4gr
Mean additional weight required for saturation	0·4gr	0·4gr
Mean degree of Humidity (saturation 1·00)....	0·87	0·87
Mean weight of a cubic foot of air.....	547·1gr	548·5gr
Fall of Rain	5·114in	5·257in
Number of days on which Rain fell	19	18·9

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	2	4	0	4	1	2	14	4
Mean Velocity in miles per hour	6·4	3·6	0	14·4	6·5	8·4	12·4	13·7
Total No. of miles for each Direction	307	359	0	1381	156	403	4156	1315

The total number of miles registered during the month was 8·077. The max. Velocity of the wind was 72 miles per hour. Direction W. by S., on the 22nd, at 9·10 a.m.

DECEMBER, 1894.

Mean amount of Cloud (an overcast sky being indicated by 10·0)			6·9
In the month of December, the highest reading of the Barometer during 47 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 dopted mean temperature of the month,		1857	44·6
The lowest ,,		1878 ,, ...	30·3

The barometer began a rather rapid fall on the 3rd, and then remained in an unsteady state, oscillating moderately about the mean height until the 16th, when the changes became greater :— 29·8 inches on the 16th, 28·9 on the 18th, 29·8 on the 20th, and 28·5 on the 22nd. With the last depression came the heavy gale of wind, the severest recorded by the Robinson anemograph, since it was mounted in 1867. A more rapid fall of the Mercury, set in at 4 p.m. on the 21st, to the lowest reading 28·50 at 7 a.m. on the 22nd, two hours before the gale was at its height, at 72 miles an hour. It was already blowing strongly at midnight, and freshened to a moderate gale (42 miles per hour) at 1 a.m., steadily increasing to a strong gale (58 miles) at 6 a.m., which it maintained till 4 p.m., rising to nearly hurricane speed at 9 a.m., and keeping up 60 miles and over between 8 a.m. and 2 p.m., with a rapidly rising barometer.

The barometer stood at 30 inches on the 25th, and continued to rise to 30¼ on the 28th, when another fall set in with another westerly gale, having two maxima of velocity at 50 miles an hour, one at 9 p.m ; and the other at the following 7 a.m.

Summary of Observations FOR 1894.

		Mean for the last 47 years.
Mean Reading of the Barometer	29·500	29·489
Highest ,, on December 27th	30·246	30·278
Lowest ,, on October ~~22nd~~ 24	28·346	28·267
Range of Barometer Readings	1·900	2·001
Highest Reading of a Max. Term. on July 1st	80·5	81·6
Lowest Reading of a Min. Term. on Jan. 5th	10·0	15·3
Range of Thermometer Readings	70·5	66·3
Mean of all the Highest Readings	56·0	54·8
Mean of all the Lowest Readings	40·7	40·6
Mean Daily Range	15·3	14·2
Deduced yearly Mean (from Mean of Max. and Min.)	47·3	46·8
Mean Temperature of dry bulb	47·3	46·7
Adopted Mean Temperature	47·3	46·7
Mean Temperature of Evaporation	44·9	44·5
Mean Temperature of Dew Point	42·3	42·1
Mean elastic force of Vapour	0·276in	0·273in
Mean weight of Vapour in a cubic foot of air	3·1gr	3·3gr
Mean additional weight required for saturation	0·7gr	0·7gr
Mean degree of Humidity (saturation 1·00)	0·83	0·84
Mean weight of a cubic foot of air	538·5gr	539·1gr
Total fall of rain in the Year	50·294in	47·326in
Number of days per Month on which rain fell	18·8	18·0

The Maximum monthly mean height of the Barometer was
February, 1891, and was 29·997
The Minimum ,, ,, in December, 1868, and was 28·984
The Maximum yearly mean height of the Barometer was in
1887, and was 29·582
The Minimum ,, ,, in 1866, and was 29·389

SUMMARY, 1894.

The greatest monthly range of the Barometer was in January, 1884, and was		2·409
The least ,, ,, in July, 1852, and was		0·505
The highest reading, of the Barometer, during 47 years, was on January 18th, 1882, and was		30·480
The lowest ,, ,, on December 8th, 1886, and was		27·350
Extreme range		3·130
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 1868		62·4
The lowest ,, ,, ,, February, 1855		28·6
The highest adopted mean temperature of a year 1868		49·1
The lowest ,, ,, ,, ,, 1879		44·1
The greatest monthly mean weight of vapour, in a cubic foot of air ..... grains	July, 1852	5·1 gr
The least ,, ,, ,,	February, 1855	1·4 ,,
The greatest fall of rain in a month, was in October, 1870, and was		13·437 in
The least ,, ,, ,,	March, 1852	0·047
The greatest number of days on which rain fell in one month	July, 1861, Dec. 1868	31
The least ,, ,, ,,	March, 1852	3

SUMMARY OF WIND (FOR EIGHT MONTHS ONLY).

	N	NE	E	SE	S	SW	W	NW
No. of days in the year on which the prevailing wind was	26	36	19	14	20	47	72	9
Mean Velocity in miles per hour	6·1	5·9	8·5	12·9	14·6	12·1	13·7	8·7
Total No. of miles for each Direction.	3818	5077	3862	4352	6991	13685	28498	1876

Anemograph Dismounted during the months of April, May, June, July.

The total No. of miles registered during the 8 months was 63159.

The max. Velocity of the wind was 72 miles per hour. Direction W. by S., at 9·10 a.m. on December 22nd.

DATES OF OCCASIONAL PHENOMENA.

1894.	Frost.	Hoar Frost.	Snow.	Hail.
January	1—9, 22—24, 26, 28—31		2—5, 7, 8, 26, 28—30	22, 28, 30
February	1, 5, 6, 12—15, 17—25, 27, 28	22	1, 14, 17	1, 12, 24, 27
March	1, 3—5, 7—11, 13, 15, 18, 22—27, 29—30	25	12	4, 11, 13, 14, 16
April	1, 15, 18, 20—24, 26, 27, 29, 30	20		25
May	1, 5, 8, 10, 13, 17, 20—23, 25, 26, 31	21	20	4, 26
June	7			
July				
August	21			
September	27—30	10, 11, 18		4
October	2, 4, 18, 21—23	4		29
November	12, 13, 15, 16, 21, 28—30			13, 14
December	1—9, 16, 20, 21, 26—31	2	29	15, 18, 28, 29

DATES OF OCCASIONAL PHENOMENA.

(Continued.)

1894.	Heavy Rain	Fog	Thunder.	Lightning.	Lunar Halo.	Solar Halo.
January	30		17			
February	10	8, 22	12			
March	1, 5, 12	7, 22, 23, 29,			17	
April			2, 3, 4, 9, 25, 28	7, 8, 17, 24, 25	15	
May	2, 8, 13		1, 26, 27, 30			
June	2		17			18
July	16, 25		2, 6, 7, 9, 13, 25, 26	25		
August	1,2, 8,12,14,19,25		13			
September		10, 14	5, 13	5		
October	23, 24, 25, 26		29	29		
November	7, 10, 13,	28, 31	7, 10, 11	11		
December	15, 17, 18, 21			18	8	

Aurora Borealis, February 23, 28, at 9-30 p.m.

,, ,, March 30, 8 p.m. to 2 a.m.

,, ,, July 20.

Rainbows, October 29 and 14

,, November 13.

SUMMARY OF SOLAR OBSERVATIONS.

Number of Days of Observation in Each Month.

1894.	Recorded Sunshine	Amount of Sunshine expressed in hours	Number of Sun Drawings 10¼ inches to diameter	Other Drawings and Notes
January ..	20	44·7	10	
February	14	48·5	8	
March ..	28	153·2	14	
April	26	141·2	12	
May	27	205·6	14	
June	28	178·8	11	
July	27	194·6	9	
August ..	23	90·9	5	
September	25	138·2	18	
October ..	22	62·6	10	
November	17	41·7	4	5
December	13	31·6	5	
Totals....	270	1331·6	120	5

Chromosphere Observations discontinued this year.

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

1894.	January	February	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
1				·40	·72	·40	·46		·45	·38		
2				·40						·38	·41	·48
3	·52	·55					·74		·37		·67	·48
4	·45			·45					·40			
5				·45					·35			
6					·50	·79	·39	·72	·35			
7				·72		·41						
8	·47	·50		·41						·40		
9									·49	·41		
10			·66	·38			·68		·50			
11				·48			·46			44		
12			·42		·71	·67	·45		·50			
13	·50	·53						·44	·39		·51	
14		·44				·35			·50	·36		
15	·44		·42	·39						·37		
16			·39			·38		·68	·38			·44
17	·51		·54	·54	·48							
18												
19		·40		·45								
20		·49		·38		·76				·50		
21	·47				·40	·45	·68		·65			
22			·48		·40			·47		·40		
23	·47		·51									
24		·66	·52		·52				·39			
25					·52							
26	·43		·46		·69				·35			
27		·67	·43		·35	·41			·39			·41
28			·41			·45		·69	·40			
29			·43		·36	·50			·46	·42		
30	·44		·44		·48		·41		·47		·39	
31			·69		38 & 69		·44					·46

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 - - -	2·7	2·8	1·8	1·7	0	2.8	0	0	0	0·4	2·8	4·3	2·6	0	0·3	0·3	1·0
February - - -	0·4	0	4·4	0	0·2	0	0	5·8	1·4	0	0	0·7	7·8	4·3	0	0	0
March - - -	0	4 6	3·0	4·9	0	3·2	0·2	3·1	0	1·7	6·8	1·0	4·4	8·3	8·6	6·4	8·4
April - - -	8·8	5·7	2·8	4·7	10·0	0·5	0·8	7·6	4·9	7·7	6·8	2·1	0	0	0	5·9	0·7
May - - -	10·8	0	3·4	11·1	6·7	11·8	9·7	0·6	1·8	3·7	0·7	10·7	6·8	0	0	0	5·6
June - - -	10·4	0	0	0	0	11·3	12·2	2·4	0	0	5·5	9·4	8·4	6·5	1·4	11·9	5·4
July - - -	14·7	0	12·2	8·7	8·5	10·2	6·0	6·2	2·3	4·3	9·1	10·7	7·8	11·3	0	0	0
August - - -	0	2·3	0·7	1·8	7·0	5·7	2·1	3·2	2·3	1·4	1·8	0	8·7	0	2·6	8·4	4·8
September - - -	5·4	0	9·6	6·8	5·0	7·2	0	7·0	9·8	8 2	1·7	8·7	6·2	8·7	0·4	2·7	0
October - - -	4·8	6·8	2·1	2·4	0	0·4	0	2·9	2·0	0	3·7	0	0	8·4	6·7	0·8	0·4
November - - -	0	5·0	1·2	3·7	0·7	1·6	0	4·3	0	1·3	2·2	0	5·3	0	3·2	2·6	2·0
December - - -	1·7	0	1·7	1·4	0	0	0	2·4	0	0	0	0·3	0	0	1·2	3·3	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 - -	0	0	0	0·8	0	6·3	0	0·8	2·4	0	2·8	1·3	2·5	4·3	44·7	17·3
February - -	0	6·6	2·8	0	2·2	0	5·8	0	0	3·7	2·4	..	..	..	48·5	17·4
March - -	2·3	2·8	6·2	0·3	3·9	9·0	9·6	8·7	10·2	9·5	7·6	8·7	9·4	0·4	153·2	41·7
April - -	5·8	7·2	12·0	11·7	11·4	6·1	2·0	3·4	0·8	1·8	7·3	0	2·7	..	141·2	34·0
May - -	9·7	7·3	9·8	10·7	11·8	6·3	12·5	9·2	7·2	8·7	4·6	7·6	8·1	8·7	205·6	42·7
June - - -	1·4	10·6	4·9	12·3	1·8	0	8·3	0	1·2	13·8	13·8	12·2	13·7	..	178·8	36·2
July - - -	6·7	8·7	10·2	3·9	5·6	1·3	1·5	2·7	8·4	7·7	2·4	10·7	5·5	7·3	194·6	39·2
August - -	1·0	0	8·6	0·8	11·2	0	1·3	1·5	0	0	8·2	4·8	0	0·7	90·9	20·3
September -	0	1·0	0	4·6	1·9	0·1	8·8	1·3	7·0	9·6	4·7	8·2	3·6	..	138·2	36·7
October - -	0·8	0	2·3	3·2	5·5	0	1·1	1·7	0	0	0·3	0	5·5	0·8	62·6	19·0
November -	0	1·2	0	0·2	0	0	0·9	0	0	0	0	1·1	5·2	..	41·7	15·9
December - -	0	2·9	4·5	0	0	0	0	0	0	5·8	0	0·8	2·7	2·9	31·6	13·1

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	0	3·7	8·9	10·2	10·6	6·6	3·5	1·2	0	0	0	0	0
February - -	0	0	0	0·2	2·6	5.0	5·3	7·8	7·8	8·7	6·5	3·1	1·5	0	0	0	0
March - - -	0	0	0·6	6·6	12·6	15·8	18·0	18·9	18·3	18·2	17·4	16·2	9·4	1·2	0	0	0
April - - -	0	0	3·3	9·2	12·5	13·6	16·8	16·9	14·1	12·0	12·2	13·6	11·2	5·3	0·5	0	0
May - - -	1·0	8·8	15·6	16·8	17·5	17·5	16·1	17·4	14·9	13·7	13·5	14·2	13·5	11·1	10·6	3·4	0
June - - -	0·8	7·7	11·8	13·3	11·7	13.5	11·8	12·2	13·4	11 5	13·4	15·0	14·2	13·4	12·2	2·9	0
July - - -	1·0	4·6	6·3	14·0	15·2	16·5	14·4	15·5	18·5	14·5	17·3	16·3	15·1	13·2	9·4	2·8	0
August - -	0	0·8	2·2	5·5	5·2	7·6	7·7	9·6	9·7	10·6	8·7	7·6	7·4	5·9	2·4	0	0
September - -	0	0	2·6	12·4	18·3	18·3	15·6	15·4	12·7	10·9	10·5	7·8	9·3	4·2	0·2	0	0
October - -	0	0	0	1·9	3·2	7·2	10·2	9·3	8·1	9·4	7·5	4·5	1·3	0	0	0	0
November - -	0	0	0	0	1·2	4·1	4·6	7·4	9·8	7.4	6·5	0·7	0	0	0	0	0
December - -	0	0	0	0	0·8	2·3	5·6	6·5	6·6	5·7	4·1	0	0	0	0	0	0
Total - -	2·8	21·9	42·4	79·9	100·8	125·1	135·0	147·1	144·5	129·2	121·1	100·2	82·9	54·3	35·3	9·1	0

OBSERVATIONS OF UPPER CLOUDS (CIRRUS)

Date. 1894.	G. M. T.	Cloud.		Wind.		Direction of Lower Clouds.
		Direction.	V'locity (0—6)	Direction.	Force (0—12)	
January 1	9am	NW	3	NNE	2	NE
,, 10	Noon	S	2	SE b E	4	SW
,, 11	11-0am	S	2	S	7	S
,, 15	10-15am	SW	2	SW b S	1	
,, 25	11-20am	S	1	SW b W	3	W
,, 28	9-10am	E	1	W b S	7	W
,, 30	Noon	E	2	SW	6	SW
,, 31	9-15a.m	SE	3	W b S	0	SW
February 5	4-15pm	W	1	WSW	0	SW
,, 19	7-40am	E b S	2	SE b E	2	SW
,, 19	10-15am	E b N	2	SSE	3	SW
,, 20	8-35am	N	2	S b W	1	SW
,, 20	3-5pm	NE b E	1	E b S	0	SW
March 8	4-0pm	E b N	3	WSW	3	E b N
,, 10	8-15am	E	3	W b S	4	WSW
,, 11	9am	E b N	2	WSW	6	SW b W
,, 13	4pm	NE	3	WSW	4	SW b W
,, 14	Noon	E b S	2	W b S	5	W
,, 16	3-15pm	WNW	1	NW	2	NW
April 5	7-30am	WSW	2	Lost		
,, 8	9-30am	N	2	Lost		S b E
,, 9	5-30pm	WNW	2	S	3	S
,, 10	8-15am	NW b N	1	SE	0	
,, 10	Noon	NNW	2	S	3	S
,, 11	5-40pm	SE	2	E b N	3	S b W
,, 17	3pm	NNW	2	WSW	1	S
,, 23	9am	NW	3	E b N	1	E
,, 24	5-30pm	S	3	S	2	S b W
,, 25	3-30pm	W	2	W		SW
,, 26	5 15pm	E	3	S		W
May 4	5-30pm	SE	3	W	3	NW
,, 17	9-30am	W	2	NE	1	NE
,, 18	10am	N	2	NE	1	
,, 25	9am	SW	2	W	1	
,, 26	7-30am	S	3	NW	2	N
,, 30	11-30am	W	2	SW	1	S
June 11	9am	SE b E	3	NW b W	3	W
,, 12	2pm	NW	2	W	1	W
,, 14	7-30am	S	2	W	1	NW b W

OBSERVATIONS OF UPPER CLOUDS (*Continued*)

Date 1894.	G. M. T.	Cloud.		Wind.		Direction of Lower Clouds.
		Direction.	V'locity (0—6).	Direction.	Force. (0—12).	
June 16	7-30am	NW b W	2	NW b W	0	SW
,, 21	Noon	WNW	2	SW b W	0	SW
,, 27	Noon	NW b N	2	NE	1	N
July 5	Noon	S	2	SW	1	SW b S
,, 10	2pm	SE b S	2	SW	1	SW b N
,, 11	4pm	SE	2	SW	5	SW
,, 18	5-40pm	NW	3	W	2	NW b W
,, 19	9-15am	NW	2	NW b W	2	W
,, 22	9-45am	SW b W	2	W	1	SW b W
,, 30	9-30am	NW	1	NE b E	0	N
August 22	5-30pm	SE b S	1	WSW	0	
Sept. 6	4pm	NE b E	3	N b E	0	NW
,, 12	Noon	SW b W	1	NE	1	NE
,, 25	7-30am	W	3	ENE	2	NE
,, 26	8-15am	SW b W	2	NNE	1	NE
,, 26	10-30am	SW	2	NNE	1	NE b N
October 8	8-45am	NW	2	NE b N	0	
,, 20	7-30am	SW	3	NE b N	1	
,, 25	1-40pm	NE	2	WSW	4	SW
Nov. 1	9-20am	NE b E	2	S	5	SW
,, 6	Noon	E b N	3	WSW	3	SW b N
,, 13	3-45pm	N	2	SW	2	SW
,, 14	8am	S	3	SW	1	
,, 16	Noon	SE b S	2	SSW	2	
,, 17	12-30am	NE b N	3	S	5	S b E
,, 21	8-45am	N	2	W b S	1	W
,, 24	12-30am	SW	2	ENE	2	E
Dec. 5	2-40pm	W	2	NE b E	0	SW b W
,, 12	8-50am	NW	2	W	2	SW
,, 16	9-30am	NW	2	N	2	N
,, 19	9-20am	NW	2	NW b W	6	SW
,, 23	10 40am	NW	1	W b S	3	WNW

Monthly Magnetical Observations

taken at the

College Observatory, Stonyhurst, 1894.

The Horizontal, Vertical, and Total Forces are calculated to English measure; one foot, one second of mean solar time, and one grain being assumed as the units of space, of time, and of mass.

The Vertical and Total Forces are obtained from the absolute measures of the Horizontal Force, and of the Dip.

In the observations of Deflection and Vibration, taken each month for absolute measure of Horizontal Force, the same magnet has always been employed.

The moment of inertia of the magnet with its stirrup, for different degrees of temperature, and the co-efficients in the corrections required for the effects of temperature and of terrestrial magnetic induction on the magnetic moment of the magnet, were determined at the Kew Observatory by the late Mr. Welsh.

The moment of inertia of the magnet with its stirrup, using the grain and foot as the units of mass and of linear measure is 5·27303. Its rate of increase for increase of temperature is 0·00073 for every 10° of Fahr.

The weight of the magnet with its stirrup is approximately 825 grains, and the length of the magnet is nearly 3·94 inches. The moment of inertia was determined, independently of the weight and dimensions, by the method of vibration, with and without a known increase of the moment of inertia.

The temperature corrections have always been obtained from the formula $q(t°-35°+q'(t°-35°)2$, where t° is the observed temperature and 35° 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 μ is 0·000244.

The correction for error of graduation of the Deflection bar at 1·0 foot is + 0·00004 ft, 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 200 vibrations.

The angles of deflection are each the mean of two sets or 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′·6 of arc.

In the calculations of the ratio $\frac{m}{X}$, the third and subsequent terms of the series $1 + \frac{P}{r2} + \frac{Q}{r4}$ + &c., have always been omitted.

The value of the constant P was found to be—0·00217.

The Declination observations have been taken once a week

OBSERVATIONS OF DECLINATION AND DIP.

Month	G.M.T. Civil Day	West Declination		Dip.			G.M.T. Civil Day.		
		Observations	Monthly Mean.						
	D. H. M.	° ′ ″	° ′ ″	°	′	″	D.	H.	M.
	2 16 10	19 5 39							
	9 16 5	18 49 34							
Jan.	15 16 20	18 54 34	18 52 2	69	6	14	25	12	43
	22 16 5	18 52 29							
	29 16 5	18 37 54							
	5 16 5	18 44 34							
	13 16 10	18 47 49							
Feb.	19 16 15	18 37 44	18 37 45	69	7	21	21	10	50
	26 16 0	18 20 54							
	5 16 0	18 45 54							
	12 16 0	18 49 24							
March	19 16 0	18 52 24	18 50 24	69	4	44	15	16	18
	26 16 0	18 53 54							
	3 16 0	18 52 59							
	9 16 0	18 49 44							
April	16 16 0	18 41 34	18 44 14	69	2	14	18	16	30
	23 16 10	18 50 59							
	30 16 10	18 25 54							
	7 16 5	18 35 54							
	14 16 10	18 46 39							
May	21 16 10	18 45 24	18 44 17	69	6	3	19	16	43
	28 16 15	18 49 10							
	4 15 45	18 51 19							
	11 16 10	18 45 9							
June	18 15 45	18 52 49	18 48 33	69	4	27	14	16	30
	25 16 5	18 44 54							

OBSERVATIONS OF DECLINATION AND DIP.

(Continued.)

Month	G.M.T Civil Day	West Declination		Dip.	G.M.T. Civil Day.
		Observations	Monthly Mean.		
	D. H. M.	° ′ ″	° ′ ″	° ′ ″	D. H. M.
July	2 16 15	18 51 14	18 46 20	68 56 31	23 11 53
	9 15 50	18 46 19			
	17 16 10	18 47 44			
	23 12 40	18 40 4			
August	6 16 15	18 38 44	18 39 39	68 47 33	17 16 18
	21 16 15	18 45 19			
	28 16 25	18 34 54			
Sept.	3 16 10	18 42 14	18 43 29	69 5 34	21 11 15
	11 16 5	18 41 59			
	24 16 10	18 46 14			
Oct.	1 15 55	18 50 29	18 44 55	69 6 23	17 10 48
	8 16 15	18 56 5			
	16 16 0	18 36 49			
	22 16 5	18 40 4			
	29 16 15	18 41 9			
Nov.	5 16 5	18 45 34	18 42 2	68 58 6	14 12 7
	12 16 0	18 44 14			
	19 16 0	18 42 14			
	26 16 0	18 36 4			
Dec.	3 16 10	18 34 24	18 35 57	69 0 36	20 11 23
	18 16 0	18 31 49			
	31 16 40	18 41 39			
Yearly Mean.			18 44 8	69 2 9	

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

Month.	G. M. T. (Civil Day).	Temp.	Time of one vibration.	G. M T.	Temp.	Observed Deflection at 1·0 ft. / at 1·3 ft.
	D. H. M.	°		D. H. M.	°	° ′ ″
Jan.	15 11 20	46·5	5·9693	15 {12 35 12 38	45·8 45 8	12 7 6 5 29 15
Feb.	20 11 11	36·9	5·9711	20 {12 28 12 32	37·1 36·8	12 5 54 5 28 25
Mar.	15 10 34	48·2	5·9723	15 {11 50 11 50	50·1 49·9	12 6 22 5 28 50
Apr.	17 9 57	50·4	5·9778	17 {11 14 11 16	53·4 53·6	12 3 37 5 27 38
May	19 10 10	48·1	5·9842	19 {11 42 11 46	49·0 49·0	12 5 46 5 28 38
June	14 10 19	59·5	5·9783	14 {11 28 11 32	60·5 60·7	12 4 37 5 28 23
July	23 9 34	57 3	5·9856	23 {10 20 10 40	59·3 60·2	12 5 45 5 28 40
Aug.	17 10 12	56 3	5·9880	17 {11 38 11 30	57·3 56·9	12 3 15 5 28 10
Sept.	21 8 0	52·0	5·9860	21 {9 45 9 48	55·5 56·0	12 5 4 5 28 7
Oct.	16 12 5	52·2	5·9871	16 {10 38 10 19	46·8 47·8	12 6 18 5 28 47
Nov.	13 8 53	46·4	5·9743	13 {11 8 11 10	49·2 50·0	12 3 34 5 27 50
Dec.	19 10 32	45·8	5·9837	19 {11 35 11 45	53·1 53·9	12 2 9 5 27 51

MAGNETIC INTENSITY.

	BRITISH UNITS.			C. G. S. UNITS.		
	X or horizontal force.	Y or vertical force.	Total Force.	X or Horizontal Force.	Y or Vertical Force.	Total Force.
Jan. ..	3·7178	9·7381	10·4237	0·1714	0·4490	0·4806
Feb. ..	3·7206	9·7547	10·4400	0·1716	0·4498	0·4814
Mar. ..	3·7144	9·7163	10·4021	0·1713	0·4480	0·4796
April ..	3·7174	9·7031	10·3909	0·1714	0·4474	0·4791
May ..	3·7117	9·7204	10·4050	0·1711	0·4482	0·4798
June ..	3·7183	9·7239	10·4105	0·1714	0·4484	0·4800
July ..	3·7111	9·6386	10·3284	0·1711	0·4444	0·4762
Aug. ..	3·7136	9·5709	10·2660	0·1712	0·4413	0·4733
Sept. ..	3·7100	9·7119	10·3964	0·1711	0·4478	0·4794
Oct. ..	3·7125	9·7255	10·4100	0·1712	0·4484	0·4800
Nov. ..	3·7243	9·6862	10·3775	0·1717	0·4466	0·4785
Dec. ..	3·7194	9·6944	10·3835	0·1715	0·4470	0·4788
Means	3·7159	9·6987	10·3862	0·1713	0·4472	0·4789

DATES OF MAGNETIC DISTURBANCES, 1894.

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	Sep.	Oct.	Nov.	Dec.
1	c	s	m	s	m	m	m	s	s	s	s	s
2	s	s	s	s	m	s	g	c	s	s	s	s
3	g	s	c	s	s	s	s	s	s	c	s	c
4	s	s	s	s	m	s	s	m	s	m	s	c
5	s	s	c	s	s	s	s	s	s	c	c	m
6	s	s	s	m	s	s	s	s	s	s	s	m
7	s	s	c	m	s	s	s	s	s	s	s	s
8	c	c	s	s	s	s	s	s	s	s	s	s
9	s	s	s	s	s	g	s	s	m	c	s	s
10	s	c	s	c	s	g	s	s	m	c	s	c
11	m	c	c	c	s	m	c	s	m	s	s	s
12	s	s	c	m	s	s	s	s	s	c	c	s
13	s	c	c	m	m	m	s	m	s	s	vg	m
14	c	c	s	s	m	m	s	m	vg	s	m	s
15	c	s	s	c	m	m	s	m	s	s	m	m
16	c	s	s	c	s	m	m	c	s	m	m	s
17	c	s	s	g	s	m	m	c	s	s	m	s
18	c	s	s	m	s	m	m	c	m	s	g	s
19	c	s	s	m	s	m	m	vg	g	s*	m	s
20	c	m	c	m	s	m	vg	m	g	s	s	s
21	s	vg	m	s	m	m	s	s	m	s	c	s
22	s	vg	m	c	s	m	s	s	m	s	c	s
23	s	vg*	m	s	s	s	s	s	s	c	m	s
24	s	m	s	s	s	s	m	s	s	s	m	c
25	s	vg	m	m	s	s	m	m	s	m	m	s
26	s	m	s	m	s	s	m	m	s	s	s	c
27	c	s	c	s	m	s	s	s	s	m	s	s
28	s	g	c	s	s	s	m	s	c	c	s	s
29	s		c	m	m	s	m	s	s	s	s	s
30	s		vg	m	m	m	s	s	s	m	s	s
31	s		m		m		s	s		m		c
Totals c	10	5	10	5	0	0	1	4	1	6	4	6
Totals s	19	15	14	13	20	15	18	19	20	18	16	21
Totals m	1	3	6	11	11	13	10	7	6	7	8	4
Totals g	1	1	0	1	0	2	1	0	2	0	1	0
Totals vg	0	4	1	0	0	0	1	1	1	0	1	0

PRESENTS RECEIVED.

Greenwich Observations, 1891	Royal Observatory
Greenwich Spectroscopic and Photographic Results, 1891	,,
Greenwich Five-year Catalogue of 258 fundimental stars for 1891	,,
Report of the Meteorological Council, 1892—3	Meteorological Office
Harmonic Analysis of Hourly Meteorological Observations, by Lieut. General R. Stracy, F.R.S.	,,
Meteorological observations at stations of the second order for the year 1889	,,
Ellis on air	,,
The Meteorological Record, by W. Marriott, F. R. Met. Soc.	,,
Quarterly Weather Reports, 1894	,,
Monthly ,, 1894	,,
Weekly ,, 1894	,,
Daily ,, 1894	,,
The climatalogy and physical features of Maryland	,,
Meteorological observations during the solar eclipse, Aug. 19th, 1887 made at Chlamostino, Russia	,,
Annual report of the Director of Cincinnati Observatory	,,
Beobachtungen der Temperatur des Erdbodens im Tifliser Physikalischen Observatorium im Jahre, 1884, '85, '90, von J. Mielberg	,,
Meteorologic Lyonnaise 1887, '88, '89, '90, par M. Ch. André	,,
Rapporta Annuale dellì Osservatorio Marittimo di Trieste, 1889, '90, '91, dal Edwardo Mazelle	,,
Contributions to Meteorology	,,
The Solar Parallax and its related constants, including the figure and density of the earth	,,

American Daily Weather Charts, 1874, '75, '76 - - - - - -	Meteorological Office
Anleitung zur Anstellung Meteorologischer Beobachtungen und Sammlung von Hilfstafeln, von Dr. Carl Jelinek - - -	,,
Cartes des Vents sur la Côte Est de l'Amerique du Sud de L'Amazone a La Plata - - -	,,
Quarterly Returns of the Registrar General - - - - - -	Registrar General
R.S. proceedings - - - - -	Royal Society
Monthly Notices of the Royal Astronomical Society, 1894 - -	Royal Astr. Soc.
Journal of the British Astronomical Association, 1893 - - -	British Astr Assoc.
Memoirs of the B.A.A. - - -	,,
Report of the Kew Committee, 1893 -	Kew Observatory
Report of the British Association for the advancement of Science, 1893	British Association.
Edinburgh Circulars - - -	Royal Obs. Edinburgh
Meteorology of Ben Nevis, 1894 - -	Observatory
Radcliffe Observatory Catalogue of 6424 Stars for the Epoch 1890, by Edward James Stone, F.R.S., &c., &c., - - - - - -	,,
Meteorological Observations, Rousden Observatory, 1893, by Cuthbert E. Peek, M.A., F.S A., &c. -	,,
Report of Liverpool Observatory, 1892-3, by W. F. Plummer, M.A., F.R.A.S. - - - -	,,
Southport Metereological Report, 1893, by Joseph Baxendell, F.R. Met. Soc. - - - - - -	,,
Meteorology of Bradford for 1893, by J. Landsborough M. Inst. C.E., &c., and A. E. Preston, M. Inst. C.E., &c. - - - - -	,,
Report of Wolsingham Observatory, 1893, by the Rev. T. H. E. C. Espin, B.A., F.R.A.S. - -	,,
Art of Re-touching by J Hubert -	Author
Explanatory notes on the System of Weather Forecasting, by D. Dewar - - - - - -	,,
The Heat of the Sun, by the Rev. A. L. Cortie, S.J., F.R.A.S. -	,,
Apparatus to determine the directions and angular movements of Clouds, by Col. M. M. Pomortzeff - - - - - -	,,

and other well-known Nebulæ by W. W. Campbell - -	Author
Experimental Investigation on the effective temperature of the Sun made at Daramona. Streete Co., Westmeath, qy W. E. Wilson, M.R.I.A., and P. L. Gray, B, Sc., A.R.C.S. - - - - -	Authors
The Celestial Intelligences - - -	Rev. W. Flemming
The Medical Officer's Report for the County Palatine of Lancaster, 1893 - - - - - - -	Edward Sergeant, M.D.
Studi Storici intorno alla Bussola Nautica parte 1—11, del P. Timoteo Bertelli Barnabita -	Charles Davidson, Esq.
Appunti Storici intorno all'Antica "Rosa Nautica" Italiana, di P. T. Bertelli - - - - -	,,
Appunti intorno ad una memoria sulla Scoperta Della Declinazione Magnetica fatta da Cristoforo Colombo, del P. T. Bertelli -	,,
Four Photographic plates showing sun-spots Faculæ and Chromosphere	M. H. Deslandres
Two Photographic plates of the Solar Corona during the Total Solar Eclipse, April 16, 1893 - -	A. de la Baume-Pluvinel
Knowledge - - - - - - -	Editor
The British Journal of Photography -	,,
British Rainfall, 1893, by G. J. Symons, F.R.S. - - - -	,,
Monthly Meteorological Magazine, by the same - - - - -	,,
Monthly Weather Review, 1893-4, by John Eliot, M.A. - - - -	Met. Office, Calcutta
Indian Meteorological Memoirs, Vol. VI., by the same - - -	,,
Rainfall Data of India, 1893, by the same - - - - -	,,
Meteorogical Observations recorded at the Seven Stations in India, 1893, by the same - - -	,,
Report on the Administration of the Meteriological Department of the Government of India in 1893-4, by the same - - -	,,
Indian Weather Review Annual Summary 1893, by the same - -	,,
Brief Sketch of the Meteorology of the Bombay Presidency 1893-4.	Bombay Observatory
Magnetical and Meteorological Observations made at the Government	

Observatory, Bombay, 1891-92-93 - - - - - - - -	Bombay Observatory
Cape Heliometer Observations 1881-83	Royal Obs. Cape
Report of H.M. Astronomer at the Cape of Good Hope, for 1879-89-92-93 - - - - -	,,
Annual Report of the Director of the Royal Alfred Observatory, for the year 1891-2 - - - -	Mauritius Observatory
Meteorological Observations taken during the year 1892-93 - -	,,
Record of Melbourne Observations, July 1892-93 - - - - -	Melbourne Observatory
Meteorological Observations at Adelaide Observatory, and other places in South Australia and the Northern territory, during the years 1886-7, by Sir C. Todd, F.R.S. - - - - -	Adelaide Observatory
Madras Meridian Circle Observations, 1880-81-82 - - - - -	Madras Observatory
Observations and researches at Hong Kong Observatory, by W. Doberck - - - - - -	Hong Kong Observatory
Catalogue of Stars for the Epoch, January 1st, 1692 from Observations by the Great Trigonometrical Survey of India, under the direction of Col H. R. Thuillier, and Col. G. Strahan -	Survey Off., India
Report of Mr. Tebbutt's Observatory N.S. Wales for the year 1893, by John Tebbutt, F.R.A.S., &c.	Tebbutt's Observatory
Pilot Charts, 1894 - - - - -	U.S. Naval Observatory
The average tracks of storms over the Northern Hemisphere - -	,,
Report of the Superintendent, 1892-93	,,
Observations made during the year 1889 - - - - - - -	,,
Magnetic Observations 1892, by Prof. Stimson J. Brown - - - -	,,
Meteorological Observations and Results, 1889 - - - - -	,,
The Solar Faculæ, by George E. Hale	Kenwood Astro-Phys Obs
Spectroscopic Notes from the Kenwood Observatory, by the same	,,
Observatory Report for the year 1893-4	Yale University
Monthly Weather Review, 1894 -	Met. Office, Toronto
General Meteorological Register, 1893	,,
Report of the Meteorological Service of the Dominion of Canada,	

1889, by G. Carpmael, M.A., F.R.A.S. - - - -	Met. Office, Toronto
Transactions of the Astronomical and Physical Society of Toronto for the year 1893, including Fourth Annual Report - - -	The Society
Unification of the Astronomical, Civil, and Nautical days (report of the Joint-Committee of the Canadian Institute, and the Astronomical and Physical Society of Toronto) - - - - -	Joint-Committee
Transactions of the New York Academy of Science - - -	New York Academy
Memoirs of the National Academy of Sciences, Vol. IV. - - - -	National Academy
Smithsonian Report, 1891 - - -	Smithsonian Institution
Records and results of Magnetic Observations made at the charge of "Bache Fund" of the National Academy of Sciences from 1871 to 1876, under the direction of J. E. Hilgard - - -	U. S. C. and G. Survey
Magnetic Variations off the coasts of California and Mexico, 1774—1790, by David Davidson -	,,
Variation of latitude at San Francisco, 1891-2, according to observations of Prof. George Davidson -	,,
Determinations of Gravity, and of the Magnetic Elements in connection with the U.S. Expedition to the West Coast of Africa, 1889-1890, by E. D. Preston -	,,
Collection of Results for Declination, Dip, and Intensity, from observations made by the U.S. Coast Survey between 1833 and July, 1882, by Charles Schott -	,,
Directions for measurement of Terestrial Magnetism, by the same -	,,
Report upon Magnetic Observations made at the U.S. Polar Station Ooglaamie, Point Barrow, Alaska 1881 82-83, by the same -	,,
The Magnetic work of the Greely Arctic Expedition, 1881—84, by the same	,,
Magnetic Dip and Intensity, with their Secular Variation and Geographical Distribution in the United States Report for 1885, by the same - - - - - -	,,

Secular Variation of the Magnetic Declination in the United States and at some Foreign Stations. Report, by the same	U. S. C. and G. Survey
The value of the "Arcano del Mare," with reference to our knowledge of the Magnetic Declination in the earlier part of the seventeenth century, by the same	"
Secular Variation of the position of the Agonic Line of the North Atlantic, and of America between the Epochs 1500 and 1900 A.D., by the same	"
Historical Review of the work of the Coast and Geodetic Survey in connection with Terrestrial Magnetism, by the same	"
Distribution of the Magnetic Declination of the United States for the Epoch, 1890, by the same	"
Culminations and Elongations and Azimuths at Elongation of Polaris for the years 1889—1910 by the same	"
On the Secular Variation and annual change of the Magnetic Force at stations on the West coast of Africa, and at some islands in the N. and S. Atlantic Report, by C. A. Schott, Observations by E. D. Preston	"
Results of Magnetic Observations recorded at Los Angeles, California, 1882-1889. Part I., Absolute Measures. Part II., Differential Measures Magnetic Declination. Part III, Differential Measures Horizontal Intensity. Report, by Charles A. Schott. Observations by Marcus Baker and staff	"
Terrestrial Atmospheric Absorption of the Photographic Rays of Light, by J. M. Schaeberle	Lick Observatory
Publications of the Lick Observatory, Vol. II., 1894-	"
Physical Observations of Mars, by Dr. James E. Keeler, Sc.D.	Allegheny Observatory
Spectroscopic Observations of Nebulæ, by the same	"
"	

Elementary Principles governing the Efficiency of Spectroscopes for Astronomical purposes, by the same- - - - - -	Allegheny Observatory
On the Spectra of the Orion Nebula and the Orion Stars, by the same- - - - - -	"
New York Meteorological Observations Central Park - - - -	New York Observatory
Annual Tables Daily and hourly for the year 1893- - - -	"
The Photochronograph applied to measures of Double Stars and Planets, by the Rev. J. G. Hagen, S.J. - - - - -	Georgetown Col. Obser.
The Photographic Zenith Telescope, by the same	
Suggestions regarding the application of the Photochronograph, by the same - - - - -	"
Proceedings of Haverford College Observatory, 1892 - - -	Haverford Col. Obs.
Report of the Ohio Weather and Crop Service 1893-4 - - -	
Observations Météorologiques faites á Tananarive, par le R. P. E. Colin, S.J. Vol. IV., 1892 -	L'Observatoire
Bulletin Mensuel de l'observatoire de Zi-ka-wei 1892-3 - - -	"
Bulletin Mensuel de l'observatoire Météorologique de l'université d'Upsal. Vol. XXV., par Dr. H. Hilderbrand Hildebrandsson	"
Annuaire de l'observatoire Municipal de Montsouris pour l'année de 1894 (analyse et Travaux 1892)	"
Rapport Annuel sur l'état de l'observatoire de Paris 1893 par M. F. Tisserand - - -	"
Annales de l'Observatoire Météorologique du Mont-Blanc. Vol. I., par J. Vallot- - - -	
Observations faites à l'instrument des passages établi dans le premier vertical, par D. I. Doubiago -	L'Observatoire Impérial de Kasan
Resultate der Beobachtungen in Kasan 1892-93 von A. M. Kowalski -	"
Organisation de l'étude climatérique spéciale de la Russie et problémes de la météorologiè agricole, par A. Klossovsky - - -	"

Annales de l'observatoire Magnétique de Copenhague 1892, par Adam Paulsen - - - - -	Institut Météorologique de Danemark
Expédition Danoise. Observations faites à Godthaab, par le même -	,,
Observations Météorologiques Suédoises publiées par L'Académie Royale des Sciences de Suéde Vol. 31 et 32, 1889-90 - -	L'Académie Royale
Le Spectre de l'étoile variable β Lyræ, par A. Belopolsky - - -	L'Auteur
Sur le renversement de la Raie D 3 du spectre Solaire, par le même -	,,
Notice sur le spectre de β Lyræ, par le même - - - - -	,,
Déterminations Magnétiques faites en France en 1891 et 1892, par M. Th. M. Moureaux - . -	,,
Observations Magnétiques faites à l'observatoire de Parc St. Maur en 1891 et 1892, par le même -	,,
Typhons de 1892, par le R. P. S. Chevalier, S.J. - - - -	,,
De l'emploi des photogrammètres pour mesurer la hauteur des nuages, par Ph. Akerblom - - -	,,
Essai sur les variations de latitude, et calcul des constantes de la Nutation, Aberration, Aberration Systématique, Nutation diurne, Parallaxe de la Polaire, par F. Folie - - - - - -	,,
Du Sens et de la période du movement eulérien par le même -	,,
Observations faites à l'observatoire Météorologique de l'université Impériale de Kazan 1894, par Dimitry Goldhammer - -	,,
Sur deux grandes protubérances du Septembre, 1893, observées à Kolocsa, par R. P. J. Fényi, S.J.	,,
Note sur une protubérance excessivement grande observée le 3 October, 1892, par le même	,,
Agrandissements de Photographies Lunaires (from the Lick negative), par W. Prinz - - -	,,
Positions Apparentes des Taches Solaires photographiées a Poulkoro, par B Hasselberg dans les Années 1881—1888 - - -	,,

Images spéciales du soleil données par les rayons simples qui correspondent aux raies noires du Spectre Solaire, par M. H. Deslandres - - - - -	L'Auteur
The Solar Faculæ, by the same - -	,,
Recherches Photographiques sur les Flammes de l'atmosphère Solaire, par le même - - -	,,
Sur l'enregistrement des éléments variables du Soleil, par le même -	,,
Appareils enregistreurs de l'atmosphère Solaire, par le même	,,
Recherches sur les mouvements de l'atmosphère solaire, par le même - - - - - -	,,
Recherches nouvelles sur l'atmosphère solaire, par le même - - -	,,
Sur une protubérance remarquable, par le même - - - - - -	,,
Résultats nouveaux sur l'hydrogène obtenus, par l'étude spectrale du soleil. Rapprochements avec l'étoile nouvelle du Cocher; par le même - - - - -	
Sur l'observation de l'éclipse totale de soleil du 16 avril faite à Foundiougue. (Sénégal) par le même.	,,
Recherches sur le mouvement radial des astres avec le sidérostat de l'observatoire de Paris, par le même - - - - - -	,,
Transformation du grand télescope de l'observatoire de Paris pour l'étude des vitesses radiales des astres.—Résultats obtenus, par le même - - - - -	,,
Spectre du pôle négatif de l'azote, Loi générale de répartition des raies dans les spectres des bandes, par le même - - - - - -	,,
Loi de répartition des raies et des bandes communes à plusieurs spectres de bandes. Analogie avec la loi de succession des sons d'un corps solide, par le même -	,,
Spectre de bandes ultra-violet des composés hydrogénés et oxygénés du carbone; par le même	,,
Propriété fondamentale commune aux deux classes de spectres. Caractères distinctifs de chacune	

des classes. Variations périodiques à trois paramètres, par le même - - - - - -	L'Auteur
Contribution àla recherche de la couronne Solaire en dehors des éclipses totales; par le même -	,,
L'Expression du nombre des classes déduite de la transformation des fonctions elliptiques, par le P. De Seguier, S J. - - - -	,,
Distribution annuelle des orages à la surface du globe terrestre, par A. Klossovsky - - - - -	,,
Observations du soliel, par M. J. Guillaume- - - - - -	,,
Astronomie, par R. P. J. D. Lucas, S.J.	,,
Annalen des Physikalischen Central—Observatoriums Herausgegeben von H. Wild Mitglied der Kaiserlichen Akademie der Wissenshaften und Director des Physikalischen Observatoriums Theil 1 und 11. Jahrgang 1892 -	Das Observatorium
Analele Institutului Meteorologic al Romănia 1891 publicate de stefan C. Hepites 1892 - - - -	,,
Buletinul Observatiunilor Meteoroligici din Romania 1892 Von Demselben - - - - -	,,
Publicationen des Astrophysikalischen Observatoriums Zu Potsdam Neunter Band, von H. G. Vogel	,,
Observations made at the Magnetical and Meteorological Observatory in Batavia, by Dr. J. P. Van der Stok, Vol xv., 1892 - - -	,,
Ergebnisse der Beobachtungen an den Stationen II. und III. Ordnung im Jahre 1893 durch Wilhelm von Bezold Direktor am Königlich Preussischen Institut -	Das Institut
Bericht über die Thätigkeit des Königlich Preussischen Meteorologischen Instituts im Jahre 1893, Von Demselben - - -	,,
Ergebnisse der Niederschlags—Beobachtungen im Jahre 1892, Von Demselben - - -	,,
Ergebnisse der Magnetischen Beobachtungen in Potsdam in den Jahren 1890 and 91 Von Demselben -	,,
Ergebnisse der Beobachtungen an den Stationen II. und III. Ordnung	

im Jahre 1894, Von Demselben	Das Institut
Bericht über die Thätigkeit im Königl. Sächsischen Meteorologischen Institut, awf das Jahr 1893, Von Dr. Paul Schreiber - - -	,,
Ergebnisse der Meteorologischen Beobachtungen im Jahre 1893, Von Demselben - - -	,,
Ergebnisse der Meteorologischen Beobachtungen im Reichsland Elsass—Lothringen im Jahre 1892, Von Dr. Hugo Hergesell -	Der Verfasser
Über das spectrum von β Lyræ, Von H. C. Vogel - - - -	,,
Über den Newen Stem im Fuhrmann, Von Demselben - - -	,,
Astronomische Mittheilungen, Von. A. Wolfer - - - - -	,,
Untersuchungen über die wahrscheinlichste Bahn des Cometen, 1825, 1, und, über seine Identitat mit Cometen, 1790, III, Von Paul Martin - - - - -	,,
Der Tornado bei Novska von A. Mohorovičic - - - -	,,
Über den Lichtwechsel Von β Lyræ nach, Beobachtungen des Hon. J. Plassman, Von E. Lindemann	,,
Magnetische Beobachtungen an der Unterelbe, 1893, Von A. Shüch	,,
Ueber die Bestimmung der Inclination awf Reisen mit dem Erdinductor Von K. Schering - - -	,,
Die Venus Durchgänge 1874 and 1882 Bericht über die Deutschen Beobachtungen, Von. A. Anwers Vorsitzendem der Commission	Die Commission
Beobachtungen von Sonnenflecken und Protuberanzen auf der Universitätssternwarte zu Charkow veröffentlicht, von Prof. G. Lewitzky - - - -	Die Sternwarte
Publicationen der v Kuffner' schen Sternwarte in Wien III. Band Herausgegclien von Dr. Leo de Ball - - - -	,,
Astronomische Mittheilungen von der Königlichen Sternwarte zu Göttingen, von Dr. Wilhelm Schur - - - - -	,,
Annuario del Observatorio Astronomico Nacional de Tacubaya año xiv. 1894-95 - - - -	Observatorio

Boletin de Observaciones de Tacubaya	Observatorio
Observaciones Magnéticas y Meteorológicas del R. Coll., de Belen en la Habana - - - - -	,,
Observaciones Verificadas 1892-93 Observatorio de Manila - -	,,
Anales del Instituto y Observatorio de Marina de San Fernando Año 1892 - - - - -	,,
Almanaque Náutico por 1896, San Fernando - - - - -	,,
El clima de la ciudad de México. Breve reseña, por Mariano Bárcena Dir. del Observatorio Meteorológico Central - -	,,
Observaciones Meteorológicas del Col. Cat. Puebla 1893 - -	,,
Registro de Observaciones Meteorológicas 1894 Observatorio del Estado de Veracruz - -	,,
Resúmen de las Observaciones Meteorológicas, 1894, Observatorio Central de México - - -	,,
Anales de la Oficina Meteorológica Argentina. Tomo IX. -	,,
Publicazioni della Specola Vaticana Fasciolo IV., 1894. - -	Specola Vaticana
Bollettino Mensuale dell oss. Central del R. Coll. Carlo Alberto in Moncalieri, 1893—4 - - -	Osservatorio
Sull' Origine e Fondazione di Roma Dissertazione dell'avv Gio. Batt. Lugari, letta all'accademia Pontificia di Archeologia il 29 Aprile, Part iii., ed ultima - - -	Il autore
S. Bonifazio e S. Alessio sull'Aventino, dal medesimo - - - - -	,,
Dissertatio ad Legem unicam codicis De Thesauris, dal medesimo-	,,
S. Sirio primo vescovo di Paria, dal medesimo - - - - -	,,
Alcune considerazioni sui differenti metodi fino ad oggi adoperati nel calcolare la velocità di propagazione del terremoto andaluso del 25 dicembre, 1884. Nota del dott. G. Agamennone - -	,,
Velocità superficiale di propagazione delle onde cismiche, in occasione della grande scossa di terremoto dell'Andalusia 25 dicembre 1884, dal medesimo - -	,,
Annuaire de la Société Météorologique de France - - - - -	La Société

APPENDIX

RESULTS

OF

METEOROLOGICAL OBSERVATIONS

TAKEN AT

St. IGNATIUS' COLLEGE, MALTA

BY THE

Rev. J. DOBSON, S.J.

1894.

ST. IGNATIUS' COLLEGE,
MALTA.

Lat. 35° 55′ N. Long. 14° 29′ E. Barometer Readings reduced to 32° F. at sea level.

METEOROLOGICAL REPORT.

JANUARY, 1894.

Results of Observations taken during the Month.		Average 10 yrs.
Mean Reading of the Barometer ....inches	30·076	30·056
Highest ,, on the 16th ,,	30·329	30·425
Lowest ,, on the 3rd ,,	29·672	29·578
Range of Barometer Readings.....	0·657	0·847
Highest Reading of a Max. Therm. on the 25th	63·8	64·9
Lowest Reading of a Min. Therm. on the 18th	42·0	41·8
Range of Thermometer Readings	21·8	23·1
Greatest Range in 24 hours on the 25th	18·6	18·4
Mean of all the Highest Readings	59 1	59·0
Mean of all the Lowest Readings.....	47·4	48·6
Mean Daily Range	11·7	10·4
Mean Temperature (deduced from Max. & Min.)	52·6	53·1
Mean Temperature (deduced from Dry Bulb)	52·4	52·9
Adopted Mean Temperature.....	52·5	53·0
Mean Temperature of Evaporation.....	48·6	48·7
Mean Temperature of Dew Point	46·0	45·6
Mean elastic force of Vapour.....inches	0·311	0·306
Mean weight of Vapour in a cub. ft. of air grains	3·5	3·5
Mean additional weight required for saturation ,,	0·7	0·9
Mean degree of Humidity.....	82	80
Mean weight of a cubic foot of air .... grains	542·7	542·5
Fall of rain .....inches	3·995	3·594
Number of Days on which rain fell	19	13
Mean amount of Cloud (an overcast sky=10)	7·2	5·0
Total number of miles of Wind indicated....	5747	8500
Mean Velocity of Wind per hour .....miles	7·8	11·4

FEBRUARY.

Results of Observations taken during the Month		Average 10 yrs.
Mean Reading of the Barometer.....inches	30·091	30·020
Highest ,, on the 3rd ,,	30·434	30·320
Lowest ,, on the 20th ,.	29·812	29·623
Range of Barometer Readings ..... ,,	0·622	0·697
Highest Reading of a Max. Therm. on the 28th	64·8	67·1
Lowest Reading of a Min. Therm. on the 16th	42·8	41·7
Range of Thermometer Readings	22·0	25·4
Greatest Range in 24 hours on the 28th	17·8	19·6
Mean of all the Highest Readings.....	58·7	60·1
Mean of all the Lowest Readings	49·9	48·9
Mean Daily Range.....	8·8	11·2
Mean Temperature(deduced from Max.& Min.)	53·3	53·5
Mean Temperature (deduced from Dry Bulb)	54·2	53·8
Adopted Mean Temperature	53·8	53·6
Mean Temperature of Evaporation	49·8	49·5
Mean Temperature of Dew Point	47·1	46·6
Mean elastic force of Vapour .....inches	0·324	0·319
Mean weight of Vapour in a cub. ft. of air grains	3·7	3·6
Mean additional weight required for saturation ,,	0·8	0·8
Mean degree of Humidity	84	82
Mean weight of a cubic foot of air..grains	541·5	540·8
Fall of Rain .....inches	4·400	2·087
Number of days on which Rain fell	8	10
Mean amount of Cloud (an overcast sky=10)..	6·5	4·7
Total number of miles of Wind indicated ..	9813	7675
Mean Velocity of Wind per hour .....miles	14·6	11·3

MARCH.

Results of Observations taken during the month.		Average 10 yrs.
Mean Reading of the Barometer..... inches	29·982	29·989
Highest ,, on the 29th ,,	30·317	30·363
Lowest ,, on the 31st ,,	29·601	29·496
Range of Barometer Readings	0·716	0·867
Highest Reading of a Max. Therm. on the 14th	68.3	74·7
Lowest Reading of a Min. Therm. on the 29th	41·7	42·9
Range of Thermometer Readings.....	26·6	31·8
Greatest Range in 24 hours on the 29th	20·1	23·1
Mean of all the Highest Readings	62·0	63·3
Mean of all the Lowest Readings	51·2	50·8
Mean Daily Range	10·8	12·5
Mean Temperature (deduced from Max. & Min.)	55·8	56·2
Mean Temperature (deduced from Dry Bulb)	54 0	55·6
Adopted Mean Temperature.....	54·9	55·9
Mean Temperature of Evaporation	50·0	51·9
Mean Temperature of Dew Point	46·1	48·7
Mean elastic force of Vapour .....inches	0·312	0·345
Mean weight of Vapour in a cub. ft. of air grains	3·5	3·9
Mean additional weight required for saturation ,,	1·2	1·1
Mean degree of Humidity	75	79
Mean weight of a cubic foot of air .....grains	538·5	537·0
Fall of Rain .....inches	1·490	0·896
Number of days on which Rain fell	11	7
Mean amount of Cloud (an overcast sky=10)	5·8	4·4
Total number of miles of Wind indicated.....	7322	8175
Mean Velocity of Wind per hour .....miles	9·8	10·9

APRIL.

Results of Observations taken during the Month.		Average 10 yrs.
Mean Reading of the Barometer.....inches	29·975	29·925
Highest ,, on the 15th ,,	30·219	30·256
Lowest ,, on the 3rd ,,	29·577	29·499
Range of Barometer Readings ..... ,,	0·642	0·757
Highest Reading of a Max. Therm. on the 22nd	72.5	77·1
Lowest Reading of a Min. Therm. on the 7th	47·0	48·0
Range of Thermometer Readings	25·5	29·1
Greatest Range in 24 hours on the 26th.....	19·6	22·1
Mean of all the Highest Readings.....	66·8	67·4
Mean of all the Lowest Readings	53·9	54·3
Mean Daily Range	12·9	13·1
Mean Temperature (deduced from Max. & Min)	59·4	59·9
Mean Temperature (deduced from Dry Bulb)	59 3	59·6
Adopted Mean Temperature	59·3	59·8
Mean Temperature of Evaporation	56·4	55·6
Mean Temperature of Dew Point	53·8	52·1
Mean elastic force of Vapour .....inches	0·415	0·389
Mean weight of Vapour in a cub. ft. of air grains	4·7	4·4
Mean additonal weight required for saturation ,,	1 0	1·4
Mean degree of Humidity	83	77
Mean weight of a cubic foot of air ....grains	532·1	531·0
Fall of Rain .....inches	1·513	0·768
Number of Days on which rain fell	8	6
Mean amount of Cloud (an overcast sky=10)	5·6	4·3
Total number of miles of Wind indicated....	7502	8473
Mean Velocity of Wind per hour .....miles	10·4	11·8

MAY.

Results of Observations taken during the Month.		Average 10 yrs.
Mean Reading of the Barometer.....inches	29·944	29·991
Highest ,, on the 11th ,,	30·119	30·180
Lowest ,, on the 25th ,,	29·710	29·614
Range of Barometer Readings..... ,,	0·409	0·566
Highest Reading of a Max. Therm. on the 28th	77·5	82·6
Lowest Reading of a Min. Therm. on the 3rd	51·7	53·9
Range of Thermometer Readings	25·8	28·7
Greatest Range in 24 hours on the 28th	21·2	24·1
Mean of all the Highest Readings	71·8	72·6
Mean of all the Lowest Readings	58·5	58·4
Mean Daily Range	13·3	14·2
Mean Temperature (deduced from Max.& Min.)	64·1	64·3
Mean Temperature (deduced from Dry Bulb)..	64·4	63·8
Adopted Mean Temperature	64·2	64·1
Mean Temperature of Evaporation	60·7	60·0
Mean Temperature of Dew Point.....	57·2	56·4
Mean elastic force of Vapour .....inches	0·469	0·456
Mean weight of Vapour in a cub. ft. of air grains	5·2	5·0
Mean additional weight required for saturation ,,	1·6	1·7
Mean degree of Humidity	81	75
Mean weight of a cubic foot of air ....grains	525·2	527·1
Fall of Rain .....inches	0·015	0·761
Number of days on which Rain fell	1	4
Mean amount of Cloud (an overcast sky=10)	5·1	3·5
Total number of miles of Wind indicated....	8163	7372
Mean Velocity of Wind per hour.....miles	11·0	9·9

JUNE

Results of Observations taken during the Month.		Average 10 yrs.
Mean Reading of the Barometer ....inches	30·071	30·009
Highest ,, on the 18th ,,	30·217	30·175
Lowest ,, on the 12th ,,	29·866	29·832
Range of Barometer Readings ..... ,,	0·351	0·343
Highest Reading of a Max. Therm. on the 27th	89·3	91·0
Lowest Reading of a Min. Therm. on the 18th	55·8	59·2
Range of Thermometer Readings	33·5	31·8
Greatest Range in 24 hours on the 25th	26·3	25·7
Mean of all the Highest Readings	79·6	80·6
Mean of all the Lowest Readings	62·7	64·8
Mean Daily Range	16·9	15·8
Mean Temperature (deduced from Max & Min)	70·5	71·9
Mean Temperature (deduced from Dry Bulb)	70·5	71·2
Adopted Mean Temperature.....	70·5	71·6
Mean Temperature of Evaporation	65·1	65·9
Mean Temperature of Dew Point	60·4	61·7
Mean elastic force of Vapour .....inches	0·526	0·550
Mean weight of Vapour in a cub. ft. of air grains	5·6	6·0
Mean additional weight required for saturation ,,	2·4	2·4
Mean degree of Humidity	74	71
Mean weight of a cubic foot of air ....grains	521·9	519·6
Fall of Rain .....inches	——	0·081
Number of days on which Rain fell.....	0	1
Mean amount of Cloud an overcast sky=10..	2·0	2·0
Total number of miles of Wind indicated....	5684	6213
Mean Velocity of Wind per hour.....miles	7·9	8·7

JULY.

Results of Observations taken during the Month		Average 10 yrs.
Mean Reading of the Barometer .....inches	29·992	30·012
Highest ,, on the 1st ,,	30 156	30·155
Lowest ,, on the 26th ,,	29·798	29·844
Range of Barometer Readings ..... ,,	0·358	0 311
Highest Reading of a Max. Therm. on the 12th	96 3	97·2
Lowest Reading of a Min. Therm. on the 3rd	64·7	64·6
Range of Thermometer Readings	31·6	32·6
Greatest Range in 24 hours on the 11th	27·1	26·8
Mean of all the Highest Readings	87·6	86·8
Mean of all the Lowest Readings.	69·0	69·8
Mean Daily Range	18·6	17·0
Mean Temperature (deduced from Max.& Min)	77·8	77·8
Mean Temperature (deduced from Dry Bulb)	77·4	76·8
Adopted Mean Temperature	77·6	77·3
Mean Temperature of Evaporation	71·5	70·2
Mean Temperature of Dew Point.....	67·1	65·3
Mean elastic force of Vapour.....inches	0·664	0·625
Mean weight of Vapour in a cubic ft. of air grains	7·1	6·7
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	512·5	513·8
Fall of Rain .....inches.	——	——
Number of days on which Rain fell.....	——	——
Mean amount of Cloud (an overcast sky=10)	1·9	1·7
Total number of miles of Wind indicated	4585	6077
Mean Velocity of Wind per hour.....miles	6·2	8·2

AUGUST.

Results of Observations taken during the Month		Average 10 yrs.
Mean Reading of the Barometer .....inches	30·031	30·010
Highest ,, on the 24th ,,	30·217	30·156
Lowest ,, on the 14th ,,	29·906	29·863
Range of Barometer Readings ..... ,,	0·311	0·293
Highest Reading of a Max. Therm. on the 30th	95·2	97·0
Lowest Reading of a Min. Therm. on the 23rd	65·2	66·2
Range of Thermometer Readings.....	30·0	30·8
Greatest Range in 24 hours on the 30th.....	24·3	26·2
Mean of all the Highest Readings.....	86 4	87·3
Mean of all the Lowest Readings.....	70·1	71·1
Mean Daily Range .....,.....	16·3	16·2
Mean Temperature (deduced from Max. & Min.)	77·6	78·4
Mean Temperature (deduced from Dry Bulb)	77·2	78·4
Adopted Mean Temperature	77·4	78·4
Mean Temperature of Evaporation....	70·9	71·4
Mean Temperature of Dew Point.....	66·3	66·7
Mean elastic force of Vapour .....inches	0·646	0·653
Mean weight of Vapour in a cub. ft. of air grains	6·2	7·0
Mean additional weight required for saturation,,	3·1	3·3
Mean degree of Humidity	69	67
Mean weight of a cubic foot of air.....grains	513·4	512·2
Fall of Rain ....inches	0·000	0·000
Number of days on which Rain fell.....	0	0
Mean amount of Cloud (an overcast sky=10)..	0·6	1·0
Total number of miles of Wind indicated	5862	5442
Mean Velocity of Wind per hour .....miles	7·9	7·3

SEPTEMBER.

Results of Observations taken during the Month.		Average 10 yrs.
Mean Reading of the Barometer ..inches	30·054	30·064
Highest ,, on the 12th ,,	30·245	30·246
Lowest ,, on the 30th ,,	29·837	29·849
Range of Barometer Readings.....	0·408	0·397
Highest Reading of a Max. Therm. on 5th & 14th	95·8	92·2
Lowest Reading of a Min. Therm. on the 23rd	65·0	62·9
Range of Thermometer Readings	30·8	29·3
Greatest Range in 24 hours on the 5th	29·0	23·0
Mean of all the Highest Readings.....	87·3	82·6
Mean of all the Lowest Readings	71·6	68·5
Mean Daily Range.....	15·7	14·1
Mean Temperature (deduced from Max & Min)	78·6	74·7
Mean Temperature (deduced from Dry Bulb)	76·6	74·5
Adopted Mean Temperature	77·6	74·6
Mean Temperature of Evaporation	71·8	68·9
Mean Temperature of Dew Point	68·4	64·8
Mean elastic force of Vapour .....inches	0·694	0·615
Mean weight of Vapour in a cub. ft. of air grains	7·0	6·7
Mean additional weight required for saturation ,,	2·8	2·6
Mean degree of Humidity	76	72
Mean weight of a cubic foot of air ..grains	514·2	517·3
Fall of Rain .....inches	0 234	1·375
Number of Days on which rain fell	1	5
Mean amount of Cloud (an overcast sky=10)	2·1	2·4
Total number of miles of Wind indicated....	5901	5630
Mean Velocity of Wind per hour .....miles	8·2	7·8

OCTOBER

Results of Observations taken during the Month.		Average 10 yrs.
Mean Reading of the Barometer....inches	30·114	30·045
Highest ,, on the 23rd ,,	30·191	30·274
Lowest ,, on the 3rd ,,	29·831	29·727
Range of Barometer Readings ..... ,,	0·360	0·547
Highest Reading of a Max. Therm. on the 19th	90·1	87·4
Lowest Reading of a Min. Therm. on the 15th	59·4	55·7
Range of Thermometer Readings	30·7	31·7
Greatest Range in 24 hours on the 4th	20·1	19·6
Mean of all the Highest Readings	81·1	76·1
Mean of all the Lowest Readings	67·8	64·3
Mean Daily Range	13·3	11·8
Mean Temperature (deduced from Max. & Min.)	73·6	69·3
Mean Temperature (deduced from Dry Bulb)	72·6	68·4
Adopted Mean Temperature	73·1	68·9
Mean Temperature of Evaporation.....	68·5	64·2
Mean Temperature of Dew Point	65·3	60·7
Mean elastic force of Vapour .....inches	0·624	0·536
Mean weight of Vapour in a cub. ft. of air grains	6·8	5·8
Mean additional weight required for saturation ,,	1·9	1·7
Mean degree of Humidity	74	77
Mean weight of a cubic foot of air grains ..	519·8	523·4
Fall of Rain ....inches	1·622	3·013
Number of days on which Rain fell	4	8
Mean amount of Cloud (an overcast sky=10)	4·7	4·2
Total number of miles of wind indicated	5555	6802
Mean Velocity of Wind per hour.....miles	7·5	9·2

NOVEMBER.

Results of Observations taken during the Month.		Average 10 yrs.
Mean Reading of the Barometer ....inches	30·066	30·076
Highest ,, on the 22nd ,,	30·236	30·328
Lowest ,, on the 10th .,	29·585	29·727
Range of Barometer Readings ..... ,,	0·651	0·601
Highest Reading of a Max. Therm. on the 1st	78·6	76·1
Lowest Reading of a Min. Therm. on the 25th	52·5	49·0
Range of Thermometer Readings	26·1	27·1
Greatest Range in 24 hours on the 8th.....	19·1	18·5
Mean of all the Highest Readings	70 6	68 0
Mean of all the Lowest Readings	58·5	56.9
Mean Daily Range	12·1	11·1
Mean Temperature(deduced from Max. & Min.)	63·4	61·7
Mean Temperature (deduced from Dry Bulb)	62·3	61·2
Adopted Mean Temperature.....	62·8	61·5
Mean Temperature of Evaporation.....	58·1	56·9
Mean Temperature of Dew Point	51·3	53·8
Mean el stic force of Vapour .....inches	0·378	0·414
Mean weight of Vapour in a cub. ft. of air grains	4·8	4·7
Mean additional weight required for saturation ,,	1·3	1·3
Mean degree of Humidity	80	79
Mean weight of a cubic foot of air.....grains	531·2	532·6
Fall of Rain .....inches	4·559	3·305
Number of days on which Rain fell	16	10
Mean amount of Cloud (an overcast sky=10)	6·6	4·8
Total number of miles of Wind indicated	5277	6809
Mean Velocity of Wind per hour.....miles	7·3	9·5

DECEMBER.

Results of Observations taken during the Month.		Average 10 yrs.
Mean Reading of the Barometer .....inches	29·929	30·070
Highest ,, on the 19th ,.	30·265	30·414
Lowest ,, on the 31st ,,	29·490	29·582
Range of Barometer Readings..... ,,	0·775	0·832
Highest Reading of a Max. Therm. on 1st & 5th	68·9	68·5
Lowest Reading of a Min. Therm. on the 19th	43·2	44·0
Range of Thermometer Readings.....	25·7	24·5
Greatest Range in 24 hours on the 5th	18·7	17·2
Mean of all the Highest Readings	61·7	62·0
Mean of all the Lowest Readings	51·4	52·2
Mean Daily Range	10·3	9 8
Mean Temperature (deduced from Max. & Min.)	55 7	56·5
Mean Temperature (deduced from Dry Bulb)	55·9	56·6
Adopted Mean Temperature	55·8	56·3
Mean Temperature of Evaporation	51·3	51·9
Mean Temperature of Dew Point.....	47·7	48·7
Mean elastic force of Vapour.....inches	0·331	0·344
Mean weight of Vapour in a cub. ft. of air grains	3.8	3·9
Mean additional weight required for saturation,,	1·2	1·1
Mean degree of Humidity	87	79
Mean weight of a cubic foot of air....grains	538·2	538·8
Fall of Rain .....inches	7·291	3·653
Number of days on which Rain fell	22	14
Mean amount of Cloud (an overcast sky=10)	6·8	5·4
Total number of miles of Wind indicated....	8626	8291
Mean Velocity of Wind per hour.....miles	11·6	11·2

Summary of Observations FOR 1894.

Results of observations taken during the Year		Mean of 10 years 1883—1892
Mean Reading of the Barometer ....inches	30·027	30·025
Highest ,, on February 3rd ..	30·434	30·505
Lowest ,, on December 31st ..	29·490	29·354
Range of Barometer Readings	0·944	1·151
Highest Reading of a Max. Therm. on July 12th	96·3	99·3
Lowest Reading of a Min. Therm. on Mar. 29th	41·7	40·9
Range of Thermometer Readings	54·6	58·4
Greatest Range in 24 hours on the 5th Sept...	29·0	28·9
Mean of all the Highest Readings	72·7	72·4
Mean of all the Lowest Readings.....	59·4	59·2
Mean Daily Range	13·3	13·2
Mean Temperature (deduced from Max. & Min)	65·2	64·9
Mean Temperature (deduced from dry bulb)..	64·7	64·4
Adopted Mean Temperature	65·0	64·7
Mean Temperature of Evaporation	60·2	59·7
Mean Temperature of Dew Point.....	56·4	56·0
Mean elastic force of Vapour.....inches	0·474	0·449
Mean weight of Vapour in a cub. ft. of air grains	5·1	5·1
Mean additional weight required for saturation,.	1·9	1·8
Mean degree of Humidity	78	76
Mean weight of a cubic foot of air ....grains	527·6	528·0
Fall of rain .....inches	25·159	19·204
Number of days on which rain fell	90	76
Mean amount of Cloud (an overcast sky 10)	4·6	3·5
Total number of miles of wind indicated.....	80037	84749
Mean Velocity of Wind per hour.....miles	9·2	9·7

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 1884, and was	inches	30·057
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 17th Janurary, 1886, and was		29·155
Extreme range		1·472
The highest temperature was on July 20th, 1889, and was		104·1
The lowest ,, ,, February 20th, 1851		37·7
The highest mean temperature of a month, was in August, 1885, and was		83·2
The lowest ,, ,, February, 1891, and was		49·5
The greatest monthly mean weight of vapour, in a cubic foot of air	grains, August, 1885	7·9
The least ,, ,, January and February, 1891, and was	gr	3·0
The highest observed Dew point was on the 30th August, 1885, and was		78·7
The lowest ,, ,, 19th January 1891, and was		28·6
The greatest fall of rain in a month, was in December, 1889, and was	inches	8·952
The greatest number of days on which rain fell in one month	days, January, 1889	24
The greatest fall of rain in a year was in 1889 and was	inches	26·044
The smallest ,, ,, ,, 1888 ,, ,,		13·745
The greatest number of rainy days in a year was in 1894 and was		90
The least ,, ,, ,, ,, 1882 ,,		40
The highest temperature registered in sunshine was on the 20th July, 1889, and was		158·8
The lowest temperature registered on ground was on the 25th Jannary, 1891, and was		32·5
The highest observed sea temperature was on the 5th August, 1887, and was		85·0
The lowest ,, ,, 23rd January, 1891, and was		56·0
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.

JANUARY.

THE Dew-point ranged between 40·6° on the 4th, and 54·3° on the 6th.

In Sunshine, the highest reading was 114·2° on the 20th.

On Ground, the lowest reading was 35·5° on the 18th.

The Sea has fallen to 59·0°.

Thunderstorms passed on the 12th, 27th, and 30th.

Lightning was seen on the 6th, 7th, 8th, 9th, 11th, and 25th.

Hail fell on the 2nd, 3rd, 8th, 9th, and 12th.

Total Rainfall since last June 18·075 inches; the average of 10 years, 15·089 inches.

A remarkably calm January. On nine days the mean daily velocity of the wind was less than five miles per hour, and only on one day did it reach 16 miles per hour.

FEBRUARY.

The Dew-point ranged between 38·1° on the 9th, and 54·6° on on the 21st.

In Sunshine, the highest reading was 117·5° on the 16th.

On Ground, the lowest reading was 37·4° on the 16th.

The Sea has risen from 56·8° on the 25th to 59·0°.

Total Rainfall since last June 22·475 inches; the average of 10 years, 17·176 inches.

Total number of miles of wind highest on record of eleven years. During a violent storm from N·E., the mean velocity was 30 miles per hour for the five days 19th to 23rd; and 36 miles hour for the 21st.

MARCH.

The Dew-point ranged between 57·4° on the 13th, and 38·5° on the 28th.

In Sunshine, the highest reading was 131·6° on the 19th.

On Ground, the lowest reading was 36·6° on the 29th.

The Sea has averaged 59·5.

Thunderstorms passed on the 13th.

Lightning was seen on the 22nd and 30th.

Hail fell on the 25th.

Total Rainfall since last June 23·965 inches; the average of 10 years, 18·072 inches.

Thunderstorms passed on the 13th.

Lightning was seen on the 22nd and 30th.

Hail fell on the 25th.

Total Rainfall since last June 23·965 inches; the averege of 10 years, 18·072 inches.

APRIL.

The Dew-point ranged between 47·9° on the 13th, and 60·1° on the 20th.

In Sunshine, the highest reading was 138·8° on the 22nd.

On Ground, the lowest reading was 41·6° on the 7th.

The Sea has risen to 63·7°.

Thunderstorms passed on the 13th and 29th.

Lightning was seen on the 30th.

Total Rainfall since last June 25·478 inches; the average of 10 years, 18·840 iuches.

MAY.

The Dew-point, ranged between 51·1° on the 1st and 65·4° on the 28th and 30th.

In Sunshine, the highest reading was 142·2° on the 20th.

On Ground, the lowest reading was 46·3 on the 3rd.

The Sea has risen to 65·5°

Thunderstorms passed on the 7th.

Total Rainfall since last June 25·493 inches;
the average of 10 years, 19·601 inches.

A slight earthquake shock, lasting from five to ten seconds, was felt throughout the island at 2-50 p.m. on the 13th.

JUNE.

The Dew-point ranged between 49·1° on the 27th and 71·0 on the 30th.

In Sunshine, the highest reading was 141·5° on the 26th.

On Ground, the lowest reading was 50·0° on the 5th.

The Sea has risen to 74·7.

Total Rainfall since last June 25·493 inches; the average of 10 years 19·682 inches.

A few drops of rain fell on the 13th, but not enough to measure.

JULY.

The Dew-point ranged between 49·7° on the 12th and 73·8° on the 30th.

In Sunshine, the highest reading was 147·4° on the 12th.

On Ground, the lowest reading was 58·3° on the 3rd.

The Sea has risen to 81·3°.

AUGUST.

The Dew-point ranged between 54·6° on the 28th, and 72·8° on the 31st.

In Sunshine the highest reading was 147·5° on the 17th.

On Ground the lowest reading was 60·2° on the 23rd.

The Sea has ranged from 78·5° to 79·5°.

Lightning was seen on the 26th and 27th.

SEPTEMBER.

The Dew-point ranged between 73·8° on the 18th, and 58·3° on the 19th.

In Sunshine the highest reading was 145·7° on the 23rd.

On Ground the lowest reading was 60·4° on the 23rd.

The Sea has fallen to 77·4°.

Thunderstorms passed on the 30th.

Lightning was seen on the 18th and 19th.

Total Rainfall since last June 0·234 inches; the average of 10 years, 1·524 inches.

Temperature has been much above the average. No rain fell before the night of the 30th except a few drops on the 18th. September, 1893, was the first rainless September in 12 years.

OCTOBER.

The Dew-point ranged between 52·8° on the 1st, and 72·9° on the 29th.

In Sunshine, the highest reading was 136·9° on the 1st.

On Ground, the lowest reading was 55·2° on the 15th.

The Sea has averaged 75·0°.

Thunderstorms passed on the 1st, 2nd, 12th, and 13th.

Lightning was seen on the 4th, 5th, 14th, 15th, 16th, and 17th.

Total Rainfall since last June, 1·856 inches; the average of 10 years, 4·537 inches.

NOVEMBER.

The Dew-point ranged between 64 4° on the 1st, and 46·7° on the 3rd.

In Sunshine, the highest reading was 130·5° on the 7th.

On Ground, the lowest reading was 46·8 on the 4th.

The Sea has averaged 68·3°.

Thnnderstorms passed on the 2nd, 9th, 10th, 15th, and 25th.

Lightning was seen on the 1st, 7th, 8th, 13th, 14th, 20th, 24th, and 26th.

Hail fell on the 15th.

Total Rainfall since last June 6·455 inches; the average of 10 years, 7·842 inches.

At noon on the 30th, during a dead calm, several waterspouts were seen on the sea, three or four miles N.E., and N.W. of this station.

DECEMBER.

The Dew-point ranged between 56·6° on the 6th, and 36·0° on the 18th.

In Sunshine, the highest reading was 113·2° on the 16th.

On Ground, the lowest reading was 37·5° on the 19th.

The Sea has averaged 64.5°.

Thunderstorms passed on the 2nd, 9th, 13th, 21st, 22nd, 25th, 26th, and 27th.

Lightning was seen on the 1st, 7th, 11th, 12th, and 23rd.

Hail fell on the 7th, 21st, and 26th.

Total Rainfall since last June, 13·746 inches; the average of 10 years, 11·495 inches.

NOTES FOR THE YEAR.

The Dew-point ranged between 73·8° on the 30th July, and 36·0° on the 18th December.

In Sunshine, the highest reading was 147·5° on the 17th August.

On Ground, the lowest reading was 35·5° on the 18th January.

The Sea has ranged from 56·8° on February 25th, to 79·5° on August 26th.

Thunderstorms passed on 25 days.

Lightning was also seen on 32 days.

Hail fell on the 10 days.

CORRIGENDA.

In 1892 the mean reading of the Barometer for the year was given 29·920, and mean for ten years 30·016, should be 30·003 and 30·025 respectively.

	1893.							
	Humidity		Weight of a cub. ft. of air		Humidity		Weight of a cub. ft. of air	
In September instead of	68	and	510·2	grs.	read 71	and	512·2	grs.
In October ,,	71	,,	520·1	,,	,, 74	,,	523·4	,,
In November ,,	74	,,	528·4	,,	,, 80	,,	527·8	,,
In December ,,	76	,,	536·8	,,	,, 76	,,	537·6	,,
In Yearly Mean ,,	75	,,	526·9	,,	,, 76	,,	527·5	,,