STONYHURST COLLEGE

OBSERVATORY.

RESULTS

OF

METEOROLOGICAL AND MAGNETICAL

OBSERVATIONS.

1874.

PRESTON:
J. ROBINSON, PRINTER, 17, CANNON-STREET.

Stonyhurst Observatory.

Lat. 53.° 50' 40" N. Long. 9^{m} $52^{s}.68$. W. Height of the Barometer above the sea, 381 ft.

METEOROLOGICAL REPORT

For January, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·525	29·392
Highest ,, on the 28th	30·128	29·977
Lowest ,, on the 16th	28·824	28·522
Range of Barometer Readings	1·304	1·455
Highest Reading of a Max. Therm. on the 15th	52·0	51·3
Lowest Reading of a Min. Therm. on the 17th	26·8	21·1
Range of Thermometer Readings	25·2	30·2
Mean of all the Highest Readings	46·0	42·2
Mean of all the Lowest	36·4	32·9
Mean Daily Range	9·6	9·3
Deduced Monthly Mean (from Mean of Max. and Min.)	41·0	37·4
Mean Temperature from dry bulb	41·3	37·5
Adopted Mean Temperature	41·2	37·5
Mean Temperature of Evaporation	40·0	36·1
Mean Temperature of Dew Point	38·5	34·1
Mean elastic force of Vapour	0·233in	0·198in
Mean weight of Vapour in a cubic foot of air	2·7gr	2·3gr
Mean additional weight required for saturation	0·3gr	0·4gr
Mean degree of Humidity, (saturation 1·00)	0·91	0·87
Mean weight of a cubic foot of air	546·1gr	547·9gr
Fall of Rain	5·261in	4·179in
Number of days on which Rain fell	24	20·9
Amount of Evaporation	1·695	0·848

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	1	0	0	0	2	21	6	1
Mean Velocity in miles per hour	2·9	0	0	0	16·2	14·5	12·2	22·1
Total No. of miles for each Direction	70	0	0	0	778	7308	1751	531

The total number of miles registered during the month was 10438.

The max. Velocity of the wind was 38 miles per hour; direction SW. on the 20th, at 3 p.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 7·8

In the month of January, the highest reading of the Barometer during 27 years, was on the 8th, in 1859, and was ..... 30·310

The lowest ,, ,, 15th, 1865 ..... 27·939

The highest Temperature ,, 30th, 1872 ..... 56·2

The lowest ,, ,, 13th, 1867 ..... 9·2

The highest adopted mean temperature of the month ..... 1869 ..... 41·3

The lowest ,, ,, 1871 ..... 39·0

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Hail fell on the 2nd, 4th, and 17th.

Snow on the 3rd, 4th, 16th, 17th, and 25th.

There was fog on the 9th, 10th, 23rd, and 27th.

Aurora was seen on 17th, from 9-30 until 10 p.m.

Stonyhurst Observatory.

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

METEOROLOGICAL REPORT

For February, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·538	29·494
Highest ,, on the 4th	30·227	30·105
Lowest ,, on the 26th	28·501	28·659
Range of Barometer Readings	1·726	1·446
Highest Reading of a Max. Therm. on the 15th	52·0	51·1
Lowest Reading of a Min. Therm. on the 5th	22·3	22·8
Range of Thermometer Readings	29·7	28·3
Mean of all the Highest Readings	44·3	44·0
Mean of all the Lowest	32·9	33·9
Mean Daily Range	11·4	10·1
Deduced Monthly Mean (from Mean of Max. and Min.)	38·2	38·6
Mean Temperature from dry bulb	38·3	38·6
Adopted Mean Temperature	38·3	38·6
Mean Temperature of Evaporation	36·7	36·6
Mean Temperature of Dew Point	34·5	34·8
Mean elastic force of Vapour	0·200in	0·204in
Mean weight of Vapour in a cubic foot of air	2·3gr	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	549·8gr	548·5gr
Fall of Rain	1·778in	3·790in
Number of days on which Rain fell	22	17·0
Amount of Evaporation	0·468	0·867

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	1	3	5	1	5	7	3	3
Mean Velocity in miles per hour	10·8	3·2	10·9	25·6	14·0	8·1	6·7	5·3
Total No. of miles for each Direction	260	233	1310	615	1686	1356	480	382

The total number of miles registered during the month was 6322.

The max. Velocity of the wind was 46 miles per hour; direction SE. on the 26th, at noon

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 6·4

In the month of February, the highest reading of the Barometer during 27 years, was on the 11th, in 1849, and was ..... 30·452

The lowest ,, ,, 6th, 1867 ..... 28·208

The highest Temperature ,, 5th, 1869 ..... 57·5

The lowest ,, ,, 1st, 1855 ..... 10·1

The highest adopted mean temperature of the month ..... } 1869 ..... 44·0

The lowest ,, ,, 1855 ..... 28·6

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Snow fell on the 9th, 17th, and 18th.

There was fog on the 3rd, 4th, 5th, 6th, 16th, and 18th.

Aurora was seen on the 4th, between 9 and 10 p.m.

Lunar Halos were observed on the 27th and 28th.

The only remarkable Magnetic disturbance during the month was on the 4th, when all the 3 Magnets were greatly disturbed.

The Magnetic storm began at about 3 p.m., reached its maximum at 8, and terminated at about 11 p.m.

Stonyhurst Observatory.

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

METEOROLOGICAL REPORT

For March, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·702	29·456
Highest ,, on the 6th	30·401	30·072
Lowest ,, on the 28th	29·148	28·705
Range of Barometer Readings	1·253	1·367
Highest Reading of a Max. Therm. on the 23rd	56·7	56·7
Lowest Reading of a Min. Therm. on the 10th	11·1	23·3
Range of Thermometer Readings	45·6	33·4
Mean of all the Highest Readings	49·4	46·9
Mean of all the Lowest	36·9	34·6
Mean Daily Range	12·5	12·3
Deduced Monthly Mean (from Mean of Max. and Min.)	42·2	39·8
Mean Temperature from dry bulb	43·1	40·0
Adopted Mean Temperature	42·7	39·9
Mean Temperature of Evaporation	41·0	38·0
Mean Temperature of Dew Point	39·0	35·6
Mean elastic force of Vapour	0·237in	0·210in
Mean weight of Vapour in a cubic foot of air	2·7gr	2·4gr
Mean additional weight required for saturation	0·4gr	0·5gr
Mean degree of Humidity, (saturation 1·00)	0·86	0·85
Mean weight of a cubic foot of air	547·6gr	546·3gr
Fall of Rain	6·457in	3·141in
Number of days on which Rain fell	26	18·3
Amount of Evaporation	1·422	1·710

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	0	3	1	1	3	11	9	3
Mean Velocity in miles per hour	0	6·9	6·3	11·4	7·8	16·5	15·6	9·9
Total No. of miles for each Direction	0	495	150	273	560	4349	3365	712

The total number of miles registered during the month was 9904.

The max. Velocity of the wind was 40 miles per hour; direction SW. on the 30th, at noon

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 7·1

In the month of March, the highest reading of the Barometer during 27 years, was on the 6th, in 1852. Also on the 6th in 1874, and was..... ..... 30·401

The lowest ,, ,, 31st, 1860 ..... 28·199

The highest Temperature ,, 25th, 1871 ..... 68·0

The lowest ,, ,, 4th, 1866 ..... 14·5

The highest adopted mean temperature of the month .... } 1871 ..... 44·0

The lowest ,, ,, 1855 ..... 35·6

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Snow fell on the 9th, 10th, 12th, and 26th.

There was slight fog on the 3rd, 4th, and 10th.

Hail storms occurred on the 8th, 19th, 29th, and 31st. Thunder and lightning on the 31st.

The Declination and HF magnets were considerably disturbed from 10 p.m. on the 7th, till midnight on the 8th, the VF remaining steady till the evening of the 8th. A great disturbance of the VF magnet took place about 10 p.m. and the magnet was thrown off its balance at about 2 a.m. on the 9th. When the VF indicated the greatest amount of disturbance, the other two forces were quite undisturbed.

Stonyhurst Observatory,

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

METEOROLOGICAL REPORT

For April, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·424	29·493
Highest ,, on the 28th	29·965	29·961
Lowest ,, on the 2nd	28·479	28·796
Range of Barometer Readings	1·486	1·165
Highest Reading of a Max. Therm. on the 21st	72 0	67·5
Lowest Reading of a Min. Therm. on the 12th	31·7	29·0
Range of Thermometer Readings	40·3	38·5
Mean of all the Highest Readings	57·8	54·1
Mean of all the Lowest	39·9	38·4
Mean Daily Range	17·9	15·7
Deduced Monthly Mean (from Mean of Max. and Min.)	47·4	44·8
Mean Temperature from dry bulb	47·7	44·8
Adopted Mean Temperature	47·6	44·8
Mean Temperature of Evaporation	44·9	42·0
Mean Temperature of Dew Point	42·0	38·9
Mean elastic force of Vapour	0·267in	0·238in
Mean weight of Vapour in a cubic foot of air	3·1gr	2·7gr
Mean additional weight required for saturation	0·7gr	0·7gr
Mean degree of Humidity, (saturation 1·00)	·82	0·80
Mean weight of a cubic foot of air	538·0gr	541·7gr
Fall of Rain	1·809in	2·413in
Number of days on which Rain fell	19	15·4
Amount of Evaporation	2·249	2·778

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	0	4	3	0	4	12	7	0
Mean Velocity in miles per hour	0	10·1	7·6	0	13·4	11·5	10·5	0
Total No. of miles for each Direction	0	971	550	0	1289	3311	1765	0

The total number of miles registered during the month was 7886.

The max. Velocity of the wind was 38 miles per hour; direction S. on the 2nd, at 8 p.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 5·8

In the month of April, the highest reading of the Barometer during 27 years, was on the 22nd, in 1855, and was .. .. 30·191

The lowest ,, ,, 20th, 1868 .. .. 28·358

The highest Temperature ,, 14th, 1852 ..... 74·1

The lowest ,, ,, 12th, 1862 .... 24·7

The highest adopted mean temperature of the month .... } 1865 .... 48·5

The lowest ,, ,, 1841 ..... 40·8

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Snow fell on the 4th and 13th. Hail on the 4th and 8th. Thunder was heard on the 9th, 10th and 11th. Lightning seen on the 4th and 9th.

The Cuckoo arrived on the 24th. Swallows were first seen on the 29th.

Stonyhurst Observatory.

Lat. 53.° 50' 40" N. Long. 9^{m} $52^{s}.68$. W. Height of the Barometer above the sea, 381 ft.

METEOROLOGICAL REPORT

For May, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·576	29·520
Highest ,, on the 16th	29·979	29·940
Lowest ,, on the 23rd	29·100	28·969
Range of Barometer Readings	0·879	0·971
Highest Reading of a Max. Therm. on the 18th	68·0	72·4
Lowest Reading of a Min. Therm. on the 8th	31·4	31·6
Range of Thermometer Readings	36·6	40·8
Mean of all the Highest Readings	58·2	59·7
Mean of all the Lowest	41·6	42·4
Mean Daily Range	16·6	17·3
Deduced Monthly Mean (from Mean of Max. and Min.)	48·2	49·4
Mean Temperature from dry bulb	48·0	49·7
Adopted Mean Temperature	48·1	49·6
Mean Temperature of Evaporation	45·8	46·3
Mean Temperature of Dew Point	43·3	42·9
Mean elastic force of Vapour	0·280in	0·278in
Mean weight of Vapour in a cubic foot of air	3·2gr	3·2gr
Mean additional weight required for saturation	0·6gr	0·9gr
Mean degree of Humidity, (saturation 1·00)	0·84	0·76
Mean weight of a cubic foot of air	539·5gr	536·7gr
Fall of Rain	1·838in	2·424in
Number of days on which Rain fell	18	15·2
Amount of Evaporation	2·337	3·754

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	1	13	4	3	3	1	1	5
Mean Velocity in miles per hour	5.3	5·6	8·8	10·0	14·0	16·8	8·3	7·1
Total No. of miles for each Direction	127	1744	840	721	1009	402	200	848

The total number of miles registered during the month was 5891.

The max. Velocity of the wind was 23 miles per hour; direction S. W. by W. on the 30th, at 11 a.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 8·1

In the month of May, the highest reading of the Barometer during 27 years, was on the 22nd, in 1855, and was ..... 30·124

The lowest ,, ,, 1st, 1858 ..... 28·564

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

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Hail fell on the 9th and 10th.

Stonyhurst Observatory.

Lat. 53.° 50' 40" N. Long. 9^m $52^s.68$. W. Height of the Barometer above the sea, 381 ft.

METEOROLOGICAL REPORT

For June, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·595	29·530
Highest ,, on the 15th	30·219	29·911
Lowest ,, on the 26th	29·225	29·180
Range of Barometer Readings	·994	0·731
Highest Reading of a Max. Therm. on the 28th	72·0	76·6
Lowest Reading of a Min. Therm. on the 11th	34·3	39·1
Range of Thermometer Readings	37·7	37·5
Mean of all the Highest Readings	66·1	65·1
Mean of all the Lowest	45·0	48·1
Mean Daily Range	21·1	17·0
Deduced Monthly Mean (from Mean of Max. and Min.)	53·8	54·8
Mean Temperature from dry bulb	54·5	54·7
Adopted Mean Temperature	54·2	54·8
Mean Temperature of Evaporation	51·2	52·2
Mean Temperature of Dew Point	48·3	49·1
Mean elastic force of Vapour	0·337in	0·360in
Mean weight of Vapour in a cubic foot of air	3·8gr	3·9gr
Mean additional weight required for saturation	0·9gr	0·9gr
Mean degree of Humidity, (saturation 1·00)	0·80	0·79
Mean weight of a cubic foot of air	532·8gr	531·1gr
Fall of Rain	2·049in	3·701in
Number of days on which Rain fell	11	17·4
Amount of Evaporation	4·444	3·767

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	4	12	8	3	2	0	0	1
Mean Velocity in miles per hour	3.3	6·5	8·4	12·8	12·0	0	0	15·0
Total No. of miles for each Direction	313	1864	1612	925	575	0	0	359

The total number of miles registered during the month was 5648.

The max. Velocity of the wind was 28 miles per hour; direction S. W. by W. on the 11th, at 1 p.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 6·6

In the month of June, the highest reading of the Barometer during 27 years, was on the 15th, in 1874, and was .. .. 30·219

The lowest ,, ,, 12th, 1862 ..... 28·632

The highest Temperature ,, 28th, 1857 ..... 84·6

The lowest ,, ,, 30th, 1856 .... 34·2

The highest adopted mean temperature of the month .... } 1858 ..... 59·0

The lowest ,, ,, 1856 & 1860 ..... 52·2

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There was a Thunder storm with Hail on the 24th.

Thunder was heard on the 26th. 28th. and 29th.

Stonyhurst Observatory,

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

METEOROLOGICAL REPORT

For July, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·531	29·510
Highest ,, on the 6th	29·878	29·874
Lowest ,, on the 28th	29·164	29·168
Range of Barometer Readings	0.714	0·706
Highest Reading of a Max. Therm. on the 19th	83·0	78·8
Lowest Reading of a Min. Therm. on the 6th	41·3	42·1
Range of Thermometer Readings	41·7	36·7
Mean of all the Highest Readings	71·3	68·1
Mean of all the Lowest	51·8	51·1
Mean Daily Range	19·5	17·0
Deduced Monthly Mean (from Mean of Max. and Min.)	59·7	57·7
Mean Temperature from dry bulb	60·3	58·1
Adopted Mean Temperature	60·0	57·9
Mean Temperature of Evaporation	57·2	55·2
Mean Temperature of Dew Point	54·8	52·6
Mean elastic force of Vapour	0·429in	0·397in
Mean weight of Vapour in a cubic foot of air	4·8gr	4·5gr
Mean additional weight required for saturation	1·0gr	1·0gr
Mean degree of Humidity, (saturation 1·00)	0·83	0·82
Mean weight of a cubic foot of air	525·1gr	527·0gr
Fall of Rain	3·046in	3·885in
Number of days on which Rain fell	16	17·1
Amount of Evaporation	4·566	4·087

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	4	8	7	3	1	1	0	7
Mean Velocity in miles per hour	3·7	4·9	6·4	10·1	7·9	13·3	0	14·3
Total No. of miles for each Direction	358	949	1071	727	189	319	0	2401

The total number of miles registered during the month was 6014.

The max. Velocity of the wind was 29 miles per hour; direction SW. by W. on the 4th, at 5 p.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 6·8

In the month of July, the highest reading of the Barometer during 27 years, was on the 24th, in 1868, and was .. .. 30·112

The lowest ,, ,, 14th, 1853 ..... 28·670

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 ,, ,, 1851 & 1853 ..... 55·5

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There was a thunder storm on the 22nd, and thunder was also heard on the 2nd, 20th, 21st, 24th and 28th. Hail fell on the 3rd.

The magnetical curves shew no remarkable disturbances : the daily range is shewn with unusual clearness.

Stonyhurst Observatory.

Lat. 53.° 50' 40" N. Long. 9^m $52^s.68$. w. Height of the Barometer above the sea, 381 ft.

METEOROLOGICAL REPORT

For August, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·444	29·496
Highest ,, on the 21st	30·114	29·895
Lowest ,, on the 13th	28·847	28·964
Range of Barometer Readings	1.267	0·931
Highest Reading of a Max. Therm. on the 20th	80·8	76·8
Lowest Reading of a Min. Therm. on the 4th	40·2	41·5
Range of Thermometer Readings	40·6	35·3
Mean of all the Highest Readings	65·8	67·1
Mean of all the Lowest	50·2	50.8
Mean Daily Range	15·6	16·3
Deduced Monthly Mean (from Mean of Max. and Min.)	56·3	57·3
Mean Temperature from dry bulb	56·4	57·4
Adopted Mean Temperature	56·4	57·4
Mean Temperature of Evaporation	54·1	54·6
Mean Temperature of Dew Point	51·9	52·1
Mean elastic force of Vapour	0·388in	0·391in
Mean weight of Vapour in a cubic foot of air	4·4gr	4·2gr
Mean additional weight required for saturation	0·7gr	0·9gr
Mean degree of Humidity, (saturation 1·00)	0·85	0·83
Mean weight of a cubic foot of air	527·4gr	527·5gr
Fall of Rain	7·212in	4·819in
Number of days on which Rain fell	22	19
Amount of Evaporation	2·564	3·460

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	5	4	2	5	4	3	1	7
Mean Velocity in miles per hour	4·1	6·0	7·6	10·1	12·4	14·5	16·5	17·1
Total No. of miles for each Direction	491	574	366	1213	1187	1042	396	2868

The total number of miles registered during the month was 8137.

The max. Velocity of the wind was 31 miles per hour; direction WSW. on the 2nd, at 1 p.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 7·2

In the month of July, the highest reading of the Barometer during 27 years, was on the 21st, in 1874, and was ..... 30·114

The lowest ,, ,, 26th, 1853 ..... 28·637

The highest Temperature ,, 2nd, 1868 ..... 88·0

The lowest ,, ,, 21st, 1864 & 1869..... 36·0

The highest adopted mean temperature of the month .... } 1857 .... 61·0

The lowest ,, ,, 1848 ..... 52·5

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Thunder storms occurred on the 13th. and 28th.

The Magnets were unusually quiet during the whole of the month.

Stonyhurst Observatory,

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

METEOROLOGICAL REPORT

For September, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·398	29·502
Highest ,, on the 13th	29·894	30·052
Lowest ,, on the 11th	28·882	28·839
Range of Barometer Readings	1·012	1·213
Highest Reading of a Max. Therm. on the 27th	73·0	72·2
Lowest Reading of a Min. Therm. on the 13th	38·2	36·6
Range of Thermometer Readings	34·8	35·6
Mean of all the Highest Readings	62·9	62·2
Mean of all the Lowest	47·9	47·0
Mean Daily Range	15·0	15·2
Deduced Monthly Mean (from Mean of Max. and Min.)	54·1	53·3
Mean Temperature from dry bulb	54·5	53·9
Adopted Mean Temperature	54·3	53·6
Mean Temperature of Evaporation	51·7	51·1
Mean Temperature of Dew Point	49·2	48·5
Mean elastic force of Vapour	0·349in	0·342in
Mean weight of Vapour in a cubic foot of air	4·0gr	3·9gr
Mean additional weight required for saturation	0·8gr	0·8gr
Mean degree of Humidity, (saturation 1·00)	0·82	0·83
Mean weight of a cubic foot of air	529·0gr	531·6gr
Fall of Rain	5·560in	4·538in
Number of days on which Rain fell	23	18·6
Amount of Evaporation	2·297	2·262

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	5	7	4	3	4	1	1	5
Mean Velocity in miles per hour	2·6	6·7	9·9	8·5	13·9	15·2	17·0	19·4
Total No. of miles for each Direction	316	1127	946	816	1330	365	407	2333

The total number of miles registered during the month was 7640.

The max. Velocity of the wind was 36 miles per hour; direction SSE. on the 22nd, at 11 a.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 7·3

In the month of September, the highest reading of the Barometer during 27 years, was on the 15th, in 1851, and was .. .. 30·274

The lowest ,, ,, 22nd, 1863 ..... 28·371

The highest Temperature ,, 6th, 1868 ..... 85·0

The lowest ,, ,, 6th, 1855 ..... 30·7

The highest adopted mean temperature of the month .... 1865 .... 59·1

The lowest ,, ,, 1863 ..... 50·9

There were thunder storms on the 2nd, 9th, and 10th. Thunder heard on the 23rd.

Hail fell on the 10th.

Stonyhurst Observatory.

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

METEOROLOGICAL REPORT

For October, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·353	29·401
Highest ,, on the 30th	30·008	29·981
Lowest ,, on the 2nd	28·625	28·647
Range of Barometer Readings	1·383	1·334
Highest Reading of a Max. Therm. on the 13th	63·0	64·5
Lowest Reading of a Min. Therm. on the 22nd	31·8	30·0
Range of Thermometer Readings	31·2	34·5
Mean of all the Highest Readings	56·2	54·7
Mean of all the Lowest	43·5	42·2
Mean Daily Range	12·7	12·5
Deduced Monthly Mean (from Mean of Max. and Min.)	48·9	47·5
Mean Temperature from dry bulb	49·5	48·0
Adopted Mean Temperature	49·2	47·8
Mean Temperature of Evaporation	46·8	45·7
Mean Temperature of Dew Point	44·2	43·3
Mean elastic force of Vapour	0·291in	0·282in
Mean weight of Vapour in a cubic foot of air	3·3gr	3·2gr
Mean additional weight required for saturation	0·7gr	0·6gr
Mean degree of Humidity, (saturation 1·00)	0·83	0·85
Mean weight of a cubic foot of air	534·0gr	536·1gr
Fall of Rain	6·897in	5·512in
Number of days on which Rain fell	25	21·9
Amount of Evaporation	3·742	1·580

No. of days in the month on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	0	4	1	0	6	9	11	0
Mean Velocity in miles per hour	0	10·0	6·2	0	16·0	12·6	14·0	0
Total No. of miles for each Direction	0	957	149	0	2303	2726	3683	0

The total number of miles registered during the month was 9818.

The max. Velocity of the wind was 42 miles per hour; direction WSW. on the 21st, at 8 a.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 7·8

In the month of October, the highest reading of the Barometer during 27 years, was on the 29th, in 1849, and was .. .. 30·238

The lowest ,, ,, 19th, 1862 ..... 28·139

The highest Temperature ,, 9th, 1869 ..... 72·8

The lowest ,, ,, 21st, 1859 .... 25·2

The highest adopted mean temperature of the month .... } 1861 .... 51·6

The lowest ,, ,, 1850 ..... 44·8

—o—

There was a thunder storm accompanied with hail on the 2nd. Hail also fell on the 3rd and 4th. A Lunar Halo was seen on the 25th.

The D and VF magnets were disturbed from midnight on the 3rd until 2 a.m. on the 5th.

Stonyhurst Observatory,

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

METEOROLOGICAL REPORT

For November, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·473	29·465
Highest ,, on the 7th	30·034	30·069
Lowest ,, on the 28th	28·175	28·596
Range of Barometer Readings	1·859	1·473
Highest Reading of a Max. Therm. on the 5th	60·0	55·3
Lowest Reading of a Min. Therm. on the 11th	27·9	25·4
Range of Thermometer Readings	32·1	29·9
Mean of all the Highest Readings	47·4	46·7
Mean of all the Lowest	36·9	36·2
Mean Daily Range	10·5	10·5
Deduced Monthly Mean (from Mean of Max. and Min.)	41·8	41·1
Mean Temperature from dry bulb	41·9	41·2
Adopted Mean Temperature	41·9	41·2
Mean Temperature of Evaporation	40·2	38·6
Mean Temperature of Dew Point	38·1	37·5
Mean elastic force of Vapour	0·230in	0·224in
Mean weight of Vapour in a cubic foot of air	2·7gr	2·6gr
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	544·3gr	544·8gr
Fall of Rain	5·348in	3·997in
Number of days on which Rain fell	24	18·9
Amount of Evaporation	3·528	1·237

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	1	3	4	1	1	5	14	1
Mean Velocity in miles per hour	4·5	4·3	8·9	9·5	7·5	7·4	13·3	13·0
Total No. of miles for each Direction	108	308	858	228	179	886	4471	313

The total number of miles registered during the month was 7351.

The max. Velocity of the wind was 35 miles per hour; direction W b N. on the 16th, at 7 p.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 7·5

In the month of November, the highest reading of the Barometer during 27 years, was on the 12th, in 1857, and was ..... 30·350

The lowest ,, ,, 1st, 1859 ..... 28·007

The highest Temperature ,, 6th, 1872 ..... 61·9

The lowest ,, ,, 17th, 1861 ..... 19·1

The highest adopted mean temperature of the month ..... 1857 & 1863 ..... 43·8

The lowest ,, ,, 1851 ..... 36·7

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Thunder was heard on the 19th. Snow fell on the 12th, 26th, 27th and 28th. Hail on the 19th.

No remarkable magnetic disturbance took place during this month.

Stonyhurst Observatory,

Lat. 53.° 50' 40" N. Long. 9^{m} $52^{s}.68$. W. Height of the Barometer above the sea, 381 ft.

METEOROLOGICAL REPORT

For December, 1874.

Results of Observations taken during the month.		Mean for the last 27 Years.
Mean Reading of the Barometer	29·354	29·449
Highest ,, on the 17th	29·906	30·055
Lowest ,, on the 8th	28·267	28·606
Range of Barometer Readings	1·639	1·449
Highest Reading of a Max. Therm. on the 8th	49·0	52·8
Lowest Reading of a Min. Therm. on the 30th	9·3	20·2
Range of Thermometer Readings	39·7	32·6
Mean of all the Highest Readings	36·6	43·2
Mean of all the Lowest	24·9	33·6
Mean Daily Range	11·7	9·6
Deduced Monthly Mean (from Mean of Max. and Min.)	30·8	38·4
Mean Temperature from dry bulb	31·1	39·1
Adopted Mean Temperature	31·0	38·8
Mean Temperature of Evaporation	29·7	37·7
Mean Temperature of Dew Point	26·2	35·8
Mean elastic force of Vapour	0·141in	0·212in
Mean weight of Vapour in a cubic foot of air	1·7gr	2·4gr
Mean additional weight required for saturation	0·5gr	0·4gr
Mean degree of Humidity, (saturation 1·00)	0·81	0·88
Mean weight of a cubic foot of air	554·9gr	547·1gr
Fall of Rain	3·948in	4·454in
Number of days on which Rain fell	19	20·2
Amount of Evaporation	1·492	0·907

	N	NE	E	SE	S	SW	W	NW
No. of days in the month on which the prevailing wind was	2	14	2	1	0	3	5	4
Mean Velocity in miles per hour	5·5	6·7	8·3	2·2	0	15·3	10·8	10·8
Total No. of miles for each Direction	264	2241	397	53	0	1099	1296	1038

The total number of miles registered during the month was 6388.

The max. Velocity of the wind was 39 miles per hour; direction W. on the 7th, at 11 a.m.

Mean amount of Cloud, (an overcast sky being indicated by 10·0) 5·9

In the month of December, the highest reading of the Barometer during 27 years, was on the 22nd, in 1849, and was.. ..... 30·376

The lowest ,, ,, 8th, 1872 ..... 28·143

The highest Temperature ,, 6th, 1856 ..... 58·0

The lowest ,, ,, 24th, 1860 ..... 6·7

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

The lowest ,, ,, 1874 ..... 31·0

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Snow fell on the 2nd, 3rd, 7th, 10th, 11th, 13th, 15th, 16th, 17th, 18th, 19th 20th, 21st, 23rd, 24th, 25th, 26th, 27th and 29th. Hail on the 6th and 7th.

There was fog on the 3rd and 23rd.

Lunar Halos were seen on the 20th and 25th.

The magnets were unusually calm during the month.

Summary of the Observations

FOR 1874.

		Mean for the last 27 Years.
Mean Reading of the Barometer	29·493	29·480
Highest ,, on March 6th.	30·401	30·272in
Lowest ,, on Nov. 29th.	28·175	28·275in
Range of Barometer Readings	2·226	1·997in
Highest Reading of a Max. Therm. on July 19th	83·0	81·7
Lowest Reading of a Min. Therm. on Dec. 30th	9·3	15·7
Range of Thermometer Readings	73.7	66·0
Mean of all the Highest Readings	55·2	54·7
Mean of all the Lowest	40·7	41·0
Mean Daily Range	14·5	13·7
Deduced Yearly Mean (from Mean of Max. and Min.)	46·9	46·8
Mean Temperature of dry bulb	47·2	46·9
Adopted Mean Temperature	47·1	46·9
Mean Temperature of Evaporation	44·9	44·6
Mean Temperature of Dew Point	42·5	42·2
Mean elastic force of Vapour	0·282in	0·277in
Mean weight of Vapour in a cubic foot of air	3·2gr	3·2gr
Mean additional weight required for saturation	0·6gr	0·6gr
Mean degree of Humidity, (saturation 1·00)	0·84	0·84
Mean weight of a cubic foot of air	539·0gr	538·7gr
Total Fall of Rain in the Year	51·203in	46·987in
Number of days per Month on which Rain fell	21	18·4
Amount of Evaporation	30·804in	27·320in

The Maximum monthly mean height of the Barometer was in March, 1854, and was ... 29·861

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

The Maximum yearly mean height of the Barometer was in 1858, and was ... 29·544

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

The greatest monthly range of the Barometer was in November, 1859, and was		2·290
The least ,, ,,	in July, 1852, and was	0·505
In 1859, on Nov. 1st, at 1 p.m., the Barometer stood at 28·035, and on Nov. 2nd, at 1 p.m., it stood at 29.263, this was the greatest range of the Barometer, in 24 hours and was		1·228
The highest reading of the Barometer, during 27 years, was on February 11th, 1849, and on March 4th, 1854, and was		30·452
The lowest ,, ,,	on July 22nd, 1873, and was	27·939
Extreme range		2·513
The highest temperature was on July 15th, 1868, and was		88·2
The lowest ,, ,,	Dec. 24th, 1860,	6·7
The highest adopted mean temperature of a month	July, 1868,	62·4
The lowest ,, ,,	Feb., 1855,	28.6
The highest adopted mean temperature of a year	1868,	49·1
The lowest ,, ,,	1855,	44·6
The greatest monthly mean weight of vapour, in a cubic foot of air	July, 1852,	5·1
The least ,, ,,	Feb., 1855,	1·4
The greatest fall of rain in a month, was in Oct., 1870, and was		13·357
The least ,, ,,	May, 1853, and May, 1859,	0·3
The greatest number of days on which rain fell in one Month	July, 1861, Dec. 1868	31.
The least ,, ,,	March, 1852,	3.

Monthly Magnetical Observations taken at the College Observatory, Stonyhurst, 1874.

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-efficients q and q' are respectively ·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 100 or of 200 vibrations.

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

In deducing from these observations the ratio and product of the magnetic moment m of the magnet, and the earth's horizontal magnetic intensity X, the induction and temperature corrections have always been applied, and the observed time of vibration has been corrected for the effect of torsion of the suspending thread; but no correction has been required for the rate of the chronometer, or for the arc of vibration, the former having been always under 2ˢ, and the latter always under 68′.

The average deflection of the magnet caused by a twist of the torsion circle through 90°, has been about 5′6 of arc.

In the calculations of the ratio $\frac{m}{X}$, the third and subsequent terms of the series $1 + \frac{P}{r^2} + \frac{Q}{r^4}$ + &c., have always been omitted.

The value of the constant P was found to be—0·0030382.

The Declination observations have been taken once a week. Each reading has been corrected by the photographic curves for all irregular disturbances, as well as for daily and monthly range.

Observations of Deflection for Absolute measure of Horizontal Force.

Month.	G. M. T.	Distances of centres of Magnets.	Temperature.	Observed Deflection.	$\text{Log}\frac{m}{X}$
	D H M	FOOT.	°	° ′ ″	
January ...	27th...11 8 a.m.	1·0	49·7	14 17 52	9·09378
	,, ...11 36 a.m.	1·3	50·4	6 26 31	.....
February..	18th. .11 32 a.m.	1·0	51·4	14 17 40	9·09380
	,, ...12 7 p.m.	1·3	51·6	6 28 31	.....
March.....	25th...11 38 a.m.	1·0	54·8	14 17 21	9·09387
	,, ...12 10 p.m.	1·3	55·4	6 25 35	.....
April	18th...11 30 a.m.	1·0	60·3	14 17 26	9·09430
	,, ...12 4 p.m.	1·3	60·5	6 26 27	.....
May.....	16th...10 58 a.m	1·0	62·0	14 16 23	9·09391
	,, ...11 25 a.m.	1·3	63·8	6 27 13	.....
June.....	18th...10 58 a.m.	1·0	61·0	14 17 24	9·09434
	,, ...11 27 a.m.	1·3	61·3	6 27 28	.....
July.....	25th...11 22 a.m.	1·0	64·8	14 17 18	9·09456
	,, ...11 49 a.m.	1·3	66·0	6 26 59	.....
August ...	27th... 9 52 a.m.	1·0	60·5	14 15 3	9·09314
	,, ...10 33 a.m.	1·3	63·9	6 26 16	.....
September.					
October ...	22nd... 9 33 a.m.	1·0	59·2	14 14 29	9·09276
	,, ...10 5 a.m.	1·3	62·7	6 25 40	.....
November.	27th...11 54 a.m.	1·0	52·2	14 13 58	9·09202
	" ...12 16 p.m.	1·3	52·1	6 25 50	.....
December.					

m represents the Magnetic moment of the Deflecting Magnet.
X represents the Earth's Horizontal Magnetic Intensity.

Vibration Observations for Absolute measure of Horizontal Force.

Month.	G. M. T.	Temperature.	Time of one vibration.	Log m X	Value of m.
	D H M	°			
January ...	27th... 9 37 a.m.	44·2	5·61047	0·21756	0·45255
February ..	18th... 9 9 a.m.	52·2	5·61908	0·21625	0·45188
March.....	25th...10 2 a.m.	52·5	5·62054	0·21636	0·45198
April	18th...10 17 a.m.	61·4	5·62475	0·21622	0·45213
May..	16th... 9 54 a.m.	57·3	5·62488	0·21611	0·45187
June	18th... 9 24 a.m.	53·4	5·62050	0·21631	0·45219
July.....	25th... 9 36 a.m.	60·2	5·62404	0·21622	0·45226
August ...	27th...12 23 p.m.	68·3	5·63008	0·21594	0·45138
September.					
October ...	22nd...11 37 a.m.	60·1	5·62269	0·21654	0·45149
November.	27th ... 9 36 a.m.	40·6	5·61975	0·21584	0·45074
December..					

Dip Observations.			Magnetic Intensity.		
Months.	G. M. T.	Needle.	Dip.	X, or Horizontal Force.	Y, or Vertical Force.	Total Force.
	D H M		° ′ ″			
January ...	28th...10 25 a.m.	1	69 29 47	3·6466	9·7463	10·4061
	,, ...11 45 a.m.	3	69 28 35	.....	.....	.....
February ..	19th...10 55 a.m.	1	69 27 24	3·6410	9·7005	10·3615
	,, ...11 43 a.m.	3	69 23 47	.....	.....	.....
March	24th...10 37 a.m.	1	69 30 40	3·6412	9·7329	10·3870
	,, ...12 5 p.m.	3	69 27 58	.....	.....	.....
April	21st...11 5 a.m.	1	69 26 59	3·6388	9·7145	10·3736
	,, ...11 58 a.m.	3	69 28 50	.....	.....	.....
May.....	18th...10 59 a.m.	1	69 24 34	3·6400	9·6761	10·3381
	,, ...11 55 a.m.	3	69 21 34	.....	.....	.....
June	20th...10 20 a.m.	1	69 29 19	3·6390	9·7230	10·3816
	,, ...11 45 a.m.	3	69 28 21	.....	.....	.....
July.....	27th...11 10 a.m.	1	69 26 10	3·6377	9·7115	10·3704
	,, ...12 5 a.m.	3	69 29 38	.....	.....	.....
August ...	28th...11 25 a.m.	1	69 25 12	3·6425	9·7066	10·3675
	,, ...12 15 a.m.	3	69 26 29	.....	.....	.....
September.						
October ...	23rd... 9 32 a.m.	1	69 27 30	3·6466	9·7240	10·3853
	,, ...11 24 a.m.	3	69 25 42	.....	.....	.....
November.	28th...10 50 a.m.	1	69 26 34	3·6468	9·7303	10·3913
	,, ...11 42 a.m.	3	69 28 0	.....	.....	.....
December..						
	Means.....		69 27 9	3·6420	9·7166	10·3762

Declination Observations.

		Uncorrected.		Corrected.	
Month.	G. M. T.	Observation	Monthly Mean.	Observation	Monthly Mean.
	D. H. M.	° ′ ″	° ′ ″	° ′ ″	° ′ ″
January ..	6th... 9 Ja.m.	21 19 34 w.		21 15 28	
	12th... 9 5	21 20 54		21 17 33	
	19th... 9 1	21 19 51		21 17 22	
	26th... 9 3	21 19 13	21 19 53	21 14 43	21 16 17
February ..	3rd... 9 5	21 14 9		21 8 13	
	9th... 9 0	21 12 52		21 8 22	
	16th... 9 3	21 11 23		21 6 53	
	23rd... 9 6	21 11 39	21 12 31	21 8 52	21 8 5
March.	2nd... 8 59	21 16 58		21 15 37	
	9th... 9 1	21 3 51		(21 3 51)	
	16th... 9 8	21 6 43		21 5 5	
	23rd... 8 59	21 8 45		21 7 41	
	30th.. 9 4	21 8 54	21 9 2	21 8 8	21 8 4
April	6th... 9 1	21 6 27		21 8 50	
	13th... 9 4	21 6 59		21 10 13	
	20th... 8 51	21 0 22		21 2 10	
	27th .. 9 8	21 58 58	21 3 12	21 1 3	21 5 34
May	4th... 8 58	21 8 35		21 9 49	
	11th... 9 3	21 10 35		(21 10 35)	
	19th... 9 4	21 6 0		21 9 14	
	25th... 9 4	21 6 52	21 8 1	21 8 6	21 9 26
June	1st... 9 1	21 7 32		21 10 12	
	8th... 9 6	21 7 57		21 11 11	
	15th .. 9 4	21 7 38		21 10 1	
	22nd.. 9 8	21 13 22		21 14 36	
	29th... 9 1	21 10 41	21 9 26	21 11 55	21 11 35

Declination Observations.—continued.

Month.	G. M. T. D. H. M.	Uncorrected. Observation	Uncorrected. Monthly Mean.	Corrected. Observation.	Corrected. Monthly Mean.
		° ′ ″	° ′ ″	° ′ ″	° ′ ″
July	6th... 9 1a.m.	21 12 57 w.		21 17 54	
	13th... 8 59	21 13 8		(21 13 8)	
	20th... 9 4	21 13 53		21 19 8	
	27th... 9 3	21 11 25	21 12 51	21 14 39	21 16 12
August ...	3rd.. 9 6	21 9 39		21 13 10	
	10th... 9 10	21 9 23		21 12 37	
	17th... 9 4	21 6 43		21 11 58	
	24th... 9 11	21 5 57		21 13 12	
	31st... 9 5	21 8 55	21 8 7	21 15 53	21 13 22
September.	7th . 9 1	21 11 56		21 19 11	
	14th... 9 9	21 9 35	21 10 46	21 14 15	21 16 43
October ...	5th... 8 57	21 11 18		(21 11 18)	
	13th... 9 4	21 12 41		(21 12 41)	
	19th... 9 1	21 12 52		21 20 24	
	26th... 9 4	21 15 24	21 13 4	21 20 56	21 16 20
November.	3rd... 9 5	21 11 20		21 19 44	
	9th... 9 4	21 14 5		21 21 20	
	16th... 9 1	21 16 52		21 24 7	
	24th... 9 4	21 10 14		21 19 29	
	30th .. 9 1	21 9 27	21 12 24	21 16 8	21 20 10
December.	7th .. 9 6	21 13 22		21 20 52	
	15th... 9 9	21 10 57		21 17 38	
	21st ... 9 5	21 7 45	21 10 41	(21 7 45)	21 15 25
Yearly mean			21 10 50		21 13 6