

Received at the R.O.S. Edinburgh  
on Tuesday 7th Feb, too late for  
insertion in Town's monthly return  
77.

# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Dunard Road, Edinburgh County of Midlothian, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.  
Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet.  
During the MONTH of January 1888.  
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. —	9 A.M.		P.M.		SUNSHINE.  Hours.	9 h. A.M.						
		Barometer. * No.	Attach- ed Ther- mometer	Barometer. No.	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force.	Direction.	Force.		Velocity (0—5) and Direction.	Amount (0—10), and Species.	Velocity (0—5) and Direction.	Amount (0—10), and Species.		No. 3 inches.					No. 12 inches.	No. 22 inches.
		No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					25	26
1	29.500	44	29.237	48	36.6	30			34.2	38.3	30.4	39.5	01	8	0.5	0	0		8	cut.	0	0			33	35	34.8			1		
2	28.956	44	28.227	48	36.1	28.5			39.8	29	37.5	38	6	0	0	SW	8		0	0	0	0			33.2	35	38			2		
3	29.538	45	28.4	49	39.2	29			38.5	36.7	42	39.8	24	SW	6	SW	10		SW	cut.	0	8			33.4	35.4	34.4			3		
4	35.6	47	38.6	51	31.8	34			50	47	49.3	47.8	0	SW	3.5	0	0		SW	cut.	0	8			36.5	35.3	34.6			4		
5	30.8	51	60.6	51	32.3	42			45	43.8	46.3	46	0	SW	1.5	0	0		SW	cut.	0	8			38.5	34.8	38.2			5		
6	77.0	50	76.6	51	47.5	37.5			42.5	40.5	40.8	39.7	21	SW	1.5	W	0.5		SW	cut.	SW	4			36.5	38.5	39			6		
7	92.5	51	30.000	59	48.9	41			45.2	44	50	49.3	01	SW	1.5	SW	0.5		SW	cut.	0	0			39.5	38.9	39.2			7		
8	30.095	54	28.280	54	33	46			37.8	37.2	37.5	39.5	0	SW	1.5	SW	1.5		SW	cut.	0	0			44	41	48			8		
9	41.6	55	47.4	57	33.3	48			39.5	40.7	43.2	42.5	0	SW	0.5	W	0.5		SW	cut.	0	0			46	43.5	41.5			9		
10	48.0	56	48.0	56	34	39			47.5	47.4	36.5	36.5	0	W	0	W	0		W	cut.	0	0			41.8	43	42			10		
11	51.2	55	48.2	54	32.7	36.5			42.5	41.8	36.8	36.5	0	W	0	W	0.5		W	cut.	0	0			42.5	42.4	42			11		
12	46.2	52	48.2	51	47.2	38.5			39.5	39	39.5	34	0	W	0	W	0		Overcast	0	0				38.5	41	42			12		
13	57.0	51	60.4	53	40	38.8			39.5	36.5	39.8	39.8	0	W	0	W	0		W	cut.	W	4			39.3	40	41			13		
14	57.8	51	60.0	52	40.4	38.5			40.5	40.5	38	39.5	0.02	SW	0	W	0.5		Overcast	W	4				39.9	40	41			14		
15	59.6	52	66.8	51	40.5	38.5			36.3	36.1	37.3	37.3	0	SW	0	W	0		SW	cut.	0	0			39	40.5	41			15		
16	53.2	50	52.0	49	39	34			38.4	38.1	35	33	0	SW	0	W	0.5		SW	cut.	W	4			38	40	41			16		
17	53.8	50	55.4	49	39.7	33			34.5	34.5	33.8	31.5	0	SW	0	W	0		SW	cut.	0	0			36.5	39	40.4			17		
18	56.0	50	56.4	49	39.7	33			35	33	36	34.3	0	SW	1.0	W	0.5		SW	cut.	0	0			36.5	38.5	40			18		
19	47.6	47	36.4	47	37.7	33			37.4	37.4	23	23	0	SW	0	W	0.5		0	0	0	0			33.5	34	40			19		
20	26.8	46	12.2	51	36	33.2			35.5	33.8	37.2	34	0	SW	0	W	0		Overcast	0	0				33	36.3	39			20		
21	29.668	48	29.572	51	48.9	38.5			48.5	42.5	46.5	48.5	0.6	W	1.0	W	0.5		W	cut.	0	0			36	36.2	38.6			21		
22	71.2	50	83.8	53	49.2	42.5			44.5	38.4	35.4	33.8	01	W	0	W	0.5		0	0	W	4			38.7	38.8	39			22		
23	30.040	50	30.006	52	49	42.4			46	44	43.9	41.9	0	SW	0.5	0	0		SW	cut.	0	0			40	40	40			23		
24	29.980	52	29.962	53	49	43.0			48.5	47.6	47.2	42.5	0	W	2.5	W	1.5		W	cut.	W	4			43.7	41	40.5			24		
25	83.4	53	51.6	53	51.8	42.3			48.5	48	41.3	38.5	20	SW	0.5	W	1.5		SW	cut.	0	0			44.8	43	41.5			25		
26	32.736	51	30.126	50	30.2	37.1			40.5	37.5	33.8	33.2	34	SW	0	W	0		SW	cut.	0	0			44.5	42.5	42			26		
27	29.964	49	29.970	47	43.8	32.2			38.6	38.5	35.3	35.5	0	SW	0	W	0.5		0	0	0	0			33.5	40	41.5			27		
28	30.002	46	38.4	47	43.4	24.5			38.8	38.2	37.8	37.5	0	SW	0	W	0		SW	cut.	0	0			34	38	40.5			28		
29	01.6	46	30.012	48	37.1	28.5			29.8	29.5	27.5	27.5	0	SW	0	W	0.5		0	0	0	0			33	34	39.5			29		
30	29.828	44	29.456	47	39.2	29			33.8	33.5	38.7	37.2	0	W	0.5	SW	1.5		W	cut.	SW	4			33.2	36	39			30		
31	11.6	44	62.8	47	40	32.5			32.5	31.5	35.5	35.5	0	SW	0	W	0.5		0	0	0	0			33	36	38.6			31		
Sums.	161413	10	151412	15	1610	168			1514	1414	1613	1612	2	5	8											1510	136	137				
Means.	0.335	29.4	1.076	30	9.6	1.5			2.7	2.4	9.1	4.6	1.3	15.5	14.5											8.5	6.8	2.4				
† Total Corrections for Instrumental Errors.	-0.32		-0.32																													
‡ Corrections for Diurnal Range.																																
“Corrected Means.”	29.979		30.003																													
No. of Column.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† = 29.923  
for Temp. (Col. 2), = 29.979... - 0.056.  
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† = 29.943  
for Temp. (Col. 4), = 30.003... - 0.060.  
Mean at Station, corrected, and at 32°, = 29.933  
Correction for height, 162 feet above Mean Sea-level, = 1.78  
Mean, reduced to 32°, and Sea-level, = 30.111  
Highest Reading, corrected for Index error, on the 15th, = 30.668  
Lowest Do. Do. on the 2nd = 28.956  
Difference, or Monthly Range, = 1.712

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 10th, = 57.0  
Lowest in Month, corrected for Index errors, on the 19th, = 23.0  
Difference, or Monthly Range, = 34.0  
“Corrected Mean” of all the Highest, (Col. 5), = 44.8  
“Corrected Mean” of all the Lowest, (Col. 6), = 34.6  
Difference, or Mean Daily Range, = 10.2  
\*\* Calculated Mean Temperature of Month, = 39.7  
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, =  
“Corrected Mean,” (Col. 7), of Black Bulb, Max. in Sun, =  
Lowest at Night, Black Bulb, (corrected for Index errors), on the th, =  
“Corrected Mean,” (Col. 8), of Black Bulb, Min. on grass, =  
Difference of above Means or Range (“exposed”), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 38.9  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 37.5  
† Computed Temperature of Dew-Point, = 35.6  
† Do. Elastic Force of Vapour, = 2.10  
† Do. Weight of Vapour in a Cubic Foot of Air, =  
† Relative Humidity, (Saturation = 100), = 89  
RAIN fell on 9 Days; Amount in Inches, = 1.13

WIND.		SUMMARY.					
Direction.	N	NE	E	SE	S	SW	W
A.M.	2	0	3	1	4	5	10
P.M.	0	0	2	0	0	5	14
Mean.	1	0	3	0	2	5	12
Calm or Variable.							
Mean Force.							
Mean Velocity in miles per day.							

\* Each instrument tested at the Office in Edinburgh bears the stamp “S.M.S.” and a number to be entered in the Heading; or the Number and Initials of the Maker may be here given.  
† Embracing corrections for both capillarity and Index Errors.  
‡ The Diurnal Range for Scotland is as yet unknown.  
§ Practically, though not absolutely a minus correction.  
|| These “Hygrometrical Deductions” are calculated from Glaisher’s Hygrometrical Tables, Second Edition only.  
¶ While the Diurnal Range is unknown, the Arithmetical Mean of Cols. 5 and 6 will be entered as the “Calculated Mean Temperature.”  
‡ Observations not taken under the conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and  
Return verified by

(Signed)

Robert Grosvenor

J.F.

W.A.







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Osward Road, Edinburgh, County of Midlothian, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.  
 Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet. During the MONTH of February, 1888.  
 The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. —	9 A.M.		P.M.		No. 3 inches.	No. 12 inches.					No. 22 inches.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Sun-ray No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force	Direction.	Force		Velocity (0—6), and Direction.	Amount, (0—10), and Species.	Velocity (0—6), and Direction.	Amount, (0—10), and Species.								SUNSHINE.  Hours.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction<sup>††</sup> for Temp. (Col. 2), = 29.867  
 Corrected Mean" of Barometer at 9 P.M., minus the Correction<sup>††</sup> for Temp. (Col. 4), = 29.863  
 Mean at Station, corrected, and at 32°, = 29.865  
 Correction for height, 162 feet above Mean Sea-level, = .178  
 Mean, reduced to 32° and Sea-level, = 30.043  
 Highest Reading, corrected for Index error, on the 28th, = 30.466  
 Lowest Do. Do., on the 11th, = 29.235  
 Difference, or Monthly Range, = 1.231

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 8th, = 50.5  
 Lowest in Month, corrected for Index errors, on the 16th, = 14.5  
 Difference, or Monthly Range, = 36.0  
 "Corrected Mean" of all the Highest, (Col. 5), = 40.5  
 "Corrected Mean" of all the Lowest, (Col. 6), = 31.3  
 Difference, or Mean Daily Range, = 9.2  
 \*\* Calculated Mean Temperature of Month, = 35.9  
 S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the \_\_\_\_\_th, = \_\_\_\_\_  
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = \_\_\_\_\_  
 Lowest at Night, Black Bulb, (corrected for Index errors), on the \_\_\_\_\_th, = \_\_\_\_\_  
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = \_\_\_\_\_  
 Difference of above Means or Range ("exposed"), = \_\_\_\_\_

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 35.0  
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 34.0  
 †† Computed Temperature of Dew-Point, = 32.4  
 †† Do. Elastic Force of Vapour, = .184  
 †† Do. Weight of Vapour in a Cubic Foot of Air, = 2.10  
 †† Relative Humidity, (Saturation = 100), = 90  
 RAIN fell on 8 Days; Amount in Inches, = 1.76

WIND.												SUMMARY.	
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.		
A.M.	0	4	7	0	0	0	16	2	0	0.40			
P.M.	2	3	8	0	0	0	4	2	0	0.36			
Mean.	1	4	7	0	0	0	15	2	0	0.38	0.14		

\* Each instrument tested at the Office in Edinburgh bears the stamp "S.M.S.," and a number to be entered in the Heading; or the Number and Initials of the Maker may be given.  
 † Embracing corrections for both capillarity and Index Errors.  
 †† The Diurnal Range for Scotland is as yet unknown.  
 ††† These "Hygrometric Deductions" are calculated from Glashow's Hygrometric Tables, Second Edition only.  
 †††† While the Diurnal Range is unknown, the Arithmetic Mean of Cols. 5 and 6 will be entered as the "Calculated Mean Temperature."  
 Any Observations not taken under the conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and Return verified by \_\_\_\_\_

(Signed) Robert Grossart

Greatest Daily Range = 22.4 on the 16th

11  
J.F.







10th March. Received too late for insertion  
in Towns' Schedule J. G.

# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Canal Road Edinburgh, County of Midlothian, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.  
Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet. During the MONTH of March 1888.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.				
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.			9 h. A.M.										
		Barometer. * No.	Atmospheric Thermometer	Barometer. No.	Atmospheric Thermometer	Max. No.	Min. No.	Max. in Sun-rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	No.	Direction.	Force	Direction.	Force	Readings of the H. Cup Anemometer. No.	9 h. A.M.		Velocity (0-6), and Direction.	Amount, (0-10), and Species.	Velocity (0-6), and Direction.					Amount, (0-10), and Species.	No. 3 inches.	No. 12 inches.	No. 22 inches.
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°		°	°	°					°	°	°	°
	1	30.496	45	30.260	45	35.2	32			34.6	32	32.8	32.3	0.6	E	0	E	0	E	0	0	0	34.7	36.2	34.4					1				
	2	30.440	45	29.890	48	40.5	30			33.4	31.8	31.5	31.5	0	N.W.	5	E	0	0	0	0	0	34	36.4	32.3					2				
	3	29.988	45	29.958	45	45.4	30.5			31.6	29.2	33.5	33.1	0	N	5	N.E.	5	N	0	0	0	34.5	36.5	32.5					3				
	4	29.784	44	29.856	44	36.9	30			34.5	32.5	33.2	33	0	N	5	N.E.	5	N	0	0	0	33.8	36	32.5					4				
	5	29.840	45	29.680	45	41.6	26			33	31.2	32.2	32.3	0	N	5	N.W.	0	0	0	0	0	33.5	36	32.5					5				
	6	29.728	45	29.730	47	42.5	32.2			41.4	34.5	35.5	3.7	0	N.W.	0	N.W.	1-0	N	0	0	0	34.5	36	32.4					6				
	7	29.516	47	29.488	50	48	35.5			44	42.8	3.7	36.4	0.6	N.W.	5	N.W.	0	0	0	0	0	39	34.5	38					7				
	8	29.322	50	29.072	53	48.3	43.5			44.2	46.1	38	37.2	0.6	N.W.	5	N.W.	1-0	N	0	0	0	42.5	40	39					8				
	9	28.922	53	28.782	57	46.5	40.5			36.7	48.1	41	40	0.6	N.W.	1-5	N.W.	5	N	0	0	0	44.5	42.5	40.2					9				
	10	29.052	53	29.264	56	52.7	42.5			45	44	41.5	41.5	0.6	N	5	N	5	N	0	0	0	44.4	44.5	41.5					10				
	11	29.082	54	29.168	53	52.5	37.9			38.1	38	32	32	0	E	1-0	0	0	E	0	0	0	42	42.5	41.7					11				
	12	29.260	49	29.532	48	41.2	28.5			30	30	30	30	0.6	N.E.	1-5	N.W.	1-0	N	0	0	0	37.8	41.4	41.4					12				
	13	29.584	48	29.426	47	32.8	28.5			30.5	30.5	30	30	0.6	E	5	N	0	E	0	0	0	36	39	40.5					13				
	14	29.228	46	29.182	47	35.5	28			31.5	31.5	30	30	0	E	5	N	5	N	0	0	0	34.5	38	38.4					14				
	15	29.252	45	29.416	44	33	30			31.5	31.5	31	31	0.1	E	2	N	0	0	0	0	0	35	34.5	39					15				
	16	29.627	44	29.776	44	32	24.1			28.5	28.5	24	24	0.6	N.E.	5	N.W.	5	N	0	0	0	35	34	39					16				
	17	29.900	43	30.120	43	31.5	23			24.5	24.5	30	31	0	N.W.	5	N.W.	0	0	0	0	0	34.5	36.5	35.5					17				
	18	30.274	43	30.374	44	34	25.5	33.1	32	36	32.5	32	31	0.3	N.W.	0	N	0	N	0	0	0	34	36.5	35.5					18				
	19	30.350	44	30.210	44	32.3	29.8			36	32.5	33	33	0	E	1-5	E	5	E	0	0	0	34	36.2	38					19				
	20	30.202	45	30.326	45	34.5	31			34.5	35	35	32.5	0	E	5	E	0	E	0	0	0	34	36.4	38					20				
	21	30.310	44	30.036	45	42.3	24			32.3	32.3	30	30	0	N.W.	0	E	5	0	0	0	0	34.3	36.9	38					21				
	22	29.702	47	29.550	47	50.9	36			43.2	43.2	38	37.5	0.6	N	0	N	0	N	0	0	0	40	38.5	38					22				
	23	29.392	47	29.242	46	48.3	32.4			35	31.5	31	31	0.6	N.W.	0	N	5	N	0	0	0	34.3	39.2	39					23				
	24	29.192	46	29.302	47	39.4	31.5			33.7	33.7	32	32	0	N	0	N.W.	0	0	0	0	0	36.5	38.5	39.2					24				
	25	29.018	46	28.864	46	42.4	28.5			34.5	32.5	31.5	31.7	0.4	N.W.	0	N	5	N	0	0	0	36.5	38	39					25				
	26	28.884	45	28.904	46	34.5	24			31.2	30	31	32	0.5	N.W.	5	N	5	N	0	0	0	35	34	38.5					26				
	27	28.770	45	28.834	46	39.8	24.5			34.5	32	29	29	0.3	N.W.	0	N	0	N	0	0	0	35	34	38					27				
	28	28.914	45	28.830	45	37.4	24			34.5	32.5	32.5	32.5	0	E	5	N.E.	1-0	E	0	0	0	34	36.5	34.8					28				
	29	28.878	44	29.032	46	36.5	32			31.5	31.5	32	32	0.4	N.E.	5	N.E.	5	0	0	0	0	34	35.5	34.5					29				
	30	29.218	45	29.502	46	38.2	32.2			35	34.1	36	34	0.5	N	5	N	0	0	0	0	0	36	36	34					30				
	31	29.724	46	29.924	46	41.8	32			40	37	36	33.5	0	N.W.	0	0	0	0	0	0	0	35	36.5	34.5					31				
Sums.		1513 10 15		1514 10 16		1414 12 9				1110 11 9	114 9 4			336		6		46					147	198	219									
Means.		29.528	46.2	29.533	46.9	40.9	30.8			35.7	34.4	33.6	33.1			0.56		0.50					36.337	838	6									
† Total Corrections for Instrumental Errors.		-0.32		-0.32																														
† Corrections for Diurnal Range.																																		
“Corrected Means.”		29.4989		29.501																														
No. of		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			

## NOTATION USED IN GENERAL REMARKS.

a.	denotes aurora.	m.	denotes meteor.
ci.	cirrus.	ms.	meteors.
ci-cu.	cirro-cumulus.	n.	nebula.
ci-s.	cirro-stratus.	r.	rain.
cu.	cumulus.	h. r.	heavy rain.
cu-s.	cumulo-stratus.	c. h. r.	continued heavy rain.
d.	dew.	s.	stratus.
f.	fog.	sc.	scud.
fr.	frost.	s.	sleet.
h. fr.	hoar-frost.	s.	snow.
h.	haze.	sc. h.	solar halo.
h. d.	heavy dew.	sq.	squall.
hl.	hail.	sq.	squalls.
l. cl.	light clouds.	t. s.	thunder.
l. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	g.	gale of wind.
lu. lu.	lunar halo.		

## TABLE FOR ESTIMATING FORCE OF WIND.

Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.
0	Calm	1.5	Light breeze	4	Blowing hard
0.5	Very light air	2	Fresh breeze	5	Blowing a gale
1	Light air	3	Very fresh	6	Violent gale

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† = 29.4523  
for Temp. (Col. 2), = 29.4989 - 0.0466 = 29.4523  
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† = 29.452  
for Temp. (Col. 4), = 29.501 - 0.049 = 29.452  
Mean at Station, corrected, and at 32° = 29.452  
Correction for height, 162 feet above Mean Sea-level, = -1.78  
Mean, reduced to 32°, and Sea-level, = 29.6830  
Highest Reading, corrected for Index error, on the 1st = 30.406  
Lowest Do. Do. on the 27th, = 28.770  
Difference, or Monthly Range, = 1.636

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 9th, = 53.6  
Lowest in Month, corrected for Index errors, on the 17th, = 23.0  
Difference, or Monthly Range, = 30.6  
“Corrected Mean” of all the Highest, (Col. 5), = 40.9  
“Corrected Mean” of all the Lowest, (Col. 6), = 30.8  
Difference, or Mean Daily Range, = 10.1  
\*\* Calculated Mean Temperature of Month, = 35.8  
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 11th, = 53.6  
“Corrected Mean,” (Col. 7), of Black Bulb, Max. in Sun, = 53.6  
Lowest at Night, Black Bulb, (corrected for Index errors), on the 11th, = 23.0  
“Corrected Mean,” (Col. 8), of Black Bulb, Min. on grass, = 23.0  
Difference of above Means or Range (“exposed”), = 30.6

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 34.7  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 33.8  
†† Computed Temperature of Dew-Point, = 32.4  
†† Do. Elastic Force of Vapour, = 18.4  
†† Do. Weight of Vapour in a Cubic Foot of Air, = 7.1  
†† Relative Humidity, (Saturation = 100), = 91  
RAIN fell on 17 days; Amount in Inches, = 3.36

WIND. SUMMARY.											
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.
A.M.	4	3	8	0	0	1	9	6	0	0.56	
P.M.	2	4	6	0	0	0	9	8	2	0.50	
Mean.	3	4	7	0	0	0	9	7	1	0.53	0.28

(Signed) Robert Grosvenor  
J. G. J. G.

Observations made and  
Return verified by







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Cowan Road, Edinburgh, County of Midlothian, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.

Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet.

During the MONTH of April 1888.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.				
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. _____ 9 h. A.M.	9 A.M.		P.M.		SUNSHINE. Hours.	9 h. A.M.					Temperature of WELL, at depth of feet. No. _____ Temperature at 1 fathom, and Penalty.	9 A.M. 9 P.M.		
		Barometer. * No. _____	Attach- ed Ther- mometer	Barometer. No. _____	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force.	Direction.	Force.		Velocity (0-10), and Direction.	Amount, (0-10), and Species.	Velocity (0-10), and Direction.	Amount, (0-10), and Species.		No. _____ 3 inches.							No. _____ 12 inches.	No. _____ 22 inches.
	1	29.896 46	29.776 47	44	29.5			36.5	33	35	34.1	0	10.	-5	10.	2		10	6	10.	0	34.5	34	38						1				
	2	732 48	872 47	48.5	35.5			42.4	34.5	38.3	36.9	0	10.	-5	10	2		10	6	10	0	38	38.2	38						2				
	3	902 48	758 49	44.6	29			35.2	32	35.4	34.3	0	10.	-5	10.	2		10	6	10	0	38.3	38.3	38.9						3				
	4	670 48	900 52	44.8	30			38.3	36.3	34	33	0	10	-5	10.	1.5		10	6	10	0	38.5	38.8	39						4				
	5	30.058 48	30.106 51	46	30			39.5	34.8	38	33.5	0	16	-5	16.	2		0	0	0.	0	36.3	39	39.1						5				
	6	172 49	210 49	44.8	30.3			44	40.6	36	34.8	0	16.	-5	16.	2		16.	6	10	0	38.5	39.4	39.5						6				
	7	124 50	088 50	44.2	31			40.8	38	35.5	33	0	55	0	54.	2		10	6	10	0	38	40	40						7				
	8	056 49	29.984 49	44	30.5			34.5	34	34.2	34.8	0	56.	-8	16.	2		16.	6	10	0	39	39.8	40						8				
	9	29.968 50	734 50	34.5	26			36.5	32.5	38	34	0	6	16.	0	1	2		16.	6	10	0	34.5	40.2	40						9			
	10	734 50	782 50	46.5	35			45	41.5	38.5	36.9	14	10	0	1	2		10	6	10	0	41.5	41.2	40.2						10				
	11	634 51	674 52	50.4	35			46.6	43	39	36	0	10	-5	10	2		10	6	10	0	43.5	42.5	41						11				
	12	636 51	626 50	57.5	32.8			42.3	34.2	40.5	39	0	10	0	10	2		10	6	10	0	41	42.5	41.5						12				
	13	318 52	335 34	48	39			48	45.2	41.5	40.1	0	10	1.5	10	2		10	6	10	0	43.3	42.8	41.6						13				
	14	586 54	720 56	52.4	42.4			52.1	48.8	44.2	42.8	0	10	-5	10.	2		10	6	10	0	46.1	44.2	44.5						14				
	15	658 54	556 55	54	39			46.2	45	44	48	0	16.	-5	16.5	2		16.	6	10	0	45.4	45	43						15				
	16	574 55	600 55	54.5	38.5			51	46.2	44.8	35	11	10.	1.0	10	4		0	0	0	0	45.5	45.5	43.5						16				
	17	382 55	340 57	54.1	39			44.1	45.5	38.5	34.1	0	8	0	10	2		8	6	10	0	44.2	46.5	44						17				
	18	310 56	350 58	56.4	38			50.2	45.5	44.5	43.4	0	10.	-5	16.	2		0	0	0	0	48.5	44.2	44.6						18				
	19	436 56	490 56	56.3	38			44.6	43.4	44.2	43	10	16.	0	16.	2		16.	6	10	0	46.5	44	45						19				
	20	598 53	808 53	57.3	38.5			41	41	38.5	36.4	52	16.	5	16.	2		16.	6	10	0	46	44	45.2						20				
	21	828 52	810 52	41	35			38.6	36	38	36.8	20	16.	1.0	16.	2		16.	6	10	0	46.1	44.2	44.5						21				
	22	810 50	884 50	43.5	34			38.8	38	34	36.3	0	5	1	16	2		16.	6	10	0	43.5	44	44						22				
	23	910 49	30.040 48	41	34			34.2	30.5	36.2	35	13	16	-5	16	2		16.	6	10	0	41	43	43.5						23				
	24	30.090 47	144 46	34.5	34			34	36.2	36	35	20	16	1	16.	2		16.	6	10	0	40.5	42.8	43						24				
	25	454 47	216 47	41.2	31.5			41.2	34.1	38	35	0	16	1	16	2		16.	6	10	0	39.6	41.5	42.5						25				
	26	168 48	29.988 47	42.5	29			41	36.5	38.5	36.8	0	10	-5	16	2		0	0	0	0	40	42	42						26				
gfe	27	29.707 50	786 48	53	40	AB		50	46.2	41.8	40.5	0	10	1.5	10	2		10	6	10	0	45.2	44.2	43						27				
	28	710 51	434 50	55.3	39.4			44	45	44.8	44.5	0	10	-5	10.	2		10	6	10	0	45	45	43.4						28				
	29	325 52	430 51	57	42.5			46	42.8	44.5	42.8	0	10	2	10.	2		10	6	10	0	46.5	45.5	44.4						29				
	30	390 52	288 51	52.4	40.3			49.5	46	44	45.3	0	5	0	5	2		5	6	10	0	44	46.5	44.2						30				
	31																													31				
Sums.		15142	13	161410	13	1510	146			148	158	149	1510		3		8	7					158	158	127									
Means.		22	746	21	22	929	30	5.4	7.3	88.1	106.3	111	101	13	1.61		17.5	11.0				58.3	80.5	61.4										
† Total Corrections for Instrumental Errors.																																		
‡ Corrections for Diurnal Range.																																		
“Corrected Means.”																																		
No. of		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			

## NOTATION USED IN GENERAL REMARKS.

a.	denotes aurora.	m.	denotes meteor.
ci.	cirrus.	ms.	meteors.
ci-cn.	cirro-cumulus.	n.	nimbus.
ci-s.	cirro-stratus.	r.	rain.
cu.	cumulus.	h. r.	heavy rain.
cu-s.	cumulo-stratus.	c. h. r.	continued heavy rain.
d.	dew.	s.	stratus.
f.	fog.	sc.	scud.
fr.	frost.	s.	sleet.
h-fr.	hoar-frost.	s.	snow.
h.	haze.	so. ha.	solar halo.
h. d.	heavy dew.	sq.	squall.
h.	hail.	sq.	squalls.
l.	lightning.	t.	thunder.
li. cl.	light clouds.	t. s.	thunder storm.
li. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	g.	gale of wind.
lu. ha.	lunar halo.		

## TABLE FOR ESTIMATING FORCE OF WIND.

Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.
0	Calm	1.5	Light breeze	4	Blowing hard
0.5	Very light air	2	Fresh breeze	5	Blowing a gale
1	Light air	3	Very fresh	6	Violent gale

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† = 29.698  
 for Temp. (Col. 2), = 29.758... - 0.060.  
 Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = 29.704  
 for Temp. (Col. 4), = 29.764... - 0.060.  
 Mean at Station, corrected, and at 32°, = 29.701  
 Correction for height, 162 feet above Mean Sea-level, = 1.78  
 Mean, reduced to 32°, and Sea-level, = 29.879  
 Highest Reading, corrected for Index error, on the 25th, = 30.216  
 Lowest Do. Do., on the 30th, = 29.288  
 Difference, or Monthly Range, = 0.928

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 9th, = 59.5  
 Lowest in Month, corrected for Index errors, on the 9th, = 26.0  
 Difference, or Monthly Range, = 33.5  
 "Corrected Mean" of all the Highest, (Col. 5), = 49.5  
 "Corrected Mean" of all the Lowest, (Col. 6), = 34.9  
 Difference, or Mean Daily Range, = 14.6  
 \*\* Calculated Mean Temperature of Month, = 42.2  
 S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, =  
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, =  
 Lowest at Night, Black Bulb, (corrected for Index errors), on the th, =  
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, =  
 Difference of above Means or Range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 41.3  
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 39.1  
 ‡ Computed Temperature of Dew-Point, = 36.3  
 ‡ Do. Elastic Force of Vapour, = 2.15  
 ‡ Do. Weight of Vapour in a Cubic Foot of Air, = 2.49  
 ‡ Relative Humidity, (Saturation = 100), = 83  
 RAIN fell on 13 Days; Amount in Inches, = 1.61

WIND.												SUMMARY.	
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.		
A.M.	1	5	3	3	3	3	8	4	0	0.58			
P.M.	3	8	3	1	1	2	2	5	0	0.37			
Mean.	2	7	3	2	2	2	8	4	0	0.48	0.23		

Observations made and  
 Return verified by

(Signed)

Robert Grossarth

Greater daily range = 33.5 on the 9th

MA

J.F.







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at *Oban Road, Edinburgh*, County of *Midlothian*, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.

Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet.

During the MONTH of *May* 188*8*

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.					
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches. No.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No.	9 A.M.		P.M.		SUNSHINE.  Hours.	9 h. A.M.					Temperature of WELL at depth of feet. No.	Temperature at 1 fathom, and Density.	9 A.M. 9 P.M.		
		Barometer. * No.	Attach- ed Ther- mometer	Barometer. No.	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force	Direction.	Force		Velocity (0-10), and Species.	Amount (0-10), and Species.	Velocity (0-10), and Direction.	Amount (0-10), and Species.		No. 3 inches.								No. 12 inches.	No. 22 inches.
	1	29.000	51	29.176	51	52.1	44.4			51.5	32.5	46	41.8		0.1	5.6	1-0	5.0	3-0		5.6	cu. f.	0	0		44.5	46.5	45.5				1			
	2	270	51	03.4	53	51.4	38.5			48	43.5	42	40.3		0	5.6	1-5	5.6	-5		5.6	cu. f.	0	0		46.5	46.4	45.3				2			
	3	022	53	626	52	55.5	40			48.2	45	43	39.8		1.5	4.5	10	5	-5		5.10	cu.	Overcast			46	46.5	45.3				3			
	4	856	52	900	54	51.8	36.5			46.8	41	41.2	40		0	10	1-5	10	-5		6	0	0	0		44.3	46	45.2				4			
	5	842	52	980	53	49.8	40			45	40	48.5	45		0.1	10	1-7	10	1-0		0	0	10	ch		38	40	40				5			
	6	968	53	930	55	52	48			51.	48	52.5	52.5		0.5	10	-5	10	-5		10	ch	0	0		44	46	45				6			
	7	844	51	828	57	59	50			55.5	53.5	52.5	52		0	10	1-0	10	-5		10	cu. f.	Overcast			51.4	48.4	46				7			
	8	882	57	30.068	55	61.4	48			57	45	44.1	39.6		0.5	10	1-5	10	0		0	0	0	0		51.5	50	44				8			
	9	30.186	55	226	56	52.8	35.5			46.5	40.5	43.2	40.5		0.4	10	0	0	0		0	0	0	0		46.5	48.5	44.7				9			
	10	285	55	316	55	52.5	34.8			48.5	44	43.5	40		0.6	10	0	0	0		0	0	0	0		48.3	48.5	44.7				10			
	11	356	54	287	55	53	33.5			50.5	46.2	45	40.5		0.8	10	0	0	0		0	0	0	0		49.3	50	44.5				11			
	12	278	54	184	56	60.4	31.5			50.8	46.2	44	44		0.4	10	0	0	1-0		0	0	0	0		49.5	50.5	48.5				12			
	13	295	54	29802	53	61.8	16.5			50.5	44	43.5	39.5		0.4	10	0	0	0		10	cu. f.	10	cu		50.2	50.5	48.5				13			
	14	780	56	604	54	48.5	37			48.8	46.8	43	40		0.6	10	0	0	-5		ch	cu. f.	0	0		48.5	50	48.6				14			
	15	458	55	428	54	52.4	38.2			43.5	41.5	42	40.3		0.1	5	-5	0	0		5	cu. f.	0	0		44.5	49	48				15			
	16	400	54	236	54	51.5	48.4			49.8	43.8	48	46.3		0	5.6	-5	0	0		5.6	cu.	0	0		48	48.5	47	47.8				16		
	17	266	58	276	57	56.5	43			52.5	49.5	49	44.4		0.9	5	-5	8.10	-5		5	cu. f.	0	0		50	48.5	44.8				17			
	18	500	58	514	58	60.9	44			54.8	51	60.9	59		0	3	6	5.5	1-0		5	cu. f.	0	0		52.5	51	48.5				18			
	19	560	59	554	59	64.3	53.8			64.5	61.4	51.5	51.5		1.3	5.6	0	5.6	0		5.6	cu.	0	0		55.5	52	48				19			
	20	826	59	30.126	60	45.5	49.8			51.1	50	52	50		1.9	5.10	-5	0	0		5.10	cu. f.	10	ch		52	54	52				20			
	21	30.317	60	404	60	60.5	34.3			59.6	54.5	47.5	44		0	5	0	0	0		Overcast	0	0		52.5	53.5	51				21				
	22	440	59	446	59	64.5	39.8			56	50.4	46.8	46.5		0	5.15	-5	0	0		Overcast	0	0		54.7	54.8	51				22				
	23	444	60	426	60	54.6	46.5			54.2	52	45.3	43.4		0	5	-5	0	0		5	cu.	0	0		54.2	55	51.5				23			
	24	384	58	342	58	64	38			54.5	57	46	45.5		0	5	-5	0	0		0	0	0	0		56	55	52				24			
	25	214	57	130	58	63.4	38.5			44.4	47.4	48.5	45		0	5.6	-5	0	-5		Overcast	0	0		56.3	56	52.5				25				
	26	046	55	29.876	57	62	42			45.1	45.5	45	44		0	5.6	-5	5.6	-5		5.6	cu.	0	ch		55	56	52.6				26			
	27	29.690	57	682	56	58.4	40			47.9	44	37	36.5		0	5	-5	5.6	-5		5	cu.	0	ch		54.7	55	52.5				27			
	28	777	56	860	54	52.5	37.5			44.4	43	37	36.5		0.4	5.6	1-0	5	-5		0	0	0	0		52	53.2	52.3				28			
	29	847	54	572	54	52.2	31			46.2	41.2	46	45		0.8	10	-5	5.6	0		5.6	cu. f.	0	0		51.5	53.5	52				29			
	30	182	56	292	56	54	45			54	57	48.5	44		0.2	5	-5	10	1-5		5	cu. f.	10	ch		52	52	57				30			
	31	370	56	684	56	54.7	44			52.5	44.5	44.5	44		0.2	10	1-5	10	1-5		0	0	0	0		52	52	51.5				31			
Sums.		15.16.11	15	14.14.12	15.4	15.4	17.8			14.12	11.8	14.8	12.6		0.77	19.6	15.5									15.2	13.6	14.8							
Means.		29.815	55.5	29.833	55.8	54.4	41.6			51.1	47.3	46.3	44.2		0.64	0.50										50.6	50.5	48.7							
† Total Corrections for Instrumental Errors.						57.4																													
‡ Corrections for Diurnal Range.																																			
“Corrected Means.”																																			
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† = 29.742  
for Temp. (Col. 2), = 29.815 — 0.073.  
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† = 29.760  
for Temp. (Col. 4), = 29.833 — 0.073.  
Mean at Station, corrected, and at 32° = 29.751  
Correction for height, 162 feet above Mean Sea-level, = 1.78  
Mean, reduced to 32°, and Sea-level, = 29.929  
Highest Reading, corrected for Index error, on the 22th, = 30.446  
Lowest Do. Do., on the 1th, = 29.000  
Difference, or Monthly Range, = 1.446

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 20th, = 75.5  
Lowest in Month, corrected for Index errors, on the 4th, = 31.0  
Difference, or Monthly Range, = 44.5  
“Corrected Mean” of all the Highest, (Col. 5), = 57.4  
“Corrected Mean” of all the Lowest, (Col. 6), = 41.6  
Difference, or Mean Daily Range, = 15.8765  
\*\* Calculated Mean Temperature of Month, = 49.5  
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, =  
“Corrected Mean,” (Col. 7), of Black Bulb, Max. in Sun, =  
Lowest at Night, Black Bulb, (corrected for Index errors), on the th, =  
“Corrected Mean,” (Col. 8), of Black Bulb, Min. on grass, =  
Difference of above Means or Range (“exposed”), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 48.7  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 45.8  
†† Computed Temperature of Dew-Point, = 42.7  
†† Do. Elastic Force of Vapour, = 27.5  
†† Do. Weight of Vapour in a Cubic Foot of Air, = 3.17  
†† Relative Humidity, (Saturation = 100), = 80  
RAIN fell on 12 Days; Amount in Inches, = 0.77

WIND.		SUMMARY.									
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.
A.M.	1	1	6	6	6	0	9	2	0	0.64	
P.M.	0	0	3	4	1	2	10	2	9	0.50	
Mean.	1	0	4	5	4	1	10	2	4	0.57	0.32

Observations made and  
Return verified by

(Signed)

Robert Grosart.

Greatest Daily Range  
= 27.7 on the 20th & 22nd

M. J. F.







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at *Cowal, Edinburgh*, County of *Midlothian*, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.

Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet.

During the MONTH of *June* 188*8*.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.		Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer No. — 9 h. A.M.	9 A.M.		P.M.		No. 3 inches.	No. 12 inches.						No. 22 inches.	Temperature of WELL at depth of feet, No.	Temperature at 1 fathom, and Density.	0 A.M. 0 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Barometer. * No.	Attach- ed Ther- mometer	Barometer. No.	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force	Direction.	Force		Velocity (0-10), and Direction.	Amount, (0-10), and Species.	Velocity (0-10), and Direction.	Amount, (0-10), and Species.												Hours.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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## NOTATION USED IN GENERAL REMARKS.

a.	denotes aurora.	m.	denotes meteor.
ci.	" cirrus.	ms.	" micrometeor.
ci-cu.	" cirro-cumulus.	n.	" nimbus.
ci-s.	" cirro-stratus.	r.	" rain.
cu.	" cumulus.	h. r.	" heavy rain.
cu-s.	" cumulo-stratus.	c. h. r.	" continued heavy rain.
d.	" dew.	s.	" stratus.
f.	" fog.	sc.	" squall.
fr.	" frost.	s.	" sleet.
h-fr.	" hoar-frost.	s.	" snow.
h.	" haze.	so. h.	" solar halo.
h. d.	" heavy dew.	sq.	" squall.
hl.	" hail.	sq.	" squall.
l.	" lightning.	t.	" thunder.
li. cl.	" light clouds.	t. s.	" thunder storm.
li. sh.	" light showers.	w.	" wind.
lu. co.	" lunar corona.	g.	" gale of wind.
lu. h.	" lunar halo.		

## TABLE FOR ESTIMATING FORCE OF WIND.

Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.
0	Calm	1.5	Light breeze	4	Blowing hard
0.5	Very light air	2	Fresh breeze	5	Blowing a gale
1	Light air	3	Very fresh	6	Violent gale

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† = 29.783  
for Temp. (Col. 2), = 29.859... = 0.076...  
Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = 29.791  
for Temp. (Col. 4), = 29.869... = 0.078...  
Mean at Station, corrected, and at 32°... = 29.787  
Correction for height, 162 feet above Mean Sea-level, = 0.178  
Mean, reduced to 32°, and Sea-level, = 29.965  
Highest Reading, corrected for Index error, on the 23 th, = 30.260  
Lowest Do. Do., on the 12 th, = 29.398  
Difference, or Monthly Range, = 0.862

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 18 th, = 68.2  
Lowest in Month, corrected for Index errors, on the 3 th, = 38.0  
Difference, or Monthly Range, = 30.2  
"Corrected Mean" of all the Highest, (Col. 5), = 58.6  
"Corrected Mean" of all the Lowest, (Col. 6), = 44.2  
Difference, or Mean Daily Range, = 14.4  
\*\* Calculated Mean Temperature of Month, = 51.4

S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, =  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, =  
Lowest at Night, Black Bulb, (corrected for Index errors), on the th, =  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, =  
Difference of above Means or Range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 49.6

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 47.7

†† Computed Temperature of Dew-Point, = 45.7

†† Do. Elastic Force of Vapour, = 30.8

†† Do. Weight of Vapour in a Cubic Foot of Air, = 3.55

†† Relative Humidity, (Saturation = 100), = 87

RAIN fell on 13 Days; Amount in Inches, = 3.54

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# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Craig Road, Edinburgh, County of Midlothian, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.  
 Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet.  
 During the MONTH of July, 1888.  
 The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				THERMOMETERS under Ground.			SUNSHINE. Hours.	SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.		Days of Month.				
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.												
		Barometer. No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb. No.	Wet bulb. No.	Dry bulb. No.	Wet bulb. No.		No. of hours in which it fell.	Amount in inches.	Direction.	Force.	Direction.	Force.	Velocity (0-6), and Direction.	Amount (0-10), and Species.	Velocity (0-6), and Direction.	Amount (0-10), and Species.	No. 3 inches.							No. 12 inches.	No. 22 inches.		
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°							°	°	°	°
		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.							No.	No.	No.	No.
	1	29.876	57.3	29.850	59.2	61.5	38			53	48	51.8	49.6	0	4.0	-5	6	0		4.0	0	0	55.1	54.8	56					1					
	2	683	60	242	58.7	63	45.5			54.5	52.6	52.5	52.5	0	3	0	5.5	0		5	0	0	58.4	58.8	56					2					
	3	168	58.6	272	57.7	59.2	47.8			54.5	54.5	49	44	1.05	0.6	1.0	6	0		1.6	0	0	56	54.2	55.6					3					
	4	240	58.7	306	58	59	48.5			52.5	52	49.3	49.1	1.26	1.0	-5	6	5		1.0	0	0	55	58.5	55					4					
	5	408	59	542	58	58.8	44			53.4	53.4	49	48.1	1.02	0.6	-5	6	5		1.6	0	0	54.8	55.6	54.8					5					
	6	666	58.2	794	68.6	54	46.2			48.6	45	48.2	45.5	1.09	0	-5	6.5	0		6	0	0	54	55.2	54.5					6					
	7	864	56.6	890	58.6	55.1	44.8			52.4	48.5	51	48	1.02	5.6	0	6	-5		1.6	0	0	56.5	55.3	54.5					7					
	8	870	58.7	786	59	58.8	43.3			53.1	52	53	50.5	0	5.0	1.0	5.0	-5		5.0	0	0	54.8	55.5	54.4					8					
	9	560	61	723	60	60	53			56.4	55.5	53.5	48.5	1.05	1.0	1.0	10.0	-5		10	0	0	54	56.2	54.4					9					
	10	770	58.7	638	57.8	63	45			49.5	44.5	53.9	48.5	0	1.0	1.0	10	0		10	0	0	54.6	56.8	53					10					
	11	742	58	824	57	65.2	48			50	44.3	54	51	0	1.0	-5	10	-5		0	0	0	55	54	55.3					11					
	12	892	57	938	59	58	41			54.5	56	53	52	1.33	0.6	-5	10	-5		1.0	0	0	55	56.8	54.4					12					
	13	938	59	910	58.8	69	50			54	53	60	59.5	1.03	5.0	-5	10	-5		5.0	0	0	54.2	54	54					13					
	14	908	61	902	61.4	68.4	53			54.8	54.8	59.5	59.5	1.04	1.0	0	10	0		10	0	0	64.5	55.5	55.8					14					
	15	742	61.3	652	61.8	65.5	52.8			54.5	54.5	53.5	53.5	1.36	5.6	0	5.6	0		5.6	0	0	60	57	56					15					
	16	546	60.3	428	58.8	60.8	48			49.5	49.5	50	50	1.44	0	-5	6	1.0		6	0	0	54	58	56					16					
	17	400	58	534	58.3	62.5	48.5			52.3	52.3	52	52	1.56	0.6	-5	6.5	-5		1.6	0	0	55	56.4	55.5					17					
	18	604	59.4	750	60.3	54.8	50.5			53.4	53.5	54	54	1.49	0	-5	6	-5		6	0	0	55.5	56	55					18					
	19	788	60	768	62.2	64.4	52.2			62.5	59.5	60.5	56.2	0	0.6	0	6	0		0.6	0	0	60.5	63.8	55.5					19					
	20	738	62	715	63	72.2	49.5			63.6	61.4	58.5	55.8	0	5.6	0	0	0		5.6	0	0	62	61	54					20					
	21	654	62.4	620	62	71.4	53			58	54.5	55	54	1.84	0.6	0	6	-5		1.6	0	0	61.8	61.4	58					21					
	22	594	61.8	536	61.7	64.5	50			63.5	53	58	54	1.20	1.6	-5	5.6	-5		1.6	0	0	60	60	58					22					
	23	330	61.8	322	62.2	64.5	52.5			66.5	58	58	53.5	1.32	5	0	5.5	0		5	0	0	60	60	58					23					
	24	292	63	396	63.2	66.6	51			60.5	54	56	53.6	1.05	5.6	0	5.0	0		5.0	0	0	60.5	60.5	58					24					
	25	442	63.2	370	63.1	64.8	53.3			61.3	54	56	54	1.25	5.0	0	0	0		5.0	0	0	61.6	60.5	58					25					
	26	430	61.5	506	62.5	64.5	50			55	54	52.5	51.8	1.21	0.6	0	6	-5		1.6	0	0	61.3	61	58.5					26					
	27	634	61.3	646	61.2	61.3	48			60.5	56	52.5	51.8	1.23	0.6	0	6	-5		1.0	0	0	58	59.5	58					27					
	28	644	60.3	710	61	62.2	49.5			60.5	56	52.5	51.8	1.09	0	-5	6	-5		6	0	0	54	59.2	54.5					28					
	29	676	59	632	58.3	52.3	44			48.5	48.5	48.5	45	1.26	0	0	1.6	0		6	0	0	56	54.5	54					29					
	30	580	59.3	620	57.3	52.4	46.3			52.2	49.5	44.5	45.3	1.03	0.6	-5	1.6	-5		1.6	0	0	55	56.5	56.3					30					
	31	695	57.2	796	58.2	55.8	38.3			64	48	49.5	46.8	0	5.0	-5	5.0	-5		1.0	0	0	53	56.5	56					31					
	Sums.	191612	158	191510	169	1411	157			1411	119	149	1510										126	1710	187										
		19.380	3.6	19.618	6.9	9.9	1.5			54	7.0	3.9	6.8										72	4.3	8.7										
			50		0	4	25			14	7	9	4	23	645								22	25	12										
	Means.	29.625	59.8	29.633	60.2	61.6	48.1			54.7	52.5	53.0	51.5										57.3	58.2	56.1										
	† Total Corrections for Instrumental Errors.																																		
	‡ Corrections for Diurnal Range.																																		
	“Corrected Means.”																																		
	No. of Column.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				

NOTATION USED IN GENERAL REMARKS.					
a.	denotes aurora.	m.	denotes meteor.		
ci.	" cirrus.	ms.	" microns.		
ci.-cu.	" cirro-cumulus.	n.	" nimbus.		
ci.-s.	" cirro-stratus.	r.	" rain.		
cu.	" cumulus.	h. r.	" heavy rain.		
cu.-s.	" cumulo-stratus.	c. h. r.	" continued heavy rain.		
d.	" dew.	s.	" stratus.		
f.	" fog.	sc.	" scud.		
fr.	" frost.	s.	" sleet.		
h.-fr.	" hoar-frost.	s.	" snow.		
h.	" haze.	so.ha.	" solar halo.		
h. d.	" heavy dew.	sq.	" squall.		
hl.	" hail.	sq.s.	" squalls.		
l.	" lightning.	t.	" thunder.		
li. cl.	" light clouds.	t. s.	" thunder storm.		
li. sh.	" light showers.	w.	" wind.		
lu. co.	" lunar corona.	g.	" gale of wind.		
lu. ha.	" lunar halo.				

TABLE FOR ESTIMATING FORCE OF WIND.					
Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.
0	Calm	1.5	Light breeze	4	Blowing hard
0.5	Very light air	2	Fresh breeze	5	Blowing a gal
1	Light air	3	Very fresh	6	Violent gale

**BAROMETER**, “corrected Mean” at 9 A.M., minus the Correction†† = 29.542  
 for Temp. (Col. 2), = 29.625 - 0.083  
 Corrected Mean” of Barometer at 9 P.M., minus the Correction†† = 29.550  
 for Temp. (Col. 4), = 29.633 - 0.083  
**Mean at Station, corrected, and at 32°**, ..... = 29.546  
 Correction for height, 162 feet above Mean Sea-level, ..... = 1.78  
**Mean, reduced to 32°, and Sea-level**, ..... = 29.724  
 Highest Reading, corrected for Index error, on the 12th, ..... = 29.938  
 Lowest Do. Do., on the 3rd, ..... = 29.168  
 Difference, or **Monthly Range**, ..... = 0.770

**S.-R. THERMOMETER**, (in shade, etc.), **Highest in Month**, (corrected for Index Errors), on the 20th, ..... = 72.2  
**Lowest in Month**, corrected for Index errors, on the 1st, ..... = 38.0  
 Difference, or **Monthly Range**, ..... = 34.2  
 “Corrected Mean” of all the **Highest**, (Col. 5), ..... = 61.6  
 “Corrected Mean” of all the **Lowest**, (Col. 6), ..... = 48.1  
 Difference, or **Mean Daily Range**, ..... = 13.5  
 \*\* Calculated **Mean Temperature** of Month, ..... = 54.8  
**S.-R. THERMOMETER**, **Black Bulb in Sun, Highest**, (corrected for Index Errors), on the \_\_\_\_\_ th, ..... = \_\_\_\_\_  
 “Corrected Mean,” (Col. 7), of **Black Bulb, Max. in Sun**, ..... = \_\_\_\_\_  
**Lowest at Night**, **Black Bulb**, (corrected for Index errors), on the \_\_\_\_\_ th, ..... = \_\_\_\_\_  
 “Corrected Mean,” (Col. 8), of **Black Bulb, Min. on grass**, ..... = \_\_\_\_\_  
 Difference of above Means or Range (“exposed”), ..... = \_\_\_\_\_

**HYGROMETER**, **Mean** (corrected) A.M. and P.M. Reading of **Dry Bulb**, (Cols. 9 and 11), ..... = 53.8  
**Mean** (corrected) A.M. and P.M. Reading of **Wet Bulb**, (Cols. 10 and 12), ..... = 52.0  
 ‡ Computed **Temperature of Dew-Point**, ..... = 50.2  
 ‡ Do. **Elastic Force of Vapour**, ..... = 36.3  
 ‡ Do. **Weight of Vapour in a Cubic Foot of Air**, ... = 4.12  
 ‡ **Relative Humidity**, (Saturation = 100), ..... = 86.87  
**RAIN** fell on 23 Days; **Amount in Inches**, ..... = 6.45

WIND.	SUMMARY.												Mean Force.	Mean Velocity in miles per day.
	Direction.	N	NE	E	SE	S	SW	W	NW	Calms or Variable.	Mean Force.	Mean Velocity in miles per day.		
A.M.		0	5	8	3	3	4	5	3	0				
P.M.		0	2	15	2	1	3	6	0	2				
Mean.		0	4	11	3	2	3	6	1	1				

\* Each instrument tested at the Office in Edinburgh bears the stamp “S.M.S.” and a number to be entered in the Heading; or the Number and Initials of the Maker may be here given.  
 † Embracing corrections for both capillarity and Index Errors.  
 ‡ The Diurnal Range for Scotland is as yet unknown.  
 †† Practically, though not absolutely a minus correction.  
 ‡ These “Hygrometric Deductions” are calculated from Glaisher’s Hygrometric Tables, Second Edition only.  
 ‡ While the Diurnal Range is unknown, the Arithmetic Mean of Cols. 5 and 6 will be entered as the “Calculated Mean Temperature.”  
 Any Observations not taken under the conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and  
 Return verified by

(Signed)

Robert Grossart.

Greater daily range = 23.5 on the 1<sup>st</sup>

J.F.  
 J.F.







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Edinburgh, County of Midlothian, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.

Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet.

During the MONTH of August 1888.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.		Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. —	9 A.M.		P.M.		9 h. A.M.					As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		Barometer. * No. —	Attached Thermometer	Barometer. No. —	Attached Thermometer	Max. No. —	Min. No. —	Max. in Sun/shade No. —	Min. on Grass. No. —	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force.	Direction.	Force.		Velocity (0-10), and Species.	Amount, (0-10), and Species.	Velocity (0-10), and Direction.		Amount, (0-10), and Species.	No. 3 inches.	No. 12 inches.			No. 22 inches.	Mention the hour at which Storms, including Thunder and Lightning, began and ended.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† = 62.2  
for Temp. (Col. 2), = 62.2  
Corrected Mean "of Barometer at 9 P.M., minus the Correction†† = 62.2  
for Temp. (Col. 4), = 62.2  
Mean at Station, corrected, and at 32°, = 62.2  
Correction for height, 162 feet above Mean Sea-level, = 62.2  
Mean, reduced to 32°, and Sea-level, = 62.2  
Highest Reading, corrected for Index error, on the th, = 62.2  
Lowest Do. Do., on the th, = 62.2  
Difference, or Monthly Range, = 62.2

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 13th, = 68.6  
Lowest in Month, corrected for Index errors, on the 17th, = 38.5  
Difference, or Monthly Range, = 30.1  
"Corrected Mean" of all the Highest, (Col. 5), = 62.3  
"Corrected Mean" of all the Lowest, (Col. 6), = 48.2  
Difference, or Mean Daily Range, = 14.1  
\*\* Calculated Mean Temperature of Month, = 55.3  
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, = 68.6  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 68.6  
Lowest at Night, Black Bulb, (corrected for Index errors), on the th, = 38.5  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 38.5  
Difference of above Means or Range ("exposed"), = 30.1

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 53.8  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 51.3  
†† Computed Temperature of Dew-Point, = 48.9  
†† Do. Elastic Force of Vapour, = 345.342  
†† Do. Weight of Vapour in a Cubic Foot of Air, = 83  
†† Relative Humidity, (Saturation = 100), = 83  
RAIN fell on 16 Days; Amount in Inches, = 1.69

WIND.		SUMMARY.							
Direction.		N	NE	E	SE	S	SW	W	NW
A.M.		0	2	4	2	3	8	10	2
P.M.		2	0	5	0	1	7	12	2
Mean.		1	1	5	1	2	7	11	2

(Signed) Robert GrossartObservations made and  
Return verified by







The Hours of Observation are of Greenwich Time.

(Signed) Robert Grossarth

Observations made and  
Return verified by







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Opward Road, Edinburgh, County of Midlothian, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.  
 Height of Cistern of the Barometer above Mean Sea-level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet. During the MONTH of October 1888.  
 The Hours of Observation are of Greenwich Time.

ELEVATION.	Days of Month.	BAROMETER				SELF-REGISTERING THERMOMETERS.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS.	Days of Month.		
		at 32°		at 32°		Read Daily, at 9 P.M.		Dry No.		Wet No.		9 h. A.M.			9 h. P.M.		9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.							
		Protected in Shade 4 feet above Ground.		Exposed Black Bulbs.		Dry bulb.		Wet bulb.		Dry bulb.		Wet bulb.			Dry bulb.		Wet bulb.		Dry bulb.		Wet bulb.		Dry bulb.		Wet bulb.							
		9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.		9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.						
		Barometer.	Attach- ed Ther- mometer	Barometer.	Attach- ed Ther- mometer	Max. in Shade.	Min. on Grass.	Max. in Shade.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	No. of hours in which it fell.	Direction.	Force.	Direction.	Force.	Velocity (0-10).	Amount (0-10).	Velocity (0-10).	Amount (0-10).	Hours.	No. 3 inches.	No. 12 inches.	No. 22 inches.	Temperature of Well at depth of feet.	Temperature at 1 fathom, and bottom.	0 A.M. 9 P.M.			
		inches.	°	inches.	°	°	°	°	°	°	°	°	°																			
	1	29.612		29.516		50.5	35			41.5	34	34	32	0	calm	-5	140	-5	0	0	0	0	44	49	51.6						1	
	2	189		251		52	32.5			42	40	34.4	32.8	0	calm	-5	140	-5	0	0	0	0	41.5	49	50.5						2	
	3	449		574		48.5	32			42	40.4	35	34	21	calm	0	calm	-5	0	0	calm	ch	49.8	49	48.5						3	
	4	300		455		54	33.6			42.5	40.6	33	32	0	calm	-5	calm	1-	0	0	0	0	49.5	49	49						4	
	5	452		655		48	31.5			44.6	40.5	36	35	0.6	calm	-5	calm	-5	0	0	0	0	40.3	45.4	48.8						5	
	6	881		30.065		50.6	34.5			40	35.6	34	36.2	0	calm	1-	calm	-5	0	0	calm	calm	39.5	45	48						6	
	7	30.119		160		49	35			41	38.5	35	33.8	0	calm	0	0	0	0	0	0	0	41	44	44						7	
	8	170		155		49.5	39			48	44.5	44.5	46.8	0	calm	-5	calm	-5	0	0	0	0	46	46	44.5						8	
	9	136		117		49.6	45			49.5	49	48	44.3	0	calm	0	0	5	0	0	0	0	48	48	48						9	
	10	086		097		52.8	44.6			44	44.8	49.5	48.5	0	calm	0	calm	2.5	0	0	0	0	46	49	49						10	
	11	053		29.859		58.3	43.3			44.4	44	40.7	46	14	calm	-5	calm	-5	0	0	0	0	48	49.4	49.5						11	
	12	29.741		725		53.9	43.5			52.5	52.1	42	39.4	0	calm	1-	calm	1-	0	0	0	0	49.5	49.5	49.5						12	
	13	902		30.084	5	58.7	40.5			45.5	40	44.5	34	0.2	calm	-5	calm	-5	0	0	0	0	49	49	49.8						13	
	14	30.138		121		48.3	32.2			43.3	39.5	43	38.2	0	calm	-5	calm	1-	0	0	0	0	42.3	49.2	49						14	
	15	199		262		52.3	42.2			50.5	49.5	51.2	49.5	0	calm	-5	calm	-5	0	0	0	0	46	49	48						15	
	16	281		278		56.4	48			50	48.2	44	43.5	0	calm	-5	calm	-5	0	0	0	0	49	48.5	48.5						16	
	17	283		243		53	33.2			45	44.5	48	44.5	0	calm	-5	calm	-5	0	0	0	0	45	49.2	48						17	
	18	198		156		56.3	39			45	44	46	45.3	0	calm	-5	calm	0	0	0	0	0	44.5	49	48						18	
	19	192		242		49	31.5			48.6	45.5	41	38.5	0.6	calm	-5	calm	0	0	0	0	0	49.5	48.4	48.8						19	
	20	358		444		56.8	41.8			49.5	46.5	49	48.2	0	calm	-5	calm	-5	0	0	0	0	46.5	48.5	49						20	
	21	492		511		52.8	46			49	49	45	45	0	calm	-5	calm	-5	0	0	0	0	49	49	49						21	
	22	451		284		51.8	40.6			41.1	41.6	45.5	42.8	0	calm	-5	calm	-5	0	0	0	0	44.5	49.5	49.5						22	
	23	169		060		51	40.3			60	44.6	45	42.3	0	calm	-5	calm	-5	0	0	0	0	44.5	48.5	49.5						23	
	24	29.945		29.828		56.4	41.3			46.4	44.2	50	44.2	0	calm	-5	calm	-5	0	0	0	0	45.4	48	49						24	
	25	701		626		53.2	46			55	52.5	54	52.2	0	calm	-5	calm	-5	0	0	0	0	49	48.5	49						25	
	26	649		753		60.6	54			59.5	54.3	59.8	58.4	0	calm	-5	calm	-5	0	0	0	0	52	52.2	49.5						26	
	27	800		794		63.2	54.3			60	58.5	60.5	58	10	calm	-5	calm	-5	0	0	0	0	53	52.5	50.5						27	
	28	712		677		63	53			59.6	54.5	53	49.5	0.2	calm	-5	calm	-5	0	0	0	0	53	54	51						28	
	29	929		927		60.2	46.5			49.8	48.5	48	45.2	20	calm	-5	calm	-5	0	0	0	0	50.5	53	52						29	
	30	620		602		54.5	40.3			51.8	49	46.5	44.5	0	calm	-5	calm	-5	0	0	0	0	44.5	50.4	51						30	
	31	485		600		57.3	40.5			44.5	45.4	42.5	42.5	36	calm	-5	calm	-5	0	0	0	0	49	49	50.2						31	
Sums.		131513		131513		1411	118			149	1711	165	1811										177	205	218							
		692		120		99	59			1.8	1.0	0.9	3.2										202.8	8.5	3.0							
Means.		29.926		29.939		54.2	40.8			24	18	16	10	9	120								25	28								
† Total Corrections for Instrumental Errors.						53.9																										
† Corrections for Diurnal Range.																																
"Corrected Means."																																
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† = 29.926  
 for Temp. (Col. 2), = \_\_\_\_\_  
 Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = 29.939  
 for Temp. (Col. 4), = \_\_\_\_\_  
 Mean at Station, corrected, and at 32°, = 29.933  
 Correction for height, 162 feet above Mean Sea-level, = \_\_\_\_\_  
 Mean, reduced to 32°, and Sea-level, = 29.933  
 Highest Reading, corrected for Index error, on the 21 th, = 30.511  
 Lowest Do. Do. on the 2nd = 29.189  
 Difference, or Monthly Range, = 1.322

\* Each instrument tested at the Office in Edinburgh bears the stamp "S.M.S.," and a number to be entered in the Heading; or the Number and Initials of the Maker may be here given.  
 † Embracing corrections for both capillarity and Index Errors.  
 †† The Diurnal Range for Scotland is as yet unknown.  
 ‡ These "Hygrometrical Deductions" are calculated from Glaisher's Hygrometrical Tables, Second Edition only.  
 § While the Diurnal Range is unknown, the Artificial Mean of Cols. 5 and 6 will be entered as the "Calculated Mean Temperature."  
 Any Observations not taken under the conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 12 th, 27.2 = 63.2  
 Lowest in Month, corrected for Index errors, on the 5 th, 7.15 = 31.5  
 Difference, or Monthly Range, = 31.7  
 "Corrected Mean" of all the Highest, (Col. 5), = 53.9  
 "Corrected Mean" of all the Lowest, (Col. 6), = 40.8  
 Difference, or Mean Daily Range, = 13.1  
 \*\* Calculated Mean Temperature of Month, = 47.4  
 S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the \_\_\_\_\_ th, \_\_\_\_\_ = \_\_\_\_\_  
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, \_\_\_\_\_ = \_\_\_\_\_  
 Lowest at Night, Black Bulb, (corrected for Index errors), on the \_\_\_\_\_ th, \_\_\_\_\_ = \_\_\_\_\_  
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, \_\_\_\_\_ = \_\_\_\_\_  
 Difference of above Means or Range ("exposed"), \_\_\_\_\_ = \_\_\_\_\_

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 46.5  
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 44.6  
 ‡ Computed Temperature of Dew-Point, = 42.4  
 ‡ Do. Elastic Force of Vapour, = 27.2  
 ‡ Do. Weight of Vapour in a Cubic Foot of Air, = 3.12  
 ‡ Relative Humidity, (Saturation = 100), = 87  
 RAIN fell on 9 Days; Amount in Inches, = 1.20

WIND. SUMMARY.											
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.
A.M.	1	0	0	2	3	8	12	5	0	0.65	
P.M.	0	1	1	1	10	12	4	1	0	0.84	
Mean.	1	0	1	2	9	12	5	0	0	0.75	0.56 lb.

Observations made and  
 Return verified by

(Signed) Robert Grosvenor

Greatest daily range = 20.4 on the 4 th

J. F.  
J. F.











INSTRUCTIONS

One of the chief objects that the Scottish Meteorological Society proposed to itself when the Society was established in 1855, was to secure **uniformity** in the system of observation pursued at all its Stations. Uniformity in the observations is absolutely necessary to justify the publication of Monthly Results from different observations, it being found that differences between the Returns from two Stations, so very considerable as to render them quite incomparable, may arise from dissimilarity in the position or shelter of instruments, different hours of observation, or even from the use of differently constructed instruments. It is therefore hoped, that those who kindly furnish Reports to the Society will, by a scrupulous attention to the following Directions, secure for their Monthly Returns, an accuracy and value commensurate with the labour and pains involved in making them; and, for the Tables published by the Society, an entire comparableness among the several Returns, without which the Society's Reports must inevitably fail in achieving one of the main objects of Meteorological Observation.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich or Railway Time only), as specified in the following remarks, or at the top of the columns of the Schedule. It is hoped that the utmost punctuality in the time of reading the instruments will be observed. Observers, in some few cases, may find this impossible; in such instances they are specially requested to mark opposite every reading the time at which it was taken, if not at 9 A.M. or 9 P.M.

**Weather-Glasses and Aneroids**, though well-suited to indicate roughly variations of atmospheric pressure, are not fitted for scientific purposes. No Barometer should be used for Meteorological observation that is not supplied with some means of adjustment or compensation which will secure the height of the mercury in the tube is not appreciably affected by the fluctuating surface of the sea, or by the rise and fall of the barometer in which the error arising from the fluctuating surface of the mercury in the cistern is obviated by the use of Foxen's Barometer, the construction of which is such as to render it immune from the influence of the sea, and which is made of flexible material, thus rising or depressing the surface till it just meets the ivory point which forms the zero point of the fixed scale.

The Barometer originally constructed by Mr. Adie of London, and usually called the Board of Trade Barometer, has the great convenience of requiring no adjustment of the cistern. Its scales are not true inches, but so much shorter as to compensate the error that would otherwise arise from the fluctuations of the surface of mercury in the cistern. This is an excellent Barometer for ordinary Observers, inasmuch as it entirely eliminates the error of observation likely to arise in a few cases in setting the instrument to the zero point of the fixed scale when the light is not good. To show the accuracy with which these Barometers are made, it may be stated, that one was compared, during a whole year, with the Society's Standard Barometer, particular care being given to make the comparison when atmospheric pressure was rising or falling very rapidly, with the result that none of the readings differed from those of the Standard more than 0.003 inch.

A modification of Foxen's Barometer is used at a number of the Society's Stations, by which the coincidence of the zero point with the surface of the mercury is indicated by a little ivory float, whose stem passes freely through the lid and case of the cistern. When the index-line on this little piston-rod is brought, by the adjusting screw, to form one straight line with those on its ivory frame, the scale is graduated. In taking an observation, this preliminary setting must be made with scrupulous accuracy; as a slight error here will vitiate the readings from the vernier.

It is absolutely necessary that the Barometer which is to be used, shall have been compared with a Standard Barometer. The Barometer should be suspended in as good a light as can be secured, and to facilitate the reading a piece of white paper may be put behind the tube. It is to be hung level, perpendicular, and exposed to the light, so that the whole of the face of the tube may be exposed, not that the instrument is to be held in the hand. The object being to compare the whole instrument, including the brass fittings, the contained mercury, and the attached Thermometer, shall be when read at one uniform temperature, it is evident that the best position is that which is least liable to sudden changes of temperature.

In taking an Observation, the Attached Thermometer is first noted: the tube must then be gently tapped, and the cistern-adjustment carefully made. The eye, by raising and lowering it, must be brought into the plane of the back and front of the index—usually the lower edge of the vernier, which must be carefully adjusted so as to form exactly a tangent to the convex surface of the mercury in the tube. Observations must be taken quickly, so as to prevent heat from the observer's hands and person from affecting the mercury, and the water pure. In frosty weather, observation is a matter of much delicacy, and must be made with great care. The bulb must be moistened by immersion from 15 to 30 minutes before the hour of observation. From the film of ice thus formed evaporation will proceed as from the moist cloth in ordinary circumstances.

In reading the Thermometer great care must be taken to bring the eye exactly opposite the tip of the index or column of mercury. The reading ought to be taken to tenths of a degree, and noted in decimals. Thus the Thermometer will be read—39.9, 40.0, or 40.1; or again, 40.4, 40.5, 40.6, according as it indicates a little under, an exact coincidence with, or a little over 40°, or 40½, or 40¾, or 40.8 respectively. In reading Rutherford's Minimum Thermometer, the indication of that end of the index which is next the surface of the spirit is alone noted. On opening the Thermometer Box, the Dry and Wet Bulb Thermometers are to be first, and rapidly, read, inasmuch as they are readily affected by heat from the person of the Observer.

The Hygrometer is read at 9 A.M. and 9 P.M. The Self-Registering Thermometers are read at 9 P.M. only, as indicating the greatest and least degrees of temperature in the 24 hours preceding. It is now a matter of indifference when the Self-Registering Thermometer is read, and it is necessary at least the extreme dryness occur at four hours; and it is necessary to refer their extreme dryness to their proper meteorological day. In the Society's schedules, the indications registered on the 3d are those of a series of phenomena commencing at 9 P.M. on the 2d, and extending till 9 P.M. on the 3d.

No instrument ought to be used for Meteorological purposes till it has been carefully tested by comparison with a Verification of Standard Thermometer. When such Thermometers are not graduated on the stem, but merely on an attached scale, undergo repairs, they are very liable to be moved from their position on the Scale, and ought never afterwards to be used without being re-tested. The Self-Registering, especially the Minimum Thermometers, ought frequently to be compared with the dry bulb of the Hygrometer. The freezing-point of each Thermometer, marked by a scratch on the tube, ought to be tested once a year, in snow or melting ice.

In selecting instruments, the following points require attention:—The divisions of the vernier of Barometers in reference to their scales, and the perfect freedom of the Barometer from air; the correct num-

INSTRUCTIONS FOR TAKING METEOROLOGICAL OBSERVATIONS, WITH REMARKS ON THE USE OF INSTRUMENTS.

The Council of the Society recommend that the Self-Registering Thermometers, and the Dry and Wet Bulb Hygrometer, be kept in Stevenson's Louvre-boarded Box for Thermometers, painted white inside and outside, and secured to four stout posts, also painted white, firmly fixed in the ground. The posts must be of such a length that, when the Thermometers are hung in position, the Bulbs of the Minimum Thermometer, and of the Dry and Wet Bulb Thermometers will be exactly at the same height of four feet above the Minimum Maximum Thermometer being hung immediately above the Minimum Thermometer. The Thermometer Box is to be placed over a plot of grass, and in a free open space to which the sun's rays have free access during as much of the day as surrounding conditions enable the Observer to secure. The Thermometers are suspended on cross laths in the centre of the Box, and face the door, which should open to the north. The Council regard the question of uniformity of height above ground, and method in protecting the Thermometers, as vital in every system of Meteorological Observation, since without it Observations made at different Stations are incomparable, thus rendering it impossible to compare the Climates of places with each other as regards their most important features.

Professor Phillips, and Negretti and Zambra's Maximum Thermometers are recommended. It is recommended that these Self-Registering Thermometers be graduated on the glass stem. The Minimum Thermometer is liable to two derangements—viz., the column of spirit breaking, and part of the spirit rising by high temperature and lodging in the bulb. The derangement of the column of spirit breaking, and part of the spirit rising by high temperature and lodging in the bulb, is of occasional occurrence, but is not a frequent occasion, and may be remedied by the use of Foxen's Barometer. The derangement of the column of spirit breaking, and part of the spirit rising by high temperature and lodging in the bulb, is of occasional occurrence, but is not a frequent occasion, and may be remedied by the use of Foxen's Barometer.

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water, in cases where the observations cannot be taken daily, the observation may be made on the 5th, 15th, and 25th of each month. When convenient, extra Sea Observations might be taken for other and greater depths, noting always the Temperature of the Air, and the Hour of Observation. It is also very desirable that observations on the daily Maxima and Minima by Thermometers continuously immersed, be instituted at points along the coast, by the method proposed by Mr. T. Stevenson, and already commenced at Peterhead and Liverpool. The Temperature of the water at the bottom of Wells ought, when practicable, to be taken, both the depth of the Well, and of the water being noted.

Mention what Test-Papers are used, Selwyn's or Moffat's, etc. The Paper is affixed by a pin to a board in the Thermometer Box, and the indications registered at 9 A.M. and 9 P.M. It is desired that these indications be registered in connection with the force and direction of the wind at the time of observation, in the following manner:—thus 3-E, as an Ozme entry in the schedule will indicate that the Ozme paper is tinted as 3 on the scale, that the wind is from the N.W., and that its force on the scale 0—6 is 4, or blowing fresh.

Too much importance cannot be attached to the electric condition of the atmosphere in connection with terrestrial magnetism, barometrical, thermometrical, and meteorological phenomena generally. A proper Electrometer is in truth, necessary to every complete meteorological observatory. The Remarks column is obviously too narrow. Some of the most valuable observations that can be taken are those for which no room is provided in the schedule. The use of contractions, ought therefore to be given every advantage of, and a list of such as are in general use are given at the foot of the column. Besides special and extraordinary observations, great prominence ought to be given in this column to Prevailing Diseases, differences in character, colour, velocity, and direction between the Lower and Upper Strata of Clouds, the Colour of the Aurora Borealis, remarkable depressions, elevations, and fluctuations of the Barometrical, Thunder-Storms, and remarkable falls of Snow, Hail, or Rain, the Hour of Storms of Wind commencing, attaining their maximum, and ending, as well as such notes on Storms as have been hinted at above. When lofty hills are in the vicinity of a Station, the Height of Clouds and of the Snow-line in winter should be recorded. By the use of abbreviations, the state of the weather at 9 A.M. and 9 P.M. should be registered either in two columns, otherwise uncoupled, or ruled off for the purposes, from the column of Remarks. Observations in connection with the Periodic Return of the Seasons, possess not only great scientific value, but are of considerable importance in connection with Agriculture, Horticulture, and Natural History. The Council would direct the special attention of Observers to the registration of such phenomena, so that the published Summaries may fairly represent the whole of Scotland. Observations ought to be confined to individual trees and shrubs; to particular species of birds, and, in the case of plants, to specified sorts reared from year to year on a selected piece of ground or farm. The Annual Table, published yearly in the Society's Journal, will indicate the species of plants and animals to which special attention is more particularly directed.

The Council recommend Observers, before purchasing new instruments, and in repeating old ones, to communicate with the Meteorological Secretary, in—<sup>1855</sup>—that every instrument may be examined and improved before being used; and they consider it necessary that he should have full power to reject any instrument which, on being presented for comparison, does not afford him satisfaction. (By Order)

EDINBURGH, December 1854.

122 George Street,

EDINBURGH.



To the SECRETARY

BOOK POST.

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

First Out	Barley,	Bere or Bigg,	Wheat,	Peas,	Potatoes,	Turnips,	Rye Grass,
In Ear							
or Below							
Planting							
Sowing or							
above Ground,							
Appearing							
First Out							

SHRUBS, ETC.	Barberry, . . . . .	Hawthorn, . . . . .	Holly, . . . . .	Laburnum, . . . . .	Lilac, . . . . .	Mezereon, . . . . .	Mountain Ash or Rowan, . . . . .	Red Flowering Currant, . . . . .	Rhododendron Ponticum, . . . . .	Whin, . . . . .	
	First in Blossom.										
	FRUITES.	Apple, . . . . .	Black Currant, . . . . .	Cherry, . . . . .	Gean, . . . . .	Gooseberry, . . . . .	Pear, . . . . .	Plum, . . . . .	Strawberry, . . . . .		
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Have the goodness also to state any information you may be able to collect relative to the Crops of Grain, Hay, Potatoes, Turnips, Fruits, etc., whether plentiful, or in perfection; whether any have suffered from blight, disease, etc. Whether zootic disease prevails among cattle; and the Agricultural condition of the district generally.



## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at *Coona Road Edinburgh*, County of *Midlothian*, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.

Height of Cistern of the Barometer above Mean Sea-Level \_\_\_\_\_ feet, above Ground \_\_\_\_\_ feet.

During the MONTH of *December* 188*8*.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.		Days of Month.		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.					As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.				
		Barometer.	Attached Ther- mometer.	Barometer.	Attached Ther- mometer.	Max.	Min.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	Amount in inches.	Direction.	Force.	Direction.	Force.	Velocity (0-10), and Direction.	Amount (0-10), and Species.	Velocity (0-10), and Direction.	Amount (0-10), and Species.	No.			No.	No.		Mention the hour at which Storms, including Thunder and Lightning, began and ended.	
		* No.		No.		No.	No.	No.	No.						No.																	
		inches.	°	inches.	°	°	°	°	°	°	°	°											°	°	°							
	1					41.3	32			34.2	34.2	39.6	39.4	'04	W	0	W	-5	W	Ca.	Overcast		38.8	41	42.8						1	
	2					40.5	32.4			46	46	37.8	50	'01	S.W.	-5	S.W.	-5	W	Ca.	Overcast		41	41.8	42.8						2	
	3					39.5	44.5			53.5	53.5	55	55	'14	S.W.	2	S.W.	-5	S.W.	Ca.	0	0	45	44	43.5						3	
	4					56.4	48			50	47.6	49.3	48.2	'10	S.W.	-5	0	6	S.W.	Ca.	0	0	48	46.5	45						4	
	5					53.5	44			53	51	49.5	48.8	'02	S.E.	1	S.E.	1	S.E.	Ca.	Overcast		44	46.5	45.5						5	
	6					55.0	44			51	49	50.5	49.8	'02	S.W.	-5	S.W.	-5	S.W.	Ca.	0	0	46.5	44	46						6	
	7					56.2	45			49.5	45.8	47	45.5	0	S.E.	-5	0	0	S.E.	Ca.	0	0	45	46.5	46.2						7	
	8					53.4	41			42	40.5	39	38.5	0	S.E.	0	0	0	0	0	Overcast		43.5	46	46						8	
	9					44.2	36.4			34.5	36	38.0	38.0	0	W	0	S.E.	0	0	0	0		39.5	44	45.5						9	
	10					43.5	33			33.8	33.0	33.8	33.8	0	W	0	0	0	W	Ca.	0	0	37.5	42	44.5						10	
	11					42.0	34			30	30	40	38	0	S.W.	0	S.W.	0	S.W.	Ca.	0	0	35	39.8	43.5						11	
	12					39.8	35.4			34	34	38.9	34.6	'26	W	0	S.E.	-5	Overcast	Overcast			36.5	38	43.8						12	
	13					43.4	35.8			40	38.5	39.5	35.8	'01	S.E.	0	S.E.	1	S.E.	Ca.	0	0	34	39	42						13	
	14					42.4	32			40.2	39.8	40.5	40	0	W	0	W	-5	W	Ca.	W	Ca.	34	39	42						14	
	15					46.3	31			52	38	42	40.4	0	W	-5	W	0	W	Ca.	W	Ca.	34	40	42						15	
	16					43.5	31			43.3	42.3	44.9	39.6	'02	W	-5	W	-5	W	Ca.	Overcast		34.5	39.4	41.4						16	
	17					45.3	39			42.5	42.8	39	34	0	W	1	W	0	W	Ca.	0	0	34.5	40.8	42						17	
	18					42.9	35			34.2	36	35	38	0	W	-5	0	0	W	Ca.	0	0	34.4	40	42						18	
	19					44.9	30			48.2	46.5	52.8	49.3	0	S.W.	-5	S.W.	2.5	S.W.	Ca.	W	Ca.	34.2	39	41.5						19	
	20					53.1	40			40.8	40.5	52.8	49.3	'08	W	0	S.W.	1	Overcast	W	Ca.		41	41.8	42.2						20	
	21					44.1	34			41	41	49.3	48.5	'03	S.E.	0	S.W.	-5	S.E.	Ca.	0	0	39	49	42.5						21	
	22					45.2	35			46.5	45.4	44.2	44	'04	S.E.	0	E	-5	S.E.	Ca.	Overcast		43	42.5	42.8						22	
	23					44.2	39			42	41	43	41.4	0	S.E.	-5	0	0	S.E.	Ca.	Overcast		41	42.5	43						23	
	24					46.4	38.1			40.4	40	36.5	35	'02	S.W.	0	S.E.	-5	S.W.	Ca.	0	0	41	42	43						24	
	25					44.8	32			34	32.2	34.5	36.5	0	S.E.	-5	0	0	S.E.	Ca.	0	0	34.5	40.5	43						25	
	26					42.5	33			34	35	34.5	36	'11	W	1	S.W.	0	W	Ca.	Overcast		33.6	39	42						26	
	27					41.3	31.2			33	31.5	35.3	34.2	'02	S.E.	-5	0	0	S.E.	Ca.	0	0	34.8	48.5	41.5						27	
	28					42.1	32			40	38.3	36	34	'03	S.W.	-5	0	0	S.W.	Ca.	0	0	35	34.5	44.8						28	
	29					41.5	31			33.4	32	33.5	33.3	0	W	-5	W	0	W	Ca.	0	0	35	34.8	40.5						29	
	30					38.4	22			22.5	22.5	35	32.2	0	W	0	W	0	W	Ca.	0	0	33	36.8	40						30	
	31					40.6	21.9			40.5	34.6	32	32	0	W	1	S.W.	1	W	Ca.	0	0	33	36.5	39.4						31	
Sums.						1513	114			157	120	119	117	4									176	164	99							
Means.						48.5	35.3			42.8	36.2	37.5	37.2	8.9									38.3	36.4	37.8							
+ Total Corrections for Instrumental Errors.																																
+ Corrections for Diurnal Range.																																
** Corrected Means.						46.3	35.0			40.4	39.2	41.7	40.4										39.1	41.8	42.8							
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

NOTATION USED IN GENERAL REMARKS.					
a.	denotes aurora.	m.	denotes meteor.		
ci.	cirrus.	ms.	micros.		
ci.-cu.	cirro-cumulus.	n.	nimbus.		
ci.-s.	cirro-stratus.	r.	rain.		
cu.	cumulus.	h. r.	heavy rain.		
cu.-s.	cumulo-stratus.	c. h. r.	continued heavy rain.		
d.	dew.	s.	stratus.		
f.	fog.	sc.	scud.		
fr.	frost.	s.	sleet.		
h.-fr.	hoar-frost.	s.	snow.		
h.	haze.	so. h.	solar halo.		
h. d.	heavy dew.	sq.	squall.		
hl.	hail.	sq.	squale.		
l.	lightning.	t.	thunder.		
li. cl.	light clouds.	t. s.	thunder-storm.		
li. sh.	light showers.	w.	wind.		
lu. co.	lunar corona.	g.	gale of wind.		
lu. ha.	lunar halo.				

TABLE FOR ESTIMATING FORCE OF WIND.					
Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.	Estimated Force, 0-6.	Common Designation.
0	Calm	1-5	Light breeze	4	Blowing hard
0.5	Very light air	2	Fresh breeze	5	Blowing a gale
1	Light air	3	Very fresh	6	Violent gale

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 2), = \_\_\_\_\_"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 4), = \_\_\_\_\_

Mean at Station, corrected, and at 32', = \_\_\_\_\_

Correction for height, feet above Mean Sea-level, = \_\_\_\_\_

Mean, reduced to 32', and Sea-level, = \_\_\_\_\_

Highest Reading, corrected for Index error, on the \_\_\_\_\_ th, = \_\_\_\_\_

Lowest Do. Do., on the \_\_\_\_\_ th, = \_\_\_\_\_

Difference, or Monthly Range, = \_\_\_\_\_

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the \_\_\_\_\_ th, = *56.7*Lowest in Month, corrected for Index errors, on the *31* th, = *21.9*Difference, or Monthly Range, = *34.8*"Corrected Mean" of all the Highest, (Col. 5), = *46.3*"Corrected Mean" of all the Lowest, (Col. 6), = *35.0*Difference, or Mean Daily Range, = *11.3*\*\* Calculated Mean Temperature of Month, = *40.6*

S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the \_\_\_\_\_ th, = \_\_\_\_\_

"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = \_\_\_\_\_

Lowest at Night, Black Bulb (corrected for Index errors), on the \_\_\_\_\_ th, = \_\_\_\_\_

"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = \_\_\_\_\_

Difference of above means or range ("exposed"), = \_\_\_\_\_

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = *41.0*Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = *39.8*Computed Temperature of Dew-Point, = *38.5*Do. Elastic Force of Vapour, = *233*

Do. Weight of Vapour in a Cubic Foot of Air, = \_\_\_\_\_

Relative Humidity (Saturation = 100), = *90*RAIN fell on *16* Days; Amount in Inches, = *0.98*

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.						8	2	7	10	4	0.40
P.M.						1	2	0	13	5	0.40
Mean.		0	0	1	5	1	10	8	2	4	0.40

0.16

Observations made and  
Return verified by

(Signed)

*Robert Crockett*



