

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Baron's Cottage County of Bute, in Lat. 55° 49' 50" N Long. 5° 4' 5" W, Distance from Sea 8/10 miles.
Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet. During the MONTH of January

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.						SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. —				WIND.				RAIN.		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 (for above Ground).		Exposed Black Ball.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. —		No. of hours in which it fell.		9 A.M.		P.M.		9 h. A.M.		Temperature of Well at depth of 10 fms. W.	Temperature and Direction of Surface Wind.					9 A.M. 9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		Barometer. * No.	Attach- ed Ther- mometer	Barometer. No.	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. No.	Min. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direc- tion.	Force.	Direc- tion.	Force.	9 h. A.M.	9 h. P.M.	Velocity (0-10), and Species.	Amount (0-10), and Species.	Velocity (0-10), and Species.	Amount (0-10), and Species.	Hours.	No. 3 inches.	12 inches.	No. 22 inches.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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BAROMETER , "corrected Mean" at 9 A.M., <i>minus</i> the Correction ^{††}	=	29.917
for Temp. (Col. 2), = 29.936..... - .019.....		
 "Corrected Mean" of Barometer at 9 P.M., <i>minus</i> the Correction ^{††}	=	29.897
for Temp. (Col. 4), = 29.930..... - .033.....		
 Mean at Station, corrected, and at 32°,.....	=	29.907
 Correction for height, feet above Mean Sea-level,.....	=	127
 Mean, reduced to 32°, and Sea-level,.....	=	30.034
 Highest Reading, corrected for Index error, on the 31 st th,.....	=	30.542
 Lowest Do. Do., on the 23 rd th,.....	=	29.144
 Difference, or Monthly Range ,.....	=	1.398

S.-R. THERMOMETER, (in shade, etc.), **Highest in Month**, (corrected for Index Errors), on the 21 th, = 52.5

Lowest in Month, corrected for Index errors, on the 25 th, = 25.8

Difference, or **Monthly Range**, = 27.5

"Corrected **Mean**" of all the **Highest**, (Col. 5), = 45.2

"Corrected **Mean**" of all the **Lowest**, (Col. 6), = 35.3

Difference, or **Mean Daily Range**, = 9.7

** Calculated **Mean Temperature** of Month, = 40.4

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),	=	39.5
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),	=	38.6
‡ Computed Temperature of Dew-Point ,	=	37.4
‡ Do. Elastic Force of Vapour ,	=	2.24
‡ Do. Weight of Vapour in a Cubic Foot of Air , ...	=	
‡ Relative Humidity , (Saturation = 100),	=	93
RAIN fell on 2/Days; Amount in Inches,	=	6.19

WIND.		SUMMARY.									
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.
A.M.	2	1	1	1	3	5	6	10	2		
P.M.	1	1	2	0	2	4	7	8	6		
Mean.	2	1	2	1	2	4	6	9	4		

Observations made and
Return verified by

(Signed)

N.

✓
Wetheray
F. Jones

2

Mr ALEXANDER BUCHAN

The weather during the past month, has been
changeable and wet, accompanied by dense fogs
frequent in the M. The last three days of the month
has been remarkably mild; birds are already
commencing the "hum" of spring -

[illegible]

FOREST TREES.						
	In flower.	In first appear.	In leaf.	Drosted of leaves.	COROP.	
Alder					Barley,	Sowing or planting.
Asp.					Bere or Bigg.	
Deech,					Oats,	
Birch,					Wheat,	
Blm.					Beans,	
Larch,					Pears,	
Tine,					Potatoes,	
Oak,					Rye Grass,	
Sycamore or Plane,						

EDINBURGH, December 1874.

A circular library stamp from Edinburgh. The text "EDINBURGH" is written along the top inner edge of the circle. The date "FEB 13 1878" is stamped in the center, with "FEB" at the top, "13" in the middle, and "1878" at the bottom.

advice with him regarding the purchase of instruments. Very great care should be bestowed on the Observations of the Wind, the accuracy of which, both as regards Direction and Force, is so essential towards the right conclusion of many of the more important problems of the science. A Wind-Vane ought to be elevated at least 12 feet above sur-

erty at the same height of four feet above the ground, the minimum 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 as much of the day as surrounding conditions enable the Observers. The thermometers are suspended on eye-balls in the following manner:

[illegible]

Fortunately, Spirit Thermometers may be easily so, right by the tube, when the column of spirit chances to separate. Let the thermometer be taken in the hand by the end farthest from the bulb, and consider above the head, and then forcibly swing down towards the bulb, the detached portion of spirit till it unites with the column. When the detached portion of spirit till it unites with the column, five or six drops, or swinging strokes, will generally be sufficient for the purpose; after which, the thermometer should be placed in a cooling position, to allow the rest of the spirit still adhering to the sides of the tube to draw down to the column. The top of the tube must be adopted, if the portion of spirit which has detached itself be not to be used. If the portion of spirit which has detached itself be not to be used, the top of the tube must be adopted, if the portion of spirit which has detached itself be not to be used. If the portion of spirit which has detached itself be not to be used, the top of the tube must be adopted, if the portion of spirit which has detached itself be not to be used.

The Hygrometer in use at the Society's Stations consists of two Thermometers usually, but not necessarily, mounted on one frame. As apparently slight deviations from the approved form of this apparatus seriously vitiate the Hygrometrical Observations, Observers are specially requested to attend to the following conditions:—The bulbs must hang down at least an inch free from the scales and frame to which they are attached; the frame must be such as will bring the tubes forward as far as an inch from any board on which it may be suspended; the water-cap can must be covered, and altogether placed to the side, and a little below the level of the wet bulb, but in no case under the neck of the bulb; the Thermometer must be of medium fineness, and fastened at the bulb by the cotton, which also supplies it with water. The bulb must be seen by the Observer, that the mixture is always uniform and moist; and the water pure. In frosty weather, the bulb must be covered with much delicate, and muslin from 15 to 30 minutes before the bulb must be exposed. From the film of ice thus formed, experience is a fair proof of the exactness of the observation. The thermometer is to be placed on the moist cloth, in ordinary circumstances. In reading the Thermometer great care must be taken to insure that the Thermometer exactly coincide the tip of the index

The Hygrometer in use at the Society's Stations consists of two Thermometers usually, but not necessarily, mounted on one frame. As apparently slight deviations from the approved form of this apparatus seriously vitiate the Hygrometrical Observations, Observers are specially requested to attend to the following conditions:—The bulbs must hang down at least an inch free from the scales and frame to which they are attached; the frame must be such as will bring the tubes forward as far as an inch from any board on which it may be suspended; the water-cap can must be covered, and altogether placed to the side, and a little below the level of the wet bulb, but in no case under the neck of the bulb; the Thermometer must be of medium fineness, and fastened at the bulb by the cotton, which also supplies it with water. The bulb must be seen by the Observer, that the mixture is always uniform and moist; and the water pure. In frosty weather, the bulb must be covered with much delicate, and muslin from 15 to 30 minutes before the bulb must be exposed. From the film of ice thus formed, experience is a fair proof of the exactness of the observation. The thermometer is to be placed on the moist cloth, in ordinary circumstances. In reading the Thermometer great care must be taken to insure that the Thermometer exactly coincide the tip of the index

**Reading of the
Talmudic
Temple**

To tenshs of a degree, and noted in decimals. Thus the Talmudtemple will be read -39° 5', 40° 0' or again, as also 40° 5' and 40° 6' more or less than 40°, respectively. The Talmudtemple, the indication of that end of the index which is next the surface of the spirit is alone noted. On opening the Talmudtemple Box, the Dry and Wet Bath Talmudtemple 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 Salt-Regulating Thermometers are read at 9 P.M. only, as there is no change of temperature after midnight. It is not a matter of difference

[illegible][illegible]

When the Self-Registering Thermometers are read, since, in winter at least, the extremes may occur at any hour; and it is necessary to observe their occurrence to their proper meteorological day. In the Society's schedules, the indications registered on the 3d are those of the 2d, &c. & for *ε* 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 Standard Thermometer. The following are the points to be attended to in testing.

Variation of Temperature.—When the thermometer is used, it is not to be taken out of the shade, but the thermometer and the thermometer scale, are to be kept on the stand till nearly one hour before the observations are to be made. The thermometer and the thermometer scale, they are very liable to be moved about, and the thermometer scale, if it is not kept in its 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:—

1. In divisions of the vector of Thermometers in reference to their scales, —

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Barone Cottage, County of Mt, in Lat. 55° 44' 50", Long. 5° 4' 5", Distance from Sea 10 miles.Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet.During the MONTH of February 1878.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.		SELF-REGISTERING THERMOMETERS.				HYGROMETER.				WIND.				RAIN.		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.									
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max.	Min.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	Velocity (0-10).	Amount (0-10).	Velocity (0-10).	Amount (0-10).	No.	12 inches.	22 inches.							
	1	30.480	45	30.400	46	45	38			41.5	40	40	38.5	WNW	NW													Cloudy & mild	1		
	2	30.376	45	30.364	46	50	38.5			44.5	42.5	42.5	41.5	WNW	NW													Clear & mild	2		
	3	30.400	44	30.414	45	47	37			39.6	38.3	41	39.5	calm	calm													Cloudy & mild	3		
	4	30.396	45	30.400	45	45	40			42	40.3	42	40	WNW	W													do do	4		
	5	30.390	45	30.400	46	44.5	39			42	39.5	42.5	39	calm	SW													do do	5		
	6	30.346	45	30.320	46	44	40			42.5	40	43.3	41.3	SW	SW													do cold	6		
	7	30.354	47	30.420	50	49.5	42.5			45.5	44	47	46.5	W	NW													do mild	7		
	8	30.484	53	30.374	50	53	38			45	44	38	37.3	W	calm													Clear & warm	8		
	9	30.170	47	29.968	46	42.3	37			40	37.3	39.6	38.5	SW	SW													Cloudy & dull	9		
	10	29.800	45	29.860	45	42	39			40	39.6	40.6	40.5	S	SW													Misty Rain am; Gall & heavy P.M.	10		
	11	29.930	45	30.030	42	44.5	32			36	35.5	38	37	calm	E													Clear foggy & fine	11		
	12	30.100	45	30.020	42	43	34			36.3	34.6	36	34.3	E	ESE													Clear & fine	12		
	13	29.770	40	29.820	45	38.5	34			35.3	34	38	37	ENE	ENE													Cloudy & blazy & cold - snowfall	13		
	14	29.830	42	29.740	42	42	37.5			40.3	38.5	38.5	37.5	E	ENE													do do	14		
	15	29.750	43	29.760	46	47	37			41.5	40.5	45	43	SE	SW														Dull - Wet P.M.	15	
	16	29.720	45	29.814	48	51.5	42			45.2	45	49	48	S	S														Dull & blazy & wet	16	
	17	29.740	48	29.610	50	51	45.5			47	46.5	46	45.6	S	SW														Dull & blazy	17	
	18	29.660	47	30.060	48	48.6	42			45.2	41.6	43.5	42.3	SW	WNW														Cloudy & stormy & wet. 12.30 P.M. - 11	18	
	19	30.170	45	29.920	46	46.5	38			41.6	41	45	43	S	SW														Dull & w. S.W. & stormy & wet P.M.	19	
	20	29.800	48	30.200	48	51.5	42.5			47	46	44.5	42	SW	SW														Dull - Showers	20	
	21	30.354	50	30.474	51	50	43			48	47.5	47	45.5	SW	W														Cloudy & mild	21	
	22	30.470	53	30.410	51	48.5	42.5			46.3	45.2	46	45.2	W	calm														do do	22	
	23	30.222	50	30.200	48	47	38			45	42.6	38	37.5	SW	W														do do	23	
	24	30.072	47	29.984	47	46	35.5			43	41.5	41	38	W	W														Showers	24	
	25	29.876	46	29.850	47	45	38.5			41.5	39	40	39	W	NW														do justly winds	25	
	26	29.836	44	29.680	47	46	39			42.5	41.2	43.5	43.5	WSW	calm														Showers	26	
	27	29.514	48	29.170	50	48	43.5			46	45.5	46	46	SE	calm														do	27	
	28	29.536	49	29.520	54	49	54.3			46.3	45.5	48.5	46	S	SW														Dull & showery (Wet - stormy P.M.)	28	
	29																														29
	30																														30
	31																														31
Sums.		14135413		1493412	141355144					411641284	4454157																				
Means.		30.053463		30.053463	30.053463					42.7413	42.5412																				
+ 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. " meteors.
ci.-cu. " cirro-cumulus. n. " nimbus.
ci.-st. " cirro-stratus. r. " rain.
cu. " cumulus. h. r. " heavy rain.
cu.-s. " cumulo-stratus. c. h. r. " combined heavy rain.
d. " dew. s. " stratus.
f. " fog. sc. " scud.
fr. " frost. sq. " squall.
h.-fr. " hoar-frost. s. " snow.
h. " haze. sol. h. " solar halo.
l. d. " heavy dew. sq. " squall.
h. " hail. w. " wind.
l. " lightning. t. " thunder.
li. cl. " light clouds. t. s. " thunder storm.
li. ch. " 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 0-5 Calm Very light air 1-5 Light breeze Fresh breeze 4 Blowing hard
1 1-2 Light air 2-3 Light breeze Very fresh 5 Blowing a gale
6 Blowing hard

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction^{††} for Temp. (Col. 2), = 30.008
"Corrected Mean" of Barometer at 9 P.M., minus the Correction^{††} for Temp. (Col. 4), = 30.003
Mean at Station, corrected, and at 32°, = 30.006
Correction for height, feet above Mean Sea-level, = 127
Mean, reduced to 32°, and Sea-level, = 30.133
Highest Reading, corrected for Index error, on the 8th, = 30.484
Lowest Do. Do., on the 27th, = 29.470
Difference, or Monthly Range, = 1.014

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 8th, = 53.0
Lowest in Month, corrected for Index errors, on the 11th, = 32.0
Difference, or Monthly Range, = 21.0
"Corrected Mean" of all the Highest, (Col. 5), = 46.7
"Corrected Mean" of all the Lowest, (Col. 6), = 39.2
Difference, or Mean Daily Range, = 7.5
** Calculated Mean Temperature of Month, = 43.0
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 8th, = 53.0
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 53.0
Lowest at Night, Black Bulb, (corrected for Index errors), on the 11th, = 32.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 32.0
Difference of above Means or Range ("exposed"), = 21.0

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 42.6
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 41.2
Computed Temperature of Dew-Point, = 39.5
Do. Elastic Force of Vapour, = 2.113
Do. Weight of Vapour in a Cubic Foot of Air, ... = 7.5
Relative Humidity, (Saturation = 100), = 89
RAIN fell on 17 Days; Amount in Inches, = 3.27

WIND.	SUMMARY.									
	Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.
A.M.	1	0	3	1	6	6	8	0	3	
P.M.	0	0	4	0	2	8	5	4	5	
Mean.	0	0	4	1	4	7	6	2	4	

Observations made and
Return verified by

(Signed)

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SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Barrow Cottage, County of Dut, in Lat. 55° 49' 50"^N, Long. 5° 4' 5", Distance from Sea 8/10 miles.
Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet. During the MONTH of March
The Hours of Observation are of Greenwich Time.

[illegible]

BAROMETER, "corrected Mean" at 9 A.M., <i>minus</i> the Correction $\left\{ \begin{array}{l} \text{for Temp. (Col. 2),} = 29.955 \end{array} \right.$ $\left. \begin{array}{l} \text{..... } - 0.07 \end{array} \right\}$ =	29.904
"Corrected Mean" of Barometer at 9 P.M., <i>minus</i> the Correction $\left\{ \begin{array}{l} \text{for Temp. (Col. 4),} = 29.950 \end{array} \right.$ $\left. \begin{array}{l} \text{..... } - 0.05 \end{array} \right\}$ =	29.905
Mean at Station, corrected, and at 32°, =	29.904
Correction for height, feet above Mean Sea-level,..... =	.127
Mean, reduced to 32°, and Sea-level, =	30.031
Highest Reading, corrected for Index error, on the 16 th,..... =	30.590
Lowest Do. Do., on the 31 th,..... =	29.062
Difference, or Monthly Range, =	1.528

S.-R. THERMOMETER, (in shade, etc.), **Highest in Month**, (corrected for Index Errors), on the 20 th, = 52.0

Lowest in Month, corrected for Index errors, on the 24 th, = 27.0

Difference, or **Monthly Range**, = 25.0

“ **Corrected Mean** ” of all the **Highest**, (Col. 5), = 47.6

“ **Corrected Mean** ” of all the **Lowest**, (Col. 6), = 35.5

Difference, or **Mean Daily Range**, = 12.1

** Calculated **Mean Temperature** of Month, = 41.5

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),	=	408
Mean (corrected) A.M. and P.M. Reading of Wet Bulb , (Cols. 10 and 12),	=	38.2
## Computed Temperature of Dew-Point ,	=	34.9
## Do. Elastic Force of Vapour ,	=	203
## Do. Weight of Vapour in a Cubic Foot of Air , ... =		
## Relative Humidity , (Saturation = 100),	=	80
RAIN fell on 18 Days ; Amount in Inches ,	=	2.54

WIND.		SUMMARY.									
Direction.	N	NE	E	SE	S	SW	W	NW	Gale or Variable.	Mean Force.	Mean Velocity in miles per day.
A.M.	2	0	2	1	1	1	11	8	3		
P.M.	2	2	1	1	0	2	6	17	0		
Mean.	3	1	2	1	0	2	8	12	2		

Observations made and
Return verified by

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Barone Cottage, County of W. I., in Lat. 53° 49' 50", Long. 5° 4' 5", Distance from Sea 70 miles.

Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet.

During the MONTH of April 1878

The Hours of Observation are of Greenwich Time.

[illegible]

BAROMETER, "corrected Mean " at 9 A.M., <i>minus</i> the Correction \uparrow †		
for Temp. (Col. 2), =	<u>29.774</u> <u>.000</u> }
		= <u>29.774</u>
"Corrected Mean " of Barometer at 9 P.M., <i>minus</i> the Correction \uparrow†		
for Temp. (Col. 4), =	<u>29.786</u> <u>.000</u> }
		= <u>29.786</u>
Mean at Station, corrected, and at 32°,.....		= <u>29.780</u>
Correction for height,	feet above Mean Sea-level,.....	= <u>127</u>
Mean, reduced to 32°, and Sea-level,.....		= <u>29.847</u>
Highest Reading, corrected for Index error, on the 27 th ,.....		= <u>30.190</u>
Lowest Do. Do., on the th ,.....		= <u>28.834</u>
Difference, or Monthly Range ,.....		= <u>1.356</u>

S.-R. THERMOMETER, (in shade, etc.), **Highest in Month**, (corrected for Index Errors), on the 29 th..... = 65.5

Lowest in Month, corrected for Index errors, on the 5 th, = 31.0

Difference, or **Monthly Range**, = 34.5

" **Corrected Mean** " of all the **Highest**, (Col. 5), = 55.2

" **Corrected Mean** " of all the **Lowest**, (Col. 6), = 40.7

Difference, or **Mean Daily Range**, = 14.5

** Calculated **Mean Temperature** of Month, = 48.0

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),	=	46.2
Mean (corrected) A.M. and P.M. Reading of Wet Bulb , (Cols. 10 and 12),	=	43.6
## Computed Temperature of Dew-Point ,	=	40.6
## Do. Elastic Force of Vapour ,	=	2.55
## Do. Weight of Vapour in a Cubic Foot of Air , ...	=	
## Relative Humidity , (Saturation = 100),	=	87
RAIN fell on / 2 Days; Amount in Inches,	=	3.11

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	2	14	6	0	2	3	2	1		
P.M.	0	1	10	2	6	0	1	5	5		
Mean.	0	2	12	4	3	1	2	3	3		

Observations made and
Return verified by

(Signed)

mt.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Barnes Cottage, County of Bute, in Lat. 55° 49' 50" N, Long. 5° 45' 12" W, Distance from Sea 10 miles.
 Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet. During the MONTH of May 1878.
 The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. <u>1091</u>				WIND.				RAIN.		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 Bulb.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. _____		No. of hours in which it fell.	Amount in inches.	9 A.M.		P.M.		9 h. A.M.								
		Barometer. * No. <u>4</u>	Atmospheric Thermometer	Barometer. No. <u>4</u>	Atmospheric Thermometer	Max. No. <u>131</u>	Min. No. <u>107</u>	Max. in Sun's rays No. <u>137</u>	Min. on Grass. No. <u>107</u>	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	No. _____	9 h. A.M.			Velocity (0-10), and Direction.	Amount (0-10), and Species.	Velocity (0-10), and Direction.	Amount (0-10), and Species.	No. _____					3 inches.	12 inches.	No. _____	22 inches.
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					°	°	°	°
1	29.564	50	?	61.5	43			50	47	50	48	NE	WSW					4.4	0.10												Cloudy & mild	1		
2	29.700	55	29.780	55	55.6	45		52.5	51.2	48	46.6	SSW	S					4.6	1.60												do	2		
3	29.834	64	29.750	55	59	40		50.3	50.2	51	46.5	S	SW						1.60												changeable. Showers	3		
4	29.826	56	29.944	54	55	44		53.5	50.7	48.5	47	W	W						0.05												1/2 clear. Breezy	4		
5	29.954	62	29.854	57	63.3	40.5		58	57.6	48	46	SE	SSW																		clear and warm	5		
6	29.760	62	29.550	58	66.5	47		60	52	51.5	48.5	E	E						2.43												Heavy sky	6		
7	29.600	54	29.750	55	57.5	47.5		49.3	48.5	48.6	47.5	NE	ENE						1.80												Not on far P.M.	7		
8	29.784	51	29.884	51	51	44		48	46	44	41.5	ENE	E																		Dull & blowy	8		
9	29.900	55	29.900	50	58	40		49	48.5	45	42	E	NE																		Clear. Gale	9		
10	29.854	58	29.710	54	59	39		50	46	50	48	ENE	ENE						0.90												do & blowy	10		
11	29.604	50	29.520	51	53	45		48	45.3	47.5	47.5	E	E						3.45												Not afternoon	11		
12	29.520	55	29.440	57	62.5	48		56.5	54.5	55	53	ESE	SE						0.23												Showers - mild	12		
13	29.374	56	29.304	55	57.3	50		54	52	51.5	49.5	NE	SSE						2.35												blowdy. Showers	13		
14	29.222	55	29.164	55	60	47.5		52	51	51	50	SSE	SSW						0.40												1/2 clear. blowy	14		
15	29.156	55	29.200	56	57	48		52	50.5	51	48.3	SSE	SW						1.45												Not day	15		
16	29.500	64	29.270	56	58	47		54	49	51.5	50.5	SW	S						3.56												fine am. Not P.M.	16		
17	29.350	55	29.780	49	58	49.5		52.6	50.5	50.5	48	SSW	SW						4.40												1/2 c. gale	17		
18	29.544	57	29.530	57	61	46.5		54	53.5	51.5	48.6	SE	S						2.20												Thunder showers	18		
19	29.370	55	29.554	58	59	47		49.3	48.3	49.5	48	ESE	W						0.86												Showers	19		
20	29.720	55	29.750	51	51	40		46.5	41.5	42.5	39	N	W						1.15												1/2 c. blowy	20		
21	29.662	52	29.710	48	49	35.5		38.5	37	43.6	42	NW	NW						0.35												gale all day - snow & sleet showers	21		
22	29.774	57	29.670	55	57	42		51	45	48.6	46.3	W	SW																			1/2 fine	22	
23	29.400	52	29.330	52	53	45		50	47	47.8	46.5	E	NE						0.15												Dull blowy & cold - showers	23		
24	29.382	55	29.440	54	59	45		51.6	47	46.5	45	NE	NW						0.75												Thunder showers	24		
25	29.504	53	29.538	53	56.5	45		50	45.3	45	43	NW	NW						1.40												1/2 c. fine	25		
26	29.576	56	29.594	56	57.5	39		53.6	49.6	49.3	46.5	WSW	W						2.73												do	26		
27	29.634	58	29.740	57	60	45		52	49	47.5	45	SE	calm																			do	27	
28	29.858	62	29.980	57	63.8	41.5		58	57.5	50.5	48	E	NNE																			Clear. Su 2.30 S Ex SW	28	
29	30.116	59	30.164	58	60.3	46		53.5	50	49.3	46.5	N	NW																			blowdy & mild	29	
30	30.116	58	30.070	60	60.3	42		53	48.3	50	47	NW	NW																			1/2 c. mild	30	
31	30.024	64	29.886	60	65	51		52	52.3	51	47	WSW	E																			c & fine	31	
Sums.	1729.5	14	1715.4	5	145	43		597	270	276	268								3391															
Means.	29.644	56.5	29.663	54.9	58.2	44.4		57.9	48.7	48.9	46.8																							
† 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.	" meteors.		
ci-cu.	" cirro-cumulus.	n.	" nimbus.		
cl-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.	" secund.		
fr.	" frost.	s.	" sleet.		
h. fr.	" hoar-frost.	sqa.	" squall.		
h.	" haze.	so. ha.	" solar halo.		
h. d.	" heavy dew.	sq.	" squall.		
h. l.	" light showers.	t.	" thunder.		
l.	" lightning.	t. s.	" thunder storm.		
li. cl.	" light clouds.	w.	" wind.		
li. co.	" lunar corona.	g.	" gale of wind.		
li. 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†† = 29.580
 for Temp. (Col. 2), = 29.564... - 0.014...
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = 29.593
 for Temp. (Col. 4), = 29.663... - 0.070...
 Mean at Station, corrected, and at 32°, = 29.580
 Correction for height, feet above Mean Sea-level, = 1.27
 Mean, reduced to 32°, and Sea-level, = 29.713 713
 Highest Reading, corrected for Index error, on the 29 th, = 30.164
 Lowest Do. Do. on the 19 th, = 29.156
 Difference, or Monthly Range, = 1.008

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 6 th, = 66.5
 Lowest in Month, corrected for Index errors, on the 21 th, = 35.5
 Difference, or Monthly Range, = 31.0
 "Corrected Mean" of all the Highest, (Col. 5), = 58.2
 "Corrected Mean" of all the Lowest, (Col. 6), = 44.4
 Difference, or Mean Daily Range, = 13.8
 ** Calculated Mean Temperature of Month, = 57.3
 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), = 50.4
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 47.7
 ‡ Computed Temperature of Dew-Point, = 44.9 44.9
 ‡ Do. Elastic Force of Vapour, = 298
 ‡ Do. Weight of Vapour in a Cubic Foot of Air, =
 ‡ Relative Humidity, (Saturation = 100), = 82
 RAIN fell on 22 Days; Amount in Inches, = 3.39

WIND. SUMMARY.											
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.
A.M.	2	4	9	3	5	1	4	3			
P.M.	1	2	6	1	6	4	5	5	1		
Mean.	2	3	8	2	6	2	4	4	0		

* 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.
 ‡ Practically, though not absolutely a mass correction.
 †† "Hygrometrical Deductions" are calculated from Glaisher's Hygrometrical 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) J.A.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Barone Cottage, County of Bute, in Lat. 55°49' 58", Long. 5°45' 11", Distance from Sea 10 miles.Height of Cistern of the Barometer above Mean Sea-level 110 feet, above Ground 3 feet.During the MONTH of June 1878.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. —				WIND.				RAIN.		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 Bulb.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	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.	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.					
		Inches.	"	Inches.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"					"
	1	30.032	62	29.976	60	62.5	44	55.5	49.5	48.5	46.3	NE	NNE													Clear & warm	1				
	2	29.964	61	29.900	59	64.5	42	56.3	51.3	57.5	49.3	NE	NE	0.10												de am. Bull. P.M. Thunder clouds	2				
	3	29.900	55	29.880	56	57.5	46.5	50.5	48.5	47	45	NE	ENE													de do	3				
	4	29.794	59	29.860	55	59	44	55.2	50	45	42.5	ESE	E													de do	4				
	5	30.004	57	30.070	59	60	41.5	52.6	48.3	47.5	45	WSW	NW													Clear & fine	5				
	6	30.140	56	30.104	60	60	40	53.5	49	50.5	48.5	NE	E	2.88												de do	6				
	7	29.910	54	29.820	58	56	45	49	48	53	52	ENE	SW	6.95													de do	7			
	8	29.640	57	29.372	59	58	52	54.6	53	53	53	S	S	9.55													Bull. Fair	8			
	9	29.384	61	29.350	61	64	48.6	58	54	52	52	W	WSW	2.40													de do	9			
	10	29.400	63	29.562	59	61	50.5	57.2	55	52.5	50	WSW	WSW	0.30													de do	10			
	11	29.440	61	29.244	56	57	45	56	53.5	54	50	ENE	E	3.66													de do	11			
	12	29.390	57	29.660	57	60	50	55	51.5	57.5	49	NE	ENE														Cloudy, wet P.M.	12			
	13	29.820	57	29.900	60	63	47	53.3	50.2	61	48	NE	E														de do	13			
	14	29.956	58	29.884	61	60	47.5	54	49	53	50	E	E														de do	14			
	15	29.826	60	29.814	60	63.5	46	57.6	53.3	60	49	E	W														Thunder clouds E. fine	15			
	16	29.840	63	29.810	63	66	46.3	60	55	65	60	ENE	W														de do	16			
	17	29.800	60	29.824	60	62.3	47	55	53	50	47.3	NW	NW														de do	17			
	18	29.800	61	29.850	61	63	44	58.3	62	52.3	50	W	WNW														de do	18			
	19	29.930	60	29.904	62	65	46.5	57	54.2	57.5	50	SW	W														de do	19			
	20	29.966	63	29.890	59	64.5	45.5	61.5	55.3	54	53.2	S	S	5.40													de do	20			
	21	29.940	63	30.064	62	64	49.5	57.5	54	56	53	W	SW														de do	21			
	22	30.130	62	30.060	64	65.5	45	59	53.3	52.5	51	SE	S														de do	22			
	23	30.020	62	29.984	63	61.5	48	59	56	56.3	54.3	SSW	SSW	0.20													de do	23			
	24	29.956	61	30.004	64	62.5	55	60	58	58	57.8	S	SSW	0.20													de do	24			
	25	30.070	65	30.080	65	67.5	55.5	63.3	61	59	56.5	S	SE														de do	25			
	26	30.120	69	30.104	66	69.5	54.5	65	61	59.5	58	S	W														de do	26			
	27	30.050	72	29.994	73	80	57	74.5	69	65	61.5	ENE	NW	2.03													de do	27			
	28	30.000	74	30.050	72	79	62	71.5	66	66	61.5	E	ENE														de do	28			
	29	30.044	71	29.950	67	78.5	54	67.5	61	61.5	55	ENE	ENE														de do	29			
	30	29.960	69	29.990	67	73.5	57	63.4	68.3	57.5	54	ENE	ENE														de do	30			
	31																											de do	31		
Sums.		26.226	53	26.032	48	1283	2564	252.8	1812	1141	487			3367																	
Means.		29.877	61.8	29.868	61.6	64.3	48.5	58.8	54.8	53.8	51.6																				
† Total Corrections for Instru- mental Errors.																															
‡ Corrections for Diurnal Range.																															
"Cor- rected 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.	aurora.	m.	denotes meteor.
ci.	cirrus.	ms.	" meteor.
cl.	cirro-cumulus.	n.	" nimbus.
cl.	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.ha.	" solar halo.
h. d.	heavy dew.	sq.	" squall.
h. l.	hail.	sq.	" squall.
l.	lightning.	t.	" thunder.
li. cl.	light clouds.	t. s.	" thunder storm.
li. sh.	light showers.	w.	" wind.
li. 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†† for Temp. (Col. 2), = 29.772
"Corrected Mean" of Barometer at 9 P.M., minus the Correction†† for Temp. (Col. 4), = 29.779
Mean at Station, corrected, and at 32°, = 29.776
Correction for height, feet above Mean Sea-level, = 1.27
Mean, reduced to 32°, and Sea-level, = 29.903
Highest Reading, corrected for Index error, on the 6 th, = 30.140
Lowest Do. Do., on the 17 th, = 29.244
Difference, or Monthly Range, = 0.896

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 17 th, = 80.0
Lowest in Month, corrected for Index errors, on the 6 th, = 40.0
Difference, or Monthly Range, = 40.0
"Corrected Mean" of all the Highest, (Col. 5), = 64.3
"Corrected Mean" of all the Lowest, (Col. 6), = 48.5
Difference, or Mean Daily Range, = 15.8
** Calculated Mean Temperature of Month, = 56.4
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), = 56.1
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 53.0
†† Computed Temperature of Dew-Point, = 50.1
†† Do. Elastic Force of Vapour, = 3.64
†† Do. Weight of Vapour in a Cubic Foot of Air, =
†† Relative Humidity, (Saturation = 100), = 80
RAIN fell on // Days; Amount in Inches, = 3.37

WIND.	SUMMARY.							
	Direction.	N	NE	E	SE	S	SW	W
A.M.		0	6	10	1	6	1	5
P.M.		1	10	1	5	3	6	3
Mean.		0	4	10	1	6	2	5

Observations made and Return verified by

James Kay

(Signed)

James Kay

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Barrow Cottage, County of But, in Lat. 55° 49' 50", Long. 5° 4' 5", Distance from Sea 10 miles.
Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet. During the MONTH of July 1878.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.		SELF-REGISTERING THERMOMETERS.		HYGROMETER.		WIND.		RAIN.	CLOUDS.		THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.	Days of Month.												
		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.																
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max.	Min.		Direction.	Force.	Direction.	Force.	No.					12	22										
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°														
	1	29.900	64	29.966	65	67.5	52	57.5	54	56.5	52.5	SE	SE					Cloudy & mild	1												
	2	29.940	63	29.890	61	57.3	50.5	57.2	52.3	55	57.3	E	NW					do	2												
	3	29.950	64	30.014	63	61	49	61	53	54	57	NW	NW					Clear & breezy	3												
	4	30.018	60	29.900	63	60	47	56.5	54	60	58.5	W	W					Cloudy & do	4												
	5	29.846	63	29.780	62	64	58	61.3	60.3	59	59	W	NW					Dull & damp	5												
	6	29.806	63	29.870	64	63.5	54	62	60.5	57.2	56	W	W					do Showers	6												
	7	29.890	60	29.974	61	63.5	53	57.5	57	56.5	55	NW	NW					Clear & breezy	7												
	8	30.078	62	30.086	62	66	49	61.3	57	53.6	52.3	NW	NW					do	8												
	9	29.850	63	29.792	61	60.6	48.5	58.5	58	55.2	53.3	SSW	WNW					Clear & breezy	9												
	10	29.766	58	29.772	58	58.5	51.5	56	53.5	53	52.6	WNW	W					Dull & damp	10												
	11	29.750	58	29.800	59	60.5	51.5	55	53	53	51.5	WNW	NW					Cloudy & breezy	11												
	12	29.840	60	29.900	64	66.5	50	60	57	56	54	NNE	WNW					do mild	12												
	13	29.996	67	30.050	63	67.5	49	65.5	58.5	53.5	51	NW	NW					Clear & breezy	13												
	14	30.094	62	30.160	62	64.3	49	57.5	53.5	56	58	NW	NW					do	14												
	15	30.160	61	30.200	62	63.5	51	56	53.5	56	55.5	WNW	WNW					do fine	15												
	16	30.220	64	30.240	62	62.5	58.5	57.6	57.6	57.6	57	W	WNW					Dull & mild	16												
	17	30.250	62	30.286	62	63	55	57.6	57.5	57	57	WSW	WNW					do	17												
	18	30.322	65	30.310	65	69	56.5	63	61.6	59	57	W	NW					do	18												
	19	30.310	66	30.220	66	67	56	63.6	62	60.5	57.5	W	NW					Cloudy & do	19												
	20	30.136	65	30.094	66	69.5	51	60	58	56	58	W	calm					Clear & calm	20												
	21	30.104	66	30.090	69	70.5	50	62.6	60	69	67	NE	NE					do & warm	21												
	22	30.156	69	30.070	72	70.6	54.5	64	61	68	65.3	E	NE					do & hot	22												
	23	30.008	68	29.840	65	71.6	56.5	62.6	60	62	60	NE	NE					Heavy & warm	23												
	24	29.714	64	29.670	63	63	56.5	61.5	59	60	58	ENE	ENE					Dull heavy & damp	24												
	25	29.670	68	29.670	63	68.6	53.5	65	60	56	55	ENE	NW					Cloudy & fine	25												
	26	29.694	63	29.800	66	68	50	61	58	56	52	WNW	NW					do	26												
	27	29.950	64	29.960	62	64.5	48.5	60.6	58.3	52	50	NW	NW					do	27												
	28	29.980	63	30.010	66	70.5	45	63	58	55	52	NE	N					do	28												
	29	30.070	65	30.130	65	70	45	60.2	56	56	53	NE	N					Clear & warm	29												
	30	30.260	68	30.320	67	70.5	49	64	57.5	53	52	SE	NW					do	30												
	31	30.380	68	30.320	69	73	47.5	64.2	59.8	57	55	SE	calm					do hot	31												
Sums.		1857.6	13	1853.3	67	12.6	14	1853.3	166	58.5	13.4																				
Means.		30.006	63.7	30.007	63.8	66.3	51.4	60.537	57.1	53.4																					
† 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.	meteors.
ci-cu.	cirrus-cumulus.	n.	nimbus.
ci-s.	cirrus-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.	front.	s.	sleet.
h-fr.	hoar-frost.	s.	snow.
h.	haze.	so. h.	solar halo.
h. d.	heavy dew.	sq.	squall.
h. l.	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. 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†† = 29.911
for Temp. (Col. 2), = 30.206 - 0.295
"Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = 29.912
for Temp. (Col. 4), = 30.207 - 0.295
Mean at Station, corrected, and at 32°, = 29.912
Correction for height, feet above Mean Sea-level, = 127
Mean, reduced to 32°, and Sea-level, = 30.039
Highest Reading, corrected for Index error, on the 31 th, = 30.380
Lowest Do. Do., on the 25 th, = 29.670
Difference, or Monthly Range, = 0.710

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 22 th, = 78.6
Lowest in Month, corrected for Index errors, on the 28 th, = 45.8
Difference, or Monthly Range, = 32.8
"Corrected Mean" of all the Highest, (Col. 5), = 66.3
"Corrected Mean" of all the Lowest, (Col. 6), = 57.4
Difference, or Mean Daily Range, = 14.9
** Calculated Mean Temperature of Month, = 58.8

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), = 58.8
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 56.6
†† Computed Temperature of Dew-Point, = 54.6
†† Do. Elastic Force of Vapour, = 1.28
†† Do. Weight of Vapour in a Cubic Foot of Air, ... =
†† Relative Humidity, (Saturation = 100), = 86
RAIN fell on 9 Days; Amount in Inches, = 0.740

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	3	5	3	1	0	12	6	0		
P.M.	3	2	2	1	0	0	7	14	2		
Mean.	2	2	4	2	0	0	10	10	1		

Observations made and Return verified by

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Baron's Cottage, County of Wilt, in Lat. 55° 40' 57", Long. 5° 4' 5", Distance from Sea 8/10 miles.

Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet.

During the MONTH of August 1878

The Hours of Observation are of Greenwich Time.

[illegible]

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction \uparrow for Temp. (Col. 2),	<u>29.716</u>	<u>- 0.925</u>	<u>= 29.624</u>
"Corrected Mean" of Barometer at 9 P.M., minus the Correction \uparrow for Temp. (Col. 4),	<u>29.718</u>	<u>- 0.925</u>	<u>= 29.621</u>
Mean at Station, corrected, and at 32°,			<u>= 29.622</u>
Correction for height, feet above Mean Sea-level,			<u>= .127</u>
Mean, reduced to 32°, and Sea-level,			<u>= 29.749</u>
Highest Reading, corrected for Index error, on the 1 th,			<u>= 30.342</u>
Lowest Do. Do. on the 12 th,			<u>= 29.240</u>
Difference, or Monthly Range,			<u>= 1.102</u>

S.-R. THERMOMETER, (in shade, etc.), **Highest in Month**, (corrected for Index Errors), on the 4th, = 78.6

Lowest in Month, corrected for Index errors, on the 17th, = 41.5

Difference, or **Monthly Range**, = 37.1

"Corrected **Mean**" of all the **Highest**, (Col. 5), = 67.1

"Corrected **Mean**" of all the **Lowest**, (Col. 6), = 52.1

Difference, or **Mean Daily Range**, = 15.0

**** Calculated Mean Temperature** of Month, = 59.6

S.-R. THERMOMETER, **Black Bulb in Sun**, **Highest**, (corrected for Index Errors), on the 4th, =

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

Lowest at Night, Black Bulb, (corrected for Index errors), on the 17th, ... =

"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),	=	57.2
Mean (corrected) A.M. and P.M. Reading of Wet Bulb , (Cols. 10 and 12),	=	57.2
‡ Computed Temperature of Dew-Point ,	=	55.4
‡ Do. Elastic Force of Vapour ,	=	440
‡ Do. Weight of Vapour in a Cubic Foot of Air , ...	=	
‡ Relative Humidity , (Saturation = 100),	=	88
RAIN fell on <u>4</u> Days; Amount in Inches,	=	3.97

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	13	2	2	2	4	1			
P.M.	0	0	11	0	2	3	2	7	6		
Mean.	0	3	12	1	2	2	3	4	4		

Observations made and
Return verified by

(Signed)

27.

Shirley
W. H. C. C.

 T_0

Secretary of the Meteorological Society of Scotland

that the exception of a few birds the corn crop is all cut. Wheat is the principal food for the birds, but some of the smaller birds feed on the seeds of the corn crop. The birds are generally very tame and will come to the hand for food. They are very numerous in the corn fields and are very destructive to the crop. They are very numerous in the corn fields and are very destructive to the crop. They are very numerous in the corn fields and are very destructive to the crop.

[illegible]

EDINBURGH: Printed by J. Ballantyne, 1877.
(By Order)
A. B.

EDINBURGH
"Acorn News," 1877.

One of the chief objects that the SCOTTISH METEOROLOGICAL SOCIETY proposed to itself when the Society was established in 1859, was to collect and publish the observations of 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 incompatible, may arise from dissimilarity in the position or construction 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 Table published by the Society, and entirely comparable among the several Returns, without which the Society's Reports must inevitably be of little service 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) at all Stations, 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. Observations in some few cases, may not at times be possible; but in such cases it is specially required, that if not at 9 A.M. or 9 P.M. the time of the day at which the observations are made, be noted in the Weather-Glasses and Anemoids, 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 that the height of the mercury in the tube is accurately measured from the fluctuating surface of the mercury in the cistern.

The Barometer in which the error arising from the fluctuating surface of the mercury in the cistern is entirely got rid of is Fournier's, and is the only one deserving of being applied to the purpose of flexible measurement. In the bottom of the tube of the aneroid, the scale of flexible measurement is marked in inches, and the scale of the aneroid of leather, thus raising or depressing the surface till it just meets the zero point, which forms the zero point of the fixed scale.

The height of the mercury in the tube is accurately measured from the top of the meniscus, the error being the fluctuating surface of the mercury in the column. The fluctuating surface of the mercury in the column itself is of course a factor in the accuracy of the measurement, but this is Fourier's Barometer, the arrangement consisting in applying pressure by means of a screw to the bottom of the column which is made of flexible leather, thus raising or depressing the surface till it just meets the very 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 advantage of requiring no adjustment of the scale, the great error that is not to be neglected in Fourier's Barometer, that would otherwise arise from the fluctuations of the surface of mercury in the column. This is an excellent Barometer for ordinary Observers, inasmuch as it entirely eliminates the error of observation likely to arise in not 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 when one was compared, during a whole year, with the Standard Barometer, the difference was so small as to make the correction on 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.

the comparison with atmospheric pressure was rising or falling very irregularly, with the result that none of the readings differed from those of the Standard more than 0.03 inch. The aneroid was used in the same manner as the aneroid which was used in the work of the *Seaside*. Station, by which the ascendance of the zero point with reference to the surface of the mercury is indicated by a little ivory fid, whose position upon the stem passes freely through the lid and case of the cistern. When the index on this little piston-rod is brought, by the adjusting screw, to the index on the stem, the zero point of the mercury is at the ascendance of the mercury is then at the exact height from which the scale is graduated. In taking an observation, the preliminary reading is taken with the zero point of the scale at the zero point, as with the aneroid, and the readings from the vernier. It is absolutely necessary that the Barometer which is to be used,

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 a good light as can be seen, and the thermometer should be placed in a position where it can be read without the necessity of being removed, and secured, and to facilitate the reading, a piece of white paper may be placed behind the tube. It must be hung in the best of a fixed position, and exposed to neither the sun's rays nor the heat of a fire, and must not be so placed that the whole instrument including the brass fittings, the glass tube and mercury, will be heated by a fire. The object being secured, the whole instrument including the brass fittings, the glass tube and mercury, shall be when used, at one uniform temperature. It is evident that the best position for the thermometer is in the shade, and that it is best to avoid sudden changes of temperature.

is that which is least liable to sudden changes of temperature. In taking an observation, the observer should hold the thermometer carefully made. The eye, raising and lowering it must be brought into the plane of the back and front of the index—usually to the lower edge of the vernier, which must be carefully adjusted so as to cover exactly a tangent to the convex surface of the mercury in the tube. The observer's hands and person from affecting the mercury. The use of a lens will facilitate an accurate adjustment and reading of the Barometer. A mistake not unfrequently made by those beginning to observe, is mistaking in setting the zero of the vernier to the zero of the index.

The level of the clear surface of the mercury which is in direct contact with the glass tube, must be carefully avoided.

The errors most frequently made in reading the Barometer are, errors of 1/1000 inch, 0/500 inch, and 0/650 inch; that is to say, errors of 29.365 inches, either of the following is sometimes set down—viz, as 30.365 inches, 28.365 inches, 29.865 inches, or 29.815 inches. Experience having shown that even the very best Observers make these mistakes, particular attention is directed to the matter.

When a Barometer having adjustable surfaces has to be removed from its fastenings, the ivory peg must first be served so as to form a tight plug to the orifice, thus preventing the escape of the atmosphere. Then screw up the mercury not quite to the top of the tube; it should then be allowed to settle for a few minutes, and then, without a quarter of an inch of it, and take down; it should then be carried with the utmost vigilance whether the space above the Barometer glass, and the space between the glass and the ivory plug, are perfectly free from air. It is complete vacuum; this is the state above the mercury in the instrument; a sharp tap is produced when this is so, on striking the top of the tube. If a dull tap is heard, there is air in the tube, which must be got rid of.

The Barometer for use, it must be ascertained whether the space above the mercury in the tube is a complete vacuum; this space may be ascertained by the following method:—If, in any case, if, on inclining the instrument, a sharp tap is produced when the mercury strikes the top of the tube. If a dull tap is heard, there is air in the tube, which must be got rid of.

As Barometers are liable to be injured by the introduction of air into their tubes, on removing the cistern from the place where they are kept, it is necessary to know how the air may be expelled. First close the cock by screwing the ivory peg tight, so as to prevent the escape of mercury; then screw up the instrument, and incline it so that the top of the tube may be slowly inverted, the instrument, place the top of it on a yielding substance, such as the boot, and gently tap on the cistern with the palm of the hand, so as to induce the air to ascend through the column of the glass, whence it may escape.

When the weight of two inches of mercury is sufficient to support the column of the cistern, pressure on any air that may exist inside the tube, it is usually a tedious operation to get it wholly expelled. After repeated trials, however, it is generally accomplished; and the clear metallic sound of the mercury, when gently struck against the top of the glass tube, will show when the whole of the air has been expelled. On hanging up the Barometer, care must be taken to screw down the mercury in the tube before unscrewing the top of the cistern, if this step is not already done.

tering of the scale of every instrument; the rejection of Thermometers, the Frameworks of which are not fixed to stand exposure to the weather, as shown in the past by repeated and annoying breakages of Thermometers of similar construction; and as regards Maximum Thermometers, either Negretti and Zambra's, or Phillips's, whether they will act at the highest temperatures they may be required to register. By the laws of the Society, Members and Observers have a right to have their instruments compared by the Secretary, and to advise with him regarding the purchase of instruments.

Very great care should be bestowed on the Observations of the Wind, the accuracy of which, both as regards Direction and Force, is so essential towards the right discussion of many of the most important problems of the science. A Wind-Tree ought to be erected at least 12 feet above surrounding buildings, and should be situated frequently, especially when the Vane is stationary, and when the Wind is feeble, reference may be made to the direction of smoke, &c. in well-exposed situations. Careful observations are recommended to be made on the changes in the direction of the wind ; and during

to make on the changes in every portion of the wind; and cannot be so extra observations at every hour of Greenwich time. Such a system of simultaneous observation, important results, particularly likely to give highly valuable and important results, different Stations in connection with the system of fully-planned Stations over a number direct from the High School of the University, in the manner of being established. Some of the expense involved in the carrying out of the force of the wind to the various observatories, and other points connected with storms.

The Council would recommend the Hemispheric-Cup Anemometer, a self-registering instrument which shows the amount of Wind that passes in any day; from which also the mean Velocity of the Wind at the time of observation may be ascertained. For collecting the Force of the Wind at any particular hour of observation the Pressure Anemometer recently brought under the notice of the Society by Mr. T. Stevenson, the Honorary Secretary, and Mr. R. Balling, the Society's Observer at Tallands, are recommended as likely to secure uniformity in making observations on the Force of the Wind.

Minority in making observations on the Food of the Wind.

Many causes conspire to produce anomalies in Altan Returns arising partly from the difficulty of obtaining a fair estimate of the actual number of instruments used, and partly from the defective nature of the instruments used.

As to the first, the instruments are not always placed on the plain-grade ground, but on a slope or terrace, but on a level-piece of ground, in as open a situation as the Observer can secure for it. As it is often difficult to obtain a position which is free and unobstructed by surrounding objects as is desirable, the instruments should be taken to place at some distance from shrubs, trees, buildings, or other obstructions, at least as many feet from their base as they are in height. The more important directions towards which it is most desirable to have a free exposure are in the order of their importance, S.W., N.E., S.E., S., and W. The position of the Gauge must be perfectly level and fixed so that it will not be disturbed by wind or other causes, and the height of the instrument must be such as to enable the observer to see the wind-vane, which is attached to a measuring rod stretched to a float, the rod ought to be fixed to a ground somewhat above the level of the instrument. The wind-vane, and the float, rise to its height only at the time the instrument is blown, and the float, fixed at a stem projecting above the top of the

read, it being found that a stem projecting above the rim of the Gauge seriously interferes with the proper measurement of the Rain-gauge. When a measuring glass is used, care should be taken to hold the glass perpendicular. The Rain Gauge ought to be read thrice a day, A.M., and the reading entered in the Returns of the previous day. The Gauge is read once a month, the reading is to be made on the first of the month, and the amount entered for the previous month. Snow-falls may, for convenience, registered in the rain columns.

Snow-falls may, for convenience, be registered in the rain columns, under the following conditions:—When a Snow

will vitiate the readings from the vernier.

above. It must, however, be added, that the whole subject of the observation of Solar and Terrestrial Radiation is not yet in a sufficiently advanced state to warrant the exclusive recommendation of any one of these methods.

The Hygrometer in use at the Society's Stations consists of two Thermometers usually, but not necessarily, mounted *Dry and Wet Bulb* on one frame. As apparently slight deviations from the approved form of this apparatus seriously vitiate the Meteorological Observations. Observing two specially constructed

On the Hygro-metrical Observations. Observers are specially requested to attend to the following conditions:—The bulbs must hang down by at least an inch from the socket and frame to which they are attached; the frame and socket must be so placed that the bulb may be lowered into the water, in which it may be suspended; the water must be covered, and altogether placed to the side, and a little below the level of the wet bulb, but in no case under the bulb; the manometer must be of medium thickness, and fastened at the neck of the cotton, which also supplies it with water. It must be taken by the Observer that the resin is always clean and moist, and that the water pure. Frosty weather, observation of the bulb must be suspended.

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 use, and the glass must be kept at a temperature of 100° F. to be prevented from being too dry. The use of this furnace evaporation will be observed. 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—39.3, 40.0, or 40.1; or again, 40.5, 40.6, 40.7, according as it indicates a little under, exact coincidence with, or a little over 40°, or 40.3, respectively. 40.3 and 40.7, more or less must be given, according to the circumstances, and 40.5 and 40.6, more or less must be given, according to the circumstances.

In reading Rutherford's Minimum Thermometer, the indication of that end of the index which is next to the zero mark is read, and the temperature is given in degrees Fahrenheit, $10^{\circ}\text{F.} + 40^{\circ}\text{F.}$ respectively. On opening the Thermometer the surface of the spirit is alone noted. The Thermometers are to be first, and last, the Dry and Wet Bulb Thermometers. They are readily affected by heat from the sun, and accordingly, 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 a.m. only, as indicating the greatest and least degrees of temperature in the 24 hours preceding. It is not a matter of indifference

When the Self-Registering Thermometers are read, since, in winter at least, the extremes may occur at any hour; and it is necessary to prefer their occurrence 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.

Verification of Standard Thermometers. When used by the Meteorological Service as standard thermometers, they are carefully tested by comparison with a Standard Thermometer. When used by other persons, they should be so tested from time to time, especially if they are not graduated on the stem, but merely on the attached scale, undergo repairs, or are liable to be moved from their position on the stake and might have afterwards been used without being re-tested. The Self-Registering, especially the Minimum Thermometers, ought frequently to be compared with the Fixed-point 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:—(1) That the instrument is of good make; (2) That it has no divisions or graduations of Barometer from apex to the throat under the glass; (3) That the tube is free from air bubbles; (4) That the

and the perfect freedom of the Barometer from air; the correct num-

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Baron's Cottage, County of Dumfries, in Lat. 55° 49' 50", Long. 5° 45', Distance from Sea 18 miles.
Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet. During the MONTH of February 1878.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. 1091				WIND.				RAIN.		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 Bulb.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer.		No. of hours in which it fell.	Amount in inches.	9 A.M.		P.M.		SUNSHINE. Hours.						9 h. A.M.			Temperature of WELL at depth of feet. No.	Temperature at 1 fathoms and Depth.	0-10.	9 A.M. 9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
		Barometer. No. 14	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No. 20	Min. No. 20	Max. in Sun's rays.	Min. in Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	9 h. A.M.	Velocity (0-5).			Amount (0-10).	Species.	Velocity (0-5).	Amount (0-10).							Species.	No. 8 inches.	12 inches.					No. 22 inches.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
																																								Inches.	°	Inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† = 29.728
for Temp. (Col. 2), = 29.727 - 0.005
"Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = 29.731
for Temp. (Col. 4), = 29.730 - 0.003
Mean at Station, corrected, and at 32°, = 29.730
Correction for height, feet above Mean Sea-level, = 127
Mean, reduced to 32°, and Sea-level, = 29.857
Highest Reading, corrected for Index error, on the 10th, = 30.130
Lowest Do. Do., on the 15th, = 28.978
Difference, or Monthly Range, = 1.152

* 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 Arithmetical Mean of Cols. 9 and 10 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 th, = 69.0
Lowest in Month, corrected for Index errors, on the th, = 40.0
Difference, or Monthly Range, = 29.0
"Corrected Mean" of all the Highest, (Col. 5), = 60.5
"Corrected Mean" of all the Lowest, (Col. 6), = 47.6
Difference, or Mean Daily Range, = 12.9
** Calculated Mean Temperature of Month, = 54.0
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), = 54.2
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 52.6
†† Computed Temperature of Dew-Point, = 51.0
† Do. Elastic Force of Vapour, = 374
† Do. Weight of Vapour in a Cubic Foot of Air, ... =
† Relative Humidity, (Saturation = 100), = 89
RAIN fell on 19 Days; Amount in Inches, = 4.78

WIND.		SUMMARY.							
Direction.		N	NE	E	SE	S	SW	W	NW
A.M.	2	1	6	0	5	2	10	4	0
P.M.	1	1	5	0	2	5	5	6	5
Mean.	2	1	5	0	4	3	8	5	2

Observations made and
Return verified by

(Signed)

Butcher
Sept. 1868

 T_0

Secretary of the Meteorological Society of Scotland.

The born endo has been early and well secured
 walking though fresh is somewhat low for the season
 some end a good endo. ^{data} endo are the young with

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; and the Agricultural condition of the district generally; disease prevails among cattle; and whether Epizootic, or whether Epizootic, etc. Whether Epizootic, etc.

proposed to itself when the Society was established in 1852, to secure perfect uniformity in the system of observation pursued by the Observers. Uniformity in the observations is absolutely necessary to justify the publication of Monthly Results from different stations, and the uniformity between the observations themselves is necessary to justify the comparison of the results from different stations. Returns from two Stations, so very considerably in the position and character of the instruments, would be altogether incompatible, may arise from dissimilarity in the position or character of the instruments, or even from errors in the use of differently constructed instruments. It is therefore hoped that those who kindly furnish Reports to the Society will, by a careful comparison of the following Directions, see for their

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, at the top of each page of the Report.

most 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 positively 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, however, is

The *Barometer* is used for Meteorological Observations that is not applied with the same means of adjustment or compensation which will secure that the height of the mercury in the tube is accurately measured from the fluctuating surface of the mercury in the cistern.

The Barometer originally constructed by Mr Adie of London, is usually called the Board of Trade Barometer, has the great convenience of requiring no adjustment of the cistern. Its scale is not more than 12 inches long, and the difference between the zero that will otherwise arise from the contraction of the glass and the zero that is not otherwise arising, is so much shorter as to compensate the error.

This is an excellent Barometer for the Observations of the Stratospheric Observers, inasmuch as it entirely eliminates the error of observation likely to arise in not a few cases in setting the instrument to the zero point of the fixed scale when the light is not direct. It shows the accuracy with which these Barometers are made, it may be stated, that one was compared, during a whole year, with the highly accurate Standard Barometer, particular care being given to make

A modification of Fortin'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 end passes freely through the lid and case of the cistern, thus indicating exactly on this level the position of the zero point.

view, to form one straight line with those on its ivory frame, the surface of the mercury is then at the exact height from which 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 Barometef which is to be used, should 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 placed behind the tube. It must be hung truly perpendicular, and so that neither the sun's direct rays nor the heat of a fire and steam be coming against a wall heated by a fire. The object being secured that the whole instrument, including the brass fittings, the glass, the contained mercury, and the attached Thermometer, shall not be exposed to any wind, fog, or rain.

in taking an Observation, the Attached Thermometer is first placed: the tube must then be gently tapped, and the eastern-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 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.

tube. Observations must be taken quickly, so as to prevent heat from the observer's hands and person from affecting the mercury. Use of a lens will facilitate an accurate adjustment and reading of the Barometer. A mistake not infrequently made by those attempting to observe, consisting in setting the edge of the verner to level of the clear surface of the mercury which is in direct contact with the glass tube, must be carefully avoided.

the barometer are frequently made in reading the barometer are 1-000 inch, 0-500 inch, and 0-50 inch; that is to say, instead of 29-365 inches, either of the following is sometimes set down—viz., 30 365 inches, 28-365 inches, or 29-815 inches.

Experience having shown that even the very best Observers make these mistakes, particular attention is directed to the matter.

When a Barometer having adjustable surfaces has to be removed from its fastenings, the ivory peg must first be screwed so as to form

the plug to the cistern, thus preventing the escape of the mercury. To screw up the mercury not quite to the top of the tube, but to leave it in a quarter of an inch of it, and take down the instrument; it would then be carried with the cistern uppermost. Before suspending the Barometer for use, it must be ascertained whether the space between the mercury in the tube is a complete vacuum; this is the case, on melting the instrument, a sharp tap is produced when

If a dull tap is heard, there is mercury in the top of the tube. If the tube, which must be got rid of, is Barometers are liable to be deranged by the introduction of air into their tubes, on removal from place to place, or in being roughly handled, it may be useful to Observers to know how the air is expelled. First close up the cistern by screwing the ivory stop tight, so as to prevent the escape of mercury; then screw up the screw to about half an inch from the top of the tube; and having

any inverted the instrument, place the top of it on a yielding surface, such as the foot, and gently tap on the cistern with the point of the hand, so as to induce the air to ascend through the tube to the cistern, whence it may escape. Since there is the weight of two atmospheres the pressure of the mercury in the barometer, and the air outside—pressing on any air that may be in the tube, it is usually a tedious operation to get it wholly ex-

After repeated trials, however, it is generally accomplished; the clear metallic sound of the mercury, when gently struck against the top of the glass tube, will show when the whole of the air has been expelled. On hanging up the Barometer, care must be taken to screw down the mercury in the tube before unfastening the top of the cistern, for if this be not attended to, the mercury will run out, and the instrument be seriously damaged.

[illegible]

EDINBURGH, December 1857..

EDINBURGH, December 1847..

at Baron Cottage, County of Bute

Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet.

The Hours of Observation are of Greenwich Time.

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction $\uparrow \uparrow$
for Temp. (Col. 2), = 29.558 - 0.05 } = 29.493

"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\uparrow \uparrow$
for Temp. (Col. 4), = 29.576 - 0.06 } = 29.510

Mean at Station, corrected, and at 32°,..... = 29.502

Correction for height, feet above Mean Sea-level,..... = 127

Mean, reduced to 32°, and Sea-level,..... = 29.629

Highest Reading, corrected for Index error, on the th,..... = 30.170

Lowest Do. Do. on the th,..... = 28.671

Difference, or **Monthly Range,**..... = 1.499

S.-R. THERMOMETER , (in shade, etc.), Highest in Month , (corrected for Index Errors), on the th,.....	=	<u>63.0</u>
Lowest in Month , corrected for Index errors, on the th,	=	<u>32.0</u>
Difference, or Monthly Range ,	=	<u>31.0</u>
"Corrected Mean " of all the Highest , (Col. 5),	=	<u>53.3</u>
"Corrected Mean " of all the Lowest , (Col. 6),	=	<u>44.9</u>
Difference, or Mean Daily Range ,	=	<u>10.4</u>
** Calculated Mean Temperature of Month,	=	<u>50.1</u>

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),		=	49.4
Mean (corrected) A.M. and P.M. Reading of Wet Bulb , (Cols. 10 and 12),		=	48.1
††	Computed Temperature of Dew-Point ,	=	46.7
††	Do. Elastic Force of Vapour ,	=	0.319
††	Do. Weight of Vapour in a Cubic Foot of Air , ...	=	
††	Relative Humidity , (Saturation = 100),	=	91
RAIN fell on ¹⁰ Days; Amount in Inches,		=	7.20

Observations made and
Return verified by

(Signed)

24.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Barone Cottage, County of Bute, in Lat. _____, Long: _____, Distance from Sea 10 miles.
Height of Cistern of the Barometer above Mean Sea-level 110 feet, above Ground 9 feet. During the MONTH of November 1878.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS.				HYGROMETER.				WIND.				RAIN.		CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.	Days of Month.				
		9 h. A.M.		9 h. P.M.		Protected in Shade, Feet above Ground.		Exposed in Sun, Feet above Ground.		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.										
		No.	Barometer.	Attach- ed Ther- mometer	No.	Barometer.	Attach- ed Ther- mometer	Max. No.	Min. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	Readings of the H. Cup Anemometer.	No. of hours in which it fell.	Amount in inches.	Velocity (0-6), and Direction.	Amount (0-10), and Species.	Velocity (0-6), and Direction.	Amount (0-10), and Species.	No. 1 inches.	No. 2 inches.					No. 3 inches.	Temperature at 1 fathom, and Density.	9 A.M.	9 P.M.
		* No.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.	inches.					inches.	inches.	inches.	inches.
1	30.064	43	30.139	43	49.5	32	44.5	41.5	38	36.3	NNW	NW																			1			
2	30.264	47	30.264	46	51	32	43.2	40	41	40	W	calm																			2			
3	30.190	44	30.040	47	50	37.5	40	39	39	38	NW	NW																			3			
4	29.830	45	29.950	49	50.8	35	43.5	42.5	35	34	NE	NE																			4			
5	29.950	45	29.780	45	48	33	39	37	37	36	W	NW																			5			
6	29.590	45	29.690	44	51	34	42	40	34	33	NW	NW																			6			
7	29.680	42	29.470	44	46	32.5	47	46	37.3	37	NNW	NW																			7			
8	29.510	42	29.800	41	43	32	46.6	35	35	33.5	NNW	NW																			8			
9	29.990	40	29.320	43	45	30	38	37	44.5	44	SW	SW																			9			
10	29.030	46	29.110	45	48	41	45	44.6	42	41	SW	NW																			10			
11	29.350	42	29.250	38	43	29	37	34	31	31	NW	NNW																			11			
12	29.320	39	29.444	42	46	30	35.3	34.3	36.5	35	NW	NW																			12			
13	29.536	43	29.680	43	48.5	34	42.5	40.3	35.3	34.3	NW	NE																			13			
14	29.730	42	29.724	42	49	32.5	38	37	36	34.8	NNW	NNW																			14			
15	29.660	44	29.500	43	45	34	40.2	38	39	37	NW	NW																			15			
16	29.380	45	29.550	45	49.5	35.5	43	41	38.5	37	NW	NW																			16			
17	29.710	44	29.930	43	49	34.5	39.3	37.3	35	32.5	NW	NW																			17			
18	30.130	41	30.240	42	42	30	34.5	33.5	34	33.6	NW	calm																			18			
19	30.280	40	30.294	43	48	31.5	35.3	33.2	43.5	41.3	calm	SW																			19			
20	30.270	45	30.230	47	49	39.5	46.3	45.3	43	43	W	NW																			20			
21	30.114	46	29.990	47	50	41	41.5	41.5	45	48	W	SW																			21			
22	29.680	46	29.630	48	47	38	40	38.5	46	45.3	W	W																			22			
23	29.909	42	29.824	42	47	36	36	35.5	37	36	NW	NE																			23			
24	29.564	41	29.330	42	41	36	39	37.6	36.2	36	NW	NE																			24			
25	29.260	43	29.334	42	42.5	32	37.3	37	32	32	NW	calm																			25			
26	29.460	44	29.516	43	38	31	37.6	36.5	35	34	NW	calm																			26			
27	29.524	39	29.636	40	43	28.5	31	30	36.5	35	S	E																			27			
28	29.900	40	29.970	39	45	28	36.5	34	29	27.5	NNW	NE																			28			
29	29.740	41	29.850	40	40	27	37	37	36	35.8	NE	NE																			29			
30	29.854	40	29.720	44	43.5	35	36	35.5	42	44.5	NE	NW																			30			
31																																31		
Sums.		15.143	4 10	16.128	4 12	4 14	12.4	16.128	4 12	4 14	12.4	16.128	4 12	4 14	12.4	16.128	4 12	4 14	12.4	16.128	4 12	4 14	12.4	16.128	4 12	4 14	12.4	16.128	4 12	4 14	12.4	16.128		
Means.		29.755	42.9	29.746	43.4	46.3	33.4	39.4	38.4	37.6	36.7																							
† 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			

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† = 29.716
for Temp. (Col. 2), = 29.706
"Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = 29.706
for Temp. (Col. 4), = 29.711
Mean at Station, corrected, and at 32°, = 29.711
Correction for height, feet above Mean Sea-level, = 1.27
Mean, reduced to 32°, and Sea-level, = 29.838
Highest Reading, corrected for Index error, on the 19 th, = 30.294
Lowest Do. Do., on the 16 th, = 29.830
Difference, or Monthly Range, = 1.264

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 2 th, = 57.0
Lowest in Month, corrected for Index errors, on the 29 th, = 27.0
Difference, or Monthly Range, = 24.0
"Corrected Mean" of all the Highest, (Col. 5), = 46.3
"Corrected Mean" of all the Lowest, (Col. 6), = 33.4
Difference, or Mean Daily Range, = 12.9
** Calculated Mean Temperature of Month, = 39.8

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), = 38.5
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 37.4
†† Computed Temperature of Dew-Point, = 35.9
†† Do. Elastic Force of Vapour, = 2.12
†† Do. Weight of Vapour in a Cubic Foot of Air, =
†† Relative Humidity, (Saturation = 100), = 91
RAIN fell on 11 Days; Amount in Inches, = 4.46

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Variable.	Mean Force.
A.M.		4	3	0	0	1	2	6	13	1	
P.M.		2	6	1	0	0	3	1	13	4	
Mean.		3	4	1	0	1	2	4	13	2	

Observations made and
Return verified by

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Barrow Cottage, County of Wute, in Lat. 55° 49' 52" N, Long. 5° 4' 5" W, Distance from Sea 8 miles.Height of Cistern of the Barometer above Mean Sea-level 116 feet, above Ground 3 feet.During the MONTH of December 1878.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. 1091				WIND.				RAIN.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE. 0-10. 9 A.M. 9 P.M.	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. Grass.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. —		No. of hours in which it fell.		9 A.M.		P.M.		9 h. A.M.		Temperature of WELL, at depth of feet. No.	Temperature at 1 fathom, and Density.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	Barometer. * No. —	Attach- ed Ther- mometer.	Barometer. No. —	Attach- ed Ther- mometer.	Max. No. 13	Min. No. 14	Max. No. —	Min. on Grass. No. —	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	9 h. A.M.	No. —	Amount in inches.	Velocity (0-5), and Direction.	Amount, (0-10), and Species.	Velocity (0-10), and Direction.	Amount, (0-10), and Species.	Hours.	No. —																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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1	29.646	42	29.890	42	47	34			29	38	24	33	NNW		NW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				</

NOTATION USED IN GENERAL REMARKS.

a.	aurora.	m.	denotes meteor.
ci.	cirrus.	ms.	meteors.
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.
li.	hail.	sq.	squalls.
li.	lightning.	t.	thunder.
li. cl.	light clouds.	t. s.	thunder storm.
li. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	w. c.	wind calm.
lu. h.	lunar halo.		

TABLE FOR ESTIMATING FORCE OF WIND.

Estimated Force, 0-6.	Common Designation.	Estimated Force, 7-8.	Common Designation.	Estimated Force, 9-10.	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 $\frac{1}{1000}$ for Temp. (Col. 2), = 29.569
Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{1000}$ for Temp. (Col. 4), = 29.572
Mean at Station, corrected, and at 32°, = 29.570
Correction for height, feet above Mean Sea-level, = 127
Mean, reduced to 32°, and Sea-level, = 29.697
Highest Reading, corrected for Index error, on the 3 th, = 30.300
Lowest Do. Do., on the 19 th, = 28.784
Difference, or Monthly Range, = 1.516

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 3 th, = 50.5
Lowest in Month, corrected for Index errors, on the 12 th, = 23.0
Difference, or Monthly Range, = 27.5
"Corrected Mean" of all the Highest, (Col. 5), = 40.1
"Corrected Mean" of all the Lowest, (Col. 6), = 28.7
Difference, or Mean Daily Range, = 11.4
** Calculated Mean Temperature of Month, = 34.4

S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 3 th, = 50.5
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 40.1
Lowest at Night, Black Bulb, (corrected for Index errors), on the 12 th, = 23.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 28.7
Difference of above Means or Range ("exposed"), = 11.4

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 32.9
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 32.0
Computed Temperature of Dew-Point, = 30.2
Do. Elastic Force of Vapour, = 168
Do. Weight of Vapour in a Cubic Foot of Air, = 90
Relative Humidity, (Saturation = 100), = 90
RAIN fell on 7 Days; Amount in Inches, = 1.89

WIND.		SUMMARY.									
Direction.	No.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.	5	4	4	1	0	2	1	12	2		
P.M.	4	3	5	0	1	3	4	8	3		
Mean.	4	4	5	0	0	3	2	10	3		

Observations made and
Return verified byJames Kay

(Signed)

James Kay
Forster, Wute Estate
74.

