

SCOTTISH METEOROLOGICAL SOCIETY.

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

[illegible]

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

S.-R. THERMOMETER , (in shade, etc.), Highest in Month , (corrected for Index Errors), on the <u>17</u> th,	=	<u>68.7</u>
Lowest in Month , corrected for Index errors, on the <u>23</u> th,	=	<u>24.0</u>
Difference, or Monthly Range ,	=	<u>44.7</u>
" Corrected Mean " of all the Highest , (Col. 5),	=	<u>47.9</u>
" Corrected Mean " of all the Lowest , (Col. 6),	=	<u>35.1</u>
Difference, or Mean Daily Range ,	=	<u>12.8</u>
** Calculated Mean Temperature of Month,	=	<u>41.5</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),		=	41.9
Mean (corrected) A.M. and P.M. Reading of Wet Bulb , (Cols. 10 and 12),		=	40.2
‡ Computed	Temperature of Dew-Point ,	=	
‡ Do.	Elastic Force of Vapour ,	=	
‡ Do.	Weight of Vapour in a Cubic Foot of Air , ..	=	
‡	Relative Humidity , (Saturation = 100),	=	
RAIN fell on 23 Days; Amount in Inches,		=	3.71

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	2	6	12	9	1		1.31	
P.M.			1	1	2	12	12	1	2	1.40	
Mean.	0.01	0.01	2	4	12	10	1	1		1.36	

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(Signed) Robert Grosart.

Observations made and
Return verified by

TAKE THE METEOROLOGICAL

[illegible]

difficult to compare Stations are inaccurate, the following Thermometers are recommended: Professor Phillips, and Negretti and Zambra's Maximum Thermometers, and Rutherford's Minimum Thermometer. Thermometers be graduated on the glass stem. The Minimum Thermometer is liable to two derangements—viz, the plenum of spirit breaking, and part of the spirit distilling by high temperature and boiling at the top of the tube. This derangement of occasional occurrence with Fiedel's Thermometers, but of frequent occurrence in the exposed Thermometers. Hence a system of correction of this kind of Thermometers ought to be a regular part of the work carried on by the observer.

Fortunately, Spirit thermometers are not used by the British.

Accordingly, spirit thermometers may be easily set right or altered, when the column of spirit diminishes to separate. Let the thermometer be taken in the hand by the end farthest from the bulb, and swing it slowly above the head, and then forcibly swing down towards the eye; the object being, on the principle of centrifugal force, to send down the detached portion of spirit till it unites with the column above; or, if the column be very small, to break it into two or three short throws, or swinging strokes, which generally be sufficient for the purpose; after which the thermometer should be placed in a slanting position, to allow the rest of the spirit still adhering to the sides of the tube to run down to the column. But another method must be adopted, if the portion of spirit in the top of the tube be small. This is, to take the thermometer in the hand by the end nearest to where the detached portion of spirit is, which, being turned to vapour by the heat, will condense on the surface of the unbroken column of spirit. Care must be taken that the heat is not applied too quickly; for, if this be done, the tube will break and the instrument be destroyed. The best way of applying the requisite amount of heat, is by bringing the end of the tube slowly down towards a minute flame from a gas-burner; or, if gas be not at hand, a piece of tallow candle will serve instead.

The bulbs of the Thermometers for registering the greatest heat from the sun's rays, and the low, or minimum thermometer during night, have a black coating which may easily be made, or renewed, by the application of a mixture of lampblack and printer's ink. They are placed in shallow louvered boxes, whose sides protect the bulbs from the wind. The maximum should be freely exposed to the sun, and the minimum should rest on wooden supports a few inches from the surface of the grass, in an open situation. Now the sun's heat is affected by the glass in these Thermometers; nor the sun's heat to affect the Thermometer. Black-bulbs enclosed in glass jackets may also be used, being indelible preferable to the plain Thermometer. 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 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 from the scales and frame to which they are attached; the frame must be such as will bring the tubes forward by an inch from any board on which it may be suspended; the water-bulb 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 dry bulb must be of medium thickness, and fastened at the neck of the tube by the cotton, which also supplies it with water. It must be held so to the Observer that the mouth is always clean and moist, and that the air is fresh and pure. In frosty weather, observation is a matter of the greatest care. The thermometer must be kept at least 15° above the freezing point, and must be removed 15° below it. The bulb must be covered with moistened muslin, and the thermometer must be lowered from the flume of the rain gauge, 15 to 20 minutes before the hour of observation. From the flume of the rain gauge, the thermometer must be raised as well as from the moist cloth, in order to prevent condensation. In the evening, the thermometer must be raised as well as from the moist cloth, in order to prevent condensation. In the evening, the thermometer must be raised as well as from the moist cloth, in order to prevent condensation.

in reading the thermometer, the eye must be taken to the great care must be taken to avoid the possibility of error. The eye must be placed at the level of the index or the meniscus of the liquid, and the reading must be taken from the column of mercury. This is the only way to avoid errors to tenths of a degree, and noted degrees. The thermometer will be read—39° 9, 40° 0, or 40° 1, respectively. A 44, 40° 5, 40° 6, according as it indicates a little more, an exact coincidence with, or a little over 40° or 40° 1, respectively. So also 40° 7, 40° 8, more or less must be registered 40° 2, or 40° 3, and 40° 4, 40° 5, 40° 6, 40° 7, or 40° 8, respectively. In reading Rutherford's Minimum thermometer, the indication of that end of the index which is next the surface of the spirit is alone noted. On opening the Thermometer in the Dry and Wet Bulb Thermometers are to be first, and lastly, read, inasmuch as they are really affected by heat from the sun of the observer.

The Hygrometer is read at 9 a.m. and 9 p.m. The Self-Registering Thermometers are read at 9 p.m. only, as indicating the greatest and least degrees of temperature in the day. The temperature of the air is read at 9 a.m. and 9 p.m. only, as indicating the greatest and least degrees of temperature in the day.

on the Self-Registering Thermometers are read, since, in winter season, the extremes may occur at any hour; and it is necessary to note their occurrence to their proper meteorological day. In the majority of schemes, the indications registered on the 3d of those days of phenomena commencing at 7 p.m. on the 2d, and extending 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. When such Thermometers are not graduated on the same scale, but merely on a divided scale, the two readings are very liable to be moved in opposite directions, and ought never afterwards to be taken without being re-tested. The Self-Registering, especially the aneroid Thermometers, ought frequently to be compared with the bulb of the Hydrometer. The freezing-point of each Thermometer, tested by a second on the tube, ought to be tested once a year, in order to ascertain the error.

In selecting instruments the following points require attention:—

1. The divisions of the vertical Barometers in reference to scales, and the vertical freedom of the Barometer.

Edinburgh 6th Dec
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bering of the scale of every instrument; the rejection of Thermometers, the frameworks of which are not likely 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 and Minimum Thermometers, either Negretti and Zambetti, or Phillips's, will alone be accepted. If 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 assist 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 of great consequence.

tion and force, is so essential towards the right discussion of many of the more important problems of the science.

A Wind-Vane ought to be elevated at least 12 feet above surrounding objects. When it oscillates incessantly, then the wind direction should be taken. In all cases, however, especially when the Vane is stationary and when the wind is feeble, reference may be made to the direction of smoke, etc., in well-exposed situations. Careful observations are recommended to be made on the changes in the direction of the wind and during severe, active, stormy, and variable weather.

storms, exact observations at every hour of Greenwich time. Such a system of simultaneous observation, pursued at different Stations, is likely to give highly valuable and important results, particularly in connection with the system of thickly-planted Stations over a limited district round Edinburgh called STORM STATIONS, in the course of being established by the Society for the systematic investigation of the relation of the force of the wind to BAROMETRIC GRADIENTS, and other points connected with storms.

The Council would recommend the Hemispherical Cup Anemometer, — a self-registering instrument which allows the amount of Wind that passes it per day; from which can also be ascertained the mean Velocity of the Wind at the time of observation may be ascertained. For indicating 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. Ballingall, the Society's Observer at Ellabakk, are recommended as likely to secure accuracy in making observations on the Force of the Wind.

Rain Gauge. Many causes conspire to produce anomalies in Rain Returns, arising partly from the difficulty of obtaining a perfectly unobstructed situation for observation, and partly from the defective nature of the instruments used. The Rain-Gauge should not be placed 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 as free and unobstructed by surrounding objects as is desirable

ones should be taken to place it 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 the exposure, are in the order of importance, S.W., N.E., S.E., and W. The level of the ground should be perfectly level, and fixed so that it will remain level in all weather, and so that the instrument will be on a good ground, over grass. In such cases the rod should be fixed with a measuring rod attached to a float, the rod ought to be fixed down, and the float rise to its height only at the time the instrument is used, it being found that a stem projecting above the float

gauge seriously interferes with the proper measurement of the Rain fall. When a measuring glass is used, care should be taken to hold it quite perpendicular. The Rain Gauge ought to be read fully at 9 A.M., and the reading entered in the Returns of the previous day. If 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, be registered in the *rain column*.

Snow-falls.—Under the following conditions:—When a Snow-gauge is placed in a snow-drift, the snow falling on the gauge and the letter S affixed to the depth of water received in Gauge, the depth of the snow must be measured in some open place where no drift is observed, and registered in addition to, and as a check upon, the indications of the Rain-Gauge. For wind, rain, and snow, as indicated in every column, the Observer cannot be too careful to register observations only; and nothing that partakes of the nature of deduction or inference.

Cloud-4. Convenient abbreviations for the nomenclature of Clouds will be found on the other side. The amount of Clouds observed may be estimated from the greater or less observation of the sky overhead (*i.e.*, within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are viewed obliquely; and estimates, being unable to judge of their amount, we ought not to take them into account. In estimating the amount of clouds column, though their appearance changes may be noted, it is better to estimate the amount of Clouds entered from a scale of 0 to 10; thus when a cloud overhead is freely covered 10 to 10; thus when a cloud overhead is freely covered, 10 and so on.

Observations of the Clouds are made at 9 A.M. and at sunset, as illustrating the condition and currents of the upper and lower regions of the atmosphere. The entries in the schedule are to be made in the following manner:—Thus, in the column Velocity and Direction, $\frac{2}{9}$ W will indicate that the upper strata of Clouds travel with

extreme velocity from S.W., and those in the lower regions from N.W., with one-third the speed of the former. Again, in the second cloud column, an entry of $\frac{4 \text{ st.}}{2 \text{ cu.st.}}$ will indicate that the higher

regions are covered to the amount of 4-tenths with *stratus* Clouds; and that the sky is further obscured to the extent of 2-tenths by over Clouds of the *cumulo stratus* kind.

Remarks on peculiar Clouds, accompanied with drawings, will assist materially in the development of a more exact nomenclature of Clouds, as well as throw light on the electrical, and other of the more obscure phenomena of Meteorology.

As the germination and growth of crops and plants generally, they depend greatly on the temperature of the soil, the amount and consistency—the Council remark is made—Observations in this interesting department he made among the Thymians permanently fixed in the soil, their bulbs sank to depths of 3, 12, and 22 inches, and the stems above ground, the soil was raised and fitted with sloping furrows to prevent the water being conveyed to the bulb by the stems or woollen fringe.

A knowledge of the Temperature of the *Sea*, is not only in itself, but in its relation to that of our island, a most interesting and important branch of Meteorology. The Cause of the Temperature of the *Sea*, is so fully and so completely explained by the Cause of the Temperature of the *Land*, that the former can be as truly and as perfectly ascertained, as the latter. The Cause of the Temperature of the *Land*, is so fully and so completely explained by the Cause of the Temperature of the *Sea*, that the former can be as truly and as perfectly ascertained, as the latter. The Cause of the Temperature of the *Land*, is so fully and so completely explained by the Cause of the Temperature of the *Sea*, that the former can be as truly and as perfectly ascertained, as the latter.

FOREST TREES.	In flower.	Test buds first appear.	In leaf.	Divided of leaves.	CHOSE, mentioning variety.	Sowing or planting.	Appearing above ground.	In ear or flower.	First Cut or Rais.
Idem.					Barley, . . .				
Sheep, . . .					Bare or Bigg, . . .				
Beck, . . .					Oats, . . .				
rch, . . .					Wheat, . . .				
m, . . .					Beans, . . .				
rch, . . .					Pease, . . .				
me, . . .					Potatoes, . . .				
k, . . .					Turnips, . . .				
camore or Plaine,					Rye Grass, . . .				

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122 *George Street*

122 *George Street.*

EDINBURGH.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Leith Road, Edinburgh, County of Midlothian, in Lat. _____, Long. _____, Distance from Sea _____ miles.
Height of Cistern of the Barometer above Mean Sea-level _____ feet, above Ground _____ feet. During the MONTH of March 1889.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.		SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.			
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.									
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max. No.	Min. No.	Max. in Sun's rays.	Min. on Grass.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.	No. of hours in which it fell.	Amount in inches.	Direction.	Force.	Direction.	Force.	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. 1.	No. 2.	No. 3.
		* No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.					No.	No.	No.
	1					37.3	29.7			32.3	32.5	32.8	32.5	0	0.00	NE	1	NE	1	NE	0	0	0	0	35	34.1	34.4	1			
	2					40.1	30			33.6	32.5			0.03	SE	0	SE	1		SE	0	SE	0	0	34.7	34.3	34	2			
	3					38	23.4			32.9	32	32.9	32.9	0.06	E	0	E	0		0	0	0	0	32.6	32.5	32.4	3				
	4					42	28			32.5	30.4	40	34.2	0	SW	0	SW	1		SW	0	0	0	0	36.2	34	34.5	4			
	5					44.3	36.4			40	35.5	36	33.5	0	SW	1	SW	0		SW	0	0	0	0	24	35.3	39	5			
	6					42	38.4			46.4	42.5	44	42.5	0	SW	1	SW	1.5		SW	0	0	0	0	40.2	40	39.5	6			
	7					50.2	39			41.6	39.4			0	SW	0	SW	0		SW	0	0	0	0	40	40.5	40.1	7			
	8					48	32.6			36.9	36	33.5	32.9	0.12	W	0	W	1		W	0	0	0	0	38	40	39.4	8			
	9					40.6	27.5			2	2	36	33.5	0.15	W	1	W	1		W	0	0	0	0	36	39.2	40	9			
	10					49	30.5			48.8	48	51.2	49.5	0.03	W	1	W	2.5		W	0	0	0	0	39	38.5	39.8	10			
	11					53.4	30			52.2	50.4	51.5	50	0.04	W	2.5	W	2		W	0	0	0	0	42.5	42	42.5	11			
	12					53.5	48.5			51.8	50	51.8	49.5	0.02	SW	2.5	W	2.5		SW	0	0	0	0	44	44.5	44.9	12			
	13					52.7	40			47.3	45.4	46.5	38.6	0	SW	2	W	0.5		0	0	0	0	44	45.5	43	13				
	14					49.6	36.9			43	37			0	SW	1	SW	0.5		SW	0	0	0	0	41.2	44.3	43.5	14			
	15					49.6	38			46	43.5	44	45	0.09	SW	0.5	W	0.5		0	0	0	0	41.7	43	43	15				
	16					52	43			49.5	46.5	44	46	0	E	0.5	0	0		W	0	0	0	0	42.4	43.6	43	16			
	17					59	34			40.3	39.5	36.5	35	0.20	SW	0.5	SW	0.5		E	0	0	0	0	43.5	44.5	43.3	17			
	18					45.8	31.5			39	36.4	34.8	34.2	0.02	E	0.5	0	0		0	0	0	0	39	42.5	43	18				
	19					39.7	36.4			39.9	38	34.2	34	0.02	NE	0.5	NE	0		SW	0	0	0	0	41	42.5	43	19			
	20					45.5	34			38.5	37.5	40.5	39.3	0.06	SW	0.5	SW	0.5		SW	0	0	0	0	40	42.5	42.5	20			
	21					40.3	33			38.4	38.3	41.3	41.5	0.48	SW	0	W	0.5		W	0	0	0	0	40	41	42.2	21			
	22					47.5	33.5			44.8	43.5	42	42.2	0	SW	1	NE	0.5		SW	0	0	0	0	41.2	41.5	42	22			
	23					49.8	30.5			42.5	41.6	41.9	40.3	0.02	SW	1.5	SW	0.5		SW	0	0	0	0	41.5	42.5	42.1	23			
	24					51.5	30.5			43.6	41.3	42	40.2	0.02	SW	0.5	NE	0.5		E	0	0	0	0	40	42.8	43	24			
	25					49.3	30.5			41.4	41.4	41	41	0.02	E	0.5	E	0.5		0	0	0	0	0	42.8	43	42.4	25			
	26					48.4	34.3			43	44.4	44	41.8	0.04	W	0.5	SW	0.5		W	0	0	0	0	42.5	42.8	43	26			
	27					52	41			51.4	44.5	44	45	0.05	W	1.5	SW	0.5		SW	0	0	0	0	44	43.5	43	27			
	28					55.5	45.5			42.5	45.5	44	46	0	SW	0.5	W	0.5		W	0	0	0	0	45.5	45	43.5	28			
	29					51	41.3			46	43.4	45	43.2	0.21	SW	1	SW	1.5		0	0	0	0	0	45.5	45.5	44	29			
	30					52.5	41			43.1	40	39.6	38.5	0.19	SW	1.5	0	0		SW	0	0	0	0	44	45	44.5	30			
	31					53.2	31			45	42	42	39.5	0	SW	0.5	NE	1		W	0	0	0	0	42	45	44.5	31			
	Sums.																								127	129	138				
	Means.																								200	569	566				
	† Total Corrections for Instrumental Errors.																								40.6	41.8	41.9				
	‡ Corrections for Diurnal Range.																														
	“Corrected Means.”																														
	No. of Column.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction ++
for Temp. (Col. 2), = _____
Corrected Mean" of Barometer at 9 P.M., minus the Correction ++
for Temp. (Col. 4), = _____
Mean at Station, corrected, and at 32°, = _____
Correction for height, feet above Mean Sea-level, = _____
Mean, reduced to 32°, and Sea-level, = _____
Highest Reading, corrected for Index error, on the th, = _____
Lowest Do. Do., on the th, = _____
Difference, or Monthly Range, = _____

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

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

Difference, or Monthly Range, = _____

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

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

Difference, or Mean Daily Range, = _____

** Calculated Mean Temperature of Month, = _____

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), = _____

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

† Computed Temperature of Dew-Point, = _____

† Do. Elastic Force of Vapour, = _____

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

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

RAIN fell on Days; Amount in Inches, = _____

WIND.		SUMMARY.										
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.	
A.M.												
P.M.												
Mean.												

* 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 capillary and Index Errors.
‡ The Diurnal Range for Scotland is as yet unknown.
§ Practically, though not absolutely a minus correction.
|| These "Hygrometrical Deductions" are calculated from Glaisher's Hygrometrical Tables, Second Edition only.
¶ While the Diurnal Range is unknown, the Arithmetical Mean of Cols. 5 and 6 will be entered as the "Calculated Mean Temperature."
Any Observations not taken under the conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and
Return verified by

(Signed)

Robert Grossart.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Orkney N. Edgar, County of Midlothian, in Lat. _____, Long. _____, Distance from Sea _____ miles.
Height of Cistern of the Barometer above Mean Sea-level _____ feet, above Ground _____ feet.
During the MONTH of April 1880
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.		Days of Month.
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		Dry No. Wet No.		9 h. A.M. 9 h. P.M.		No. of hours in which it fell.		No. in inches.		9 h. A.M. 9 h. P.M.		Readings of the H. Cup Anemometer. No. 9 h. A.M.		9 A.M. P.M.		9 h. A.M.							
		Barometer. * No.	Attach- ed Ther- mometer	Barometer. No.	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	No.	Inches.	Direction.	Force.	Direction.	Force.	Velocity (0-6), and Direction.	Amount, (0-10), and Species.	Velocity (0-6), and Direction.	Amount, (0-10), and Species.	No. 8 inches.	No. 12 inches.	No. 20 inches.					
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
	1					50.3	30.6			42	40	43	40	0	SE	-5	76			Overcast	0	0	41	44.5	44.5					1	
	2					50.5	30.5			42.5	40.5	40.6	40.3	0	W	-5	0	0	0	0	0	0	44.5	44.2	44.4					2	
	3					50.3	33.5			42.6	42.7	42	40.2	0	S	0	0	0	0	0	0	0	43	45.5	44.5					3	
	4					52.3	32.7			51.9	48	46.3	42.3	0	W	0	W	-5			Overcast	41.3	44	45					4		
	5					60.6	40			44	44.3	46	42.8	0	W	-5	W	-5			W	43.5	46	44.4					5		
	6					57.7	42.6			49.4	46.5	46.3	46.3	0	W	-5	W	-5			W	46.8	46.8	45					6		
	7					55	40.5			45.4	43	38	36.4	0.5	W	-5	W	-5			W	46	44	45.5					7		
	8					52.5	33.5			43.4	43.1	39	38.4	0	W	-5	W	-5			W	42.5	43.5	45.5					8		
	9					46.4	36.5			42	39.5	38.4	37.8	1	W	-5	W	-5			W	41.2	44	44.4					9		
	10					44.4	34			39.5	38.8	38.4	35	0	W	-5	0	0			W	42.5	44.5	44.5					10		
	11					44.6	30.5			41.5	36.4	34.2	33.4	0	W	0	W	-5			W	49.5	43	44					11		
	12					46.3	29.7			39.7	34	7	7	0	E	-5	E	-5			E	39.5	42.5	43.5					12		
	13					45.5	29.8			38.9	36.5	36	34.4	0	E	-5	E	-5			E	39.5	42.5	43.5					13		
	14					45.6	30			44	40	38.5	36.4	0	SE	-5	E	-5			SE	41.5	43.5	43.5					14		
	15					52.4	33.5			41.5	39.4	40.5	38.4	0	E	-5	E	-5			Overcast	42.5	44.2	44					15		
	16					46.6	39.5			44.1	43.4	42.5	41.6	0.5	E	-5	E	-5			E	43.5	44	44					16		
	17					44.9	40.9			43.4	42.3	40	40	0.5	E	-5	E	-5			E	44.2	44.5	44					17		
	18					43.2	38			41	39.5	40.5	38	0	E	-5	E	-5			E	43	44.5	44.2					18		
	19					43.6	34			43.5	39.2	46	34	0	SE	-5	SE	-5			SE	43.4	44.5	44.2					19		
	20					46	30.5			45.5	40.2	44	40.5	0	SE	-5	S	-5			SE	41.5	44	44.5					20		
	21					51.5	41			49	48	45	49.8	0	SE	-5	SE	-5			SE	46	45	44.5					21		
	22					58.5	44.8			49	44.5	45	43	14	SW	-5	SE	-5			SW	44	46.5	45.5					22		
	23					54	39.2			48	45	44	42.4	0.4	SW	-5	SW	-5			SW	45.5	46.5	46.5					23		
	24					56.5	41.5			45	42	44.8	44.4	0.5	SW	-5	SW	-5			SW	46	47	45.5					24		
	25					55.3	33.5			46	42.5	35.1	35	0	WNW	-5	0	0			W	43.5	46.3	45.5					25		
	26					53	45.8			46.5	43.5	43.1	43.2	20	W	-5	W	-5			W	44	46	45.5					26		
	27					52	39			46.4	42	38.5	38.3	15	W	-5	W	-5			W	45.5	45.5	45.5					27		
	28					53	30.5			44.6	39.8	43.5	40.5	0	W	-5	W	-5			W	44.6	44	46					28		
	29					52.8	31.5			51.9	46.5	44.5	45.1	0	E	0	SE	-5			SE	45.4	44	46					29		
	30					53.8	44.8			53.6	50.2	52.6	48	0.5	SE	-5	SE	-5			SE	49.5	48	46.5					30		
	31																												31		
Sums.																						1151	1528	1444							
Means.																						43.8	45.1	44.8							
† 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.	micro.		
ci-cu.	cirro-cumulus.	u.	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.	sleet.		
fr.	frost.	s.	snow.		
h-fr.	hoar-frost.	s.	solar halo.		
h.	haze.	sc. h.	squall.		
h. d.	heavy dew.	sq.	squalls.		
hl.	hail.	t.	thunder.		
l.	lightning.	t. s.	thunder storm.		
li. cl.	light clouds.	w.	wind.		
li. sh.	light showers.	g.	gale of wind.		
lu. co.	lunar corona.				
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

NOTATION USED IN GENERAL REMARKS.

a.	denotes 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.
h. fr.	hoar-frost.	s.	sleet.
h.	haze.	so. h.	solar halo.
h. d.	heavy dew.	sq.	squall.
hl.	hail.	sq. s.	squalls.
l.	lightning.	t.	thunder.
l. cl.	light clouds.	t. s.	thunder storm.
l. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	g.	gale of wind.
lu. ha.	lunar halo.		

TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† = _____
for Temp. (Col. 2), = _____
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† = _____
for Temp. (Col. 4), = _____
Mean at Station, corrected, and at 32°, = _____
Correction for height, _____ feet above Mean Sea-level, = _____
Mean, reduced to 32°, and Sea-level, = _____
Highest Reading, corrected for Index error, on the _____ th, = _____
Lowest Do. Do., on the _____ th, = _____
Difference, or Monthly Range, = _____

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

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

Difference, or Monthly Range, = _____

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

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

Difference, or Mean Daily Range, = _____

** Calculated Mean Temperature of Month, = _____

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), = _____

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

†† Computed Temperature of Dew-Point, = _____

†† Do. Elastic Force of Vapour, = _____

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

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

RAIN fell on _____ Days; Amount in Inches, = _____

WIND.		SUMMARY.			
Direction.		N	NE	E	SE
A.M.					
P.M.					
Mean.					

* 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.
† Enhancing corrections for both capillarity and Index Errors.
‡ The Diurnal Range for Scotland is as yet unknown.
†† Practically, though not absolutely a minus correction.
‡‡ These “Hygrometrical Deductions” are calculated from Glaisher’s Hygrometrical Tables, Second Edition only.
§ While the Diurnal Range is unknown, the Arithmetical Mean of Cols. 5 and 8 will be entered as the “Calculated Mean Temperature.”
¶ Any Observations not taken under the conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and
Return verified by

(Signed)

Robert Grosvenor

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Canan Road, Edinburgh, County of Midlothian, in Lat. _____, Long. _____, Distance from Sea _____ miles.
Height of Cistern of the Barometer above Mean Sea-level _____ feet, above Ground _____ feet.

During the MONTH of May 1890

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H.Cup Anemometer. No. _____ 9 h. A.M.	9 A.M.		P.M.		SUNSHINE. Hours.	9 h. A.M.						Temperature of Well at depth of feet. No. _____	Temperature at 1 foot, and Density.	0—10. 9 A.M. 9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		Barometer.	Attach- ed Ther- mometer	Barometer.	Attach- ed Ther- mometer	Max.	Min.	Max. in Sun/rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			9 h. A.M.	9 h. P.M.	Direction.	Force.		Direction.	Force.	Velocity (0—6), and Direction.	Amount (0—10), and Species.		Velocity (0—6), and Direction.	Amount (0—10), and Species.								No. 1.	No. 12.	No. 22.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		* No. _____	_____	No. _____	_____	No. _____	No. _____	No. _____	No. _____	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			No. _____	No. _____	No. _____	No. _____		No. _____	No. _____	No. _____	No. _____		No. _____	No. _____								No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____	No. _____

NOTATION USED IN GENERAL REMARKS.

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

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), = _____

Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = _____
for Temp. (Col. 4), = _____

Mean at Station, corrected, and at 32°, = _____

Correction for height, _____ feet above Mean Sea-level, = _____

Mean, reduced to 32°, and Sea-level, = _____

Highest Reading, corrected for Index error, on the _____ th, = _____

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

Difference, or Monthly Range, = _____

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

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

Difference, or Monthly Range, = _____

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

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

Difference, or Mean Daily Range, = _____

** Calculated Mean Temperature of Month, = _____

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), = _____

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

†† Computed Temperature of Dew-Point, = _____

†† Do. Elastic Force of Vapour, = _____

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

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

RAIN fell on _____ Days; Amount in Inches, = _____

WIND.		SUMMARY.			
Direction.		N	NE	E	SE
A.M.					
P.M.					
Mean.					

* 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.
† Estimating corrections for both capillary and Index Errors.
‡ The Diurnal Range for Scotland is as yet unknown.
†† Practically, though not absolutely a minus correction.
‡‡ These "Hygrometrical Deductions" are calculated from Glaisher's Hygrometrical Tables, Second Edition only.
§ While the Diurnal Range is unknown, the Arithmetical Mean of Cols. 5 and 6 will be entered as the "Calculated Mean Temperature."
|| Observations not taken under the conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and
Return verified by

(Signed)

Robert Grossart.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Dunbar Road, Edinburgh, County of Midlothian, in Lat. _____, Long. _____, Distance from Sea _____ miles.
 Height of Cistern of the Barometer above Mean Sea-level _____ feet, above Ground _____ feet.
 During the MONTH of June 1890.
 The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	No.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No.	9 A.M.		P.M.		9 h. A.M.							Temperature of Wet Bulb, State of Heav. No.	Ther- mometer at 1 feet and Density.	9 A.M.	9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Barometer. * No.	Attach- ed Ther- mometer	Barometer. No.	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force	Direction.	Force		Velocity (0-10), and Direction.	Amount, (0-10), and Species.	Velocity (0-10), and Direction.		Amount, (0-10), and Species.	No. 3 inches.	No. 12 inches.									No. 22 inches.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		inches.	°	inches.	°	°	°	°	°	°	°	°	°			°	°	°	°		°	°	°		°	°	°									°	°	°	°	°	°	°	°	°																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† = _____
 for Temp. (Col. 2), = _____
 Corrected Mean” of Barometer at 9 P.M., minus the Correction†† = _____
 for Temp. (Col. 4), = _____
 Mean at Station, corrected, and at 32°, = _____
 Correction for height, feet above Mean Sea-level, = _____
 Mean, reduced to 32°, and Sea-level, = _____
 Highest Reading, corrected for Index error, on the th, = _____
 Lowest Do. Do., on the th, = _____
 Difference, or Monthly Range, = _____

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the th, = _____
 Lowest in Month, corrected for Index errors, on the th, = _____
 Difference, or Monthly Range, = _____
 “Corrected Mean” of all the Highest, (Col. 5), = _____
 “Corrected Mean” of all the Lowest, (Col. 6), = _____
 Difference, or Mean Daily Range, = _____
 * Calculated Mean Temperature of Month, = _____
 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), = _____
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = _____
 ‡ Computed Temperature of Dew-Point, = _____
 ‡ Do. Elastic Force of Vapour, = _____
 ‡ Do. Weight of Vapour in a Cubic Foot of Air, = _____
 ‡ Relative Humidity, (Saturation = 100), = _____
 RAIN fell on Days; Amount in Inches, = _____
 WIND. SUMMARY.
 Direction. N NE E SE S SW W NW Calm or Variable. Mean Force. Mean Velocity in miles per day.
 A.M. _____
 P.M. _____
 Mean. _____

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

Observations made and
 Return verified by

(Signed) Robert Gossard

TAKING METEOROLOGICAL

The Council of the Society recommended that the Self-Registering Thermometers and Dry and Wet Bulb Hygrometers be placed in the position of observation, and be mounted on the Thermometer Posts, and that the Self-Registering Thermometers, placed within inclosed boxes, be secured to four stent posts also painted white, and be fixed in the ground. The posts must be of such a length that when the Thermometers are hung in position the Bulbs of the Minimum Thermometer, and of the Dry and Wet Bulb Thermometers will be exactly at the same height of four feet above the ground, the Maximum Thermometer being hung immediately above the Minimum Thermometer. The thermometer box is to be placed over a plot of grass, and in a free open space to which the sun's rays have free access, thus making it as dry as surrounding conditions enable the Observer to make it. The box and the posts are suspended on cross-arms in the manner shown in the accompanying illustration, and should open to the north, and be so placed that the sun's rays shall not fall on the box.

The Council regard the question of the Self-Registering Thermometer, and mention in their report the new Thermometer system of Meteorological Observation, since without it Observation made at different Stations are incomparable, thus rendering it impossible to compare the climates of places with each other, or to regard their most important features.

Professor Phillips, and Negretti and Zambra's Maximum Thermometers, and Lufft's and Mininum Thermometers are recommended. It is recommended that these thermometers be graduated on the glass stem. The Mininum Thermometer is graduated on the stem of the column of spirit breaking, and at the top of the tube. The thermometer is to be kept in the air, and not in the temperature of spirit breaking, and at the top of the tube. This does not mean that the thermometer is to be exposed to the temperature of spirit breaking, and at the top of the tube. It is of occasional occurrence with Protected Thermometers, but of frequent occurrence with exposed Thermometers. Hence a systematic examination of Mininum Thermometers ought to be a regular part of the work carried on by each Observer.

observation may be ascertained. For indicating 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 Eddisbury, are recommended as likely to secure uniformity in making observations on the Force of the Wind.

Many causes conspire to produce anomalies in Rain Returns, arising partly from the difficulty of obtaining a perfectly unobstructible situation for observation, and partly from the defective nature of the instruments used. The Rain-Gauge should be placed 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 as free and unobstructed by surrounding objects as is desirable, 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 this order of their importance, S.W., N.W., S.E., S., & W. The Force of the Wind may be ascertained by the direction of the

run. The change lines are perfectly level, and fixed so that it will remain level in all weather, and at a height of one foot above ground over grass. In certain gauges as Fleming's, which are furnished with a measuring rod attached to a float, the rod ought to be fixed down, the float found to sit snugly only at the time the instrument is read; it being found that it slid slightly above the rim of the gauge. Most measures with the proper measurement of the Ramsden gauge, and mostly measures with the isosceles, care should be taken to hold it quite perpendicular. The Knif change ought to be read daily at 10 o'clock, and the reading entered in the Remarks of the previous day. If the Gauge is read once a month, the reading to be made on the first of the month, and the amount entered for the previous month.

Snow-falls may, for convenience, be registered in the rain columns.

Snow-falls. Under the following conditions:—When a Snow-fall occurs, after the rain has ceased, it should be noted in the Remarks, and the letter S affixed to the cell of water receipt in Gauge, and the death of the

are seen in this paper for instance in some open space, where no drift is observed, is registered in addition to, as a check upon the indications of the anemometer. For wind, rain, and snow, as indicated in every month, the Observer cannot be too careful to register observations only; and nothing that partakes of the nature of deduction or inference.

Convenient abbreviations for the nomenclature of Clouds will be found on the other side. The amount of Cloud ought to be estimated from the greater or less obscuration of the sky overhead (*i.e.* within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are never obliterated; and thus, being unable to judge of their amount, we ought not to take them into account in the Clouds' column, though their appearance and changes may be noted among the Remarks. The amount of Cloud is entered from a scale of 0 to 10; thus, when the sky overhead is free from Clouds it is entered 0, when half covered by Clouds, 5, wholly covered, 10, and so on.

Observations of the Clouds are made at 9 A.M. and at sunset, as illustrating the condition and currents of the upper and lower regions of the atmosphere. The entries in the schedule are to be made in the following manner:—Thus, in the column Velocity and Direction, 6, S. W. will indicate that the upper strata of Clouds travel with extreme velocity from S.W., and those in the lower regions from W.W., with one-third the speed of the former. Again, in the second Cloud column, an entry of $\frac{2}{4}$, east, will indicate that the higher regions are covered to the amount of 4-tenths with stratus Clouds; and that the sky is further obscured to the extent of 2-tenths by lower Clouds of the cumulo stratus kind.

Remarks on peculiar Clouds, accompanied with drawings will

assist materially in the development of a more exact nomenclature for the study of Clonds, as well as throw light on the electrical, and other of the more obscure phenomena of Meteorology.

The approximate number of Hons in which objects in the sun's rays cast shadows, should be entered in the proper

Sanshine column.

As the germination and growth of crops and plants generally, depend greatly on the temperature of the soil,—its amount and constancy,—the Council recommend that

Underground Thermometers.

Observations in this interesting department be made

A knowledge of the Temperature of the Sea is not only in itself, but in its relations to that of our island, a most important branch of Meteorology. The Council therefore recommend that the Temperature of the Sea be ascertained by the standard apparatus, from boats, or from the shore, at the same time and place, and on the same coast, where it is not influenced by that of rivers, or the influence as possible by currents sweeping along the coast, or the influence of the temperature of the land, either greatly heated by the

Temperature of the water when predictable, to be taken, both the depth of the well and the surface of the water being noted.

Mention what Test-Papers are used, Schönbein's or Mollitt's, etc.

The Paper is affixed by a pin to a board in the direction of the wind, and the indications registered at 9 A.M. and 3 P.M.

It is tested that the connection with the force and direction of the breeze is in accordance with the observation, in the following manner:—The 3^{rd} as an example, is in the schedule will indicate that the ozone paper is tinted as 3 on the scale, that is, from the N.W., and that its force on the scale 0—5 is 4, or blowing fresh.

[illegible][illegible]

9.	MIGMATORY	Cuckoo,	House-Swall	Lapwing,	Plover,	Sand-Flamingo	Starling,	Swan,	Rail or Corn
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[illegible][illegible][illegible]

BARBERS, ETC.

Barberry, . . .	Whin, . . .
Boutree or Elder, . . .	Rhododendron Potunum, . . .
Broom, . . .	Red Flowering Currant, . . .
Hazel, . . .	Mountain Ash or Rowan, . . .
Hawthorn, . . .	Mezerion, . . .
Lilly, . . .	Lambum, . . .
Laburnum, . . .	
Lilac, . . .	
Mezerion, . . .	
Mountain Ash or Rowan, . . .	
Red Flowering Currant, . . .	
Rhododendron Potunum, . . .	
Whin, . . .	

Have the goodness to
unlids, Fruits, etc., with
protozoic disease prevails

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf buds first appear.	In Leaf.	Dissected of Leaves.	GROUPS mentioning variety.	Barley, .	Bore or Bigger, .	Oats, .	Wheat, .	Beans, .	Pease, .	Potatoes, .	Turnips, .	Rye Grass, .
Alder, .														
Asb, .														
Beech, .														
Birch, .														
Elm, .														
Larch, .														
Lime, .														
Oak, .														
Sycamore or Plane, .														

SHRUBS, ETC.	First in Blossom.	PRUITES.	First in Blossom.	First in Fruit Buds Generally.	MIGHTY BIRDS.	First Arrival.	Departure.
Barberry, .							
Boutree or Elder, .							
Broom, .							
Hazel, .							
Hawthorn, .							
Holly, .							
Laburnum, .							
Lilac, .							
Mezerion, .							
Mountain Ash or Rowan, .							
Red Flowering Currant, .							
Rhododendron Pothicum, .							
Strawberry, .							
Apple, .							
Black Currant, .							
Cherry, .							
Cean, .							
Gooseberry, .							
Pear, .							
Peach, .							
Plum, .							
Swan, .							
Starling, .							
Thrush, .							
House-Swallow, .							
Lapwing, .							
Plover, .							
Sand-Martin, .							
Curlew, .							
Cuckoo, .							

EDINBURGH. December 1884

(By Order)

Turnips, Fruits, etc., whether planted, or in perfection; whether any have suffered from blight, disease, etc. Whether any have been subjected to any kind of injury, and, various zootic disease prevails among cattle; and the agricultural condition of the district generally.

To the SECRETARY

Scottish Meteorological Society

122 *George Street.*

EDINBURGH

BOOK POST.

OBSERVATIONS,

MAKING METEOROLOGICAL

WITH REMARKS ON THE USE OF INSTRUMENTS.

[illegible]

Ozone. Mention what Test-Papers are used, Schönbach's or Modified, etc. The Paper is affixed by a pin to a board in the Ozonometer Box and the indications registered at 9 A.M. and 9 P.M. It is desired that these indications be registered in connection with the force and direction of the wind at the time of observation in the following manner:—thus 37°, as an Ozone exerted at 9 A.M. and 33° at 9 P.M. The number in the schedule will indicate that the Ozone Paper is turned as 3 on a scale, that the wind is from the N.W., and that its force on the 0-5 is 4, or blowing fresh.

Too much importance cannot be attached to the electric condition of the atmosphere in connection with terrestrial magnetism, barometrical, thermometrical, and meteorological phenomena generally. A proper Electrometer in truth, necessary to every complete meteorological observatory. The Remarks column is unavoidably too narrow. Some of the

Remarks. The use of contrabass notes can be given no other advantage, but a list of such as is given in the preceding column. Besides special and extraordinary Observations, great prominence ought to be given in this column to Pre-
sents, Great Prominence differences in character, colour, velocity, and direction between the Lower and Upper Strata of Clouds, the Colour of the Skies, &c. Remarks ought to be made on the occurrence of Meteors, Comets, Eruptions, elevations, and fluctuations of the Barometer, Thunder, &c. remarkable cold Snow, Hail, Rain, the Hour of Storms of Wind.

aximum, and ending as well as such notes on Storms as have been taken at above. When lofty hills are in the vicinity of a Station, the height of Clouds and of the Snow-line in winter should be recorded. By the use of abridgements, the state of the weather at 9 A.M. and at 3 P.M. should be registered either in two columns, otherwise unconnected, or rolled off for the purpose, from the column of Remarks. Observations in connection with the Periodic Return of the Seasons, possess not only great scientific value, but are of considerable importance in connection with the study of Agriculture, Horticulture, and Natural History. The Council would direct the special attention of Observers to the registration of such phenomena, so that the published Summaries may fairly represent the whole of Scotland. Observations ought to be confined to individual trees and shrubs; particular species of birds, and, in the case of crops, to specified varieties. The Council would direct the attention of Observers to be saved from year to year on a selected piece of ground or farm. An Annual Table, published yearly in the Society's Journal, will create the species of plants and animals to which special attention should be particularly directed.

The Council recommend Observers, before purchasing new instruments, and in repairing old ones, to communicate with the Geological Secretary, in order that every instrument may be examined and improved before being used; and they consider it necessary that he should have full power to reject any instrument which, being presented for comparison, does not afford him satisfaction.

A. B.
(14 Order)

EDINBURGH. December 1884

(By Order)

Turnips, Fruits, etc., whether planted, or in perfection; whether any have suffered from blight, disease, etc. Whether any have been subjected to any kind of injury, and, various zootic disease prevails among cattle; and the agricultural condition of the district generally.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Wood Rd, Edinburgh, County of Midlothian, in Lat. _____, Long. _____, Distance from Sea _____ miles.

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

During the MONTH of July 1890.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.		SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.			
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.										
		Barometer. * No.	Attach- ed Ther- mometer	Barometer. No.	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	No. of hours in which it fell.	Amount in inches.	9 h. A.M.	9 h. P.M.	Readings of the H. Cup Anemometer. No.	9 h. A.M.	Velocity (0-5), and Direction.	Amount, (0-10), and Species.	Velocity (0-5), and Direction.	Amount, (0-10), and Species.	No. 1 inches.	No. 2 inches.					No. 22 inches.		
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					°	°	°
	1			60.2	48.5					49.2	48.6	52	51.6	32	2.8	1	6	1-5			9.5	20	E	70	56.5	54.5	56				1	
	2			56.4	46.5					52.2	51	52.5	51.8	0.3	5.5	-5	5.5	-5			5.5	70	SE	70	56.8	56.4	55.5				2	
	3			58.1	46.5					43.4	42.5	51.2	50.5	2.5	7	0	2.6	0			7	70	NE	70	55.8	56.5	55.2				3	
	4			54.6	45					53.5	51.2	52.5	51	2.8	7.5	0	6	0			7.5	70	E	70	56.4	56.5	55				4	
	5			61.1	45.8					54.5	54.5	56.2	50	0.2	70	0	2.5	-5			70	60	70	70	56.7	57.4	55.4				5	
	6			61.2	49					56	52.2	51.8	50.8	1.9	7.5	-5	7.5	0			7.5	70	70	70	55.8	57.4	55.5				6	
	7			61.3	49.1					55	49.5	51.8	50.4	0.4	11	1	7.5	-5			11	70	70	70	56.2	57.4	55.5				7	
	8			54.8	44.5					44.6	46.5	50.4	52.2	1.6	11.5	1	7.5	-5			11.5	70	70	70	55.5	56.8	55.2				8	
	9			61.5	45.8					54.8	49.5	52.2	51.5	0	12.5	1	7.5	0			12.5	70	70	70	55.5	57.4	55.5				9	
	10			62.5	45					54.4	49.1	52.9	51.3	0	12.5	1	7.5	0			12.5	70	70	70	56	57.4	55.5				10	
	11			57.9	46.4					53.8	49	52.6	52.8	0	8	-5	8	0			8	70	70	70	58	57.4	55.5				11	
	12			61.4	43					53	48.1	50.8	52.4	0	7	-5	7	-5			7	70	70	70	56.8	58	56.5				12	
	13			60.4	49.9					60.6	58.2	57	54.8	2.0	11.5	1	7.5	0			11.5	70	70	70	58	57.4	55.4				13	
	14			69.6	54.4					54.1	53.5	53	51	0.2	11.5	1	7.5	0			11.5	70	70	70	60.5	59	57.2				14	
	15			62.5	50.5					54.5	53	53	51	1.3	11.5	1	7.5	-5			11.5	70	70	70	58.4	59	55.4				15	
	16			63.5	46					54.5	56	53.5	52	0	7	-5	7	-5			7	70	70	70	58	58.4	56.8				16	
	17			64	50					54.2	55.4	53	52.5	0	11	1	7.5	0			11	70	70	70	58.8	59	56.4				17	
	18			66	49					54	53.2	55	54.5	0	7	1	7	0			7	70	70	70	60	59.4	57				18	
	19			64.2	50.2					58.6	54	48	44.5	0.5	11.5	1	7	0			11.5	70	70	70	58.2	59	57				19	
	20			65	54					58	54	56	55	0	11.5	1	7	1			11.5	70	70	70	59	60	57				20	
	21			66.4	54					65	62.5	57	58	1.2	7	1.5	7.5	-5			7	70	70	70	62	60.5	58				21	
	22			68.4	51					59	54.2	53.2	51	0	11.5	1	7.5	-5			11.5	70	70	70	60.5	61	58.2				22	
	23			64.5	51					61.4	59	54.2	52	0	7	-5	7	0			7	70	70	70	59	60	58.2				23	
	24			65.5	49.2					58.2	53	51	50	0	7	1	7	1			7	70	70	70	58.5	59.4	58				24	
	25			65	47.5					58	53	53	52	0	7	1	7	-5			7	70	70	70	58.5	59.4	58				25	
	26			64.5	45					60	58.5	54.5	53	0.1	11.5	1	7.5	-5			11.5	70	70	70	58.5	59	58				26	
	27			70	53					57	56	55.5	54	0	11.5	1	7	1			11.5	70	70	70	59.5	60	58				27	
	28			65.1	52					58.5	54.4	53	51	0.3	11.5	1	7	1			11.5	70	70	70	58	59.4	58				28	
	29			53.5	51.3					56	52.8	53.4	54.5	0	11.5	1	7	1			11.5	70	70	70	58	59	58				29	
	30			63.5	53.9					62	60	55	55	1.5	7	1	7	1			7	70	70	70	60.5	59.5	58				30	
	31			61.6	57.5					64.5	57.4	54	54	1.4	11.5	1	7	0			11.5	70	70	70	60.5	60	58				31	
Sums.																													19.1 25.54 26.60 20.56			
Means.																													58.2 58.6 58.6			
+ 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-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.			sol.h.	solar halo.
h. d.	heavy dew.			sq.	squall.
hl.	hail.			sq.s.	squalls.
l.	lightning.			t.	thunder.
li. cl.	light clouds.			t. s.	thunder storm.
li. sl.	light showers.			w.	wind.
lu. co.	lunar corona.			g.	gale of wind.
lu. ha.	lunar halo.				

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

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

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

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

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

Difference, or Monthly Range, = _____

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

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

Difference, or Mean Daily Range, = _____

** Calculated Mean Temperature of Month, = _____

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), = _____

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

†† Computed Temperature of Dew-Point, = _____

†† Do. Elastic Force of Vapour, = _____

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

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

RAIN fell on _____ Days; Amount in Inches, = _____

WIND.		SUMMARY.									
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.
A.M.											
P.M.											
Mean.											

Observations made and
Return verified by _____

(Signed) _____

SCOTTISH METEOROLOGICAL SOCIETY.

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

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

During the MONTH of August 1890.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS.	Days of Month.	
		9 h. A.M.		9 h. P.M.		Protected in Shade 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.								
		Barometer.	Attached Ther- mometer	Barometer.	Attached Ther- mometer	Max.	Min.	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Direction.	Force.	Direction.	Force.	Velocity (0-10), and Direction.	Amount (0-10), and Direction.	Velocity (0-10), and Direction.	Amount (0-10), and Direction.	No. 3 inches.	No. 12 inches.	No. 22 inches.						
		* No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.						
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°						
	1					64.5	53.3			60	58.5	54.5	56.9	20	W	5	SW	0		W	N	Overcast		60	60	58				1	
	2					64	53.5			60.9	59.3	60.7	59	0.2	W	5	W	5		W	W	W		61	60.5	58.5				2	
	3					69	54			58	55	58.2	54.8	0	W	1	W	5		W	W	Overcast		61.4	61.5	58.6				3	
	4					67	54.5			64	62.1	56.7	55.5	0	W	5	W	5		W	W	W		62.5	61.5	59				4	
	5					70.7	61.9			68.4	67.5	58.2	56	0	W	5	W	5		W	W	W		63.5	62.3	59.5				5	
	6					69.9	59.3			59.4	57.2	54.5	53.8	0	W	5	W	5		W	W	W		62	62	59.5				6	
	7					66	53.5			61	59.5	54.5	53.5	0	W	5	W	0		W	W	W		62	61.5	59.5				7	
	8					67	52			59	54.3	54.5	53.3	0	W	5	W	1-5		W	W	W		61.9	61.4	59.5				8	
	9					71.3	66.5			55	54.5	53.4	53.3	0	W	0	W	5		W	W	Overcast		61	62	59.4				9	
	10					64.3	54.5			61.5	59.5	53.4	53.3	0	W	5	W	5		W	W	Overcast		61	60.9	59.5				10	
	11					69.4	54.8			53.7	52.6	56.5	56.5	11	W	1.5	W	1		W	W	W		61	61.3	59.5				11	
	12					60.9	54.4			56.5	56.5	54	54	34	W	0	W	5		W	W	W		60.2	60.5	59.5				12	
	13					60.7	52.5			52.9	52.1	55	55	1.98	W	5	W	1-5		W	W	W		59	60	59				13	
	14					60.5	50.5			54.5	54.4	54.5	54	0.2	W	1	W	5		W	W	W		58.4	59.4	58.5				14	
	15					62.1	51.5			58.1	57.8	56.5	56.4	24	W	1	W	5		W	W	W		59.5	60	58.8				15	
	16					61	51.5			58.6	54.2	55	51.3	0	W	1	W	1		W	W	W		59	59.6	58.5				16	
	17					61.5	53			59	55.4	54	53	0	W	1.5	W	5		W	W	W		54.5	58.5	58				17	
	18					63.7	48			58.2	53.5	52.5	50.5	0	W	1	W	0		W	W	W		54	58	54.5				18	
	19					61.3	48.5			59.5	52.5	52.5	49	0	W	1	W	5		W	W	W		54.5	58	54.5				19	
	20					65.5	48			55.1	52.2	52.5	49.5	0	W	1	W	0		W	W	W		54.4	59	54.5				20	
	21					65.4	51			58.5	54.2	53.2	51.4	0	W	1.5	W	5		W	W	W		59	59	58				21	
	22					62.6	44			51.5	48.6	51.5	51.5	0.5	W	5	W	1		W	W	W		55.5	58	54.6				22	
	23					58.8	48			50.2	50	48.5	48.5	51	W	0	W	0		W	W	W		53.4	54.5	54.2				23	
	24					59.7	42.5			54.9	50.5	51	49.2	26	W	5	W	0		W	W	W		53.8	54	54				24	
	25					60.6	42.4			54	52	50	48.5	0	W	0	W	5		W	W	W		54	56.5	56.5				25	
	26					63.7	46.3			52.5	49.6	45.5	45	24	W	5	W	5		W	W	W		54.2	56.4	56.5				26	
	27					59.3	45.6			49	48.5	44.5	44	23	W	0	W	0		W	W	Overcast		54	56.2	56.2				27	
	28					56.8	43.2			54.5	51	42.5	42	0.6	W	0	W	5		W	W	W		54.4	55.8	56				28	
	29					61.5	40.5			52.8	48	46.5	46.4	0	W	5	W	5		W	W	W		52	53.5	53.4				29	
	30					59	42.2			56	45	44.2	44	16	W	5	W	5		W	W	W		52.6	54.4	55.2				30	
	31					59.9	38			53	48	44.5	46	0	W	0	W	0		W	W	W		52.8	55	55				31	
Sums.																															
Means.																															
+ 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.	nebula.
ci-s.	cirro-stratus.	r.	rain.
cu.	cumulus.	h r.	heavy rain.
cu-s.	cumulo-stratus.	c. h. r.	continued heavy rain.
d.	depression.	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.
h.	hail.	sq.	squalls.
l.	lightning.	t.	thunder.
l. cl.	light clouds.	t. s.	thunder storm.
l. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	g.	gale of wind.
lu. ha.	lunar halo.		

TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† = _____
for Temp. (Col. 2), = _____Corrected Mean" of Barometer at 9 P.M., minus the Correction†† = _____
for Temp. (Col. 4), = _____

Mean at Station, corrected, and at 32°, = _____

Correction for height, feet above Mean Sea-level, = _____

Mean, reduced to 32°, and Sea-level, = _____

Highest Reading, corrected for Index error, on the _____ th, = _____

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

Difference, or Monthly Range, = _____

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

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

Difference, or Monthly Range, = _____

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

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

Difference, or Mean Daily Range, = _____

** Calculated Mean Temperature of Month, = _____

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), = _____

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

†† Computed Temperature of Dew-Point, = _____

†† Do. Elastic Force of Vapour, = _____

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

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

RAIN fell on _____ Days; Amount in Inches, = _____

WIND.		SUMMARY.			
Direction.		N	NE	E	SE
A.M.					
P.M.					
Mean.					

* 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.
† Emending corrections for both capillarity and Index Errors.
†† The Diurnal Range for Scotland is as yet unknown.
†† Practically, though not absolutely a minus correction.
†† These "Hygrometrical Deductions" are calculated from Glaisher's Hygrometrical Tables, Second Edition only.
†† While the Diurnal Range is unknown, the Arithmetical Mean of Cols. 5 and 6 will be entered as the "Calculated Mean Temperature."
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

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Donald Road, Edinb., County of Midlothian, in Lat. _____, Long. _____, Distance from Sea _____ miles.
Height of Cistern of the Barometer above Mean Sea-level _____ feet, above Ground _____ feet. During the MONTH of Sept. 1883

The Hours of Observation are of Greenwich Time.

[illegible]

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

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

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

Difference, or **Monthly Range**, =

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

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

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

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

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

[illegible]

Observations made and
Return verified by

(Signed)

Robert Grosvenor.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Oswald Road Edin., County of Midlothian, in Lat. _____, Long. _____, Distance from Sea _____ miles.
Height of Cistern of the Barometer above Mean Sea-level _____ feet, above Ground _____ feet.
During the MONTH of October 1890.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.						
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.													
		Barometer. * No.	Attach- ed Ther- mometer	Barometer. No.	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	No.	Direction.	Force.	Direction.	Force.	Readings of the H. Cup Anemometer. No.	Velocity (0-10), and Direc- tion.	Amount (0-10), and Direc- tion.	Velocity (0-10), and Direc- tion.	Amount (0-10), and Direc- tion.	No.					3 inches.	No. 12 inches.	No. 22 inches.			
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°	°					°	°	°	°	°	°
		°	°	°	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°	°					°	°	°	°	°	°
	1					59.8	46.4			52.5	49.6	51.2	51.1	124	W	1-5	W	-5	W	Ca	0	0	54	53.5	53.5						1					
	2					58.4	36.5			46	42.1	51.5	48	112	W	-5	W	1-5	W	Ca	0	0	48.5	53.5	53.5						2					
	3					58.3	42.6			58	54.4	53.5	54.2	113	W	2	W	1-5	W	Ca	0	0	52.3	52.8	54						3					
	4					59.6	52.9			58.8	54.3	58	56.5	0	W	1-5	W	1-5	W	Ca	0	0	55	54.8	54						4					
	5					61.6	53			58.3	56.4	57.5	56.3	0	W	1-5	W	2	W	Ca	0	0	54	56	55						5					
	6					62.4	49.5			52.3	49	49	46	105	W	1	W	-5	W	Ca	0	0	55	56.5	55						6					
	7					57.9	44.8			44.5	44.5	44.5	40.9	105	W	-5	W	-5	W	Ca	0	0	53.2	55	55						7					
	8					58	35.6			58	43.8	43.8	43.4	2	W	-5	W	-5	W	Ca	0	0	54.5	55.6	54.6						8					
	9					58.5	41.0			53.5	49.5	54	53.2	0	W	1	W	1	W	Ca	0	0	49	52	53.8						9					
	10					60.6	52.6			59	54	57.3	55.2	0	W	1-5	W	-5	W	Ca	0	0	53.2	53	53.3						10					
	11					62.4	55			57.3	53.4	57	54.4	0	W	1-5	W	-5	W	Ca	0	0	55	54.5	53.5						11					
	12					60.8	55			57	54.5	57	49.1	0	W	1-5	W	0	W	Ca	0	0	56.4	55.5	54.5						12					
	13					65.2	50.1			55	51.4	54.8	53	0	W	1-5	W	1	W	Ca	0	0	54.5	53.9	54.6						13					
	14					53.8	52.5			53.5	53.8	51.5	47.5	0	W	1	W	-5	W	Ca	0	0	53.4	54.5	54.5						14					
	15					60.4	43.6			46.5	43.8	44.5	36.2	36	W	1	W	1	W	Ca	0	0	51.2	53.8	54.3						15					
	16					51.4	39.5			44.8	44.3	42	40	116	W	1-5	W	-5	W	Ca	0	0	46.5	51.3	53.5						16					
	17					50.9	39.9			44.5	42.3	41.8	40.5	0	W	1-5	W	-5	W	Ca	0	0	45.5	49.5	52						17					
	18					53.4	42.6			44.2	42	39.9	38.3	0	W	1	W	1	W	Ca	0	0	46	49	51.5						18					
	19					53.4	39.5			39.9	38	41.6	40.4	0	W	1-5	W	-5	W	Ca	0	0	43.5	47.5	51						19					
	20					52.8	34.5			43	43	46.5	45.5	104	W	1	W	0	W	Ca	0	0	45	47.2	50						20					
	21					48.4	41.5			48.4	45.4	48.9	48.9	106	W	-5	W	0	W	Ca	0	0	48.4	48.8	50						21					
	22					52.1	44			50.6	49.5	51.5	50.6	103	W	-5	W	0	W	Ca	0	0	42.5	49.5	50.5						22					
	23					55.9	44			53.6	52	51.5	50.5	0	W	-5	W	1-5	W	Ca	0	0	50.8	50.4	50						23					
	24					53.8	50.5			53.9	52	46	44.8	0	W	1-5	W	-5	W	Ca	0	0	50.4	51	51.5						24					
	25					58.1	43.7			45.5	45	51.3	47.3	0	W	-5	W	-5	W	Ca	0	0	51.5	51	50						25					
	26					48	31.5			35	34.5	37	34	140	W	-5	W	0	W	Ca	0	0	46.2	50	51						26					
	27					44.6	32.4			36.2	31.7	Freezing		117	W	1-5	W	1	W	Ca	0	0	41.5	44	50						27					
	28					41.7	29.5			36.6	33.8	32.5	51	0	W	-5	W	-5	W	Ca	0	0	38.5	44.3	48.5						28					
	29					53.5	34.5			53	52	51.7	51.2	103	W	5	W	-5	W	Ca	0	0	45.5	46	44.5						29					
	30					56.7	37.5			40.1	38.3	44	44	0	W	0	W	-5	W	Ca	0	0	43.4	46.8	48						30					
	31					52.8	39			32.6	32.5	43.8	43.4	169	W	1	W	1	W	Ca	0	0	46.5	46.5	48						31					
Sums.																							15.10	13.11	11.8											
Means.																							30.18	43.1	70.4											
† 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.	mi.	meteors.		
ci-cu.	cirro-cumulus.	u.	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. d.	haze.	so. h.	solar halo.		
h. d.	heavy dew.	sq.	squall.		
hl.	hail.	sg.	squalls.		
l.	lightning.	t.	thunder.		
li. cl.	light clouds.	t. s.	thunder storm.		
li. sh.	light showers.	w.	wind.		
lu. co.	lunar corona.	g.	gale of wind.		
lu. ha.	lunar halo.				

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

NOTATION USED IN GENERAL REMARKS.

a.	aurora.	m.	meteor.
ci.	cirrus.	ms.	meteor.
ci-cu.	cirro-cumulus.	n.	nebula.
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.	scud.
fr.	frost.	s.	sleet.
h. fr.	hoar-frost.	s.	snow.
h.	haze.	so. h.	solar halo.
h. d.	heavy dew.	sq.	squall.
hl.	hail.	sq.	squall.
l.	lightning.	t.	thunder.
li. cl.	light clouds.	t. s.	thunder storm.
li. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	g.	gale of wind.
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TABLE FOR ESTIMATING FORCE OF WIND.

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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), = _____
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† for Temp. (Col. 4), = _____
Mean at Station, corrected, and at 32°, = _____
Correction for height, _____ feet above Mean Sea-level, = _____
Mean, reduced to 32°, and Sea-level, = _____
Highest Reading, corrected for Index error, on the _____ th, = _____
Lowest Do. Do., on the _____ th, = _____
Difference, or Monthly Range, = _____

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for

Index Errors), on the _____ th, = _____

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

Difference, or Monthly Range, = _____

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

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

Difference, or Mean Daily Range, = _____

** Calculated Mean Temperature of Month, = _____

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), = _____

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

†† Computed Temperature of Dew-Point, = _____

†† Do. Elastic Force of Vapour, = _____

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

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

RAIN fell on _____ Days; Amount in Inches, = _____

WIND.		SUMMARY.					
Direction.		N	NE	E	SE	S	SW
A.M.							
P.M.							
Mean.							

* 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 “Hygrometric Deductions” are calculated from Glaisher’s Hygrometric Tables, Second Edition only.
‡‡ While the Diurnal Range is unknown, the Arithmetic Mean of Cols. 9 and 11 will be entered as the “Calculated Mean Temperature.”
§ Observations not taken under the conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and
Return verified by

(Signed)

Robert Grosvenor.

Epizootic disease prevails among cattle; and the Agricultural condition of the district generally.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at *Osman Road, Edinburgh*, County of *Midlothian*, in Lat. _____, Long. _____, Distance from Sea _____ miles.

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

During the MONTH of *November* 188*0*.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.		Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer.	9 A.M.		P.M.		No. 19 inches.	No. 22 inches.			Temperature of Well at depth of feet, No.	Temperature at 1 fathom, and 10 fathoms.		0-10.	As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max. No.	Min. No.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force.	Direction.	Force.		Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.										Sunshine Hours.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 2), = _____"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 4), = _____

Mean at Station, corrected, and at 32', = _____

Correction for height, feet above Mean Sea-level, = _____

Mean, reduced to 32', and Sea-level, = _____

Highest Reading, corrected for Index error, on the _____ th, = _____

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

Difference, or Monthly Range, = _____

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 20 th, = 58.0

Lowest in Month, corrected for Index errors, on the 28 th, = 21.3

Difference, or Monthly Range, = 36.7

"Corrected Mean" of all the Highest, (Col. 5), = 48.0

"Corrected Mean" of all the Lowest, (Col. 6), = 34.9

Difference, or Mean Daily Range, = 13.1

** Calculated Mean Temperature of Month, = 41.4

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), = 42.3

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 40.9

Computed Temperature of Dew-Point, = _____

Do. Elastic Force of Vapour, = _____

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

Relative Humidity (Saturation = 100), = _____

RAIN fell on 20 Days; Amount in Inches, = 5.08

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	5	13	3			0.58	
P.M.	1		3	3	0	12	2			0.67	
Mean.	0	1	0	3	4	6	12	3	2	0.62	0.38

Observations made and
Return verified by _____

(Signed) _____

Robert Grosvenor

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Leasat Road, Edinburgh, County of Midlothian, in Lat. _____, Long. _____, Distance from Sea _____ miles.
Height of Cistern of the Barometer above Mean Sea-Level _____ feet, above Ground _____ feet. During the MONTH of December 1880.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS.				HYGROMETER.				Rain.	WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS.	Days of Month.	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.						
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max.	Min.	Dry Bulb.	Wet Bulb.	Dry Bulb.	Wet Bulb.		Direction.	Force.	Direction.	Force.	Amount (0-10).	Amount (0-10).	Amount (0-10).	Amount (0-10).	Amount (0-10).	Amount (0-10).							
		* No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.					
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°						
	1					52.5	39.5			51.8	38.5	51.3	38.6	0	SW	1-5	SW	1-	0	0	SW	0	42.8	41	42.5		1				
	2					53.5	41			48.4	48.4	42.5	32.5	23	S	0	S	1-	S	10	0	0	45	43.5	43.5		2				
	3					49.1	37.4			39.5	34.9	40.4	37	48	N	-5	N	-5	70	N	N	N	44.2	45	44.5		3				
	4					42.2	35.1			38.5	34	40.8	39.4	0	SE	2-	SE	1-	NE	N	0	0	41	43.5	44.2		4				
	5					41.8	34			37	38.5	38	36.8	12	SE	-5	SE	0	NE	N	0	0	40	42.5	44.5		5				
	6					39.8	36.1			34.8	36.6	34.5	36.4	0	SE	-5	SE	-5	SE	6.4	0	0	39.8	42	44		6				
	7					37.8	34.5			40	38.5	34	36.2	0.2	SE	0	SE	-5	SE	6.4	0	0	38	40	43.5		7				
	8					39.3	33			34.5	33.8	38.4	36.6	0	SE	-5	SE	1-	SE	6.4	0	0	35	40	42.4		8				
	9					40	33.6			34.5	33.9	35	33.3	6	SE	0	0	0	0	0	0	0	39.8	41	43		9				
	10					36.2	24			3	3	3	3	0	SE	0	0	0	0	0	0	0	35	38	42.3		10				
	11					38.4	30			25	35	33.5	33.5	0	SW	-5	0	0	0	0	0	0	35	38	42		11				
	12					37.5	27.5			2	2	2	2	0	SW	0	0	0	0	0	0	0	36	38.5	40.7		12				
	13					38	24			2	2	2	2	0	SW	0	0	0	0	0	0	0	36.5	38.5	41		13				
	14					30.9	22.5			2	2	36	35.4	0	SW	-5	SW	-5	0	0	0	0	34	37.5	40.5		14				
	15					40.4	36.4			34	36	37.3	36.9	0	W	-5	SW	1-	SE	4	SW	70	35.5	37.5	40.5		15				
	16					41.9	34			38	33.8	36.5	35.8	10	SE	0	SE	-5	SE	N	0	0	35.5	37.5	40.5		16				
	17					36.4	32.8			34.8	32.5	34	33.6	0	SE	0	SE	-5	SE	N	0	0	35.5	37.5	40.5		17				
	18					39.9	29.4			2	2	2	2	0	SE	-5	SE	-5	SE	6.4	0	0	35	37.5	40		18				
	19					31.3	24			2	2	2	2	0	SE	-5	SE	-5	0	0	0	0	38.5	37	40		19				
	20					33.4	26.5			2	2	2	2	0	SW	-5	SW	-5	SW	6.4	0	0	33.5	36.5	37.5		20				
	21					32	23			2	2	2	2	0	W	-5	SW	-5	0	0	0	0	33	36	38		21				
	22					34.4	22.2			2	2	35	34	0	S	1-	SW	-5	0	0	0	0	33	36	38.8		22				
	23					42	30.9			41.4	39.9	38	34.2	13	W	-5	W	1-	W	N	0	0	33	36	38.7		23				
	24					42.4	29.5			2	2	2	2	0	W	0	W	-5	0	0	0	0	33	35.5	38.5		24				
	25					43.5	28			23.9	22.5	36	35.5	0	SW	-5	SW	-5	SW	N	0	0	33	35.5	38.5		25				
	26					39.3	33			34	34.8	35.5	36.4	10.9	N	1-	N	-5	N	6.4	0	0	33.5	38.5	38.5		26				
	27					38.5	33.4			34	33.9	35	34	0	E	0	E	-5	E	10	0	0	33.2	38.5	38.5		27				
	28					37	34			35	34	34	36.5	0	SE	1-	SE	1-	SE	11	0	0	34	36	38		28				
	29					30.9	29			22.2	22.2	26	24	0	E	0	E	-5	0	0	0	0	23.5	35.5	38		29				
	30					35.9	31			36	34.5	36	34.3	0	E	1-	E	1-	E	6.4	0	0	33.5	36.6	38		30				
	31					36.3	34			35.7	34.3	35.3	35	0	SE	1-5	SE	-5	SE	10	0	0	33.9	35.5	38.4		31				
	Sums.																														
	Means.																														
	+ 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.	nebula.
ci-s.	cirro-stratus.	r.	rain.
cu.	cumulus.	h. r.	heavy rain.
cu-s.	cumulo-stratus.	c. h. r.	continued heavy rain.
d.	dew.	s.	stratus.
f.	fog.	sc.	scud.
fr.	frost.	s.	sleet.
h-fr.	hoar-frost.	s.	snow.
h.	haze.	so. h.	solar halo.
h. d.	heavy dew.	sq.	squall.
h.	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.
li. ha.	lunar halo.		

TABLE FOR ESTIMATING FORCE OF WIND.

Estimated Force, 0-5.	Common Designation.	Estimated Force, 6-9.	Common Designation.	Estimated Force, 10-12.	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 \ddagger for Temp. (Col. 2), = _____
"Corrected Mean" of Barometer at 9 P.M., minus the Correction \ddagger for Temp. (Col. 4), = _____
Mean at Station, corrected, and at 32°, = _____
Correction for height, feet above Mean Sea-level, = _____
Mean, reduced to 32°, and Sea-level, = _____
Highest Reading, corrected for Index error, on the _____ th, = _____
Lowest Do. Do., on the _____ th, = _____
Difference, or Monthly Range, = _____

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

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

Difference, or Monthly Range, = _____

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

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

Difference, or Mean Daily Range, = _____

** Calculated Mean Temperature of Month, = _____

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), = _____

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

Computed Temperature of Dew-Point, = _____

Do. Elastic Force of Vapour, = _____

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

Relative Humidity (Saturation = 100), = _____

RAIN fell on _____ Days; Amount in Inches, = _____

WIND.		SUMMARY.										
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.	
A.M.												
P.M.												
Mean.												

* 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.
§ Presumably, though not absolutely a misce correction.
|| These "Hygrometrical Deductions" are calculated from Göttinger's Hygrometrical Tables, Second Edition 1874.
** While the Diurnal Range is unknown, the Arithmetical Mean of Cols. 5 and 6 will be entered as the "Calculated Mean Temperature." Any observations not taken under the Conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and
Return verified by

(Signed)

Robert Grossart.

FOR TAKING METEOROLOGICAL

WITH REMARKS ON THE USE OF INSTRUMENTS.

The Council of the Society commend that the Self-Registering Thermometers, and the Dry and Wet Bulb Hygrothermometer, be kept in Stevenson's Louvre-boarded Box for Thermometers, painted white inside and outside, and placed four feet posts, also painted white, firmly secured to four stout posts, also painted white, which are fixed in the ground. The posts must be of such a length that they will support the Thermometers at the height of the Minimum of the Thermometer, and of the Dry and Wet Bulb Thermometers, and be exactly at the same level as the roof of their respective boxes. The thermometer box is to be placed over a plot of ground, free from trees or other objects likely to affect it. The thermometer box is to be placed over a plot of ground, free open space to which the sun's rays have free access throughout the day, so much of the day as surrounding conditions enable the Observer to secure. The Thermometers are suspended on cross-laths in the centre of the Box and face the door, which should open to the north.

The Council regard the question of UNIFORMITY OF HEIGHT ABOVE GROUND, AND METHOD IN PROTECTING THE THERMOMETERS, as vital in every system of Meteorological Observation, since without it Observations made at different Stations are incomparable, thus rendering it impossible to compare the Climates of places with each other as regards their most important features.

out it. Observations made at different Stations are incompatible, thus rendering it impossible to compare the Climates of places with each other as regards their most important features.

Professor Phillips, and Negretti and Zambra's Maximum Thermometers, and Negretti and Zambra's Minimum Thermometer, are recommended. It is recommended that these Thermometers be graduated on the glass stem. The Minimum Thermometer is liable to two derangements—viz, the occurrence of spirit breaking, and part of the spirit distilling by high temperature and lodging at the top of the tube. This derangement is of occasional occurrence with protected Thermometers, but is of frequent occurrence with exposed Thermometers. Hence a systematic examination of Minimum Thermometers ought to be a regular part of the work carried on by each Observer.

any one, who the column of spirit chances to separate. Let the Thermometer be taken in the hand the farthest from the bulb, raised above the head, and then forcibly swung down towards the feet; the object being, on the principle of centrifugal force, to send down the detached portion of spirit till it unites with the column. A few throes, or swinging strokes, will generally be sufficient for the purpose; after which the Thermometer should be placed in a slanting position, to allow the rest of the spirit still adhering to the sides of the tube to drain down to the column. But another method must be adopted, in order to supply the want of the one just mentioned. The tube must be plied down and carefully twisted, till the tube upon the detached portion of spirit is turned into vapour by the heat, will condense on the surface of the unbroken column of spirit. Care must be taken that the heat is not applied too quickly; for, if this be done, the tube will break and the instrument be destroyed. The best way to apply the requisite amount of heat is by bringing the end of the tube slowly down towards a minute flame from a gas-burner; or, if gas be not at hand, a piece of heated metal will serve instead.

The bulbs of the Thermometers for registering the greatest heat from the sun's rays, and the least from radiation

sufficient for the purpose; after which the Thermometer should be placed in a slanting position, to allow the rest of the spirit still adhering to the sides of the tube to drain down to the column. But another method must be adopted, if the portion of spirit in the top of the tube be small. Heat should be applied slowly and cautiously to the top end of the tube where the detached portion of spirit is, which, being turned into vapour by the heat, will condense on the surface of the unbroken column of spirit. Care must be taken that the heat is not applied too quickly; for, if this be done, the tube will break and the instrument be destroyed. The best way to apply the requisite amount of heat is by bringing the end of the tube slowly down towards a minute flame from a gas-burner; or, if gas be not at hand, a piece of heated metal will serve instead.

The bulbs of the Thermometers for registering the greatest heat from the sun's rays, and the least from radiation (during night), are made, on account of the necessity of making them be made, on account, that any portion of any body which is placed in shadow, blacked boxes are used to protect the bulbs from the wind. The Maximum should be freely exposed to the sun and the Mini-umum should rest on wooden supports a few inches from the surface of the grass, in an open situation. Snow must not be allowed to cover either of these Thermometers; nor the sun's heat to affect the Minimum Thermometer by distillation. Black-bulbs enclosed in "glass jackets" may also be used, being indented preferable to the Malahove. 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 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 by at least an inch free from the scales and frame which they are attached to; the frame must be such as will bring the tubes forward by an inch from any board on which it may be suspended; the vated cup 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 muslin must be of medium fineness, and fastened at the neck of the bulb by the cotton, which also supplies it with water. It must be seen by the Observer that the muslin is always clean and moist, and the water pure. In frosty weather, observation is a matter of much delicacy, and must be made with great care. The bulb must be moistened by immersion from 15 to 30 minutes before the hour of observation. From the film of ice thus formed evaporation will proceed as from the moist cloth in ordinary circumstances.

In reading the Thermometer great care must be taken to bring the eye exactly opposite the index of the index or column of mercury. The reading ought to be taken to tenths of a degree, and in decimals. Thus, if the Thermometer will read 33.5, 33.6, 33.7, or again, 40.4, 40.5, 40.6, or a little over 40°, it signifies a little under, or a little over, 40°, or a little over 40° or 40.2°, respectively. So also, 40.3, 40.4, or less must be 40° or 40.1°, respectively. 40.5, 40.6, 40.7, or 40.8, must be positively. In reading Rutherford's Minimum Thermometer, the indication of that end of the index which is next the thermometer of the spirit is alone noted. On opening the Thermometer Box the Dry and Wet Bulb Thermometers are to be first, and rapidly read, inasmuch as they are readily affected by heat from the person of the Observer.

The Hygrometer is read at 9 A.M. and 9 P.M. The Self-Registering Thermometers are read at 9 P.M. only, as in Hour of observing indicating the greatest and least degrees of temperature. It is not a matter of Temperature. in the 24 hours preceding.

influence when the Self-Registering Thermometers are read, since in winter at least the extremes may occur at any hour; and it is necessary to refer their occurrence to their proper meteorological hour. In the Society's schedules, the indications registered on the 23d and 24th of these kinds of phenomena commencing at 9 P.M. on the 23d and extending till 9 P.M. on the 24th.

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

In selecting instruments, the following points require attention.—The divisions of the Vemier of Barometers in reference to their scales, and the perfect freedom of the Barometer anvil; the

water, in cases where the observations cannot be taken daily, the observation may be made on the 5th, 15th, and 25th of each month. When convenient, extra Sea Observations might be taken for other and greater depths, noting the Temperature of the Air; and the results of these observations, it is always desirable that observations on the same day be made at the same place. The method used by Messrs. T. Stevenson, and already commenced at Peterhead and Liverpool, of determining the Temperature of the water at the bottom of Wells ought, when practicable, to be taken, both the depth of the water and of the water being noted.

Mention what Test-Papers are used, Schötenberg's or Mollat's, etc.
Ozone. The Paper is affixed by a pin to a board in the Thermometer Box, and the indications registered at 9 A.M.
 It is desired that these indications be registered in connection with the force and direction of the wind at the time of observation, in the following manner:—thus 3rd N.W., as an Ozone entry in the schedule will indicate that the Ozone Paper was used at 3 on the scale, that the wind is from the N.W., and that its force on the scale 0—5 is 4, or blowing fresh.

Too much importance cannot be attached to the electric condition of the atmosphere in connection with terrestrial magnetism, and the atmospheric, the meteorological, and the electrical observations generally, which are the property of the observer, and which are necessary to every complete meteorological observatory.

The Remarks column is unavoidably too narrow. Some of the most valuable Observations that can be taken are

Remarks. those for which no rules can be given nor hours assigned. The use of contractions ought, therefore, to be taken every advantage of, and a list of such as are in general use is given at the foot of the column. Besides special and extraordinary Observations.

variations, great prominence ought to be given in this column to Prevalent Diseases, differences in character, colour, velocity, and direction between the Lower and Upper Strata of clouds; the Colour of the Sky, etc. Remarks ought to be made on the occurrence of Meteors, Auroræ Boreales, remarkable depressions, elevations, and fluctuations of the Barometer. Thunder-Storms, a remarkable fall of Snow, Hail,

or Rain the Horn of Storms of Wind coming from the East, the maximum, and ending, as well as such. Notes on Storms has been printed at Clouds. When later lists were in the vicinity of Station, the Height of Clouds and of the Storm-time wind should be recorded. For the use of abbreviations, the state of the weather at 9 a.m. and 9 p.m. should be registered, either in two columns, otherwise unpaired, or ruled off, for the purpose from the column of Remarks. Observations in connection with the Periodic Return of the Observations in Seasons, passes not only on scientific value but connection with are of considerable importance in connection with the culture, horticulture, and animal and history. The observations on Agriculture, Directly the Agricultural History. The turn of the seasons would direct the Agricultural History of the turn of the seasons. Owing to the registration of the phenomena, so that the published Summary of the observations, and the Swedish

published Summaries may fairly represent the whole of Scotland. Observations ought to be confined to individual trees and shrubs, to particular species of birds, and, in the case of crops, to specified sorts reared from year to year on a selected piece of ground or farm. The Annual Table, published yearly by the Society's Journal, will indicate the species of plants and animals to which special attention is more particularly directed.

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

A. B.

EDINBURGH, *December 1888.*

First Cu
or Ralsee

[illegible][illegible]

ERIODICAL	CROPS, including variety.	ley, or Bigg, eat, ms, se, atoes, mps, Grass,
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Leaf.	Digested of Leaves.	ment
		Bard
		Boye
		Oats
		Whe
		Bear
		Pear
		Pota
		Tam
		Rye


	In lower.	
	Leaf buds first appear.	In

FOREST TREES.	ET
Alder,	.
Ash,	.
Beech,	.
Birch,	.
Elm,	.
Larch,	.
Linæ,	.
Oak,	.
Sycamore or Plane,	.

New 1890

To the S

BOOK POST.



EDINBURGH.

[illegible]

Department of Potato and Whetstone

First Arrival.	Remarks.
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Chukoo, . . .	10
Whitew, . . .	10
House-Swallow, . . .	10
Lapwing, . . .	10
Plover, . . .	10
Sand-Martin, . . .	10
Starling, . . .	10
Swan, . . .	10
Rail or Corn Crane, . . .	10

[illegible][illegible][illegible]

Shrubs, etc.	Nabherry, . . . Broom, . . . Sourtree or Elder, . . . Hazel, . . . Hawthorn, . . . Holly, . . . Laburnum, . . . Lilac, . . . Mezerion, . . . Mountain Ash or Koway, . . . Red Flowering Currant, . . . Rhododendron Ponticum, . . . Whin, . . .
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Edinburgh O. Pa.

To the

BOOK POST

To the SECRETARY

Scottish M

K POST

SECRETARY
Scottish Meteorological Society,
122 George Str

ological Society,
122 George Street.

EDINBURGH.

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