

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Yokpo, County of Edinburgh, 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 Jun. 1885.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. —				WIND.				RAIN.		CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA. Temperature at 1 fathoms, and Density.	OZONE. 0—10.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. <i>Mention the hour at which Storms, including Thunder and Lightning, began and ended.</i>	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	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force	Direction.	Force	Readings of the H. Cup Anemometer. No. —	No. of hours in which it fell.	Amount in inches.	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.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°		°	°	°					°	°	°
		°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°		°	°	°					°	°	°
	1	30.280	48	30.324	52	39.0	33.			39.0	37.0	31.	30.	SE	mod.	SE	fr.			2		0		34.0	35.0	36.5		42			1			
	2	30.190	45	30.030	48	38.	29.			33.	32.	35.	33.	SE	lt	SE				8		8		33.	31.	36.		40			2			
	3	29.950	45	30.014	50	35.5	33.			33.	32.	34.	33.	SE	lt	SE				6		10		33.	34.5	36.5		40			3			
	4	29.754	43	29.450	55	30.5	29.			33.	32.	44.	44.	SE	lt	SE	fr.			10		0		33.	34.5	36.0		40			4			
	5	29.780	50	30.042	52	43.	33.			42.	40.	37.	34.	SE	fr.	SE	mod.			1		0		38.5	35.0	36.0		41			5			
	6	29.402	50	30.040	50	41.5	32.			40.	37.	36.5	35.	SE	fr.	SE	mod.			3		8		35.	36.	34.					6			
	7	30.138	48	29.960	52	45.0	36.			40.	37.	43.	40.	SE	fr.	SE	mod.			10				34.5	36.	34.		40			7			
	8	29.428	48	29.500	45	45.0	39.			43.	41.	37.	35.	SE	fr.	SE	mod.	0.1		6		4		38.5	36.5	34.		40			8			
	9	29.440	44	29.474	46	39.5	36.			38.	36.	38.	36.	SE	fr.	SE	mod.	0.3		10				34.	36.	34.					9			
	10	28.924	44	28.540	55	48.0	35.			38.	38.	39.5	37.	SE	fr.	SE	mod.	0.5		10				35.5	35.5	34.		40			10			
	11	28.828	45	29.450	48	41.0	35.			41.0	37.	37.	33.	SE	fr.	SE	mod.			10		0		38.0	34.	34.					11			
	12	29.412	42	29.920	45	38.	32.			37.	33.	35.	32.	SE	fr.	SE	mod.			6		2		34.	36.5	36.5		39			12			
	13	28.866	42	29.844	44	36.5	33.			35.		36.	33.	SE	fr.	SE	mod.			5		0		33.5	35.5	36.5		38			13			
	14	30.246	42	30.400	44	38.	32.			36.	34.	36.5	35.5	SE	fr.	SE	mod.			8		10		33.5	35.	36.5		38			14			
	15	30.332	42	30.380	45	38.0	33.			37.	35.	36.	35.	SE	fr.	SE	mod.			8		4		35.0	35.	36.5		37			15			
	16	30.420	45	30.480	44	40.	34.			37.	36.	37.	34.	SE	fr.	SE	mod.			6		10		35.	35.	36.5		34			16			
	17	30.320	46	30.326	53	40.	36.			38.5	37.	34.0	38.5	SE	fr.	SE	mod.	0.4		10		10		36.	35.5	36.5		37			17			
	18	30.332	45	30.328	54	42.	37.			40.	38.	40.	37.5	SE	fr.	SE	mod.			10		10		38.5	36.0	34.0		37			18			
	19	30.254	44	30.200	52	39.0	36.			37.	36.	38.	35.5	SE	fr.	SE	mod.			10		10		37.5	34.5	34.					19			
	20	30.130	44	30.090	51	35.1	33.			34.	32.	32.	30.5	SE	fr.	SE	mod.			10		10		34.5	34.0	34.5		38			20			
	21	30.040	47	29.986	56	36.0	31.			35.1	34.	34.	32.	SE	fr.	SE	mod.			10		2		34.0	36.5	34.5		38			21			
	22	29.940	47	30.000	53	37.4	28.			31.5		32.	30.	SE	fr.	SE	mod.			6		0		33.	36.0	34.0		38			22			
	23	30.068	42	30.130	48	33.8	21.5			25.5	25.	31.	30.	SE	fr.	SE	mod.			4		2		32.	35.	36.5		38			23			
	24	30.042	42	30.132	52	37.	24.			33.8	32.	37.	36.	SE	fr.	SE	mod.			4		8		33.	34.5	36.		38			24			
	25	30.040	42	29.966	48		30.5			34.				SE	fr.	SE	mod.			1				32.5	34.0	36.					25			
	26	29.796	45	29.480	46	46.	36.			44.8	43.	46.	45.	SE	fr.	SE	mod.	0.8		8		10		33.	34.	36.					26			
	27	29.670	48	29.678	56	43.				42.0	41.5	42.		SE	fr.	SE	mod.	0.9		10		10		32.	36.	36.					27			
	28	29.500	49	29.280	54	46.	38.			43.	42.	43.		SE	fr.	SE	mod.	1.0		10		8		34.	36.	36.					28			
	29	29.278	48	29.250	57	52.	37.			40.		46.		SE	fr.	SE	mod.	1.1		10		5		37.	38.	34.					29			
	30	29.050	52	29.050	57	49.5	34.			48.5		42.5		SE	fr.	SE	mod.	1.0		7		8		41.	37.	38.					30			
	31	28.878	48	28.840	56	46.	30.			40.	38.	45.	40.	SE	fr.	SE	mod.	1.1		4		10		38.	38.	34.					31			
	Sums.	8947.18	1572	8882.34	1526	9.3	494.0			1184.74	143.8	1144.0	887.5							225		454		100.0	110.0	118.5		744						
	Means.	29.824	45.7	29.911	50.9	42.3	33.3			38.1	36.0	37.2	36.7							8		6		35.2	35.8	36.4		39.2						
	† 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.	aurora.	m.	meteor.		
ci.	cirrus.	ms.	meteors.		
ci-cu.	cirro-cumulus.	n.	nimbus.		
ci-s.	cirro-stratus.	r.	rain.		
cu.	cumulus.	h. r.	heavy rain.		
cu-s.	cumulo-stratus.	c. h. r.	continued heavy rain.		
d.	dew.	s.	stratus.		
f.	fog.	sc.	scud.		
fr.	frost.	s.	sleet.		
h-fr.	hoar-frost.	s.	snow.		
h.	haze.	so. h.	solar halo.		
h. d.	heavy dew.	sq.	squall.		
hl.	hail.	sgs.	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. lu.	lunar halo.				

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

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† = 29.783
for Temp. (Col. 2), = 29.829 - 46..
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† = 29.779
for Temp. (Col. 4), = 29.839 - 60..
Mean at Station, corrected, and at 32°..... = 29.781
Correction for height, feet above Mean Sea-level,..... = 23
Mean, reduced to 32°, and Sea-level,..... = 29.804
Highest Reading, corrected for Index error, on the 16 th,..... = 30.480
Lowest Do. Do., on the 10 th,..... = 28.540
Difference, or Monthly Range,..... = 1.940

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 29 th,..... = 39.0
Lowest in Month, corrected for Index errors, on the 23 th,..... = 21.5
Difference, or Monthly Range,..... = 30.5
“Corrected Mean” of all the Highest, (Col. 5),..... = 42.3
“Corrected Mean” of all the Lowest, (Col. 6),..... = 33.3
Difference, or Mean Daily Range,..... = 9.0
** Calculated Mean Temperature of Month,..... = 37.8

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

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11),..... = 38.0
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),..... = 36.4
†† Computed Temperature of Dew-Point,..... = 33.5
†† Do. Elastic Force of Vapour,..... = 1.92
†† Do. Weight of Vapour in a Cubic Foot of Air, ... =
†† Relative Humidity, (Saturation = 100),..... = 84
RAIN fell on 8 Days; Amount in Inches,..... = 1.70

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

(Signed)

Robert Muirhead

Observations made and
Return verified by

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Glasgow, County of Edinburgh, in Lat. _____, Long. _____, Distance from Sea _____ miles.
Height of Cistern of the Barometer above Mean Sea-level _____ feet, above Ground _____ feet. During the MONTH of February 1885.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. —				WIND.				RAIN.		CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black 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.	Attach- ed Ther- mometer	Barometer.	Attach- ed Ther- mometer	Max.	Min.	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	No. of hours in which it fell.	Amount in inches.	Velocity (1-5), and Direction.	Amount, (0-10), and Species.	Velocity (1-5), and Direction.	Amount, (0-10), and Species.	No. 8 inches.	No. 12 inches.	No. 22 inches.						
		* No.		No.		No.	No.	No.	No.																							
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°																		
	1	28.820	49	29.080	56	46.	39.			42.	40.	38.		SE							8	2	39.	39	38.5					1		
	2	29.000	48	28.820	54	45.5	36.			40.	39.	45.	41.	SE		SE					10	0	37.	38.	39.					2		
	3	28.946	48	29.270	57	44.2	37			38.2	37.	38.	36.	2	2						6	0	37.	38.	38.5	39.5					3	
	4	29.310	50	29.176	52	42.5	33			35.	34.	39.	37	2	2						5	10	34.5	37.5	38.	39.					4	
	5	29.110	49	29.280	53	41.0	33.			38.8	36.	41.	38.	SE	SE						8	5	35.5	37.	37.5	39.5					5	
	6	29.462	47	29.100	49	49.	34.			39.	37.	50.	46.	SE	SE						8	9	35.	37.	38.	39					6	
	7	29.250	46	29.578	50	45.	37.5			41.	39.	43.	40.	2							8	8	38.	38.	38.						7	
	8	29.270	47	29.140	54	52.8	38.			44.8	43.	41.	40.	SE	SE			1.2			8	10	38.5	38.5	38.5	40					8	
	9	29.292	48	29.560	53	41.6	33.			37.0	35.3	40.	38.	SE	SE			2.			6	0	36.5	39.	39.	40					9	
	10	29.866	47	29.660	56	51.5	34.			36.	34.	43.	41.5	SE	SE						8	10	34.5	38.	38.5	39.5					10	
	11	29.700	52	29.930		35.				45.8	42.8			SE	SE																11	
	12	29.802	50	29.770																											12	
	13	29.730		29.490	54	53.5						44.		SE	SE							10									13	
	14	29.652	50	29.410	52	44.0	36.			38.2	36.	37.	35.	SE	SE			2.3			2		40.	42.5	41.0	42					14	
	15	29.566	47	29.420	52	41.0	30.			33.5	32.	33.5	30.3	2	SE						2	0	35.	39.5	41.0						15	
	16	29.422	47	29.372	52	39.0	33.			35.	34.	33.	32.	SE	SE						9	2	34.5	37.5	39.5	40.5					16	
	17	29.434	47	29.466	50	37.0	22.0			30.0	29.3	31.5	30.	SE	SE						10	0	33.8	36.8	38.5	39.5					17	
	18	29.428	45	29.601	48	37.5	29.			33.2	32.	35.	32.	SE	SE						2	0	33.	36.	38.0	40					18	
	19	29.435	43	29.872	52	37.0	28.			33.	32.	38.	35.	SE	SE						0	2	32.8	35.	37.	40					19	
	20	29.890	45	30.016	51	40.0	26.			33.	—	30.	—	2							4	0	32.8	34.8	36.5	37.5					20	
	21	30.036	42	29.608	52	40.0	25.			33.	30.	33.5	32.	SE	SE						4	10	32.	34.5	36.	40					21	
	22	29.232	46	29.560		48.5	31.			43.5	41.			SE	SE																22	
	23	29.588	48	29.550	58	51.5	36.			44.		48.	46.	SE	SE			2.5			10	6	23.	34.	36.	40					23	
	24	29.670	53	29.470	59	53.5	44.			47.	48.5	49.	47	SE	SE						8	3									24	
	25	29.710	56	29.972	60	51.0	41.			47.	45.	42.5	41.0	SE	SE						2	2	41.5	41.0	38.5						25	
	26	29.650	53	29.890	57	53.3	40.			47.	44.5	30.5	48.	SE	SE						8	4	41.	40.	39.						26	
	27	29.576	53	29.612	61	57.	46.			49.	46.	49.	47.	SE	SE						7	5	44.	42.	40.						27	
	28	29.910	51	30.250		46.	38			41.	37.	40.	37.	SE	SE						10				40.0	43.	41.					28
	29																														29	
	30																														30	
	31																														31	
Sums.		13	22	15	22	11	12	10	10	102.0	97.4	104.3	90.0					1.4			14.5	96		41.4	45.9	46.0						
Means.		29.497	48.5	29.544	54.3	45.7	34.8			34.6	37.7	40.6	38.8					?			5	4		36.6	38.3	38.4						
† 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	

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction++ = 29.444
for Temp. (Col. 2), = 29.497 - 53 = 29.444
Corrected Mean" of Barometer at 9 P.M., minus the Correction++ = 29.476
for Temp. (Col. 4), = 29.544 - 68 = 29.476
Mean at Station, corrected, and at 32° = 29.460
Correction for height, feet above Mean Sea-level, = 22
Mean, reduced to 32°, and Sea-level, = 29.482
Highest Reading, corrected for Index error, on the 28 th, = 30.250
Lowest Do. Do., on the 1 th, = 28.820
Difference, or Monthly Range, = 1.430

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 27 th, = 54.0
Lowest in Month, corrected for Index errors, on the 21 th, = 25.0
Difference, or Monthly Range, = 29.0
"Corrected Mean" of all the Highest, (Col. 5), = 45.7
"Corrected Mean" of all the Lowest, (Col. 6), = 34.8
Difference, or Mean Daily Range, = 10.9
** Calculated Mean Temperature of Month, = 40.2

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

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 40.1
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 38.2
Computed Temperature of Dew-Point, = 35.7
Do. Elastic Force of Vapour, = 2.10
Do. Weight of Vapour in a Cubic Foot of Air, ... =
Relative Humidity, (Saturation = 100), = 85
RAIN fell on Days; Amount in Inches, =

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

Observations made and
Return verified by

(Signed)

Robert Muirhead

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Yoppa, County of Edinburgh, 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 1885.

The Hours of Observation are of Greenwich Time.

ELE.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. —				WIND.				RAIN.		CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA. Temperature at 1 fathom, and Density.	OZONE. 0—10.	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, & at above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. —	No. of hours in which it fell.	Amount in inches. No. —	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-rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direc- tion.	Force.	Direc- tion.	Force.				Velocity (0—6).	Amount (0—10), and Species.	Velocity (0—6).		Amount (0—10), and Species.	No.	No.					No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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1		30.266	44			41.0	28			34.	34.			1/2				2.5	1/2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction^{††} for Temp. (Col. 2), = 30.052 - 54 = 29.998
Corrected Mean^{††} of Barometer at 9 P.M., minus the Correction^{††} for Temp. (Col. 4), = 30.051 - 71 = 29.980
Mean at Station, corrected, and at 32°, = 29.989
Correction for height, feet above Mean Sea-level, = 22
Mean, reduced to 32°, and Sea-level, = 30.011
Highest Reading, corrected for Index error, on the 13th, = 30.670
Lowest Do. Do., on the 26th, = 29.350
Difference, or Monthly Range, = 1.320

* 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.
† Enlarging 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 Arithmetic Mean of Cols. 8 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 15th, = 53.4
Lowest in Month, corrected for Index errors, on the 28th, = 24.0
Difference, or Monthly Range, = 29.4
"Corrected Mean" of all the Highest, (Col. 5), = 46.7
"Corrected Mean" of all the Lowest, (Col. 6), = 34.2
Difference, or Mean Daily Range, = 12.5
* Calculated Mean Temperature of Month, = 40.4

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

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 40.2
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 37.5
† Computed Temperature of Dew-Point, = 34.0
† Do. Elastic Force of Vapour, = 197
† Do. Weight of Vapour in a Cubic Foot of Air, =
† Relative Humidity, (Saturation = 100), = 78
RAIN fell on Days; Amount in Inches, = 3.70

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

Observations made and
Return verified by

(Signed)

Robert Muirhead

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Glasgow, County of Edinburgh, 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 1885.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. —				WIND.				RAIN.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.		Days of Month.		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black 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 A.M.		P.M.		9 h. A.M.		9 h. 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	No. of hours in which it fell.	Amount in inches.	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.	Temperature at 1 fathom, and Density.	9 A.M.	9 P.M.							
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°						°	°
1	29.676	49	29.800	50	47.34					41.0	40.	36.34	NW	NW				4		8		6	42	41.	41.							1				
2	29.920	46	30.180	48	46.33					39.	37.	37.35	W							7		5	36.	40.	41.								2			
3	30.226	48	30.202	50	52.54					45.	41.	42.37								8		0	38.	39.	40.									3		
4	30.092	50	29.456	53	55.31					43.	38.	39.35	SE	SE							0		36.5	40.	40.5									4		
5	29.822	52	29.534	58	46.33					42.	37.	38.35	SE	SE							2		4	39.0	40.5	40.5	42								5	
6	29.380	52	29.536	53	57.036					45.	41.	43.41	E	E							8		10	40.0	40.	40.5	42								6	
7	29.830	53	29.896	58	43.241					42.	39.8	41.39	E	E							9		8	42.	41.8	41.	42½								7	
8	29.870	50	29.880	58	44.234					41.5	38.	41.38	E	E							6		10	40.	41.	41	42								8	
9	29.804	50	29.710	50	45.536					42.	37.5	40.39	SE	SE							2		10	40	41	41	42								9	
10	29.720	48	29.780	50	42.540					42.	41.5	40.39	SE	SE							10		10	41	41	41	42								10	
11	29.824	45	29.980	53	43.38					42	41.5	42.41	SE	E							10		10	41.5	41.	41	42								11	
12	30.014	52	30.022	56	47.40					42.0	40.	40.39	E	Z							6		0	41.	41.	41.									12	
13	30.060	53	30.050	58	50.34					43.5	41.	43.41	Z	E							2		10	42	42	41.5	42½								13	
14	30.006	53	29.950	57	49.32					42.	40.	40.38	Z								6		7	40.	42.5	42	43½								14	
15	29.950	44	29.930	50	57.33					46	43	44.40	Z	E							4		5	41.	42.5	42									15	
16	30.000	47	30.136	52	44.36					41	38	43.41	SE	SE								10			42.	43.	42									16
17	30.172	50	30.130	53	50.033					44	41	43.42	E	Z							2		8	41.5	42.	42									17	
18	30.216	50	30.244	53	63.36					47	44.5	50.45	Z	Z							2		3	43.	43.5	43	45½								18	
19	30.200	44	30.110	57	68.40					42	42	52.547	W	W							2		5	47.5	45.	43									19	
20	30.100	56	29.904	62	62.47					55.	47	58.55	SW	SW								8			48.5	47.	45	47								20
21	29.828	62	29.832	64	61.052					57	57	49.48	SW	SW							9		10	53.	49.	45.5	47									21
22	29.454	62	29.600	65	50.46					49	47	46.45	Z	Z							10			49.	49.	46.5	47½									22
23	29.602	60	29.644	62	57.41					48	45	45.42	Z	Z							6			47	48	47	46½									23
24	29.536	56	29.380	62	53.046					48.	43	52.48	SE	SE							8		10	44.5	47.	46.5	46¾									24
25	29.082	56	29.150	58	59.48					53	48.5	50.47	Z	Z								2			48	48	47									25
26	29.410	57	29.550	65	60.47					57.5	48.	50.46	Z	Z							8		2	48	48	46										26
27	29.620	60	29.740	59	59.541					55.	48.	58.53	SW	SW							6		3	48	48	47										27
28	29.630	57	29.550	60	59.43					52.	48	53.47	Z	SW							9			48	48	47										28
29	29.650	57	29.800	58	56.47					45.5	46	48.45	Z	Z							10		2	49	49	47.5										29
30	29.880	55	29.826	57	56.38					50.	47	51.47	Z	Z							8		10	48	47.5	47										30
31	14.116	11	17.125	12	12.2					12.2	14.3	16																								31
Sums.		24	984	79	25	074				19	9	1505																								
Means.		29.833	52.6	29.836	56.2	52.239				46.4	43.1	45.0	42.4																							
† 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					

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† = 29.767
for Temp. (Col. 2), = 29.833 - 6.6.....
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† = 29.761
for Temp. (Col. 4), = 29.836 - 7.5.....
Mean at Station, corrected, and at 32°, = 29.764
Correction for height, feet above Mean Sea-level, = 2.2
Mean, reduced to 32°, and Sea-level, = 29.786
Highest Reading, corrected for Index error, on the 18th, = 30.274
Lowest Do. Do., on the 25th, = 29.082
Difference, or Monthly Range, = 1.192

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 14th, = 68.0
Lowest in Month, corrected for Index errors, on the 14th, = 31.0
Difference, or Monthly Range, = 37.0
“Corrected Mean” of all the Highest, (Col. 5), = 52.2
“Corrected Mean” of all the Lowest, (Col. 6), = 39.0
Difference, or Mean Daily Range, = 13.2
** Calculated Mean Temperature of Month, = 45.6

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

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 45.7
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 42.8
†† Computed Temperature of Dew-Point, = 39.5
†† Do. Elastic Force of Vapour, = 243
†† Do. Weight of Vapour in a Cubic Foot of Air, ... =
†† Relative Humidity, (Saturation = 100), = 80
RAIN fell on Days; Amount in Inches, = 4.90

WIND.		SUMMARY.									
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day.
A.M.		4	5	3	3	2	1	9			
P.M.		3	6	3	2	2	1	12			
Mean.		0	3	5	3	3	2	1	10		

(Signed)

Robert Muirhead

Observations made and
Return verified by

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Kilpatrick, County of Edinburgh, 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 1885.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. —				WIND.				RAIN.		CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		9 h. A.M.		9 h. P.M.		Protected in Shade, feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. — 9 h. A.M.	No. of hours in which it fell.	Amount in inches. No. —	9 A.M.		P.M.		SUNSHINE. Hours.	9 h. A.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		Barometer. * No. —	Attach- ed Ther- mometer	Barometer. No. —	Attach- ed Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays No. —	Min. on Grass. No. —	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direc- tion.	Force.	Direc- tion.	Force.				Velocity (0—6), and Direc- tion.	Amount (0—10), and Species.	Velocity (0—6), and Direc- tion.	Amount (0—10), and Species.		No. 1. Inches.					No. 2. Inches.	No. 3. Inches.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† = 29.686
for Temp. (Col. 2), = 29.755 — 6.9 = 29.702
Corrected Mean of Barometer at 9 P.M., minus the Correction†† = 29.702
for Temp. (Col. 4), = 29.777 — 7.5 = 29.694
Mean at Station, corrected, and at 32°, = 29.694
Correction for height, feet above Mean Sea-level, = 22
Mean, reduced to 32°, and Sea-level, = 29.716
Highest Reading, corrected for Index error, on the 11 th, = 30.204
Lowest Do. Do., on the 21 th, = 29.254
Difference, or Monthly Range, = 0.950

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 29 th, = 64.5
Lowest in Month, corrected for Index errors, on the 8 th, = 32.5
Difference, or Monthly Range, = 32.0
"Corrected Mean" of all the Highest, (Col. 5), = 53.9
"Corrected Mean" of all the Lowest, (Col. 6), = 41.2
Difference, or Mean Daily Range, = 12.7
** Calculated Mean Temperature of Month, = 47.6

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

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 47.3
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 43.6
†† Computed Temperature of Dew-Point, = 39.5
†† Do. Elastic Force of Vapour, = 24.2
†† Do. Weight of Vapour in a Cubic Foot of Air, =
†† Relative Humidity, (Saturation = 100), = 75
RAIN fell on Days; Amount in Inches, = 7.15

WIND.	SUMMARY.									
	Direction.	N	NE	E	SE	S	SW	W	NW	Mean Force.
A.M.		3	2	5	2		6	7	2	4
P.M.		3	2	5			3	1	15	
Mean.		4	2	5	1	0	5	4	1	9

(Signed)

Robert Muirhead

Observations made and
Return verified by

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Joppa, County of Edinburgh, 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 1885.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. —				WIND.				RAIN.		CLOUDS.				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. <i>Mention the hour at which Storms, including Thunder and Lightning, began and ended.</i>	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	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	No. of hours in which it fell.	Amount in inches.	Velocity (0—10), and Direction.	Amount (0—10), and Species.	Velocity (0—10), and Direction.	Amount (0—10), and Species.		No. 8 inches.	No. 12 inches.	No. 22 inches.				
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°		°	°	°				
	1	30.280	60	30.276	60	61.	47.			54. 50.	52. 48.	51.	47.	SW	2			4. 1		0	1		52.5	52.5	57.					1	
	2	30.140	59	30.118	60	65.	48.			53. 49.	52. 51.	72.	47.	W	1					8	0		53.5	52.	57.					2	
	3	30.000	63	29.828	64	67.	53.			58. 53.	56. 55.	41.	47.	W	1					3	2		54.	53.	57.					3	
	4	29.880	62	29.710	64	68.5	53.			61.0	58. 60.	53.	47.	W	2					6	4		57.	53.	52.					4	
	5	29.610	64	29.880	64	62.0	53.			62.0	53. 57.	—	47.	W	2					6			57.	56.	53.					5	
	6	30.030	58	30.060	66	58.0	44.			53.5	42. 57.	50.	47.	W	1					2	4		54.5	53.	53.					6	
	7	29.990	62	29.996	58	57.	47.			56.	50. 49.	47.	47.	W	1					5	8		57.	54.	53.					7	
	8	30.026	56	30.062	58	53.	47.			47.4	46.2	49.	47.5	W	1					9	2		57.	53.	52.					8	
	9	30.086	56	30.256	57	63.	39.			53.	49.	52.	46.	W	1					6	0		52.	53.	52.					9	
	10	30.438	56	30.372	56	58.5	43.			57.	45.	50.	45.5	W	1					2	5		56.	53.	52.					10	
	11	30.356	56	30.330	62	66.5	43.			53.	49.	57.	53.	W	2					9	4		57.5	54.5	53.					11	
	12	30.280	64	30.264	64	74.5	33.			66.5	60.5	60.	56.	W	2					6	8		56.	54.	53.					12	
	13	30.230	66	30.214	64	72.	37.			64.	57.	53.	57.	W	2					2	4		60.0	56.5	52.					13	
	14	30.246	64	30.224	63	64.0	50.			58.	54.2	52.	50.5	W	2					4	6		59.	57.5	54.5					14	
	15	30.250	63	30.200	63	67.2	47.			58.	53.	52.	50.5	W	2					0	5		58.	58.5	53.					15	
	16	30.146	62	30.036	62	56.	47.			53.2	57.	57.5	50.5	W	1					10	10		56.5	58.5	53.5					16	
	17	29.948	6	30.428	60	64.0	50.			53.	57.2	52.	50.	W	1					10	10		56.	56.	53.					17	
	18	30.420	62	29.638	62	60.0	50.			56.5	57.	58.	56.	W	1					6	10		53.5	56.	53.					18	
	19	29.714	62	29.600	62	61.0	52.			56.	57.	56.	53.	W	1					8	10		53.5	53.5	54.					19	
	20	29.296	62	29.522	60	62.0	49.			57.5	49.	53.5	47.	W	1					9	6		53.	53.	56.					20	
	21	29.782	62	30.020	60	62.2	—			57.	49.	52.	49.5	W	1					4	8		53.	55.	52.					21	
	22	29.960	62	29.980	60	61.5	49.			57.	50.	57.	46.	W	1					10	0		52.8	53.5	54.					22	
	23	30.024	60	30.046	60	63.2	41.			56.	48.	52.5	48.	W	1					2	4		56.	53.	54.					23	
	24	30.040	58	30.080	60	57.5	46.			57.	48.5	54.5	52.5	W	2					10	10		54.	53.	54.					24	
	25	30.220	60	30.344	62	62.5	48.			54.5	57.5	52.	48.	W	2					1	2		56.5	53.5	54.					25	
	26	30.412	60	30.350	60	64.2	40.			53.	50.	53.	51.	W	2					0	6		56.	53.	54.					26	
	27	30.400	62	30.366	64	68.0	44.			60.5	53.	57.	53.	W	2					9	0		56.	56.	54.5					27	
	28	30.320	64	30.136	64	64.	53.			58.0	50.	53.	52.	W	2					8	8		57.5	57.0	53.					28	
	29	30.100	62	30.126	64	61.0	53.			57.	53.	53.5	51.	W	2					10	8		54.	58.	56.					29	
	30	30.130	62	30.136	62	62.0	50.			57.	57.	54.	57.	W	2					5	8		58.5	58.5	56.					30	
	31	30.126	102	30.120	102	124	13			153	137	142	112	W	2					4	8		58.5	58.5	56.					31	
Sums.		2774	829	2362	855	875	9			19	16	101	25							0	3		55.6	55.4	53.9						
Means.		30.092	61.0	30.079	62.2	62.9	48.6			56.4	51.3	54.3	50.8							6	5		55.6	55.4	53.9						
† 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. h.	solar halo.
h.	haze.	sq.	squall.
h. d.	heavy dew.	sq.	squalls.
h. sh.	light showers.	t.	thunder.
h. co.	lunar corona.	t. s.	thunder storm.
h. la.	lunar halo.	w.	wind.
		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), = 30.092 — 87 = 30.004
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† for Temp. (Col. 4), = 29.988 — 91 = 29.996
Mean at Station, corrected, and at 32°, = 29.996
Correction for height, feet above Mean Sea-level, = 22
Mean, reduced to 32°, and Sea-level, = 30.018
Highest Reading, corrected for Index error, on the 10th, = 30.438
Lowest Do. Do., on the 20th, = 29.296
Difference, or Monthly Range, = 1.142

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 12th, = 74.5
Lowest in Month, corrected for Index errors, on the 9th, = 39.0
Difference, or Monthly Range, = 35.5
“Corrected Mean” of all the Highest, (Col. 5), = 62.9
“Corrected Mean” of all the Lowest, (Col. 6), = 48.6
Difference, or Mean Daily Range, = 14.3
** Calculated Mean Temperature of Month, = 56.8

S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 12th, = 74.5
“Corrected Mean,” (Col. 7), of Black Bulb, Max. in Sun, = 62.9
Lowest at Night, Black Bulb, (corrected for Index errors), on the 9th, = 39.0
“Corrected Mean,” (Col. 8), of Black Bulb, Min. on grass, = 48.6
Difference of above Means or Range (“exposed”), = 14.3

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 55.3
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 51.0
†† Computed Temperature of Dew-Point, = 46.9
†† Do. Elastic Force of Vapour, = 3.23
†† Do. Weight of Vapour in a Cubic Foot of Air, = 73
†† Relative Humidity, (Saturation = 100), = 73
RAIN fell on Days; Amount in Inches, = 7.40 — 0.25

WIND.		SUMMARY.							
Direction.		N	NE	E	SE	S	SW	W	NW
A.M.		1	1	7		2	5	4	2
P.M.		2	1	9		2	6	1	9
Mean.		2	1	8	0	1	3	5	2

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

Have the good
Turnips, Fruits, &
Epizootic disease

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Gifford, County of Mid Lothian, 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 1885.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No.				WIND.				RAIN.		CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. <i>Mention the hour at which Storms, including Thunder and Lightning, began and ended.</i>	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.	Direction.	Force.	Direction.	Force.	No. of hours in which it fell.	Amount in inches.	Velocity (0-5), and Direction.	Amount (0-10), and Species.	Velocity (0-5), and Direction.	Amount (0-10), and Species.	No. 8 inches.	No. 12 inches.	No. 22 inches.					
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°				
	1	30.190	66	30.140	66	71.5	44			59	57	60	55.5	W	11	W	11	end 7.4	4.4				2	57.0	56.5	56	54			1	
	2	30.142	64		66		53			61.0	56	61	53					584						60	57.5	56	53.5			2	
	3	175	64	30.182	66	73.0																								3	
	4	220	66	280	66	69.0	53			63	53	58	56	W	11	W	11			4				63	60	57				4	
	5	30.232	64	30.180	66	73.5	53			67.5	54	62	54	W	11	W	11	692		4		8		62.5	60	57.5	56.5			5	
	6	30.190	66	30.020	64	74.5	58			63.0	54	58	55	W	11	W	11	764		9		10		62.5	60.5	58.0	57			6	
	7	28.920	64	280	66	65.0	54			62.0	54	60	54	W	11	W	11	843		9				60.5	61.0	58.5	56.5			7	
	8	28.924	62	30.100	64	64.0	54			60	54	53		W	11	W	11	964		2		4		61.0	60.0	58.5	53.5			8	
	9	30.152	65	30.152	65	64.5	45			58.5		59		W	11	W	11	020		8		6		57.5	57	58	53.5			9	
	10	30.150	66	170	65	69.5	53			61	55	58	54	W	11	W	11	102		8		6		57.0	58.5	57.5	55			10	
	11	30.006	65	29.964	64	68.0	51			58	54	53	49			W	11	159		10		2		58.5	58.5	57.5	54.8			11	
	12	30.086	66	30.088	65	67.0	46			58	57.2	54	50					229						58	58	57	54.8			12	
	13	30.068	63	30.132	62	63	47			56	52	53	53					245		10		9		58.5	58.5	57	53.5			13	
	14	30.228	63	30.204	62	64.5	63			60	52.5	53						294		0		10		58.5	58.5	57	53			14	
	15	30.016	63	30.002	64	65.5	52			59.2		53	50	W	11	W	11	347		6		8		56.5	57.5	56	53			15	
	16	30.114	62	29.916	62	60.5	53			57	52	51	50	W	11	W	11	405		8		10		57.5	58	56.5	53			16	
	17	29.914	63	29.952	63	64.2	48			56	50.5	53	48	W	11	W	11	451		6		4		56.5	56.5	56	53.8			17	
	18	29.812	62	29.696	62	58.0	49			56	53	53	52.5					488						55.5	56	53.5	52			18	
	19	29.944	62	29.820		63.0	50			58	53	53	54					512		6		10		57	56	53.5	53			19	
	20	29.940	63	30.100	62	64.0	53			56	52	55.5	54					547		8				56.5	56.5	53.5	53.5			20	
	21	30.280	63	30.482		66.0	53			58	53							613		6				56.5	57	56	56.5			21	
	22	30.486	62	30.434	62	65	46			54	53	56						662		10		6		56	57	56	52			22	
	23	30.408	65	30.360	66	74.0	53			60	61	60	58					665		10		10		59	57.5	58	52			23	
	24	30.390	64	30.326	66	74	53.5			61.0	58.5	59	58					686		10		0		61	59	57	57			24	
	25	30.326	68	30.370	72	82.0	58			74	66	64	63					703		4		5		62.5	58.5	57	54.5			25	
	26	30.420	68	30.438	66	57	58			58	57	56	56	W	11	W	11			0		2		63	61	58	58			26	
	27	30.470	65	30.486	66	66.5	53			56	53.5							824		2		4		58	58.5	58	58			27	
	28	30.508	65	30.470	65	71.5	47			63.5	58	57	56					846		10		0		58	58	58	58.5			28	
	29	30.442	62	432	65	66.5	48			57.5	53	57	52					904		6		10		58	58	58	59.5			29	
	30	30.426	63	30.390	65	64.0	47			58.5	56	58	53.5					933						57	58	57.5	59			30	
	31	30.382	62	30.390	62	65	57.4			56.5	53.5	56	54					941						57	58	57.5	59			31	
Sums.		178	1820	30.186	64	27	85			28	151	6	15					0.5						58.0	58.4	55.0	56.5				
Means.		30.185	65.0	30.183	64.1	67.4	51.2			59.5	55.4	56.8	54.2																		
† 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.	squalls.		
l.	lightning.	t.	thunder.		
li. cl.	light clouds.	t. s.	thunder storm.		
li. sh.	light showers.	w.	wind.		
lu. co.	lunar corona.	g.	gale of wind.		
lu. ha.	lunar halo.				

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

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† for Temp. (Col. 2), = 30.193 — 9.8 = 30.095
Corrected Mean” of Barometer at 9 P.M., minus the Correction†† for Temp. (Col. 4), = 30.183 — 9.6 = 30.087
Mean at Station, corrected, and at 32°, = 30.091
Correction for height, feet above Mean Sea-level, = 22
Mean, reduced to 32°, and Sea-level, = 30.113
Highest Reading, corrected for Index error, on the 28th, = 30.508
Lowest Do. Do., on the 18th, = 29.696
Difference, or Monthly Range, = 0.812

* 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.
† Embarking 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 Arithmetic Mean of Cols. 6 and 7 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 28th, = 82.0
Lowest in Month, corrected for Index errors, on the 16th, = 43.0
Difference, or Monthly Range, = 39.0
“Corrected Mean” of all the Highest, (Col. 5), = 67.4
“Corrected Mean” of all the Lowest, (Col. 6), = 51.0
Difference, or Mean Daily Range, = 16.2
** Calculated Mean Temperature of Month, = 59.3

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

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 58.2
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 54.8
†† Computed Temperature of Dew-Point, = 51.7
†† Do. Elastic Force of Vapour, = 385
†† Do. Weight of Vapour in a Cubic Foot of Air, = _____
†† Relative Humidity, (Saturation = 100), = 79
RAIN fell on _____ Days; Amount in Inches, = 0.5

WIND.		SUMMARY.				
Direction.	N	NE	E	SE	S	SW
A.M.						
P.M.						
Mean.	0	2	5	0	0	5

Observations made and
Return verified by

(Signed)

Robert Muirhead

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Kippa, County of Miss Goshute, 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 1885.

The Hours of Observation are of Greenwich Time.

[illegible]

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction ^{††}		
for Temp. (Col. 2),	= 30.063 — 8.6	= 25.977
Corrected Mean of Barometer at 9 P.M., minus the Correction ^{††}		
for Temp. (Col. 4),	= 30.049 — 8.0	= 25.959
Mean at Station, corrected, and at 32° ,.....		= 25.968
Correction for height,	feet above Mean Sea-level,.....	= 22
Mean, reduced to 32°, and Sea-level ,.....		= 25.990
Highest Reading, corrected for Index error, on the 15 th ,.....		= 30.340
Lowest Do. Do., on the 10 th ,.....		= 29.200
Difference, or Monthly Range ,.....		= 1.140

S.-R. THERMOMETER, (in shade, etc.), **Highest in Month**, (corrected for Index Errors), on the 14th..... = 70.0

Lowest in Month, corrected for Index errors, on the 30th, = 40.0

Difference, or **Monthly Range**, = 30.0

“Corrected **Mean**” of all the **Highest**, (Col. 5), = 61.4

“Corrected **Mean**” of all the **Lowest**, (Col. 6), = 48.4

Difference, or **Mean Daily Range**, = 13.0

** Calculated **Mean Temperature** of Month, = 54.9

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

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

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

“Corrected **Mean**,” (Col. 8), of **Black Bulb, Min. on grass**, =

Difference of above Means or Range (“exposed”), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11),	=	54.1
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),	=	51.3
‡ Computed Temperature of Dew-Point ,	=	48.6
‡ Do. Elastic Force of Vapour ,	=	340
‡ Do. Weight of Vapour in a Cubic Foot of Air , ...	=	
‡ Relative Humidity , (Saturation = 100),	=	81
RAIN fell on Days; Amount in Inches ,	=	2.10

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	9	2		3	3	1	9		
P.M.		4	8	1	1	2	2	1	12		
Mean.	1	4	8	2	1	2	2	1	10		

Observations made and
Return verified by

(Signed).

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Glasgow, County of Mid Lothian, 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 September 1885.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No.				WIND.				RAIN.		CLOUDS.				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.		9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer.		No. of hours in which it fell.	Amount in inches.	9 A.M.			P.M.		9 h. A.M.							
		Barometer.	Attach- ed Ther- mometer	Barometer.	Attach- ed Ther- mometer	Max.	Min.	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	No.	9 h. A.M.			Velocity (0-10), and Direction.	Amount (0-10), and Species.		Velocity (0-10), and Direction.	Amount (0-10), and Species.	No.					12 inches.	No.	22 inches.
		* No.	inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°			°	°		°	°	°					°	°	°
	1	30.206	56	30.130	58	57.43.				53.	49.	57.	48.					966	10.0						48.5	57.5	52.				1			
	2	29.980	54			49.				54.	50.							020							52.	52.	52.				2			
	3																															3		
	4																															4		
	5																															5		
	6																															6		
	7																															7		
	8																															8		
	9	29.474	57	29.548	60	58.5				54.	—	50.	46.	SW mod	SW	463	—	10.0														9		
	10	29.630	58	29.590	60	60.5	48.			55.	50.	47.						486	—													10		
	11			29.480	58	61.5	40.			53.5	49.	50.	47.	SW mod	SW	46	—																11	
	12	29.456	58	29.390	60	64.0	49			53.	52.	53.	50.	SW mod	SW	46	—																12	
	13	29.622	60	29.830	60	60.	50.			56.2	—	57.	53.	SW mod	SW	46	—																13	
	14	29.454	58	29.680	63	59.	49.			53.	50.	53.	54.	W	12			10.5															14	
	15	29.640	60	29.620	64	68.	54.			59.	57.	53.	57.	S	SW																		15	
	16	29.760	62	29.980	64	62.0	50			56.	57.	57.	49.	SW mod	SW																		16	
	17	30.030	54	30.074	62	60.5	40			53.	50.	57.	49.	W	12																		17	
	18	30.080	57	30.010	60	60.	40			52.5	49.	57.	49.	W	12																		18	
	19	29.526	60	29.820	62	60.5	48			56.	53.	57.	46.	SW mod	SW	46	—																19	
	20	29.920	58	29.630	64	61.5	48.			53.	49.	60.	58.	W	12			341	—														20	
	21	30.080	58	30.206	62	58.5	46.			52.5	49.	53.	49.	W mod	W	435	—																21	
	22	30.168	62	30.050	63	62.0	57.			56.	57.	53.	52.	SW				531	—														22	
	23	30.040	60	30.100	60	59.5	53.			54.	48.	51.	47.	W mod	W	466	—																23	
	24	30.050	58	29.940	60	55.5	44.			47.	45.	44.	41.	W mod	W	412	—																24	
	25	29.462	56	29.940	55	51.0	43.			47.	43.	41.	40.	W	12			441	—														25	
	26	29.440	52	30.102	56	52.	37.			46.5	43.	45.	41.	W	12			844	—														26	
	27	30.080	52	30.040	56	57.	31.5			43.5	39.	41.	39.	W	12			921	—														27	
	28					54.	40.			48.	46.	53.	53.	W	12			965	—														28	
	29	29.664	57	29.980	60	54.	44			53.	44.	46.	44.	W	12			050	—														29	
	30	29.170	57	29.160	60	55.2	44.			51.	48.	46.	43.	SW mod	SW			129	—														30	
	31																																31	
	Sums.																		1.1 1/2															
	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.	aurora.	m.	meteors.
ci.	cirrus.	ms.	micro-meteors.
ci-cu.	cirro-cumulus.	u.	umbra.
ci-s.	cirro-stratus.	r.	rain.
cu.	cumulus.	h. r.	heavy rain.
cu-s.	cumulo-stratus.	c. h. r.	continued heavy rain.
d.	dew.	s.	stratus.
f.	fog.	sc.	scud.
fr.	frost.	s.	sleet.
h. fr.	hoar-frost.	s.	snow.
h.	haze.	so. ha.	solar halo.
h. d.	heavy dew.	sq.	squall.
hl.	hail.	sq.	squalls.
l.	lightning.	t.	thunder.
li. cl.	light clouds.	t. s.	thunder storm.
li. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	g.	gale of wind.
lu. ha.	lunar halo.		

TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† 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, = 1.1 1/2

WIND.	SUMMARY.									
	Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.
A.M.										
P.M.										
Mean.										

(Signed)

Robert M. M. M.

Observations made and
Return verified by

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Leppan, County of Mid Lothian, 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 1885.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. No. _____				WIND.				RAIN.		CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. <i>Mention the hour at which Storms, including Thunder and Lightning, began and ended.</i>	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.	Direction.	Force	Direction.	Force	No. of hours in which it fell.	Amount in inches.	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.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°				
	1	29.140	56	29.634	58	55.0	38.		49.5	46.5	47.	43.	High	High	High	High	11.7	8	10	45.5	44.5	48.5	57.				1			
	2	29.164	56	29.640	60	58.0	45.		53.5	50.	52.	48.	High	High	High	High		10	5	47.5	47.5	48.	57.				2			
	3	29.610	55	29.464	53	53.	43.		48.	43.8	45.	43.	High	High	High	High		4	2	46.	48.	48.	50.2				3			
	4	29.684	54	29.330	60	55.	42.		48.5	45.	44.	42.	High	High	High	High		2	10	46.5	47.	48.	50.				4			
	5	29.310	55	29.420		50.	40.		46.5	42.5	42.	40.	High	High	High	High		2		43.5	46.	47.	49.8				5			
	6	29.570	54	29.450	58	57.2	40.5		47.5	44.	42.	40.	High	High	High	High		3	4	42.5	45.	46.5	49.5				6			
	7	29.655	53	29.830	60	53.1	39.		47	43.	44.	42.	High	High	High	High		1	2	42.	44.5	46.	48				7			
	8	29.342	55	29.190	60	52.0	42.		49.	47.	46.	43	High	High	High	High	12.0 1/2	10	8	43.	44.5	46.	49				8			
	9	29.284	53	29.310	54	52.	43.		47.	43.8	48.	45.	High	High	High	High		8	9	43.5	45.	46	48.2				9			
	10	29.326	50	29.618	55	48.	45.		46.	42.	45.	40.	High	High	High	High		6	5	44.5	45.5	45.5					10			
	11	29.690	49	29.420	56	49.	29.		43.	41.	37.	35.	High	High	High	High		10	7	41.	45.	46.					11			
	12	29.900	51	30.050	52	50.	32.5		44.	40.	45.	40.	High	High	High	High		10	8	40.	43.	45.					12			
	13	29.940	46	29.940	53	49.	40.		45.	40.	45.	41.	High	High	High	High		4	6	41.	43.	45.					13			
	14	29.460	50	30.172	54	48.5	43.		44.	44.	48.	45.	High	High	High	High		9	10	44.	44.	45.					14			
	15	30.330	52	30.504	60	50.	47.		49.	48.	48.	47.	High	High	High	High		10	6	46.	45.	45.					15			
	16	30.450	55	30.356	60	50.0	46.		48.5	47.	48.	48.	High	High	High	High		8	10	46.5	48.	45.	48.5				16			
	17	30.264	56	30.146	58	48.2	46.		48.	47.5	48.5	45.	High	High	High	High		10	10	47.	46.	46.	47.				17			
	18	30.266	57	30.306	60	47.5	45.		46.	48.	46.	43.	High	High	High	High		10	10	46.5	46.5	46.5	47.5				18			
	19	30.244	54	30.124	60	48.	40.		42.	38.5	43.	41.	High	High	High	High		2	4	44.	46.5	46.5	46.5				19			
	20	30.080	52	29.938	57	46.5	38.		42.5	40.5	41.	39.	High	High	High	High		8		42.5	45.5	46.	47.5				20			
	21	29.860	52	29.826	57	44.	37.		42.5	40.	40.5	40.	High	High	High	High		8		42.	44.	43.5	48.				21			
	22	29.886	50	29.870	55		34		39.	39.	40.	38.	High	High	High	High		10	10	42.	43.5	45.	46.8				22			
	23	29.874	52	29.884	56	46.0	33.5		42.	39.	45.	40.	High	High	High	High		8	5	40.	43.	44.	45.8				23			
	24	29.660		29.660	52	46.5	41.		46.	42.	41.	39.	High	High	High	High		5	5	42.	43.	44.					24			
	25	29.620	48	29.270	55	48.5	26.		38.	35.	45.	43.	High	High	High	High		0	10	5	37.	42.	43.5	45				25		
	26	28.890	54	020		49.	37.		47.	44.5	41.	39.	High	High	High	High		9	0	42.5	42.5	43.					26			
	27	29.080	52	29.480	55	46.5	38.		41.	38.	41.	39.	High	High	High	High		0	8	40.	41.5	43.					27			
	28	29.186	52	29.578	56	49.	38.		43.5	41.	44.	41	High	High	High	High		8	4	40.5	41.	42.5					28			
	29	29.944	49	30.100	47	42.			45.	41.	39.	38.	High	High	High	High		4	6	41.5	42.	43.					29			
	30	30.000	46	29.880	52	43.5	34.		41.	38.	42.	39	High	High	High	High		8	10	41.	42.	43.					30			
	31	29.820	50	29.846	54	48.5	35.		42.5	40.8	43.	42.	High	High	High	High		10	2	40.5	41.5	42					31			
Sums.		29.705	52.5	29.792	56.0	49.2	39.5		45.4	42.7	44.0	41.5						7	7	43.3	44.4	45.2	48.2							
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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction†† for Temp. (Col. 2), = 29.705 - 0.064 = 29.641

Corrected Mean" of Barometer at 9 P.M., minus the Correction†† for Temp. (Col. 4), = 29.765 - 0.074 = 29.691

Mean at Station, corrected, and at 32° = 29.661

Correction for height, feet above Mean Sea-level, = 22

Mean, reduced to 32°, and Sea-level, = 29.683

Highest Reading, corrected for Index error, on the 15th, = 30.504

Lowest Do. Do., on the 26th, = 28.870

Difference, or Monthly Range, = 1.634

* Each instrument tested at the Office in Edinburgh bears the stamp "S.M.S." and a number to be entered in the Reading, 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.

† Precipitation, though not absolutely a minus correction, is calculated from Glashier's Hygrometrical Tables, Second Edition only.

† These "Hygrometrical Corrections" are calculated from the Arithmetic Mean of Cols. 9 and 5 will be entered as the "Estimated Mean Temperature."

† While the Diurnal Range is unknown, the Arithmetic Mean of Cols. 9 and 5 will be entered as the "Estimated 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 2th, = 58.0

Lowest in Month, corrected for Index errors, on the 4th, = 28.0

Difference, or Monthly Range, = 30.0

"Corrected Mean" of all the Highest, (Col. 5), = 49.2

"Corrected Mean" of all the Lowest, (Col. 6), = 39.5

Difference, or Mean Daily Range, = 9.7

** Calculated Mean Temperature of Month, = 44.4

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), = 44.7

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 42.1

† Computed Temperature of Dew-Point, = 39.0

† Do. Elastic Force of Vapour, = 239

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

† Relative Humidity, (Saturation = 100), = 81

RAIN fell on Days; Amount in Inches, = 1.4

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

Observations made and
Return verified by

(Signed)

Robert Muirhead

FOR TAKING METEOROLOGICAL

The Council of the Society remanded that the Self-Registering Thermometers, and the Dry and Wet Bulb Thermometers, and the Barometer, be kept in Stevenson's Lodge, and outside the Observatory, painted white inside and outside, and covered over to four foot posts, also painted white, firmly fixed in the ground. The posts must be such a length that the Minimum Thermometers are hung in position the Balbs of the Minimum Thermometers, and of the Dry and Wet Bulb Thermometers will be exactly at the same height of four feet above the ground; therefore, the Minimum Thermometer being hung immediately above the Minimum thermometer, and in a free open space so that the sun's rays have access as being assumed to be true, as surrounding conditions enable the Observer to see clearly.

It was further decided that crosses shall be in the form of the Box and face the side of the box, and be placed in front of the Box.

The Council regard the question of uniformity or require accuracy, and insisted in protecting the Thermometers, as vital in any system of Meteorological Observation, since without it Observation made at different Stations are incompatible, thus rendering impossible to compare the climates of places with each other as well as their most important features.

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

Professor Phillips, and Negretti and Zambat's Maximum Thermometers, and Rudolph's Minimum Thermometers are recommended. It is recommended that these thermometers be graduated on the glass stem. The thermometers are liable to two derangements—viz, the breaking of spirit breaking, and part of the spirit distilling by high pressure and lodging at the top of the tube. This derangement is accompanied with a greater thermometer, but it is not so common in conjunction with excess thermometer. It is a symptom of examination of Minimum Thermometers ought to be a regular part of the work carried on by each Observer.

Unfortunately, Spirit Thermometers may be easily set by any

when the column of spirit chases to separate. Let the Theriometer be taken in the hand by the end farthest from the bulb, and held above the head, and then forcibly swung down towards the feet; the column of spirit will be thrown upwards, and the object being, on the principle of centrifugal force, to send it in the detached portion of spirit till it unites with the column. The whirling motion of the column will generally be sufficient for the throws, or swinging strokes, will generally be sufficient for the

position, after which the Thermometer should be placed in a similar 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. This would be applied slowly and cautiously to the top end of the tube where the detached portion of spirit is, which, being turned over 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 placing the tube in a bath of steam, or pouring water over the flask, and turning the thermometer down towards the bulb, until the spirit has become a vapor; or, if gas be at hand, a piece of wire may be used to stir the spirit, and the heat be then increased.

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

Black-bulls. During night, have a black coating which may easily be made, or wanted, by the application of a mixture of lampblack and printer's ink. They are placed in shallow kenneled boxes, whose sides protect the bulls from the sun. 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. Snow must not be allowed to fall on either of these Thermometers; nor the sun's heat to affect the minimum Thermometer by distillation. Black-bulls enclosed in "jackets" may all be used, being indeed preferable to the

[illegible]

ached, the frame must be such as will bring the tubes forward to the surface of the water, so that the water may be suspended; the water-tubes 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 bulbs; the tubes must be of medium fineness, and fastened at the neck of the instrument by the cotton, which also supplies it with water. It must be so adjusted, that the muslin is always clean and moist, and the water pure. In frosty weather, observation is a matter of delicacy, and must be made with great care. The bulb must be deluged by immersion from 15 to 30 minutes before the hour of observation. From the film of the thus formed evaporation will be seen, as usual, the nature of the atmosphere. In ordinary circumstances, the

During the ceremony, the great column of mercury, being the index of the column of mercury. The reading ought to be taken to tenths of a degree, and noted in decimals. Thus Thermometer will be read—35.9; 40.0; or 40.1; or again, 40.2, 40.3, 40.4, 40.6, according as it indicates a little under, an exact coincidence with, or a little over 40° or 40.5, respectively. So also 40.7, 40.8, more or less must be registered 40.2°, or 40.3°, 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 the Dry and Wet Bulb Thermometers are to be first, and then, if read, observed as they are readily affected by heat from the face of the observer.

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

the Self-Registering Thermometers are read, since, in winter, the extremes may occur at any hour; and it is necessary to give them the same attention as to the aneroid barometer, and their occurrence to their proper meteorological day. In the "ATY's" schedules, the indications registered on the 3d are those of the 2d, and the indications registered on the 2d are those of the 1st, and so on, the observations commencing at 9 p.m. on the 2d, and extending to 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 used, they 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 Standard Thermometer. The freezing-point of each Thermometer, detected by a scratch on the tube, ought to be tested once a year, in order to ascertain the error.

On selecting instruments, the following points require attention:—

1. The divisions of the vernier of Barometers in reference to their scales, must be such as to give the observer the greatest possible freedom of the Barometer from all the great num-

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

Very great care should be bestowed on the Observations of the Wind.

Wind. The accuracy of which, both as regards Direction and Force, is so essential towards the right discussion of many of the more important problems of the science.

A Wind-time ought to be elevated at least 12 feet above surface, and the observation should be taken. In all cases, but especially when the Wind is strong, the direction of the wind is fickle, reference may be made to the direction of the wind in well-protected situations. Careful observations are recommended to be made on the changes in the direction of the wind; and during storms, exact observations at every hour of Greenwich. 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-stationed Storms, over a limited district round Ealingburgh called **SOOTY 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 stores the amount of Wind that passes it per day; from which they can also the mean Velocity of the Wind; the time of the observation may be ascertained. For

2. As regards Velocity and Pressure.

Force of the Wind, at any particular hour of observation, the Pressure Anemometer recently brought under the notice of the Council, by Mr. T. Stevenson, the Honorary Secretary, and Mr. R. Ballingall, the Society's Observer at Edinburgh, 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 unobjectionable 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, care should be taken to place it at some distance from shrubs, trees, buildings, or other obstructions, at least as many feet from their base as they are in height. The more important directions towards which it is most desirable to have a free exposure, are in the order of their importance, S.W., N.E., S.E., and W. The position of the Gauge must be perfectly level, and fixed, so that it will

remain level in all weathers and be at a height of one foot above ground over grass. In such gauges as Fleming's, which are furnished with a measuring wheel attached to a float, it ought to be fixed down, and the float rise to a float, only at the time the instrument is read, it being useful that a stem projecting above the rim of the gauge, which serves to furnish 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 daily at 9 A.M. and the reading entered in the Returns of the previous day. If the Gauge is read once a month, the Returns 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, under the following conditions:—When a Snow-fall occurs, and the letter S affixed to the depth of water recorded in Gauge. The depth of the snow must be measured in some convenient manner.

no drift is observed, and registered in addition to that as a check upon the indications of the Rain-Gauge. For violent 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.

Convenient abbreviations for the nomenclature of Clouds will be found on the other side. The amount of Cloud ought to be estimated from the greatest or best 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 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 termed 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 conflicts and currents of the upper and lower regions of the atmosphere. The entries in the schedule are to be made in

S. 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., with one-third the speed of the former. Again, in the second $\frac{1}{4}$, st. Cloud column, an entry of $\frac{2}{4}$, east will indicate that the higher regions are covered to the amount of 4-tenths with status Clouds; and that the sky is further obscured to the extent of 2-tenths by lower Clouds of the same status kind.

For example, the following sketch, which is a copy of a drawing, will assist materially in the development of a more exact

Sunshine.—As the germination and growth of crops and plants generally, depend greatly on the temperature of the soil, the amount and constancy—the Council recommend that Observations in this interesting department be made by Thermometers permanently fixed in the soil, their bulbs at 9 A.M., by

A knowledge of the Temperature of the Sea is not only in itself, but in its relations to that of our island, most important to the Sea. The following is a brief and popular branch of Meteorology. The Royal Society have recommended that the Temperature of the Sea be carefully taken by a properly constructed apparatus from boats, or by a thermometer, if it can be procured, from the shore, and if this be impracticable, from the eulps of piers and vessels upon the coast, where it is not influenced by that of river water, and as little influenced as possible by currents sweeping along the coast, and thus acquiring the temperature of the land, either gently warmed by the sun or cooled by the nocturnal radiation. At one end of the thermometer

BOOK P

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

[illegible]

Have the goodness as to state any information you may be able to collect relative to the crops of grain, Hay, Potatoes, turnips, Fruits, etc., whether plentiful, or in perfection; and the Agricultural condition of the district generally.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Leppa, County of Mid Lothian, 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 1888.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				WIND.				RAIN.		CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		Readings of the H-Cup Anemometer. No. _____ 9 h. A.M.	No. of hours in which it fell.	Amount in inches.	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. No. _____	Wet bulb. No. _____	Dry bulb. No. _____	Wet bulb. No. _____	Direction.	Force.	Direction.	Force.				Velocity (0-10), and Direc- tion.	Amount (0-10), and Species.	Velocity (0-10), and Direc- tion.	Amount (0-10), and Species.	No. _____ inches.	No. _____ inches.					No. _____ inches.
inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
1	29.936	52	29.862	58	53.035					43.	41.	52.	49.	86	16	10	10	12.5		10		10		39.5	41.5	42.	45.5	1			
2	29.928	56	29.820	60	54.42					52.5	50.	53.	51.	10	10	10	10			9		10		46.	43.	43.	46	2			
3	29.686	58	29.600	62	61.0	57.0				57.	55.	56.	53.5	10	10	10	10			9		10		48.5	45.5	46.	47	3			
4	29.778	56	29.630	60	47.5	43.				44.	41.5	44.	39.	10	10	10	10			9		10		46.5	47.	45	47	4			
5	29.520	53	29.870	57	43.	34.				37.	35.	37.	36.	10	10	10	10			2		0		41.5	45.	45.	45	5			
6	30.056	50	30.090	57	53.5	33.				40.	37.5	37.	48.	10	10	10	10			8		8		48.0	43.	44.	45	6			
7	30.140	55	30.230	56	56.	40.				53.5	50.	50.	49.	10	10	10	10			8		8		45.5	43.	43.5	46.5	7			
8	30.300	53	30.355	56	53.	49.				50.	47.	48.	45.	10	10	10	10			6		5		46.	45.	44.		8			
9	30.400	50	30.328	60	44.5	33.				40.	39.	46.	42.	10	10	10	10			9		10		46.	45.	44.		9			
10	30.430	53	30.428	58	45.	28.5				43.	41.5	45.	44.5	10	10	10	10			10		10		43.	45.	45.		10			
11	30.396	56	30.360	58	43.	42.				43.	41.5	42.	41.5	10	10	10	10			1		10		43.	44.	44.5		11			
12	30.270	53	30.060	58	49.	40.				46.5	40.	41.	39.	10	10	10	10			10		10		43.	43.5			12			
13	29.710	53	29.670	58	49.	38.				49.	46.	44.	40.	10	10	10	10			10		10		43.	43.5			13			
14	29.730	52	29.920	56	48.5	29.				41.	34.	36.	33.	10	10	10	10			10		0		42.5	43.	43.5		14			
15	30.200	46	30.396	56	37.5	28.				30.	28.5	30.	28.	10	10	10	10			10		0		38.5	41.	43.	43.5	15			
16	30.146	44	30.480	53	29.0	23.				26.	25.5	27.	26.	10	10	10	10			0		0		33.5	39.	42.		16			
17	30.410		30.270	46	32.5	22.				25.	24.	27.		10	10	10	10			0		0		33.	37.	40.		17			
18	30.140	40	30.150	50	41.	19.				30.		32.5		10	10	10	10			9		2		33.	36.	39.		18			
19	30.176	43	30.190	53	42.	35.				40.	37.	36.		10	10	10	10			10		17		33.	35.	38.		19			
20	30.060	45	29.940	45	43.	34.				40.	39.	43.	40.	10	10	10	10			8		2		33.	35.	38.		20			
21	29.790	45	29.720	54	45.	39.				40.5	38.5	38.	37.	10	10	10	10			8		2		34.	35.	38.		21			
22	29.616	46	29.602	56	43.0	36.				40.5	37.	41.	39.	10	10	10	10			10		10		36.	36.	38.		22			
23	29.590	48	29.636	56	46.0	40.				42.	40.	42.	41.	10	10	10	10			9		9		38.	38.	38.	43.5	23			
24	29.620	48	29.670	56	44.	36.				42.	39.5	43.	41.	10	10	10	10			6		10		37.	38.5	39.	43.5	24			
25	29.588	48	29.610		44.	40.				43.5	42.	41.	39.	10	10	10	10			9		10		40.5	39.5	39.5	43.2	25			
26	29.520	52	29.160	56	41.	40.				44.	41.5	43.	42.	10	10	10	10			9		10		40.5	40.	40.	44	26			
27	29.404	52	29.208	57	48.	41.				48.5	46.	38.	36.	10	10	10	10			10		20		43.	41.	40.5	44.2	27			
28	29.424	53	29.430	53	43.	37.				43.		41.	38.	10	10	10	10			10		2		41.	41.	41.	44.2	28			
29	29.534	48	29.340	60	57.0	36.				48.	47.	48.	46	10	10	10	10			8		8		38.	40.	41		29			
30	29.560	52	29.740	56	45.5	38.				43.	41.	44.	42	10	10	10	10			8		2		40.	40.	41.		30			
31	29.838		29.838		45.5	38.				43.	41.	44.	42	10	10	10	10			8		2		40.	40.	41.		31			
Sums.	29.838		29.838		45.5	38.				43.	41.	44.	42	10	10	10	10			8		2		40.	40.	41.					
Means.	29.838		29.838		45.5	38.				43.	41.	44.	42	10	10	10	10			8		2		40.	40.	41.					
† Total Corrections for Instrumental Errors.																															
† Corrections for Diurnal Range.																															
“Corrected Means.”																															
No. of Column.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

BAROMETER, “corrected Mean” at 9 A.M., minus the Correction†† for Temp. (Col. 2), = 29.869 — 58. = 29.811

Corrected Mean” of Barometer at 9 P.M., minus the Correction†† for Temp. (Col. 4), = 29.895 — 74. = 29.821

Mean at Station, corrected, and at 32°, = 29.816

Correction for height, feet above Mean Sea-level, = 22

Mean, reduced to 32°, and Sea-level, = 29.838

Highest Reading, corrected for Index error, on the 16 th, = 30.480

Lowest Do. Do. on the 27 th, = 28.904

Difference, or Monthly Range, = 1.576

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 3 th, = 61.0

Lowest in Month, corrected for Index errors, on the 16 th, = 49.0

Difference, or Monthly Range, = 12.0

“Corrected Mean” of all the Highest, (Col. 5), = 46.4

“Corrected Mean” of all the Lowest, (Col. 6), = 36.7

Difference, or Mean Daily Range, = 9.7

* Calculated Mean Temperature of Month, = 41.5

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

“Corrected Mean,” (Col. 7), of Black Bulb, Max. in Sun, =

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

“Corrected Mean,” (Col. 8), of Black Bulb, Min. on grass, =

Difference of above Means or Range (“exposed”), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 42.0

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 40.6

†† Computed Temperature of Dew-Point, = 38.9

†† Do. Elastic Force of Vapour, = 23.7

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

†† Relative Humidity, (Saturation = 100), = 89

RAIN fell on Days; Amount in Inches, = 0.60

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

(Signed) Robert MearnsObservations made and
Return verified by

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Glasgow, County of North Lothian, 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 1888.
The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS.				HYGROMETER.				WIND.				RAIN.		CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.	Days of Month.	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		9 h. A.M.		P.M.		9 h. A.M.									
		No.	Barometer.	Attached Thermometer.	No.	Barometer.	Attached Thermometer.	No.	Barometer.	Max.	Min.	No.	Barometer.	Max.	Min.	No.	Barometer.	Max.	Min.	No.	Barometer.	Max.	Min.	No.	Barometer.	Max.					Min.
	1	29.950	52	30.092	56	44	41					42	39.5	46	46	W 16	W 16	13.1	4	0	39.5	40	40.5	43.2				1			
	2	29.924	51	29.950	53	49	41					44	42	40	38	SW 16	SW 16	12.3	9	10	41	40	41				2				
	3	29.808	44	29.350	58	52	36					40.5	37.5	52	48	W	SW 16		8	10	38	40	41				3				
	4	29.020	53	29.420	53	44						43.5	40.5			W 16	W 16		6	2	41.5	40.5	40.5	43				4			
	5	29.622	48	29.530	46	39	34					36.5	34	36.5	38	W	W 16		10		37	40	41	43.5				5			
	6	29.660	43	29.896	50	33	28					32	29	31	24	SW 16	SW 16		2	0	45	38	40	40.5				6			
	7	29.440	43	30.080	46	32	22					21		30	28	W	W 16		10	0	33	36	39	40				7			
	8	30.230	42	30.350	40	36	21					32	30	31		W 16	W 16		0	0	32	35	38	39				8			
	9	30.244	43	30.330	46	37	26					36	35	33	31	W	W 16		10		33	35	37.5	39				9			
	10	30.492	42	30.586	46	34	23					25	24	24	23	W	W 16		0	0	32.5	34.5	37	38				10			
	11	30.420	42	30.250	50	43	18					34	33	41	39	W	SW 16		6	10	31	34	36	38.5				11			
	12	30.030	50	29.924	56	47	34					42.5	40	48	46	SW 16	SW 16		10	10	33	34	36	39				12			
	13	29.880	50			41						47	46	48	46	SW 16	SW 16		6		33	34	36					13			
	14	30.040	52	30.250	60	57						47	44	48	46	SW 16	SW 16				37	35	36					14			
	15	30.420	52	30.300	60	57	48					47	44	47	48	W	W 16		9	6	40.5	38	37					15			
	16	30.024	54	30.250	63	56	43					50.5	48	51	49	W	W 16		6									16			
	17	30.420	55	30.520	62	52	48					50	48.5	51	49	W	W 16		7	8	45	42	40					17			
	18	30.482	53	30.530	60	43	40					41	40	34	36.5	W	W 16		10	10	44	43	41					18			
	19	30.280	49	30.138	54	39	30					34		36		W	W 16		10	10	40	42	42					19			
	20	30.030	49	30.052	58	42	33					39	38	42	41	SW 16	SW 16		10	10	39	40	41					20			
	21	30.180	52	30.196	60	43	38					43		42	41.5	SW 16	SW 16		10	10	42	40	41					21			
	22	30.400	50	30.636	55	43	41					42	40	34	36	SW 16	SW 16		8	0	41	41	41.5	43				22			
	23	30.588	47	30.684	55	45	28					33	32	43	42	W	W 16		8	10	35	39	40.5	42				23			
	24	30.436	52	30.422	55	48	22					45	44	46	45	SW 16	SW 16		8		39	38.5	39.5	43				24			
	25	30.210	50	30.330	58	48	24					45	43	43	40	W	W 16		8	0	40.5	40.5	40	43				25			
	26	30.452	52	30.436	55	44	34					35	34	42	40	W	W 16		6	10	41.5	40	40	42.5				26			
	27	30.500	52	30.038	58	45	34					44	41.5	43	41	SW 16	SW 16		6	10	39	39	40	42.5				27			
	28	29.340	53	29.288	53	44	41					45	42.5	33	31	SW 16	SW 16		8	8	41	40	40.5	42.5				28			
	29	29.602	45	29.830	50	36	27					28		26	25	W	SW 16		0	0	35	38.5	40	40				29			
	30	29.946	45	29.614	53	48	24					36	35	37	35	SW 16	SW 16		10	10	33	36.5	38.5	39.5				30			
	31	29.740	50	29.870	55	52	33					48	46	43	40	SW 16	SW 16		8	10	34.5	37	38	41.5				31			
	Sums.	101.348	1603	30.682	1603	442	33.8					1415	1373	1355	1389				209		440	39.2	39.4	41.4							
	Means.	30.046	488	30.089	52.1	44.2	33.8					39.7	38.9	40.4	38.9				6.7		4.0	39.2	39.4	41.4							
	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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction^{††} for Temp. (Col. 2), = 30.046 53 = 29.993
Corrected Mean" of Barometer at 9 P.M., minus the Correction^{††} for Temp. (Col. 4), = 30.012 53 = 29.979
Mean at Station, corrected, and at 32°, = 30.003
Correction for height, feet above Mean Sea-level, = 22
Mean, reduced to 32°, and Sea-level, = 30.025
Highest Reading, corrected for Index error, on the 22th, = 30.636
Lowest Do. Do., on the 4th, = 29.020
Difference, or Monthly Range, = 1.616

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 16th, = 56.0
Lowest in Month, corrected for Index errors, on the 11th, = 18.0
Difference, or Monthly Range, = 38.0
"Corrected Mean" of all the Highest, (Col. 5), = 44.2
"Corrected Mean" of all the Lowest, (Col. 6), = 33.8
Difference, or Mean Daily Range, = 1.04
** Calculated Mean Temperature of Month, = 39.0
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 16th, = 56.0
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 56.0
Lowest at Night, Black Bulb, (corrected for Index errors), on the 11th, = 18.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 18.0
Difference of above Means or Range ("exposed"), = 38.0

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 40.0
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 38.9
†† Computed Temperature of Dew-Point, = 37.5
†† Do. Elastic Force of Vapour, = 2.24
†† Do. Weight of Vapour in a Cubic Foot of Air, ... = 9.1
†† Relative Humidity, (Saturation = 100), = 91
RAIN fell on Days; Amount in Inches, = 0.45

WIND.												SUMMARY.		
Direction.	N	NE	E	SE	S	SW	W	NW	Variable.	Mean Force.	Mean Velocity in miles per day.			
A.M.	3	1				12	7	8						
P.M.	3				5	4	6	1	12					
Mean.	3	1	0	0	2	8	8	1	10					

Observations made and
Return verified by

(Signed)

Robert M. M. M.

OBSERVATIONS,

[illegible]

It is impossible to compare the climates of places with each other on the basis of their most important features. Professor Phillips, and Negretti and Zambra's Maximum Thermometers, and Rutherford's Minimum Thermometer are recommended. It is recommended that these Maximum Thermometers be graduated on the glass stem. The Minimum Thermometer is liable to two derangements—viz, the rupture of spirit breaking at the point of the spirit discharging by capillary action, and the rupture of the tube. This derangement is of occasional occurrence with Protected Thermometers, but of frequent occurrence with exposed Thermometers. Hence a systematic examination of Minimum Thermometers ought to be a regular part of the work carried by each Observer.

Fortunately, Spirit Thermometers may be easily set right by the use of the column of spirit chances to separate. Let the thermometer be taken in the hand by the end farthest from the bulb, and move above the head, and then forcibly swing down towards the bulb, as if by jerking, the principle of centrifugal force, to send the detached portion of spirit to the bottom of the tube. If a few blows, or swinging strokes, will generally be sufficient to effect this purpose; after which the Thermometer should be placed in a standing 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, as should be applied slowly and cautiously to the top end of the tube where the detached portion of spirit is, which, being turned round to vapour by the heat will condense on the surface of the unbroke portion of spirit. Care must be taken that the heat is not applied too quickly; for, if it be done, the tube will break and the instrument be ruined. To apply the requisite amount of heat towards a minute flame from a gas-burner; or, if gas be not at hand, a piece of white flame will serve instead.

The bulbs of the Thermometers for registering the greatest heat from chemical rays, and the least from radiation

Black-Bull (during night) to black coatings, which may easily be made, whereby, by the application of a mixture of lampblack and printer's ink. They are placed in the enclosed boxes, whose sides project the bulbs from the top. 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. Snow must not be allowed to fall over either of these Thermometers; nor the sun's heat to affect the Minimum Thermometer by distillation. Black-balls enclosed in mass jackets* may also be used, being indur preferable to the bare ones. 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.

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 these two methods.

ached; the frame must be such as will bring the tubes forward to the level of the water, from which it may be suspended; the water must be covered, and altogether placed to the side, and a little above the level of the wet bulb, but in no case under the bulb; the tubes 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 taken care to see that the mslin is always clean and moist, and that the water pure. In frosty weather, observation is a matter of delicacy, and must be made with great care. The bulb must be moistened by immersion from 15 to 30 minutes before the hour of observation. From the film of ice thus formed evaporation will proceed as from the moist cloth in ordinary circumstances.

In reading the Thermometer great care must be taken to bring the eye exactly opposite the tip of the index or column of mercury. The reading ought to be taken to tenths of a degree, and noted in decimals. Thus Thermometer will be read— $39\cdot 9$, $40\cdot 0$, or $40\cdot 1$; or again, 4 , $40\cdot 3$, $40\cdot 6$, according as it indicates a little under, an exact coincidence with, or a little over 40° , or $40\frac{3}{10}$, respectively. So also $40\cdot 3$ and $40\cdot 6$, more or less must be registered $40^{\circ} 2$, or $40^{\circ} 3$, and $40\cdot 7$, or $40^{\circ} 8$, respectively. In reading Rutherford's Minimum Thermometer, the indication of that end of the index which is next to the surface of the spirit is alone noted. On opening the Thermometer the Dry and Wet Bulb Thermometers are to be first, and usually, read, inasmuch as they are readily affected by heat from the person of the Observer.

The Hygrometer is read at 9 A.M. and 9 P.M. The Self-Registering Thermometers are read at 9 P.M. only, as indicating the greatest and least degrees of temperature in the 24 hours' setting. This post a matter of daily

in the Self-Registering Thermometers are read since, in winter, at least, the extremes may occur at any hour; and it is necessary to compare their readings with their paper meteorological diary. In the case of the Self-Registering Thermometers, the indications registered on the 34 are those of the penultima commencing at 9 a.m. on the 24, and extending to 9 p.m. on the 34.

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, undrugo points, they are very liable to be moved from their position on the Scale, and ought never afterwards to be without being re-tested. The Self-Registering, especially the minimum Thermometers, ought frequently to be compared with the Standard Thermometer. The freezing-point of each Thermometer, as indicated by a scale on the tube, ought to be tested once a year, in order to ascertain if it is melting ice.

In selecting instruments, the following points require attention:—divisions of the varieties of Barometers in reference to their scales, and the perfect freedom of the Barometer from air; the exact turn,

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

Very great care should be bestowed on the Observations of the Wind.

Wind. The accuracy of which, both as regards Direction and Force, is so essential towards the right discussion of many of the more important problems of the above.

A Wind-Vane ought to be mounted at least 12 feet above surrounding objects, when it is used, unless necessary; but, in all cases, the direction of the wind should be taken. In all cases, the direction of the wind, and when the wind is variable, especially when the *Vento* is variable, should be noted.

It is foolish, perhaps, any more to be made to the direction of smoke, etc., in well-exposed situations. Careful observations of the wind, and, to be made on the changes in the direction of the wind, and during storms, exact observations at each hour of Greenwich time. Such

a system of simultaneous observation, important 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 Changes*, and other points connected with storms.

The Council have also contemplated the employment of a *Crp Anemometer*—a self-registering instrument, which shows the amount of Wind that passes it per day, and also the force, and also the mean Velocity of the Wind, the time of the day, and the direction.

2. As regards Velocity and direction.

Observation.—For indicating the Force of the Wind at any particular hour of observation, the Pressure Anemometers recently brought under the notice of the Society by Mr T. Stevenson, the Honorary Secretary, and Mr R. Ballingall, the Society's Observer at Edinburgh, 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, and partly from the defective nature of the means for observation, and partly from the imperfectly understood principles of evaporation. 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 it. As it is often difficult to obtain a position as free and unobstructed by surrounding objects as is desirable, care should be taken to place it at some distance from shrubs, trees, buildings, or other obstructions, at least as many feet from their base as they are in height. The more important directions towards which it is most testurable to have a free exposure, are the four of the Compass immediately viz., N.E., S.E., S.W., and W. The rain-gauges must be frequently examined so that it will remain level in all weathers, and be at the same time exposed to round overfalls. In such gauges Fleming's siphon, or one of those

ground, over grass. In such gauges as Flemings, who are furnished with a measuring pot attached to a float, the pot ought to be fixed down, and the float rise to its height only at the time the instrument is read, it being found that in some projecting above the rim of the gauge mouth sometimes with the proper measurement of the Rain-gauge. When a measuring glass is used, care should be taken to hold it quite in the reading position, and the rim of the glass to be read daily at 9, 10, and 11 o'clock.

If the Gauge is read once a month, the reading is to be made on the first of the month, and the amount entered in the previous month.

Snow-falls may, for convenience, be registered in —

Snow-falls under the following conditions: — When a Snow-shower occurs, it should be noted in the —

and the letter S affixed to the depth of water reserved 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 the Remarks, 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 Clouds ought to be estimated from the greater or less observation of the sky overcloud (*i.e.*, within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are viewed obliquely; 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, 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 traveled with 2. W. extreme velocity from S.W., and those in the lower regions from W., with one-third the speed of the former. Again, in the second 4. st. Cloud column, an entry of 2. 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 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 of Clouds, as well as throw light on the electrical, and other of the more obscure phenomena of Meteorology.

The approximate number of Hours in which objects in the sun's

rays and sandworms should be entered in the proper columns.

As the germination and growth of crops and plants generally, depend greatly on the temperature of the soil,—its amount and consistency,—the Council recommend that Observations in this interesting department be made at 9 A.M., by Phenomenon permanently fixed in the soil, their bulbs being sunk to depths of 3, 12, and 22 inches, and the stems above ground protected from the sun's rays, and fitted with sloping tin collars, to prevent rain water being conveyed to the bulbs by the stems or wooden frames.

A knowledge of the Temperature of the Sea is not only in itself, important 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 carefully taken by a properly constructed apparatus, from boats, or if this be impracticable, from the tops of rocks round the coast, where it is not influenced by that of river water, and as little influenced as possible by currents sweeping along the coast, and thus affording the Temperature of the land, and not greatly affected by the sun or cooled by nocturnal radiation. At least the following

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

[illegible]

BOOK POST.

(By Daniel A. B.)

zoonotic disease prevails among cattle, and the Agricultural condition of the district generally.