

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at *Guthrie Park, Aberdeen*, County of *Aberdeen*, in Lat. *57.9 N*, Long. *2.6 W*, Distance from Sea *2* miles.Height of Cistern of the Barometer above Mean Sea-Level *44* feet, above Ground *4* feet.During the MONTH of *January* 189*9*.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.								
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	Amount in inches.	Direction.	Force	Direction.	Force	Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	No. 8 inches.					No. 10 inches.	No. 22 inches.
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	No.	°	°	°	°	°	°	°	°	°	°	°	°	°		°	
	1	29.145	42.	28.860	42.	42.2	35.0			36.0	35.5	41.6	39.0	0.39	S	0.5	S	2			10		10						very dull, soft, some rain	1	
	2	28.760	43.	29.200	43.	42.0	38.0			37.0	38.2	39.0	38.5	0.50	S	0.2	S	2			10		10						rain all day, heavy at times	2	
	3	29.690	44.	29.550	45.	41.0	37.0			39.0	37.4	38.9	37.5	0.04	S	0.5	S	3			10		8						dull fair, some rain then fair dull	3	
	4	29.740	42.	29.455	42.	43.0	34.0			35.0	34.6	41.0	37.8	0.02	S	0.5	W	3			8		0						Dull fair, some rain, clear cold P.M.	4	
	5	29.850	42.	30.200	39.	40.8	33.0			35.0	33.3	33.2	31.0	0.00	S	0.5	W	1			2		0						Clear fair all day, cool.	5	
	6	30.100	42.	29.950	40.	41.5	38.0			40.2	37.8	32.4	32.0	0.18	S	0.5	SW	1			10		10						dull cold, heavy rain 12 to 2 P.M. fair	6	
	7	29.900	38.	29.750	39.	32.5	26.0			26.4	26.0	32.5	31.6	0.02	SW	0.5	Var				0		8						Clear, white frost, dull at night	7	
	8	29.640	40.	29.600	43.	44.8	32.0			34.8	34.2	44.8	44.2	0.06	S	0.5	S	1			very large		very large						F dull wet fog all day, rain P.M.	8	
	9	29.360	43.	29.215	47.	45.4	43.0			43.8	43.0	39.2	38.6	0.15	S	1	S	1			2		10						fair fine, heavy rain from 6 P.M.	9	
	10	29.065	45.	29.110	45.	44.0	38.0			43.5	42.6	39.0	38.2	0.04	SW	1	SW	1			8		6						fair to slight showers	10	
	11	29.160	39.	29.200	44.	39.2	31.4			34.2	33.8	34.0	33.0	0.00	SW	1	SW	0.5			8		0						showery to fair, then clear	11	
	12	28.990	40.	29.050	40.	40.0	30.8			33.2	32.6	37.4	36.8	0.43	SW	1	Var	2			8		10						white frost, rain from 10 A.M.	12	
	13	29.400	42.	29.345	41.	38.3	30.0			32.5	32.0	38.3	35.0	0.00	W	1	W	1			8		0						fair fine all day, frost P.M.	13	
	14	29.530	41.	29.542	42.	42.0	35.0			38.5	36.2	37.0	35.0	0.02	N	1	W	1			5		0						so so so	14	
	15	29.640	42.	29.240	42.	39.8	32.0			36.6	34.5	39.2	38.8	0.20	W	1	W	1			8		10						dull rain after 4 P.M.	15	
	16	29.875	43.	29.210	43.	38.5	31.8			37.8	36.8	33.2	31.8	0.04	SW	2	N	4			3		2						unsettled, stormy showers	16	
	17	29.690	38.	29.800	38.	35.0	29.0			30.6	28.5	30.2	28.8	0.08	W	3	W	1			0		2						S stormy showers of snow	17	
	18	29.660	39.	29.110	42.	41.0	26.0			34.8	25.0	40.8	40.0	0.45	S	2	S	1			10		8						S light after 1 P.M. fair to rain after	18	
	19	29.125	41.	29.135	41.	43.6	36.0			39.2	38.6	40.8	39.2	0.00	SW	0.5	S	2			10		6						rain, fair after 9 A.M.	19	
	20	29.240	42.	29.300	41.	45.0	31.8			38.0	36.6	36.6	34.6	0.48	SW	0.5	S	0.5			1		large						fair fine, dull night	20	
	21	29.960	43.	29.045	42.	44.2	34.5			44.0	43.7	40.2	39.2	0.40	S	1	Var				10		large						rain to fair, haze at night	21	
	22	29.000	42.	29.450	42.	41.0	34.0			41.0	40.0	36.8	34.8	0.12	N	2	N	3			10		10						rain melt of the day, fair after 5 P.M.	22	
	23	29.825	39.	30.160	40.	41.0	31.0			34.5	33.0	32.0	31.8	0.08	N	2	N	2			8		4						S fair, snow showers melting, fair P.M.	23	
	24	30.350	34.	30.480	33.	34.5	23.8			24.2	23.8	25.2	23.0	0.00	W	1	SW	1			0		0						clear slight snow lying	24	
	25	30.580	34.	30.630	34.	35.5	21.6			29.5	27.8	30.0	28.5	0.00	S	1	SW	1			0		0						clear hard frost all day	25	
	26	30.650	34.	30.605	36.	33.5	26.0			28.0	27.0	29.0	28.0	0.00	SW	2	SW	1			large		large						so so so large	26	
	27	30.500	32.	30.460	32.	34.2	16.6			18.0	17.5	23.0	22.0	0.00	SW	1	SW	0.5			0		4						so so so so	27	
	28	30.400	33.	30.280	38.	39.0	22.0			27.0	26.0	39.0	36.8	0.02	N	0.3	N	2			8		10						fair dull, soft, like rain	28	
	29	30.195	38.	30.140	38.	42.0	37.0			40.0	38.8	38.0	36.8	0.01	N	1	N	0.5			10		6						dull wet haze, slight rain P.M.	29	
	30	30.095	41.	30.000	39.	39.0	35.6			37.0	35.6	35.2	33.5	0.00	N	1	W	0.5			8		6						dull fair mild all day	30	
	31	29.750	43.	29.545	38.	39.0	33.0			33.2	32.5	36.0	34.8	0.01	W	1	N	1			4		5						fine all day, slight frost	31	
	Sums.	15 153	11	11 103	12	13 7	13 5			16 8	16 13	15 8	17 12	3 74	4	2															
	Means.	29.641	40.0	29.634	40.4	40.1	31.3			35.0	33.6	35.9	34.6		1.29	1.34															
	+ Total Corrections for Instrumental Errors.	-010		-010																											
	+ Corrections for Diurnal Range.																														
	"Corrected Means."	29.631		29.624																											
	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 \ddagger = *29.601*
for Temp. (Col. 2), = *29.631* : *0.030* }

"Corrected Mean" of Barometer at 9 P.M., minus the Correction \ddagger = *29.594*
for Temp. (Col. 4), = *29.624* : *0.030* }

Mean at Station, corrected, and at 32°, = *29.594*

Correction for height, feet above Mean Sea-Level, = *50*

Mean, reduced to 32°, and Sea-level, = *29.447*

Highest Reading, corrected for Index error, on the *26*th, = *30.646*

Lowest Do. Do., on the *2*th, = *28.740*

Difference, or Monthly Range, = *1.926*

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the *9*th, = *45.4*

Lowest in Month, corrected for Index errors, on the *17*th, = *15.6*

Difference, or Monthly Range, = *29.8*

"Corrected Mean" of all the Highest, (Col. 5), = *40.1*

"Corrected Mean" of all the Lowest, (Col. 6), = *31.3*

Difference, or Mean Daily Range, = *8.8*

** Calculated Mean Temperature of Month, = *25.7*

S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the *9*th, =

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

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

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

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

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = *35.4*

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = *34.1*

†† Computed Temperature of Dew-Point, = *32.1*

†† Do. Elastic Force of Vapour, = *182*

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

†† Relative Humidity (Saturation = 100), = *88*

RAIN fell on *22* Days; Amount in Inches, = *3.74*

WIND.	SUMMARY.									
	Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.
A.M.		0	1	1	4	4	11	5	5	0
P.M.		0	1	1	1	6	8	6	5	3
Mean.		0	1	1	3	5	9	6	5	1

Observations made and
Return verified by

(Signed)

Peter Harper

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Sutton Park Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 2° 6' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of February 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.				
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.			9 h. A.M.										
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max. No.	Min. No.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	No.	Direction.	Force.	Direction.	Force.	Velocity (0-10), and Species.	Amount (0-10), and Direction.		Velocity (0-10), and Species.	Amount (0-10), and Direction.	No. 3 inches.					No. 12 inches.	No. 22 inches.		
		* No.		No.		No.	No.	No.	No.																									
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°		°	°	°					°	°	°	°
	1	29.600	38.	29.350	34.	38.5	32.6			34.8	33.7	34.5	33.4	0.02	N	2	N	2			ci	3							Slight snow showers	1				
	2	29.600	38.	29.700	36.	36.8	29.8			34.2	32.2	34.9	33.0	0.03	NW	2	NW	1			ci	6							Fair, slight snow showers	2				
	3	29.800	37.	29.895	37.	36.5	31.0			34.2	33.0	34.0	32.2	0.00	NW	1	NW	0.5			ci	8							Slight snow falling, fair all day	3				
	4	29.894	38.	29.700	39.	36.0	25.0			29.0	25.8	25.5	25.0	1.00	W	1	W	0.5			0	0							Fair, hard frost clear all day	4				
	5	29.650	34.	29.865	35.	36.0	20.5			32.0	31.2	34.5	32.6	0.03	NW	1	N	2			ci	8							Fair up to 11.30, then snow showers	5				
	6	29.350	38.	29.700	37.	38.4	32.0			36.8	34.2	36.0	35.0	0.18	SE	2	SE	2			ci	10							Cold clear up to 10, then turning to rain	6				
	7	29.446	38.	29.300	38.	40.4	36.2			38.1	36.5	39.8	39.5	0.43	SE	2	SE	0.5			ci	10							Fair, rain from 10 A.M. to dusk, then dull	7				
	8	29.155	43.	28.955	43.	44.2	37.0			42.2	41.8	44.0	43.6	0.48	S	1	S	2			ci	10							Rain, heavy till 11, then clearing to dusk	8				
	9	29.025	41.	28.995	43.	46.2	38.0			40.0	38.0	43.0	42.6	0.13	SW	1	S	2			ci	10							Fair & bright to 2 P.M. then at dusk	9				
	10	29.105	45.	29.005	45.	48.0	41.0			42.2	40.6	47.6	45.4	0.03	W	1	SW	2			ci	5							Dull slight rain then fair	10				
	11	29.200	47.	29.045	37.	51.0	45.0			48.2	46.0	48.5	48.5	0.31	S	1	S	1			ci	8							Fair & mild, some slight rain	11				
	12	28.570	47.	29.100	46.	50.2	39.6			44.5	42.5	41.8	40.0	1.00	SW	1	SW	1			ci	6							Fair & fine all day	12				
	13	29.045	46.	28.800	48.	44.2	30.2			41.2	40.2	42.0	41.4	0.34	S	1	SW	1			ci	4							Fair, some rain latter then fair	13				
	14	29.045	44.	29.335	44.	49.0	38.4			42.0	39.8	41.6	38.0	0.00	SW	1	SW	3			ci	0							Fair all day, clear at night	14				
	15	29.455	46.	29.645	44.	48.2	33.2			44.0	41.5	38.6	37.2	0.00	SW	2	SW	1			ci	0							Fair & fine all day.	15				
	16	29.065	45.	29.700	47.	44.5	31.0			40.0	38.4	44.2	43.8	0.05	SW	2	SW	2			ci	8							Fair, some rain, dull at night	16				
	17	29.800	47.	29.975	45.	49.0	42.0			43.8	43.4	45.0	43.5	0.22	SW	1	SW	0.5			ci	8							Fair dull & fine all day	17				
	18	30.000	46.	30.050	46.	44.6	42.0			43.8	43.2	41.5	40.5	0.12	W	1	NW	1			ci	8							Fair & fog most of the day	18				
	19	30.150	46.	30.300	42.	47.0	31.0			41.0	39.8	32.5	31.8	0.00	NW	1	W	0.5			ci	0							Fair & fine, part at night	19				
	20	30.400	44.	30.450	42.	42.5	27.0			30.6	29.8	36.6	35.5	0.00	SW	1	W	0.5			ci	8							Fair & fine all day	20				
	21	30.440	41.	30.405	46.	43.6	34.2			42.4	41.2	39.2	37.5	0.00	SE	1	S	1			ci	4							Fair dull all day.	21				
	22	30.305	42.	30.254	43.	45.0	34.2			39.0	37.0	37.5	34.0	0.00	SW	1	SW	0.5			ci	0							Fair and fine all day	22				
	23	30.175	42.	30.150	41.	49.6	27.0			31.8	30.0	33.5	31.6	0.00	SW	0.5	SW	0.5			ci	2							br	br	23			
	24	30.210	40.	30.305	39.	48.0	27.0			31.0	30.5	32.2	32.8	0.00	W	0.5	SW	0.5			ci	0							br	br	24			
	25	30.340	41.	30.380	42.	43.0	32.0			40.0	37.8	38.6	36.5	0.00	S	1	S	2			ci	8							Fair dull all day.	25				
	26	30.520	44.	30.345	38.	39.0	29.0			36.0	34.0	34.0	29.5	0.00	S	1	SW	1			ci	8							Dull fair all day frost P.M.	26				
	27	30.375	40.	30.375	38.	48.0	21.0			26.2	25.2	31.5	29.6	0.00	SW	0.5	SW	0.5			ci	0							Clean, white frost all day	27				
	28	30.350	43.	30.340	43.	50.0	28.0			39.0	36.2	47.2	45.0	0.01	SW	1	SW	0.5			ci	8							Dull some slight rain	28				
	29																															29		
	30																															30		
	31																															31		
Sums.		1195	13	13106	15	156	124			107	1210	1310	1210	24		1		5													NOTATION USED IN GENERAL REMARKS.			
Means.		29.756	42.2	29.772	41.5	44.2	32.5			38.1	36.6	38.3	36.9			1.16		1.16													a. denotes aurora.			
+ Total Corrections for Instrumental Errors.		-010		-010																												ci. cirrus.		
+ Corrections for Diurnal Range.																																ci.-cu. cirro-cumulus.		
"Corrected Means."																																cu. cumulus.		
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	ci.-s. cirro-stratus.		
																																cu.-s. cumulo-stratus.		
																																d. dew.		
																																f. fog.		
																																fr. frost.		
																																h.-fr. hoar-frost.		
																																h. haze.		
																																h.-d. heavy dew.		
																																h.-l. light.		
																																h.-cl. light clouds.		
																																h.-sh. light showers.		
																																h.-co. lunar corona.		
																																h.-ha. lunar halo.		
																																in. denotes meteor.		
																																ms. meteors.		

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park, County of Aberdeen, in Lat. 57° 14', Long. 2° 6' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of March 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.	Days of Month.				
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer.	9 A.M.		P.M.		9 h. A.M.								
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max. No.	Min. No.	Max. in Sun-rays No.	Min. on Grass No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.			Force.	Direction.	Force.	Velocity (0-10), and Direction.		Amount (0-10), and Species.	Velocity (0-10), and Direction.	Amount (0-10), and Species.	No. 3 inches.	No. 12 inches.	No. 22 inches.							
		* No.	°	No.	°	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.				
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°				
	1	30.452	47.	30.200	47.	59.4	41.0			53.0	49.5	50.2	46.6	0.00	SW	1	SW	2		5	ci	5.0									fair fine and mild all day	1		
	2	30.100	50.	30.100	50.	53.5	46.0			52.6	48.5	46.6	42.2	0.04	W	3	SW	2		8	ci	0									very fine soft forenoon, finest night	2		
	3	29.850	48.	29.775	47.	62.0	42.0			45.7	43.8	39.0	36.7	0.00	W	2	NW	2		5	ci	2									some showers, fine for the season	3		
	4	29.890	44.	30.100	40.	38.5	30.6			33.2	31.0	31.5	29.0	0.03	NW	2	NW	1		5	ci	2										fair & cold all day.	4	
	5	30.050	40.	29.995	46.	41.2	29.0			33.0	31.5	36.8	33.5	0.02	SW	3	SW	1		5	ci	8										showers, fair latter	5	
9.450	6	29.625	44.	29.570	44.	47.8	32.5			41.0	38.0	37.6	36.5	0.00	SW	3	SW	1		8	ci	0										unsettled fair	6	
	7	29.500	44.	29.450	43.	48.2	32.0			40.2	39.0	38.0	37.2	0.08	SW	1	SW	1		3	ci	6										white frost till, some rain after 2.	7	
	8	29.300	42.	29.030	46.	48.0	31.8			39.0	38.0	40.0	38.8	0.16	NW	1	W	1		10	ci	5										fair, dull, fine	8	
	9	28.950	42.	29.350	47.	45.2	38.5			39.6	39.0	41.0	39.8	0.04	SE	1	SE	1		10	ci	5										rain a.m., fair rest of day	9	
	10	29.585	45.	29.660	45.	49.4	38.0			42.0	40.0	43.4	42.2	0.00	SW	2	SW	2		5	ci	4										fair fine, aurora at 9 P.M.	10	
	11	29.850	48.	29.850	50.	59.0	41.0			49.7	47.6	49.8	46.5	0.00	S	3	S	3		6	ci	3										fair, fresh drying wind	11	
	12	30.290	48.	30.425	48.	54.5	40.8			45.0	40.4	44.0	39.8	0.02	W	2	W	0.5		1	ci	5										very fine all day	12	
	13	30.400	43.	30.350	50.	59.4	38.6			43.0	41.2	46.6	44.0	0.00	SW	0.5	SW	2		6	ci	2										dull, fine do	13	
	14	30.350	50.	30.375	52.	62.0	40.0			51.6	48.2	41.0	40.0	0.00	W	2	SW	1		4	ci	2										very fine, clear at night	14	
	15	30.400	50.	30.410	52.	55.0	38.0			42.0	40.0	45.0	43.4	0.00	SW	0.5	S	1		3	ci	6										very fine all day	15	
	16	30.450	48.	30.400	52.	57.0	34.8			42.2	40.2	48.5	37.5	0.00	S	0.5	S	1		0		0										do do frost P.M.	16	
	17	30.305	45.	30.260	45.	61.0	32.0			39.6	37.5	38.4	37.2	0.02	SW	0.5	N	3		0		8										very fine unsettled towards night	17	
	18	30.310	44.	30.260	42.	42.0	33.8			38.2	34.8	31.5	29.5	0.05	N	3	N	3		3	ci	4											stormy showers of snow all day	18
	19	30.045	43.	29.900	36.	41.6	28.5			34.8	32.0	29.0	28.0	0.16	NW	2	NW	3		2	ci	2											snow showers all day.	19
	20	29.810	36.	29.810	35.	37.0	27.0			30.0	29.2	28.0	27.5	0.56	NW	3	NW	1		4	ci	2											heavy snow storm, frequent showers	20
	21	29.675	37.	29.640	37.	36.5	26.0			30.0	29.5	28.0	26.6	0.10	NW	1	N	1		10	ci	5											heavy snow storm, frequent showers	21
	22	29.690	34.	29.715	32.	31.5	24.0			27.0	26.2	26.0	25.0	0.05	N	2	N	2		6	ci	4											snow showers frequently.	22
	23	29.880	35.	29.960	33.	36.0	22.0			30.2	30.0	28.0	27.0	0.08	NW	2	NW	1		8	ci	5											do do do	23
	24	29.990	36.	30.045	33.	41.5	18.5			26.0	24.4	21.5	20.6	0.00	SW	1	W	1		2	ci	0											clear hard frosts & sunshin	24
	25	29.950	34.	29.710	37.	36.4	19.0			27.0	25.5	36.2	35.5	0.31	SW	1	SE	1		10	ci	10											dull, heavy rain or sleet from 10 a.m.	25
	26	29.845	39.	29.830	39.	44.8	34.0			38.5	36.8	36.0	35.0	0.09	NW	1	SE	0.5		8	ci	10											fine fresh all day rain P.M.	26
	27	29.655	41.	29.600	44.	57.2	35.0			40.0	38.4	40.6	38.5	0.02	S	1	SW	1		10	ci	4											dull slight rain, then fair & fine	27
	28	29.500	46.	29.130	45.	52.0	39.3			49.5	45.0	44.5	43.8	0.09	SW	3	SW	3		4	ci	8											fine all day, some rain P.M.	28
	29	29.350	47.	29.800	46.	50.0	44.0			49.8	46.0	37.5	35.7	0.36	W	3	W	2		6	ci	10											unsettled, heavy rain at night	29
	30	30.175	46.	30.345	43.	45.0	38.7			39.0	36.8	37.5	34.8	0.17	NW	1	NW	1		6	ci	5											fair & fine all day	30
	31	30.126	43	29.900	41.	39.8	33.0			35.0	34.2	35.2	35.5	0.35	SE	2	SE	2		10	ci	10											snow then sleet rain from dawn	31
Sums.		1613 14		1610 3	12	157	147			147	169	178	184	279		540		480		173		142												
Means.		29.913	43.2	29.905	43.5	47.3	33.6			39.6	37.5	37.8	36.1			174		155		5.6		4.6												
† Total Corrections for Instrumental Errors.		-0.10		-0.10																														
† 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 $\frac{1}{2}$ for Temp. (Col. 2), = 29.864
"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{2}$ for Temp. (Col. 4), = 29.835
Mean at Station, corrected, and at 32°, = 29.860
Correction for height, feet above Mean Sea-level, = 50
Mean, reduced to 32°, and Sea-level, = 29.910
Highest Reading, corrected for Index error, on the 1st th., = 30.452
Lowest Do. Do., on the 9th, = 28.950
Difference, or Monthly Range, = 1.492

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 14th, = 62.0
Lowest in Month, corrected for Index errors, on the 24th, = 15.5
Difference, or Monthly Range, = 46.5
"Corrected Mean" of all the Highest, (Col. 5), = 47.3
"Corrected Mean" of all the Lowest, (Col. 6), = 33.6
Difference, or Mean Daily Range, = 13.7
** Calculated Mean Temperature of Month, = 40.5
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 14th, = 62.0
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 62.0
Lowest at Night, Black Bulb (corrected for Index errors), on the 14th, = 15.5
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 33.6
Difference of above means or range ("exposed"), = 46.5

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 38.7
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 36.8
†† Computed Temperature of Dew-Point, = 34.2
†† Do. Elastic Force of Vapour, = 1.98
†† Do. Weight of Vapour in a Cubic Foot of Air, = 83
†† Relative Humidity (Saturation = 100), = 83
RAIN fell on 21 Days; Amount in Inches, = 2.79

WIND.												SUMMARY.		
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day			
A.M.	1				2	3	11	6	8		1.74			
P.M.	4	1			3	3	10	4	6		1.55			
Mean.	2	1	0	3	3	10	5	5	0		1.65			

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Observations made and
Return verified by

(Signed) Peter Harper Observer

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at North River, Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 2° 26' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of April 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS.		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.			0-10.			As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.																																																																																																																																																																																																																																																																																																																																																																																																											
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	No. of hours in which it fell.	No.	Direction.	Force	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force		No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force	No.	Direction.	Force

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction ++ = 29.655
for Temp. (Col. 2), = 29.702
"Corrected Mean" of Barometer at 9 P.M., minus the Correction ++ = 29.682
for Temp. (Col. 4), = 29.730
Mean at Station, corrected, and at 32°, = 29.668
Correction for height, feet above Mean Sea-level, = 49
Mean, reduced to 32°, and Sea-level, = 29.717
Highest Reading, corrected for Index error, on the 22nd th, = 30.190
Lowest Do. Do., on the 7th, = 29.182
Difference, or Monthly Range, = 1.008

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 1st th, = 63.0
Lowest in Month, corrected for Index errors, on the 12th th, = 26.0
Difference, or Monthly Range, = 37.0
"Corrected Mean" of all the Highest, (Col. 5), = 50.9
"Corrected Mean" of all the Lowest, (Col. 6), = 36.9
Difference, or Mean Daily Range, = 14.0
** Calculated Mean Temperature of Month, = 43.9
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 1st th, = 63.0
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 63.0
Lowest at Night, Black Bulb (corrected for Index errors), on the 1st th, = 26.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 26.0
Difference of above means or range ("exposed"), = 37.0

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), = 40.0
Computed Temperature of Dew-Point, = 37.5
Do. Elastic Force of Vapour, = .225
Do. Weight of Vapour in a Cubic Foot of Air, = 5.85
Relative Humidity (Saturation = 100), = 85
RAIN fell on 20 Days; Amount in Inches, = 3.16

WIND.	SUMMARY.									
	Direction.	N	NE	E	SE	S	SW	W	NW	Mean Force.
A.M.		1	6	-	-	4	8	5	6	1.96
P.M.		3	6	1	1	7	4	3	5	1.55
Mean.		2	6	1	1	5	6	4	5	1.76

3.10 lbs.

Observations made and
Return verified by

(Signed)

Peter Harper.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park Aberdeen, County of Aberdeen, in Lat. 57° 29' N, Long. 2° 26' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of May 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.		Days of Month.
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.							
		Barometer. * No.	Attached Thermometer.	Barometer. No.	Attached Thermometer.	Max. No.	Min. No.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force.	Direction.	Force.	No.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	No. 8 inches.	No. 12 inches.			No. 22 inches.		
																														9 h. A.M.	
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.			No.	No.	
1	30.000	43.	29.855	47.	44.2	35.4			40.0	39.0	42.5	41.4	0.04	SW	1	E	1		10	10	10	10								1	
2	29.975	47.	30.090	47.	44.2	32.6			42.4	41.0	40.0	38.8	0.06	NE	2	NW	1		10	10	10	10								2	
3	30.150	46.	30.300	46.	50.0	34.8			46.8	44.6	41.2	38.8	0.00	N	2	N	1		5	5	5	5								3	
4	30.375	45.	30.450	46.	49.5	33.6			46.8	43.0	38.0	36.4	0.00	NE	2	E	0.5		6	6	6	6								4	
5	30.600	48.	30.560	47.	53.0	30.5			46.6	44.8	38.0	36.2	0.00	S	1	SE	0.5		6	6	6	6								5	
6	30.560	47.	30.545	47.	56.0	31.0			47.0	44.0	43.0	40.2	0.00	S	0.5	SE	0.5		6	6	6	6								6	
7	30.505	48.	30.450	46.	56.0	38.0			52.5	47.0	39.0	37.0	0.00	S	1	SE	0.5		6	6	6	6								7	
8	30.345	49.	30.245	49.	62.0	30.8			56.4	49.0	44.0	42.8	0.00	S	0.5	SE	1		6	6	6	6								8	
9	30.160	50.	30.100	51.	53.0	36.5			57.2	46.0	47.2	46.0	0.17	NE	2	N	1		8	8	8	8								9	
10	30.000	49.	30.000	51.	53.0	45.3			49.0	47.7	49.0	47.2	0.16	N	1	N	1		10	10	10	10								10	
11	30.025	52.	30.090	51.	59.0	41.2			52.5	49.8	46.0	44.6	0.00	N	2	N	2		10	10	10	10								11	
12	30.045	49.	30.000	50.	44.8	44.4			46.0	44.0	44.0	41.5	0.00	N	2	N	1		10	10	10	10								12	
13	29.870	50.	29.750	49.	52.0	42.6			45.0	42.6	43.0	41.2	0.44	N	0.5	E	1		10	10	10	10								13	
14	29.595	50.	29.550	52.	54.0	42.4			46.2	45.6	45.5	44.5	0.03	SE	1	SE	0.5		10	10	10	10								14	
15	29.420	50.	29.225	52.	48.0	43.8			45.2	44.8	44.7	44.0	0.24	N	1	N	1		10	10	10	10								15	
16	29.175	53.	29.305	52.	59.5	43.0			52.0	48.0	48.4	45.0	0.00	SW	2	SW	3		8	8	8	8								16	
17	29.310	51.	29.570	51.	62.0	43.0			50.0	46.6	45.0	43.5	0.00	SW	3	SW	1		8	8	8	8								17	
18	29.700	52.	29.450	51.	49.5	39.2			48.8	46.0	41.2	40.0	0.60	SW	1	NW	2		8	8	8	8								18	
19	29.740	53.	29.750	53.	61.6	38.4			55.0	54.0	46.8	45.8	0.78	N	2	S	1		3	3	3	3								19	
20	29.530	50.	29.895	48.	46.0	35.0			45.5	45.0	42.5	39.6	0.26	NE	2	N	2		10	10	10	10								20	
21	30.000	48.	30.110	49.	48.0	38.0			42.0	40.0	39.8	37.8	0.00	NE	3	NE	1		8	8	8	8								21	
22	30.100	48.	30.075	49.	57.0	34.0			40.6	38.7	40.0	38.4	0.14	NE	2	SE	1		10	10	10	10								22	
23	30.000	47.	29.900	45.	50.0	34.0			42.7	41.0	43.0	40.4	0.02	SE	1	SE	2		10	10	10	10								23	
24	29.855	50.	29.980	48.	50.0	42.0			45.6	41.5	39.5	37.5	0.00	E	2	NE	0.5		10	10	10	10								24	
25	30.030	46.	30.150	46.	47.2	33.8			41.0	39.5	38.0	36.0	0.05	N	1	N	0.5		10	10	10	10								25	
26	30.190	46.	30.275	48.	58.5	33.4			47.0	42.8	40.8	38.6	0.00	NW	1	NE	0.5		8	8	8	8								26	
27	30.380	48.	30.405	49.	56.8	31.0			52.0	47.0	45.0	41.2	0.00	SW	1	SW	1		0	0	0	0								27	
28	30.475	51.	30.480	53.	61.0	34.8			53.8	48.4	47.8	44.8	0.00	NE	1	SE	1		1	1	1	1								28	
29	30.425	54.	30.350	56.	66.2	34.8			58.0	52.6	57.0	49.0	0.00	SW	0.5	SE	1		10	10	10	10								29	
30	30.210	59.	30.200	59.	72.0	41.5			61.2	57.6	67.0	65.6	0.00	SW	3	SW	2		6	6	6	6								30	
31	30.250	60.	30.260	56.	73.2	50.0			65.8	64.0	49.0	47.0	0.00	N	1	Var.			4	4	4	4								31	
Sums.	10115	14	12135	16	135	1213			139	159	156	161	25						198		157										
Means.	30.028	49.7	30.044	49.9	54.4	37.3			48.9	45.5	44.2	42.3							6.4		5.1										
+ Total Corrections for Instrumental Errors.	-0.10		-0.10																												
+ 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.		
cu.-s.	" cirro-stratus.	r.	" rain.		
cu.	" cumulus.	h. r.	" heavy rain.		
cu.-s.	" cumulo-stratus.	c. h. r.	" continued heavy rain.		
d.	" dew.	s.	" stratus.		
f.	" fog.	sc.	" sleet.		
fr.	" frost.	s.	" snow.		
h.-fr.	" hoar-frost.	s.	" solar halo.		
h.	" haze.	so. ha.	" squall.		
h. d.	" heavy dew.	sq.	" squalls.		
hl.	" hail.	sq.	" squalls.		
li. cl.	" lightning.	t.	" thunder.		
li. sh.	" light showers.	t. s.	" thunder-storm.		
lu. co.	" lunar corona.	w.	" wind.		
lu. ha.	" lunar halo.	g.	" gale of wind.		

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction \ddagger for Temp. (Col. 2), = 29.961"Corrected Mean" of Barometer at 9 P.M., minus the Correction \ddagger for Temp. (Col. 4), = 29.956Mean at Station, corrected, and at 32°, = 29.969Correction for height, feet above Mean Sea-level, = 49Mean, reduced to 32°, and Sea-level, = 30.018Highest Reading, corrected for Index error, on the 5th, = 30.560Lowest Do. Do., on the 16th, = 29.175Difference, or Monthly Range, = 1.385S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 31st, = 73.2Lowest in Month, corrected for Index errors, on the 5th, = 30.5Difference, or Monthly Range, = 42.7"Corrected Mean" of all the Highest, (Col. 5), = 54.4"Corrected Mean" of all the Lowest, (Col. 6), = 37.3Difference, or Mean Daily Range, = 17.1** Calculated Mean Temperature of Month, = 45.9S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 31st, = 73.2"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 73.2Lowest at Night, Black Bulb (corrected for Index errors), on the 5th, = 30.5"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 30.5Difference of above means or range ("exposed"), = 42.7HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 46.6Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 43.9†† Computed Temperature of Dew-Point, = 40.8†† Do. Elastic Force of Vapour, = 256†† Do. Weight of Vapour in a Cubic Foot of Air, = 81†† Relative Humidity (Saturation = 100), = 81RAIN fell on 13 Days; Amount in Inches, = 2.99

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

Observations made and
Return verified by

(Signed)

INSTRUCTIONS

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

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

Weather-Glasses and Aneroids, though well suited to indicate roughly variations of atmospheric pressure, are not fitted for scientific purposes. No Barometer should be used for Meteorological Observation that is not supplied with some means of adjustment or compensation which will secure that the height of the mercury in the tube is accurately measured from the fluctuating surface of the mercury in the cistern.

The Barometer in which the error arising from the fluctuating surface of the mercury in the cistern is entirely got rid of is FORTIN'S Barometer, the arrangement consisting in applying pressure by means of a screw to the bottom of the cistern, which is made of flexible leather, thus raising or depressing the surface till it just meets the ivory point which forms the zero point of the fixed scale.

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

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

It is absolutely necessary that the Barometer which is to be used shall have been compared with a Standard Barometer. The Barometer should be suspended in as good a light as can be secured, and to facilitate the reading, a piece of white paper may be put behind the tube. It must be hung truly perpendicular, and exposed to neither the sun's direct rays nor the heat of a fire, and must not be hung against a wall heated by a fire. The object being to secure that the whole instrument, including the brass fittings, the contained mercury, and the attached Thermometer, shall be, when read, at one uniform temperature, it is evident that the best position is that which is least liable to sudden changes of temperature.

In taking an Observation, the Attached Thermometer is first noted: the tube must then be gently tapped, and the cistern-adjustment carefully made. The eye, by raising and lowering it, must be brought into the plane of the back and front of the index—usually the lower edge of the vernier, which must be carefully adjusted so as to form exactly a tangent to the convex surface of the mercury in the tube. Observations must be taken quickly, so as to prevent the heat from the observer's hands and person from affecting the mercury. The use of a lens will facilitate an accurate adjustment and reading of the Barometer. A mistake not unfrequently made by those beginning to observe, consisting in setting the edge of the vernier to the level of the clear surface of the mercury which is in direct contact with the glass tube, must be carefully avoided.

The errors most frequently made in reading the Barometer are errors of 1.000 inch, 0.500 inch, and 0.050 inch; that is to say, instead of 29.865 inches, either of the following is sometimes set down—viz. as 30.365 inches, 29.365 inches, or 29.815 inches. Experience having shown that even the very best Observers make these mistakes, particular attention is directed to the matter. When a Barometer having adjustable surfaces has to be removed from its fastenings, the ivory peg must first be served so as to form a tight plug to the cistern, thus preventing the escape of the mercury. Then screw up the mercury not quite to the top of the tube, but to within a quarter of an inch of it, and take down the instrument; it should then be carried with the cistern uppermost. Before suspending the Barometer for use, it must be ascertained whether the space above the mercury in the tube is a complete vacuum; this is the case if, on inclining the instrument, a sharp tap is produced when the mercury strikes the top of the tube. If a dull tap is heard, there is air in the tube, which must be got rid of.

As Barometers are liable to be deranged by the introduction of air into their tubes, on removal from place to place, or in being roughly handled, it may be useful to Observers to know how the air may be expelled. First close up the cistern by screwing the ivory peg tight, so as to prevent the escape of mercury; then screw up the mercury to about half an inch from the top of the tube; and having slowly inverted the instrument, place the top of it on a yielding substance, such as the foot, and gently tap on the cistern with the palm of the hand, so as to induce the air to ascend through the column to the cistern, whence it may escape. Since there is the weight of two atmospheres—the pressure of the mercury in the Barometer, and the air outside—pressing on any air that may be inside the tube, it is usually a tedious operation to get it wholly expelled. After repeated trials, however, it is generally accomplished; and the clear metallic sound of the mercury, when gently struck against the top of the glass tube, will show when the whole of the air has been expelled. On hanging up the Barometer, care must be taken to screw down the mercury in the tube before unfastening the float of the cistern, for, if this be not attended to, the mercury will flow out, and the instrument be seriously damaged.

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

The Council of the Society recommend that the Self-Registering Thermometers, and the Dry and Wet Bulb Hygrometers, be kept in Stevenson's Lorraine-board Box, for protection from dust, and from the effects of the weather.

Thermometers, painted white inside and outside, and secured to four stout posts, also painted white, firmly fixed in the ground. The posts must be of such a length that when the Thermometers are hung in position the Bulbs of the Minimum Thermometer, and of the Dry and Wet Bulb Thermometers, will exactly at the same height of four feet above the ground, the Maximum Thermometer being hung immediately above the Minimum Thermometer. The Thermometer Box is to be placed over a plot of grass, and in a free open space to which the sun's rays have free access during as much of the day as surrounding conditions enable the Observer to secure. The Thermometers are suspended on cross-laths in the centre of the Box, and face the door, which should open to the north.

The Council regard the question of UNIFORMITY OF HEIGHT AS VITAL in every system of Meteorological Observation, since without it Observations made at different Stations are incomparable, thus rendering it impossible to compare the climates of places with each other as regards their most important features.

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

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

The bulbs of the Thermometers for registering the greatest heat from the sun's rays, and the least from radiation during night, have a black coating, which may easily be made, or mended, by the application of a mixture of lampblack and printer's ink. They are placed in shallow blackened boxes, whose sides protect the bulbs from the wind. The Maximum should be freely exposed to the sun, and the Minimum should rest on wooden supports a few inches from the surface of the grass in an open situation. Snow must not be allowed to cover either of these Thermometers; nor the sun's heat to affect the Minimum Thermometer by dissipation. Black-balls enclosed in glass jackets may also be used, being indeed preferable to the above. It must, however, be added, that the whole subject of the observation of Solar and Terrestrial Radiation is not yet in a sufficiently advanced state to warrant the exclusive recommendation of any one of these methods.

The Hygrometer in use at the Society's Stations consists of two Thermometers usually, but not necessarily, mounted on one frame. As apparently slight deviations from the approved form of this apparatus seriously vitiate the Hygrometrical Observations, Observers are specially requested to attend to the following conditions.—The bulbs must hang down by at least an inch free from the scales and frame to which they are attached; the frame must be such as will bring the tubes forward by an inch from any board on which it may be suspended; the water-bowl must be covered, and altogether placed to the side, and a little below the level of the wet bulb, but in no case under the bulb; the muslin must be of medium fineness, and fastened at the neck of the bulb by the cotton, which also supplies it with water. It must be seen to by the Observer that the muslin is always clean and moist, and the water pure. In frosty weather, observation is a matter of much delicacy, and must be made with great care. The bulb must be moistened by immersion from 15 to 30 minutes before the hour of observation. From the film of ice thus formed evaporation will proceed as from the moist cloth in ordinary circumstances.

In reading the Thermometer great care must be taken to bring the eye exactly opposite the top of the index or the column of mercury. The reading ought to be taken to tenths of a degree, and noted in decimals. Thus the Thermometer will be read—39.9, 40.0, or 40.1; or again, 40.4, 40.5, 40.6, according as it indicates a little under, an exact coincidence with, or a little over 40, or 40.5, respectively. So also 40.1, or 40.2, more or less, must be registered 40.1, 40.2, or 40.3, and 40.4, or 40.5, respectively. In reading the Thermometer, the indication of that end of the index which is next the surface of the spirit is alone noted. On opening the Thermometer Box, the Dry and Wet Bulb Thermometers are to be first, and rapidly, read, inasmuch as they are readily affected by heat from the person of the Observer.

The Hygrometer is read at 9 A.M. and 9 P.M. The Self-Registering Thermometers are read at 9 P.M. only, as in winter at least, the extremes may occur at any hour; and it is necessary to refer their occurrence to their proper meteorological day. In the Society's schedules, the indications registered on the 24, are those of a series of phenomena commencing at 9 P.M. on the 23, and extending till 9 P.M. on the 3d.

No instrument ought to be used for Meteorological purposes till it has been carefully tested by comparison with a standard Thermometer. When such Thermometers, as are not graduated on the stem, but merely on the attached scale, undergo repairs, they are very liable to be read with error on being re-used. They are, therefore, especially the Minimum Thermometers, ought frequently to be compared with the dry bulb of the Hygrometer. The freezing-point of each Thermometer, marked by a scratch on the tube, ought to be tested once a year, in snow or melting ice.

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

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

Very great care should be bestowed on the Observations of the wind. 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 Vane ought to be elevated at least 12 feet above surrounding objects. When it oscillates incessantly, the mean direction should be taken. In all cases, but especially when the Vane is stationary, and when the wind is feeble, reference may be made to the direction of smoke, etc., in well-exposed situations. Careful observations are recommended to be made on the changes in the direction of the wind; and during storms, extra observations at every hour of Greenwich time. Such a system of simultaneous observation, pursued at different Stations, is likely to give highly valuable and important results, particularly in connection with the system of thickly-planted Stations over a limited district round Edinburgh called STORM STATIONS, in the course of being established by the Society for the systematic investigation of the relation of the force of the wind to BAROMETRIC GRADIENTS, and other points connected with storms.

The Council would recommend the Homospherical Cup Anemometer, a self-registering instrument which shows the amount of Wind that passes in any day; from which, also, the mean Velocity of the Wind at the time of observation may be ascertained. For indicating the Force of the Wind at any particular hour of observation, the Pressure Anemometer recently brought under the notice of the Society by Mr. T. Stevenson, the Honorary Secretary, and Mr. R. Ballingall, the Society's Observer at Exhous, 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 unobstructed situation for observation, and partly from the defective nature of the instruments used. The Rain Gauge should not be placed on a slope or terrace, but on a level piece of ground, in as open a situation as the Observer can secure for it. As it is often difficult to obtain a position as free and unobstructed by surrounding objects as is desirable, 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., S., and W. The rain 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 ganges as Fleming's, which are furnished with a measuring-rod attached to a float, the rod ought to be fixed down, and the float rise to its height only at the time the instrument is read, it being found that a stem projecting above the rim of the gauge seriously interferes with the proper measurement of the Rain-fall. When a measuring-glass is used, care should be taken to hold it quite perpendicular. The Rain Gauge ought to be read 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 reading is to be made on the first of the month, and the amount entered for the previous month. Snow-falls may, for convenience, be registered in the rain columns, under the following conditions:—When a Snow-shower occurs, it should be noted in the 'Remarks,' and the letter S affixed to the depth of water received in Gauge. The depth of the snow must be measured in some open place where no drift is observed, and registered in addition to, and as a check upon, the indications of the Rain Gauge. For wind, rain, and snow, as indicated in every column, the Observer cannot be too careful to register observations only; and nothing that partakes of the nature of deduction or inference.

Convenient abbreviations for the nomenclature of Clouds will be found on the other side. The amount of Cloud ought to be estimated from the greater or less obscuration of the sky overhead (i.e. within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are 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, as illustrating the condition and currents of the upper and lower regions of the atmosphere. The entries in the schedule are to be made in the following manner:—Thus, in the column Velocity and Direction, 9 S. W. will indicate that the upper strata of Clouds travel with 2 W. will indicate that the lower regions from 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 Cloud column, an entry of 2, c. s. 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 cast shadows, should be entered in the proper column.

As the germination and growth of crops and plants generally depend greatly on the temperature of the soil, its amount and constancy,—the Council recommend that Thermometers be placed in the soil, at the rate of 9 A.M., by Thermometers permanently fixed in the soil, their bulbs being sunk to depths of 3, 12, and 25 inches, and the stems above ground protected from the sun's rays, and fixed with supporting collars, to prevent rain-water being conveyed to the bulbs by the stems or tops of the stems.

A knowledge of the Temperature of the Sea is not only in itself, of great importance in its relations to that of our island, a most important branch of Meteorology. The Council therefore carefully taken by the properly constructed apparatus, from boats, if it is impracticable from the ends of piers and rocks on 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, other greatly heated by the sun or cooled by nocturnal radiation. At or near the time of high

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

The Temperature of the water at the bottom of Wells ought, when practicable, to be taken, both the depth of the Temperature and of the water being noted.

Mention what Test-Papers are used, Schönbien's or Moffat's, etc. The Paper is affixed by a pin to a board in the Thermometer Box, and the indications registered at 9 A.M. and 9 P.M. It is desired that these indications be registered in connection with the force and direction of the wind at the time of observation, in the following manner:—thus 35° W., as an Ozon entry in the schedule will indicate that the Ozon paper is tinted as 3 on the scale, that the wind is from the N.W., and that its force on the scale 0—5 is 4, or blowing fresh.

Too much importance cannot be attached to the electric condition of the atmosphere in connection with terrestrial electricity. Meteorological phenomena generally. A proper Electrometer is, in truth, necessary to every complete meteorological observatory.

The Remarks column is unavoidably too narrow. Some of the most valuable Observations that can be taken are those for which no rules can be given nor hours assigned. The use of contractions ought, therefore, to be taken every advantage of, and a list of such as are in general use is given at the foot of the column. Besides special and extraordinary Observations, great prominence ought to be given in this column to Precipitation, differences in character, colour, velocity, and direction between the Lower and Upper Strata of clouds, the Colour of the Sky, etc. Remarks ought to be made on the occurrence of Meteors, Auroræ Boreales, remarkable depressions, elevations, and fluctuations of the Barometer, Thunder-Storms, and remarkable falls of Snow, Hail, or Rain, the Hour of Storms of Wind commencing, attaining their maximum, and ending, as well as such Notes on Storms as have been hinted at above. When lofty hills are in the vicinity of a Station, the Height of Clouds and of the Snow-line in winter should be recorded. By the use of abbreviations, the state of the weather at 9 A.M. and 9 P.M. should be registered, either in two columns, otherwise unoccupied, or ruled off for the purpose, from the column of 'Remarks.'

Observations in Seasons, possess not only great scientific value, but connection with are of considerable importance in connection with the Periodic Return of the seasons. The Council would direct the special attention of Observers to the registration of such phenomena, so that the published Summaries may fairly represent the whole of Scotland. Observations ought to be confined to individual trees and shrubs; to particular species of birds, and, in the case of crops, to specified sorts reared from year to year on a selected piece of ground or farm. The Annual Table, published yearly in the Society's Journal, will indicate the species of plants and animals to which special attention is more particularly directed.

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

A. E.

EDINBURGH, December 1881.

FOREST TREES.	FRUITS.	MIGRATORY BIRDS.
Alder,	Apple,	Cuckoo,
Ash,	Black Currant,	Curlew,
Beech,	Cherry,	House-Mallow,
Birch,	Clovesberry,	Lapwing,
Elm,	Holly,	Plover,
Larch,	Hawthorn,	Sand-Martin,
Oak,	Laburnum,	Starling,
Sycamore or Plane,	Mezerium,	Swan,
	Mountain Ash or Rowan,	Rail or Corn Crake,
	Red Flowering Currant,	
	Rhododendron Ponticum,	
	Whin,	

Have the goodness also to state any information you may be able to collect relative to the Crops of Grain, Hay, Potatoes, Turnips, Fruits, etc., in perfection; whether any have suffered from blight, disease, etc., Whether the goodness also to state any information you may be able to collect relative to the condition of the district generally.

To the SECRETARY

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Stirling Park, Stirling, County of Stirling, in Lat. 56° 9' N, Long 2° 6' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of June 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. <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.	Attached Ther- mometer	Barometer. No.	Attached Ther- mometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.	9 h. P.M.	Direction.	Force	Direction.	Force		Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.					Amount (0-10), and Species.	No. 3 inches.	No. 12 inches.	No. 22 inches.
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°		°	°	°					°	°	°	°
	1	30.250	57.	30.105	49.	62.0	42.0	58.2	54.4	50.0	46.5	0.00	G	1	SW	0.5															Very fine all day.	1		
	2	29.960	61.	30.055	58.	62.5	42.2	59.6	58.0	58.0	54.2	0.00	SW	2	W	3															T fine, distant Thunder, unsettled	2		
	3	30.120	57.	30.050	58.	62.4	43.0	60.0	53.6	53.8	53.1	0.00	S	2	SW	1															fine all day.	3		
	4	30.150	57.	30.195	64.	72.0	52.0	64.8	59.0	61.2	57.0	1.00	SW	2	SW	1															do do	4		
	5	30.195	64.	30.250	63.	75.2	54.8	67.8	62.0	57.5	54.8	0.00	SW	0.5	S	0.5															very fine all day extra warm	5		
	6	30.255	64.	30.325	61.	70.8	54.3	64.5	57.8	59.8	56.4	0.02	SW	2	NW	2															very fine warm air.	6		
	7	30.445	57.	30.510	57.	57.2	50.0	50.6	50.0	49.0	46.4	0.00	NW	1	NW	1															Slight rain dull.	7		
	8	30.550	58.	30.540	56.	61.0	42.0	53.0	51.5	47.2	45.6	1.00	NW	1	SW	0.5															fair & clear all day.	8		
	9	30.454	58.	30.450	56.	63.0	45.0	56.2	52.2	58.0	50.5	0.00	NW	2	NW	2															fair dull all day.	9		
	10	30.350	57.	30.300	59.	66.0	57.0	59.8	56.0	56.5	54.4	0.00	N	1	SW	1															fair fine all day	10		
	11	30.310	60.	30.310	61.	67.0	56.0	59.4	56.0	52.5	48.6	0.00	N	1	SW	0.5															dull, fair fine all day	11		
	12	30.210	64.	30.240	61.	75.8	44.0	67.0	56.0	52.2	50.4	0.00	NW	2	N	2															fair fine all day, dull P.M.	12		
	13	30.240	58.	30.240	55.	64.5	42.0	52.0	48.0	45.0	43.5	0.00	N	2	E	0.5															dull very day.	13		
	14	30.150	57.	30.100	58.	67.0	38.0	60.5	54.6	52.5	48.6	0.00	G	0.5	S	1															clear fair all day	14		
	15	30.150	64.	30.150	61.	75.8	38.0	70.6	61.0	57.4	49.8	0.00	S	1	SW	1															do do	15		
	16	30.175	60.	30.175	58.	66.0	45.5	62.0	57.4	57.8	50.2	0.00	NW	1	E	1															F dull clearing up, fog at night	16		
	17	30.045	59.	29.900	58.	64.8	50.2	57.0	54.0	58.0	56.0	0.00	S	2	S	1															fair very day.	17		
	18	29.975	59.	29.650	59.	62.0	51.0	55.0	54.0	54.1	53.4	0.02	G	1	SW	0.5															dull all day, slight sun P.M.	18		
	19	29.595	60.	29.600	59.	64.5	53.0	58.0	56.5	50.6	49.2	0.00	S	1	S	0.5															slight rain to 8 A.M., clear fine	19		
	20	29.625	59.	29.605	58.	62.0	44.5	55.0	53.5	53.6	53.0	0.33	SE	1	SE	2															dull fog, occasional rain haze	20		
	21	29.700	59.	29.825	57.	61.0	52.6	57.8	57.0	53.0	54.0	0.20	E	1	SW	0.5															showers.	21		
	22	29.900	61.	29.965	58.	64.8	52.3	60.0	58.0	59.0	57.6	0.00	SE	1	SE	0.5															very fine all day	22		
	23	29.975	60.	29.995	57.	66.2	52.0	59.8	56.8	54.2	52.0	0.07	SW	1	SW	0.5															very fine middle, then dull some rain	23		
	24	30.000	60.	30.100	59.	65.0	52.4	58.0	57.8	56.0	52.4	0.00	NW	2	NW	1															fair fine all day	24		
	25	30.080	62.	30.010	61.	63.8	46.0	61.0	54.2	57.0	53.5	0.23	SW	1	S	0.5															very fine all day, rain from 8 P.M.	25		
	26	30.050	64.	30.250	60.	65.7	46.0	63.8	59.3	53.0	50.8	0.00	NW	2	N	1															had some showers, fair fine all day	26		
	27	30.350	62.	30.265	61.	65.5	44.6	58.5	54.0	53.8	51.8	0.02	SW	1	SW	1															very fine all day.	27		
	28	30.100	58.	29.875	58.	64.0	53.0	56.0	54.0	53.2	52.3	0.06	SE	2	SE	2															dull some slight rain	28		
	29	29.775	57.	29.810	57.	64.0	52.0	54.2	53.8	53.0	53.6	0.25	SW	1	NW	1															T dull, distant Thunder, heavy showers	29		
	30	29.855	58.	29.705	58.	67.0	50.0	57.8	54.6	57.0	49.6	0.02	W	1	S	1															very fine all day	30		
	31																																	31
Sums.		11135	15	1276	17	128	94	169	158	148	141	3																						
Means.		30.092	59.4	30.083	58.4	65.6	48.0	59.4	55.5	54.3	51.8	1.30																						
+ Total Corrections for Instrumental Errors.		-0.10		-0.10																														
+ 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.	c. h. r.	" heavy rain.		
cu.-s.	" cumulo-stratus.	"	" continued heavy rain.		
d.	" dew.	s.	" stratus.		
f.	" fog.	sc.	" scud.		
fr.	" frost.	s.	" sleet.		
h.-fr.	" hoar-frost.	so.	" snow.		
h.	" haze.	so. ha.	" solar halo.		
h. d.	" heavy dew.	sq.	" squall.		
hl.	" hail.	sqs.	" squalls.		
l.	" lightning.	t.	" thunder.		
li. cl.	" light clouds.	t. s.	" thunder-storm.		
li. sh.	" light showers.	wind.	" wind.		
lu. co.	" lunar corona.	g.	" gale of wind.		
lu. ha.	" lunar halo.				

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

NOTATION USED IN GENERAL REMARKS.

a.	denotes aurora.	m.	denotes meteor.
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ci-cu.	" cirro-cumulus.	n.	" nimbus.
ci-s.	" cirro-stratus.	r.	" rain.
cu.	" cumulus.	h. r.	" heavy rain.
cu-s.	" cumulo-stratus.	c. h. r.	" continued heavy rain.
d.	" dew.	s.	" stratus.
f.	" fog.	sc.	" scud.
fr.	" frost.	s.	" sleet.
h. fr.	" hoar-frost.	s.	" snow.
h.	" haze.	so. ha.	" solar halo.
h. d.	" heavy dew.	sq.	" squall.
hl.	" hail.	sqs.	" squalls.
l.	" lightning.	t.	" thunder.
l. cl.	" light clouds.	t. s.	" thunder-storm.
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1	Light air	3	Very fresh	6	Violent gale

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction $\frac{1}{2}$ for Temp. (Col. 2), = 30.002 - 0.003 = 29.999
"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{2}$ for Temp. (Col. 4), = 30.073 - 0.003 = 30.070
Mean at Station, corrected, and at 32°, = 29.996
Correction for height, feet above Mean Sea-level, = 48
Mean, reduced to 32°, and Sea-level, = 30.044
Highest Reading, corrected for Index error, on the th, = 30.550
Lowest Do. Do., on the th, = 29.578
Difference, or Monthly Range, = 0.972

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 12th, = 75.8
Lowest in Month, corrected for Index errors, on the 14th, = 38.0
Difference, or Monthly Range, = 37.8
"Corrected Mean" of all the Highest, (Col. 5), = 65.6
"Corrected Mean" of all the Lowest, (Col. 6), = 48.0
Difference, or Mean Daily Range, = 17.6
** Calculated Mean Temperature of Month, = 56.8
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), = 56.8

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 53.6

Computed Temperature of Dew-Point, = 50.6

Do. Elastic Force of Vapour, = 370

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

Relative Humidity (Saturation = 100), = 80

RAIN fell on 10 Days; Amount in Inches, = 1.22

WIND.		SUMMARY.				
Direction.		N	NE	E	SE	S
A.M.		3	3	4	3	4
P.M.		2	1	2	9	6
Mean.		3	2	3	6	5

Observations made and
Return verified by

(Signed) Peter Hauser

INSTRUCTIONS

FOR TAKING METEOROLOGICAL OBSERVATIONS,

WITH REMARKS ON THE USE OF INSTRUMENTS.

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

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich or Railway Time only), as specified in the following remarks, or at the top of observation of the columns of the Schedule. It is hoped that the utmost punctuality in the time of reading the instruments will be observed. Observers, in some few cases, may find this impossible; in such instances, they are specially requested to mark opposite every reading the time at which it was taken, if not at 9 A.M. or 9 P.M. Weather-Glasses and Aneroids, though well suited to indicate roughly variations of atmospheric pressure, are not fitted for scientific purposes. No Barometer should be used for Meteorological Observation that is not supplied with some means of adjustment or compensation which will secure that the height of the mercury in the tube is accurately measured from the fluctuating surface of the mercury in the cistern.

The Barometer in which the error arising from the fluctuating surface of the mercury in the cistern is entirely got rid of is FORTIN'S Barometer, the arrangement consisting in applying pressure by means of a screw to the bottom of the cistern, which is made of flexible leather, thus raising or depressing the surface till it just meets the ivory point which forms the zero point of the fixed scale.

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

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

It is absolutely necessary that the Barometer which is to be used shall have been compared with a Standard Barometer.

The Barometer should be suspended in as good a light as can be secured, and to facilitate the reading, a piece of white paper may be put behind the tube. It must be hung truly perpendicular, and exposed to neither the sun's direct rays nor the heat of a fire, and must not be hung against a wall heated by a fire. The object being to secure that the whole instrument, including the brass fittings, the contained mercury, and the attached Thermometer, shall be, when read, at one uniform temperature, it is evident that the best position is that which is least liable to sudden changes of temperature.

In taking an Observation, the Attached Thermometer is first noted: the tube must then be gently tapped, and the cistern-adjustment carefully made. The eye, by raising and lowering it, must be brought into the plane of the back and front of the index—usually the lower edge of the vernier, which must be carefully adjusted so as to form exactly a tangent to the convex surface of the mercury in the tube. Observations must be taken quickly, so as to prevent the heat from the Observer's hands and person from affecting the mercury. The use of a lens will facilitate an accurate adjustment and reading of the Barometer. A mistake not unfrequently made by those beginning to observe, consisting in setting the edge of the vernier to the level of the clear surface of the mercury which is in direct contact with the glass tube, must be carefully avoided.

The errors most frequently made in reading the Barometer are errors of 1.000 inch, 0.500 inch, and 0.050 inch; that is to say, instead of 1.000 inches, either of the following is sometimes set down—viz. as 30.365 inches, 29.365 inches, or 29.815 inches. Experience having shown that even the very best Observers make these mistakes, particular attention is directed to the matter.

When a Barometer having adjustable surfaces has to be removed from its fastenings, the ivory peg must first be screwed so as to form a tight plug to the cistern, thus preventing the escape of the mercury. Then screw up the mercury not quite to the top of the tube, but to within a quarter of an inch of it, and take down the instrument; it should then be carried with the cistern uppermost. Before suspending the Barometer for use, it must be ascertained whether the space above the mercury in the tube is a complete vacuum; this is the case if, on inclining the instrument, a sharp tap is produced when the mercury strikes the top of the tube. If a dull tap is heard, there is air in the tube, which must be got rid of.

As Barometers are liable to be damaged by the introduction of air into their tubes, on removal from place to place, or in being roughly handled, it may be useful to Observers to know how the air may be expelled. First close up the cistern by screwing the ivory peg tight, so as to prevent the escape of mercury; then screw up the mercury to about half an inch from the top of the tube; and having slowly inverted the instrument, place the top of it on a yielding substance, such as the foot, and gently tap on the cistern with the palm of the hand, so as to induce the air to ascend through the column to the cistern, whence it may escape. Since there is the weight of two atmospheres—the pressure of the mercury in the Barometer, and the air outside—pressing on any air that may be inside the tube, it is usually a tedious operation to get it wholly expelled. After repeated trials, however, it is generally accomplished; and the clear metallic sound of the mercury, when gently struck against the top of the glass tube, will show when the whole of the air has been expelled. On hanging up the Barometer, care must be taken to screw down the mercury in the tube before unfasting the float of the cistern, for, if this be not attended to, the mercury will flow out, and the instrument be seriously damaged.

The Council of the Society recommend that the Self-Registering Thermometers, and the Dry and Wet Bulb Hygrometers, be kept in Stevenson's Louvre-boarded Box for Thermometers, painted white inside and outside, and screwed to four stout posts, also painted white, firmly fixed in the ground. The posts must be of such a length that when the Thermometers are hung in position the Bulbs of the Minimum Thermometer, and of the Dry and Wet Bulb Thermometers, will be exactly at the same height of four feet above the ground, the Maximum Thermometer being hung immediately above the Minimum Thermometer. The hygrometer Box is to be placed over a plot of grass, and in a free open space to which the sun's rays have free access during as much of the day as surrounding conditions enable the Observer to secure. The Thermometers are suspended on cross-laths in the centre of the Box, and face the door, which should open to the north.

The Council regard the question of UNIFORMITY OF HEIGHT ABOVE GROUND, AND METHOD IN PROTECTING THE THERMOMETERS, as vital in every system of Meteorological Observation, since without it Observations made at different Stations are incomparable, thus rendering it impossible to compare the Climates of places with each other as regards their most important features. Professor Phillips, and Negretti and Zambra's Minimum Thermometer, and Negretti and Zambra's Minimum Thermometer, are recommended. It is recommended that these Minimum Thermometers be graduated on the glass stem. The column of spirit breaking, and part of the spirit distilling by high temperature and lodging at the top of the tube. This derangement is of occasional occurrence with protected Thermometers, but of frequent occurrence with exposed Thermometers. Hence a systematic examination of Minimum Thermometers ought to be a regular part of the work carried on by each Observer.

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

The bulbs of the Thermometers for registering the greatest heat during night, have a black coating, which may easily be made, or mended, by the application of a mixture of lampblack and printer's ink. They are placed in shallow blackened boxes, whose sides protect the bulbs from the wind. The Maximum should be freely exposed to the sun, and the Minimum should rest on wooden supports a few inches from the surface of the grass, in an open situation. Snow must not be allowed to cover either of these Thermometers; nor the sun's heat to affect the Minimum Thermometer by distillation. Black-bulbs enclosed in "glass jackets" may also be used, being induced preferable to the above. It must, however, be added, that the whole subject of the observation of Solar and Terrestrial Radiation is not yet in a sufficiently advanced state to warrant the exclusive recommendation of any one of these methods.

The Hygrometer in use at the Society's Stations consists of two Thermometers usually, but not necessarily, mounted on one frame. As apparently slight deviations from the approved form of this apparatus seriously vitiate the meteorological Observations, Observers are specially requested to attend to the following conditions:—The bulbs must hang down by at least an inch free from the scales and frame to which they are attached; the frame must be such as will bring the tubes forward by an inch from any board on which it may be suspended; the water-pipe must be covered, and altogether placed to the side, and a little below the level of the wet bulb, but in no case under the bulb; the muslin must be of medium fineness, and fastened at the neck of the bulb by the cotton, which also supplies it with water. It must be seen to by the Observer that the muslin is always clean and moist, and the water pure. In frosty weather, observation is a matter of much delicacy, and must be made with great care. The bulb must be moistened by immersion from 15 to 30 minutes before the hour of observation. From the film of ice thus formed evaporation will proceed as from the moist cloth in ordinary circumstances.

In reading the Thermometer great care must be taken to bring the eye exactly opposite the tip of the index or column of mercury. The reading ought to be taken to tenths of a degree, and noted in minutes. Thus the Thermometer will be read—39.9, 40.0, or 40.1; or, again, 40.4, 40.5, 40.6, according as it indicates a little under, as exact coincidence with, or a little over 40.0; respectively 40.2, 40.3, and 40.4, or 40.5, more or less, must be registered 40.2, 40.3, and 40.4, or 40.5, respectively. In reading Kutter's hygrometer, the indication of that end of the index which is next the surface of the spirit is alone used. On opening the Thermometer Box, the Dry and Wet Bulb Thermometers are to be first, and rapidly, read, inasmuch as they are readily affected by heat from the person of the Observer.

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

Influence when the Self-Registering Thermometers are in winter at least, the extremes may occur at any time; and it is necessary to refer to their occurrence to their proper meteorological day. In the Society's schedules, the indications registered on the 24th are those of a series of phenomena commencing at 9 P.M. on the 24th and extending till 9 P.M. on the 30th.

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 as 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 other afterwards to be used without being re-tested. The Self-Registering, especially the Minimum Thermometers, ought frequently to be compared with the dry bulb of the Hygrometer. The freezing-point of each Thermometer, marked by a scratch on the tube, ought to be tested once a year, in snow or melting ice.

In selecting instruments, the following points require attention. 1.—The divisions of the vernier of Barometers in reference to their scales, and the perfect freedom of the Barometer from air; the

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

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-Vane ought to be elevated at least 12 feet above surrounding objects. When it oscillates incessantly, the mean direction should be taken. In all cases, but especially when the Vane is stationary, and when the wind is feeble, reference may be made to the direction of smoke, etc., in well-exposed situations. Careful observations are recommended to be made on the changes in the direction of the wind; and during storms, extra observations at every hour of Greenwich time. Such a system of simultaneous observation, pursued at different Stations, is likely to give highly valuable and important results, particularly in connection with the system of thickly-planted Stations over a limited district round Edinburgh called STORM STATIONS, in the course of being established by the Society for the systematic investigation of the relation of the force of the wind to BAROMETRIC GRADIENTS, and other points connected with storms.

The Council would recommend the Hemispherical Cup Anemometer—a self-registering instrument which shows the amount of Wind that passes it per day; from which also the mean Velocity of the Wind at the time of observation may be ascertained. For indicating the Force of the Wind at any particular hour of observation, the Pressure 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 Eddisbury, are recommended as likely to secure uniformity in making observations on the Force of the Wind.

Many causes conspire to produce anomalies in Rain Returns, arising partly from the difficulty of obtaining a sufficiently 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., S., and W. The rim 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 Flemings, which are furnished with a measuring-rod attached to a float, the rod ought to be fixed down, and the float rise to its height only at the time the instrument is read, it being found that a stem projecting above the rim of the Rain Gauge seriously interferes with the proper measurement of the Rain-fall. When a measuring-glass is used, care should be taken to hold it quite perpendicular. The Rain Gauge ought to be read 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 reading is to be made on the first of the month, and the amount entered for the previous month. Snow-falls may, for convenience, be registered in the rain columns, under the following conditions:—When a Snow-shower occurs, it should be noted in the Remarks, and the letter S annexed to the depth of water received in Gauge. The depth of the snow must be measured in some open place where no drift is observed, and registered in addition to, and as a check upon, the indications of the Rain Gauge. For wind, rain, and snow, as indicated in every column, the Observer cannot be too careful to register observations only; and nothing that partakes of the nature of deduction or inference.

Convenient abbreviations for the non-nature of Clouds will be found on the other side. The amount of Cloud ought to be estimated from the greater or less obscuration of the sky overhead (i.e. within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are 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, as the observations of the Clouds 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, 9 S. W. will indicate that the upper strata of Clouds travel with an extreme velocity from S.W., and these in the lower regions from W., with one-third the speed of the former. Again, in the second Cloud column, an entry of 2, east, will indicate that the higher regions are covered to the amount of 4-tenths with stratus Clouds; and that the sky is further obscured to the extent of 2-tenths by low Clouds of the cumulus stratus kind.

Remarks on peculiar Clouds, carried with drawings, will assist materially 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, which objects in the sun's rays cast shadows, should be entered in the proper sunshine column.

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 Thermometers be placed in this interesting department be made at 9 A.M. by Thermometers in this mannerly fixed in the soil, their bulbs being sunk to depths of 3, 8, 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 a part in its relation to that of our climate, a most important branch of Meteorology. The Council therefore carefully taken by a properly constructed apparatus, from boats, or, if this be impracticable, from the ends of piers and 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 acquiring the temperature of the land, either greatly heated by the sun or cooled by nocturnal radiation. At or near the time of high

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

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

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

The Remarks column is unavoidably too narrow. Some of the most valuable Observations that can be taken are those for which no rules can be given nor hours assigned. The use of contractions ought, therefore, to be taken every advantage of, and a list of such as are in general use is given at the foot of the column. Besides special and extraordinary Observations, great prominence ought to be given in this column to prevalent Diseases, differences in character, colour, velocity, and direction between the Lower and Upper Strata of clouds, the Colour of the Sky, etc. Remarks ought to be made on the occurrence of Meteors, Aurora Borealis, remarkable depressions, elevations, and fluctuations of the Barometer, Thunder-Storms, and remarkable falls of Snow, Hail, or Rain, the Hour of Storms of Wind commencing, attaining their maximum, and ending, as well as such Notes on Storms as have been hinted at above. When lofty hills are in the vicinity of a Station, the Height of Clouds and of the Snow-line in winter should be recorded. By the use of abbreviations, the state of the weather at 9 A.M. and 9 P.M. should be registered, either in two columns, otherwise occupied, or ruled off for the purpose, from the column of Remarks.

Observations in Seasons, possess not only great scientific value, but connection with are of considerable importance in connection with the Periodic Agriculture, Horticulture, and Natural History. The Council would direct the special attention of Observers to the registration of such phenomena, so that the published Summaries may fairly represent the whole of Scotland. Observations ought to be confined to individual trees and shrubs; to particular species of birds, and, in the case of crops, to specified sorts reared from year to year on a selected piece of ground or farm. The Annual Table, published yearly in the Society's Journal, will indicate the species of plants and animals to which special attention is more particularly directed.

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

(By Order)
A. B.

EDINBURGH, December 1891.

FOREST TREES	PLANTS	MICHAELID BIRDS	First Arrival	Departure
Alder,	Apple,	Cuckoo,		
Aspen,	Black Currant,	Curlew,		
Beech,	Broom,	House-Swallow,		
Birch,	Hazel,	Lapwing,		
Elm,	Hawthorn,	Plover,		
Larch,	Holly,	Sand-Martin,		
Oak,	Lilac,	Starling,		
Sycamore or Plane,	Mezereum,	Swan,		
	Mountain Ash or Rowan,	Rail or Corn Crake,		
	Red Flowering Currant,			
	Rhododendron Ponticum,			
	Whin,			

Have the goodness also to state any information you may be able to collect relative to the Crops of Grain, Hay, Potatoes, Turnips, Fruits, etc., whether any have suffered from blight, disease, etc. Whether Epizootic disease prevails among cattle; and the Agricultural condition of the district generally.

To the SECRETARY

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at *Duthie Park Aberdeen*, County of *Aberdeen*, in Lat. *57° 9' N*, Long. *2° 6' W*, Distance from Sea *2* miles.Height of Cistern of the Barometer above Mean Sea-Level *44* feet, above Ground *4* feet.During the MONTH of *July* 189*9*.

The Hours of Observation are of Greenwich Time.

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

denotes aurora.	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.	sn. snow.
h. haze.	so. h. solar halo.
h. d. heavy dew.	sq. squall.
h. hail.	sq. squalls.
l. lightning.	t. thunder.
li. cl. light clouds.	t. s. thunder-storm.
li. sh. light showers.	w. wind.
lu. co. lunar corona.	g. gale of wind.
lu. ha. lunar halo.	

TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 2), = 30.022 90 29.932
"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 4), = 30.035 87 29.948
Mean at Station, corrected, and at 32°, = 29.950
Correction for height, feet above Mean Sea-level, = 48
Mean, reduced to 32°, and Sea-level, = 29.998
Highest Reading, corrected for Index error, on the 31st, = 30.475
Lowest Do. Do., on the 1st, = 29.483
Difference, or Monthly Range, = 1.032

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 30th, = 78.0
Lowest in Month, corrected for Index errors, on the 5th, = 47.0
Difference, or Monthly Range, = 31.0
"Corrected Mean" of all the Highest, (Col. 5), = 68.4
"Corrected Mean" of all the Lowest, (Col. 6), = 52.9
Difference, or Mean Daily Range, = 15.5
** Calculated Mean Temperature of Month, = 60.6
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 30^{th} , = 78.0
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 78.0
Lowest at Night, Black Bulb (corrected for Index errors), on the 30^{th} , = 47.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 52.9
Difference of above means or range ("exposed"), = 31.0

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 59.6
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 57.1
†† Computed Temperature of Dew-Point, = 54.9
†† Do. Elastic Force of Vapour, = 431
†† Do. Weight of Vapour in a Cubic Foot of Air, = 83
†† Relative Humidity (Saturation = 100), = 83
RAIN fell on 12 Days; Amount in Inches, = 2.97

WIND.		SUMMARY.									
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day
A.M.	0	2	1	2	9	8	4	5	0	143	
P.M.	4	2	2	3	9	3	4	2	2	0.95	
Mean.	2	2	2	2	9	6	4	3	1	1.19	1.41

Observations made and
Return verified by

(Signed)

Peter Harper

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at *Duthie Park Aberdeen*, County of *Aberdeen*, in Lat *57° 9' N*, Long *2° 6' W*, Distance from Sea *2* miles.Height of Cistern of the Barometer above Mean Sea-Level *44* feet, above Ground *4* feet.During the MONTH of *August* 189*9*.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 8 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				THERMOMETERS under Ground.			SUNSHINE. Hours.	SEA.	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, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.								
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Direction.	Force.	Direction.	Force.	Velocity (0-10), and Species.	Amount (0-10), and Species.	Velocity (0-10), and Species.	Amount (0-10), and Species.	No. 3 inches.	No. 12 inches.	No. 22 inches.						
		*No.	°	No.	°	No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.						No.
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°						°
	1	30.300	67.	30.255	64.	85.0	53.0			70.0	65.0	60.2	58.0	0.00	SW	0.5	NE	0.5	2	0							highest max for years	1			
	2	30.250	66.	30.300	64.	72.5	52.5			68.4	64.2	56.2	54.0	0.00	E	1	NE	1	1	0	10	0					very fine ex. warm,	2			
	3	30.225	61.	30.175	63.	65.0	53.0			67.2	56.4	58.0	56.2	0.00	SE	0	SE	0.5	10	0	10	0					very fine dull after morning.	3			
	4	30.175	60.	30.160	59.	63.2	57.0			58.2	56.8	52.0	50.2	0.00	S	1	S	2	10	0	8	0					dull fair all day very mild	4			
	5	30.200	61.	30.200	60.	64.2	56.0			59.0	53.6	57.0	55.2	0.00	S	1	S	0.5	8	0	8	0					so so fine all day	5			
	6	30.160	59.	30.150	60.	60.0	54.6			56.0	53.5	53.4	50.2	0.00	E	1	NE	1	10	0	4	0					so so fine all day	6			
	7	30.170	59.	30.250	59.	64.0	55.6			59.0	53.0	53.0	49.0	0.00	NE	2	NE	1	3	0	8	0					dull fair more cool.	7			
	8	30.220	58.	30.245	58.	60.0	50.8			56.0	62.0	53.0	50.4	0.00	N	2	N	1	10	0	10	0					clear fair dull afternoon	8			
	9	30.250	57.	30.270	58.	63.5	50.5			55.0	47.0	45.2	43.5	0.00	N	1	S	0.5	10	0	0	0					dull cool all day.	9			
	10	30.260	58.	30.200	58.	70.0	39.2			60.8	57.0	57.2	55.0	0.00	SW	0.5	S	0.5	2	0	8	0					dull fine, clear afternoon	10			
	11	30.350	60.	30.345	58.	73.5	32.2			63.0	59.8	54.0	52.2	0.00	SW	0.5	SE	0.5	3	0	0	0					clear fine all day.	11			
	12	30.370	61.	30.334	59.	72.0	48.0			63.0	59.6	55.0	52.4	0.00	S	0.5	E	0.5	2	0	6	0					very fine all day	12			
	13	30.325	63.	30.260	63.	72.2	42.0			64.0	60.3	56.8	53.0	0.00	S	1	S	2	3	0	10	0					hazy, very fine all day	13			
	14	30.240	58.	30.140	59.	72.0	49.5			58.0	57.4	58.0	56.4	0.00	S	0.5	SW	1	6	0	8	0					very fine bright, dull haze P.M.	14			
	15	29.910	63.	29.900	63.	69.0	56.5			64.0	60.5	60.4	56.5	0.00	S	2	W	2	8	0	6	0					so so dull with haze P.M.	15			
	16	29.975	62.	29.600	61.	67.0	48.0			62.8	56.4	60.0	53.0	0.02	S	2	W	6	8	0	8	0					hazy fine, slight rain	16			
	17	29.900	59.	30.000	59.	65.2	46.0			57.0	52.5	54.0	50.0	0.00	W	3	W	2	6	0	6	0					very fine, stiff gale evening	17			
	18	30.075	56.	30.200	56.	62.0	49.5			53.8	50.2	57.0	47.4	0.00	NW	3	NW	1	2	0	3	0					unsettled looking, but fair	18			
	19	30.200	54.	30.250	58.	65.5	40.0			53.0	49.7	52.6	50.4	0.00	NW	0.5	SE	0.5	4	0	8	0					fair cool.	19			
	20	30.295	60.	30.300	59.	68.0	52.0			62.0	59.4	57.2	55.8	0.00	SE	0.5	SE	0.5	8	0	3	0					fair cool more settled like	20			
	21	30.300	65.	30.350	64.	72.6	50.0			64.5	61.8	64.0	62.0	0.00	S	1	SW	0.5	2	0	5	0					dull fair fine, ex. day.	21			
	22	30.300	64.	30.300	60.	72.6	52.0			67.8	64.5	63.5	60.0	0.00	SW	1	SW	1	4	0	0	0					fair clear fine, warm	22			
	23	30.300	59.	30.240	63.	71.0	49.2			60.0	58.6	58.8	56.2	0.00	SE	1	S	0.5	0	0	thick haze					very fine	23				
	24	30.175	61.	30.100	59.	66.0	53.8			57.8	58.0	56.2	53.1	0.00	S	2	S	1	0	0	0					so so	24				
	25	30.058	61.	29.953	61.	61.5	55.0			57.8	56.9	57.0	53.4	0.00	S	1	S	2	0	0	8	0					F fine, dull fog all day	25			
	26	30.100	62.	30.060	62.	74.2	50.4			61.0	58.4	56.0	54.0	0.00	SW	1	SE	0.5	3	0	2	0					fair dull worst of the day, clearing P.M.	26			
	27	29.875	62.	29.845	62.	62.2	50.4			61.8	58.8	57.0	56.4	0.18	SE	1	S	1	8	0	10	0					very fine warm all day	27			
	28	29.780	59.	29.795	62.	64.8	50.5			57.8	57.0	57.0	56.0	0.00	S	1	SE	0.5	10	0	0	0					dull fair, rain from 3 P.M. to 5.	28			
	29	29.815	56.	29.760	58.	62.0	50.6			53.8	53.0	56.0	53.0	0.18	SE	1	SE	1	0	0	5	0					dull some sun	29			
	30	29.620	59.	29.600	61.	62.6	50.5			59.4	58.8	57.8	56.0	0.08	S	1	W	1	10	0	10	0					F very dull close fog. fine day	30			
	31	29.650	61	29.650	59.	60.0	35.0			57.8	54.5	56.0	54.4	0.09	W	1	W	0.5	8	0	6	0					T thunder early morning, dull, then P.M.	31			
		11 11 5	14	11 10 3	15	10 6	12 8			16 9	17 13	15 5	13 6	3	3	3	4		19 3	20 1											
Sums.		30.760	186.5	3.057	186.9	223.3	58.5			187.7	123.0	193.5	121.3	0.56	35.5	34.0															
Means.		30.121	60.2	30.099	60.3	67.2	50.3			60.2	57.2	56.2	53.9		1.18	1.09			6.2	6.5											
+ Total Corrections for Instru- mental Errors.		-0.10		-0.10																											
+ Corrections for Diurnal Range.																															
"Cor- rected Means."		30.111		30.089																											
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 $\frac{1}{100}$ for Temp. (Col. 2), = *30.111* *85.1* = *30.026*
"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 4), = *30.089* *85.1* = *30.004*
Mean at Station, corrected, and at 32°, = *30.015*
Correction for height, feet above Mean Sea-level, = *48*
Mean, reduced to 32°, and Sea-level, = *30.063*
Highest Reading, corrected for Index error, on the *12* th, = *30.344*
Lowest Do. Do., on the *16* th, = *29.600*
Difference, or Monthly Range, = *0.744*

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the *15* th, = *85.0*
Lowest in Month, corrected for Index errors, on the *10* th, = *39.2*
Difference, or Monthly Range, = *45.8*
"Corrected Mean" of all the Highest, (Col. 5), = *67.2*
"Corrected Mean" of all the Lowest, (Col. 6), = *50.3*
Difference, or Mean Daily Range, = *16.9*
** Calculated Mean Temperature of Month, = *58.7*
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, =
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, =
Lowest at Night, Black Bulb (corrected for Index errors), on the th, =
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, =
Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = *58.2*
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = *55.5*
†† Computed Temperature of Dew-Point, = *53.1*
†† Do. Elastic Force of Vapour, = *4.04*
†† Do. Weight of Vapour in a Cubic Foot of Air, =
†† Relative Humidity (Saturation = 100), = *83*
RAIN fell on *6* Days; Amount in Inches, = *0.56*

WIND.													SUMMARY.			
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day					
A.M.	2	1	2	4	12	5	2	2	1	1.18						
P.M.	1	4	1	7	9	3	5	1	0	1.09						
Mean.	2	2	2	5	11	4	3	2	0	1.13	1.27					

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

Observations made and
Return verified by

(Signed) *Peter Harper* (Observer)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Buthie Park Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 2° 6' W, Distance from Sea 2 miles.

Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 40 feet.

During the MONTH of September 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.			9 h. A.M.								
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max. in Sunrays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	Amount in inches.	Direction.	Force.	Direction.	Force.	Velocity (0-10), and Direction.	Amount (0-10), and Species.		Velocity (0-10), and Direction.	Amount (0-10), and Species.	No. 3 inches.					No. 12 inches.	No. 22 inches.
		* No.	°	No.	°	No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.					No.	No.
		inches.	°	inches.	°																											
	1	29.600	58.	29.650	60.	60.0	53.0			57.4	54.6	55.0	50.2	0.50	W	1	E	0.5		8.	6								Fair to showery, heavy 4.5 P.M.	1		
	2	29.600	50.	29.710	58.	64.4	48.4			56.0	55.0	50.4	50.0	0.10	SW	0.5	SW	0.5		8	0								T dull, rain & thunder, clear 1.5 P.M.	2		
	3	29.850	59.	29.930	60.	62.0	49.2			57.5	55.4	55.2	54.4	0.01	S	0.5	S	0.5		8	4								very fine mild, slight rain	3		
	4	29.920	62.	29.990	62.	64.5	54.0			63.0	59.8	61.0	57.5	0.03	SW	2	SW	2		4	2								fine & fine all day	4		
	5	29.800	58.	29.900	61.	63.0	50.0			58.0	56.6	52.0	50.2	0.09	S	0.5	S	0.5		10	0								rain to 12 noon, then fair	5		
	6	29.940	57.	29.975	61.	63.8	40.0			56.0	57.8	52.5	50.0	0.00	SW	1	SW	2		0	4								very fine all day.	6		
	7	29.940	60.	29.895	62.	67.6	48.0			60.0	57.0	59.8	56.5	0.00	SW	0.5	SW	1		6	8								fine fine all day	7		
	8	30.000	57.	30.100	59.	62.0	47.0			56.4	50.0	53.0	49.0	0.01	W	2	W	1		6	3								do do do	8		
	9	30.000	60.	30.075	56.	62.2	49.0			55.8	54.0	50.0	47.0	0.03	SW	2	W	2		5	0								Slight showers most of the day	9		
	10	30.120	57.	30.200	57.	62.4	42.0			52.2	47.5	47.8	46.0	0.11	NW	2	NW	1		5	8								fine fine all day	10		
	11	30.000	57.	30.100	59.	62.5	41.0			51.6	50.7	53.0	50.0	0.02	SW	1	SW	1		10	0								Wet AM, fair rest of day	11		
	12	30.100	58.	30.060	62.	62.4	42.2			55.2	52.8	59.0	57.0	0.00	S	2	S	1		0	4								fine fine all day	12		
	13	30.050	61.	30.100	61.	59.2	54.0			58.0	56.6	51.0	59.2	0.03	W	0.5	W	1		10	4									dull some light, fair after noon	13	
	14	29.925	59.	29.985	60.	62.5	46.0			54.0	50.0	48.0	46.2	0.20	NW	1	W	1		6	5									dull some rain, then fair	14	
	15	29.900	58.	29.940	58.	63.9	40.0			46.2	44.8	53.5	48.4	0.36	SW	2	W	1		10	4									dull, rain 9 to 3 then fair	15	
	16	29.570	56.	29.750	58.	58.0	47.0			53.0	50.2	50.2	49.5	0.01	NW	2	NW	0.5		8	8									dull. 2 a.m. some rain	16	
	17	29.500	57.	29.400	55.	62.5	49.0			56.0	53.2	46.0	43.7	0.02	SW	2	W	1		4	3									fair, some slight rain, fair P.M.	17	
	18	29.200	55.	29.455	55.	57.0	39.0			51.5	47.3	47.6	44.5	0.06	W	4	W	2		2	3									fair dry breeze, some slight rain	18	
	19	29.300	53.	29.250	52.	60.4	45.0			49.0	48.0	49.0	46.0	0.08	W	1	W	0.5		10	4									showery, fair day	19	
	20	29.260	54.	29.370	53.	57.6	40.5			49.5	46.0	47.0	44.0	0.01	W	2	W	2		4	3									fair, with showers, then fair	20	
	21	29.650	53.	29.650	56.	59.0	48.0			50.5	45.0	48.2	46.5	0.10	W	2	SW	1		0	8									fair cool all day	21	
	22	29.300	53.	29.660	50.	52.0	36.0			47.0	43.5	46.0	43.0	0.06	W	2	NW	3		2	2									had been showers, unsettled	22	
	23	29.570	48.	29.595	52.	53.0	39.6			46.0	42.5	45.0	41.0	0.22	SW	2	NW	2		8	4									fair, some rain through the day	23	
	24	29.840	52.	29.575	53.	53.0	42.2			48.5	45.5	45.0	44.2	0.42	NW	1	SW	1		4	10									fair, heavy rain from 6 P.M.	24	
	25	29.570	48.	29.195	52.	53.0	39.8			47.0	45.6	47.0	46.2	0.08	SW	1	SW	1		4	0									fair AM. showers, then fair P.M.	25	
	26	29.090	49.	28.995	48.	53.0	39.6			44.0	41.5	47.5	44.5	0.03	SW	1	W	4		8	3									fair unsettled a.m., some rain	26	
	27	29.200	50.	29.445	53.	54.0	43.4			48.0	44.2	44.0	41.5	0.00	W	2	NW	1		6	0									fine fine all day	27	
	28	29.565	52.	29.710	53.	52.4	40.0			47.5	43.0	47.0	44.0	0.06	SW	1	SW	1		4	0									do do do	28	
	29	29.710	46.	29.855	50.	49.2	36.0			41.2	40.0	48.0	46.0	0.24	S	1	S	1		8	9									T Showers heavy at times with thunder	29	
	30	29.800	50	29.700	54.	64.0	40.5			51.0	47.0	49.0	46.5	0.65	NE	4	NE	4		8	10									showers heavy 10 to 5 then fair	30	
	31																															
Sums.		1472	14	1635	11	127	154			156	1210	154	146	333		465	410			179	112											
Means.		29.693	54.9	29.712	56.4	58.7	44.3			52.3	49.3	50.3	48.1		152	137			6.0	3.7												
+ Total Corrections for Instrumental Errors.		-010		-010																												
+ 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. d.	" 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. h.	" lunar halo.				

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

NOTATION USED IN GENERAL REMARKS.

a.	denotes aurora.	m.	denotes meteor.
ci.	" "	ms.	" "
ci-cu.	" "	n.	" "
ci-s.	" "	ms.	" "
cu.	" "	h. r.	" "
cu-s.	" "	c. h.	" "
d.	" "	s.	" "
f.	" "	sc.	" "
fr.	" "	s.	" "
h.-fr.	" "	s.	" "
h.	" "	so. h.	" "
h. d.	" "	sq.	" "
hl.	" "	sq.	" "
l.	" "	t.	" "
l. cl.	" "	t. s.	" "
l. sh.	" "	w.	" "
lu. co.	" "	g.	" "
lu. ha.	" "		" "

TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction \ddagger = 29.613
 for Temp. (Col. 2), = 29.683 - 0.070 = 29.613
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction \ddagger = 29.629
 for Temp. (Col. 4), = 29.709 - 0.080 = 29.629
 Mean at Station, corrected, and at 32°, = 29.621
 Correction for height, feet above Mean Sea-level, = 4.8
 Mean, reduced to 32°, and Sea-level, = 29.669
 Highest Reading, corrected for Index error, on the 10 th., = 30.200
 Lowest Do. Do., on the 21 th., = 28.995
 Difference, or Monthly Range, = 1.205

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 4 th., = 67.5
 Lowest in Month, corrected for Index errors, on the 22 th., 29 = 36.0
 Difference, or Monthly Range, = 31.5
 "Corrected Mean" of all the Highest, (Col. 5), = 58.7
 "Corrected Mean" of all the Lowest, (Col. 6), = 44.3
 Difference, or Mean Daily Range, = 14.4
 ** Calculated Mean Temperature of Month, = 51.5
 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), = 57.3
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 48.7
 # Computed Temperature of Dew-Point, = 46.0
 # Do. Elastic Force of Vapour, = 313
 # Do. Weight of Vapour in a Cubic Foot of Air, =
 # Relative Humidity (Saturation = 100), = 82
 RAIN fell on 26 Days; Amount in Inches, = 3.53

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					4	12	9	4	1.52	
P.M.	1	1				4	9	10	5	1.37	
Mean.	0	1	1	0	4	10	9	5	0	1.45	

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Observations made and Return verified by

(Signed) Peter Harper

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 2° 6' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of October 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs. Sun's rays		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.			9 h. A.M.								
		Barometer.	Attached Thermometer	Barometer.	Attached Thermometer	Max.	Min.	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	Amount in inches.	Direction.	Force	Direction.	Force	Velocity (0-6) and Species.	Amount (0-10), and Direction.		Velocity (0-8) and Direction.	Amount (0-10), and Species.	No. 3 inches.					No. 12 inches.	No. 22 inches.
		* No.		No.		No.	No.	No.	No.						No.																	
		inches.	°	inches.	°	°	°	°	°	°	°	°																				
	1	29.670	53.	29.625	53.	53.0	40.2			50.6	49.8	47.5	46.0	0.02	NW	2	NW	1	10	4	4	0					rain & m. then fair	1				
	2	29.550	50.	29.620	54.	52.2	40.5			50.0	46.6	48.0	45.4	0.09	N	2	N	1	5	5	5	0					fair all day	2				
	3	29.350	52.	29.320	54.	62.0	42.0			52.0	49.8	50.0	47.5	0.00	S	2	N	1	10	0	4	0					dull wet, fair after 10 A.M.	3				
	4	29.650	51.	30.080	51.	62.0	39.0			48.3	46.4	42.0	40.2	0.02	N	1	SW	1	3	0	0	0					fair & fine all day	4				
	5	30.160	49.	30.160	49.	48.0	32.5			41.4	38.0	38.2	37.0	0.00	N	1	N	0.5	3	0	0	0					clear white frost, fine all day	5				
	6	30.130	47.	30.145	50.	54.0	34.0			47.0	44.0	48.2	45.6	0.00	N	1	N	1	4	0	3	0					very fine all day	6				
	7	30.155	57.	30.345	57.	55.2	34.0			57.0	49.0	47.5	45.8	0.02	N	1	NW	1	3	0	8	0					do do slight shower	7				
	8	30.300	50.	30.250	57.	56.0	34.2			54.0	49.0	50.0	47.0	0.00	S	1	SW	1	2	0	6	0					do do	8				
	9	30.150	52.	30.050	53.	53.0	34.0			53.0	49.0	49.0	48.0	0.12	SW	2	SW	0.3	8	0	8	0					very fine, some rain after 3 P.M.	9				
	10	30.000	52.	29.945	58.	64.0	42.0			48.8	48.0	50.4	50.0	0.14	SW	0.5	SW	1	4	0	10	0					fine all day, rain after 7 P.M.	10				
	11	29.750	56.	29.550	53.	61.0	42.6			56.8	52.0	56.0	54.5	0.02	SW	2	S	2	5	0	8	0					fair all day, heavy clouds in evening	11				
	12	29.320	57.	29.355	53.	56.0	54.0			55.0	52.4	42.5	40.0	0.11	N	2	N	2	8	0	0	0					some rain A.M. fair after 9 A.M.	12				
	13	29.600	50.	29.875	46.	45.2	39.0			41.0	38.6	38.2	35.0	0.03	NW	4	NW	2	3	0	4	0					stormy showers all day.	13				
	14	30.100	46.	30.220	48.	49.7	37.0			40.8	37.5	34.5	33.0	0.00	NW	1	0		4	0	0	0					fair & cold, all day.	14				
	15	30.215	48.	30.170	50.	49.0	29.5			39.2	36.5	48.8	44.0	0.00	SW	1	S	2	2	0	8	0					fair white frost, dull 8 P.M.	15				
	16	30.050	50.	29.950	57.	53.6	38.0			50.0	45.0	51.0	48.5	0.00	S	3	S	2	5	0	8	0					fair & fine all day	16				
	17	30.000	52.	30.150	54.	57.0	50.0			52.4	50.5	52.0	50.5	0.00	S	2	S	1	10	0	4	0					dull, fair & fine all day	17				
	18	30.250	53.	30.285	54.	56.2	49.0			53.0	52.0	54.5	53.0	0.00	S	1	SW	1	6	0	4	0					fine & mild all day	18				
	19	30.285	52.	30.220	54.	63.0	41.0			49.5	48.0	52.8	50.5	0.00	S	0.5	S	1	2	0	0	0					ex fine all day	19				
	20	30.220	52.	30.440	54.	61.5	34.0			47.0	44.2	51.5	50.0	0.00	SW	1	NW	1	4	0	4	0					do do do	20				
	21	30.570	54.	30.500	53.	53.3	45.4			50.0	47.0	50.2	48.0	0.00	NW	1	E	1	8	0	8	0					dull but fine all day	21				
	22	30.300	53.	30.230	50.	53.5	41.2			45.2	43.0	39.2	38.2	0.00	SW	1	SW	1	2	0	5	0					very fine fair	22				
	23	30.100	47.	29.955	52.	56.0	38.0			48.6	44.0	53.0	50.8	0.06	S	0.5	SW	2	8	0	5	0					fine all day, showers P.M.	23				
	24	30.250	50.	30.355	47.	48.0	40.2			44.0	41.0	37.0	35.2	0.00	N	2	N	1	3	0	6	0					fine all day, cool	24				
	25	30.170	49.	29.855	54.	57.0	34.0			45.2	43.5	49.4	48.0	0.04	SW	1	S	2	8	0	10	0					fair all day, rain 9 P.M.	25				
	26	29.600	53.	29.625	52.	56.6	44.0			56.0	52.5	47.0	45.0	0.00	SW	2	SW	0.5	8	0	8	0					fair & mild all day	26				
	27	29.700	48.	29.700	48.	52.2	34.0			37.2	36.6	35.0	32.5	0.00	SW	1	SW	0.5	2	0	0	0					do do do	27				
	28	29.560	47.	29.500	49.	53.2	33.0			46.2	44.4	43.8	41.2	0.00	SW	3	SW	1	8	0	0	0					fair gusty wind all day	28				
	29	29.575	49.	29.145	53.	58.0	41.4			48.5	47.6	46.2	44.6	0.09	SW	3	S	4	10	0	4	0					rainy to fair all day	29				
	30	29.550	48.	29.550	50.	50.2	32.0			35.8	33.8	43.5	40.0	0.00	SW	0.5	SW	1	0	0	6	0					clear & fair all day	30				
	31	29.600	47.	29.810	49.	52.0	32.0			41.2	37.6	34.0	39.0	0.00	SW	2	SW	3	0	0	4	0					do do do	31				
Sums.		1092	12	1316	12	134	123			137	129	157	137		4	2																
		790	17	930	52	1491	217			2357	1593	2009	1247		0.75	480																
Means.		29.929	50.5	29.933	51.7	54.8	38.8			47.6	45.1	46.5	44.0			1.55			5.1		4.2											
+ Total Corrections for Instrumental Errors.		-0.10		-0.10																												
+ Corrections for Diurnal Range.																																
"Corrected Means."																																
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

NOTATION USED IN GENERAL REMARKS.					
a.	denotes aurora.	m.	denotes meteor.		
ci.	" cirrus.	ms.	" meteors.		
ci.-cu.	" cirro-cumulus.	n.	" nimbus.		
cl.-s.	" cirro-stratus.	r.	" rain.		
cu.	" cumulus.	c. h. r.	" heavy rain.		
cu.-s.	" cumulo-stratus.	"	" continued heavy rain.		
d.	" dew.	s.	" stratus.		
f.	" fog.	sc.	" squall.		
f.	" 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 \ddagger = 29.860
for Temp. (Col. 2), = 29.919.....59.
"Corrected Mean" of Barometer at 9 P.M., minus the Correction \ddagger = 29.861
for Temp. (Col. 4), = 29.923.....62.
Mean at Station, corrected, and at 32°..... = 29.861
Correction for height, feet above Mean Sea-level..... = 49
Mean, reduced to 32°, and Sea-level, = 29.910
Highest Reading, corrected for Index error, on the 21th..... = 30.510
Lowest Do. Do., on the 29th..... = 29.145
Difference, or Monthly Range, = 1.365

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 16th..... = 64.0
Lowest in Month, corrected for Index errors, on the 15th..... = 31.5
Difference, or Monthly Range, = 32.5
"Corrected Mean" of all the Highest, (Col. 5), = 54.8
"Corrected Mean" of all the Lowest, (Col. 6), = 40.8
Difference, or Mean Daily Range, = 14.0
** Calculated Mean Temperature of Month, = 47.8
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 16th..... = 64.0
Lowest at Night, Black Bulb (corrected for Index errors), on the 15th..... = 31.5
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 54.8
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 40.8
Difference of above means or range ("exposed"), = 14.0

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 47.0
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 44.6
Computed Temperature of Dew-Point, = 41.9
Do. Elastic Force of Vapour, = 2.66
Do. Weight of Vapour in a Cubic Foot of Air, = 83
Relative Humidity (Saturation = 100), = 83
RAIN fell on 12 Days; Amount in Inches, = 7.5

WIND.		SUMMARY.			
Direction.	N	NE	E	SE	S
A.M.	1	2			7
P.M.	1	2	1		2
Mean.	1	2	1	0	7

Observations made and
Return verified by

(Signed) Peter Baupien

INSTRUCTIONS

FOR TAKING METEOROLOGICAL OBSERVATIONS,

WITH REMARKS ON THE USE OF INSTRUMENTS.

ONE of the chief objects that the SCOTTISH METEOROLOGICAL SOCIETY proposed to itself when the Society was established in 1856, was to secure PERFECT UNIFORMITY in the system of observation pursued at all its Stations. Uniformity in the observations is absolutely necessary to justify the publication of Monthly Results from different observations, it being found that differences between the Returns from two Stations, so very considerable as to render them quite incomparable, may arise from dissimilarity in the position or shelter of instruments, different hours of observation, or even from the use of differently constructed instruments. It is therefore hoped, that those who kindly furnish Reports to the Society will, by a scrupulous attention to the following Directions, secure for their Monthly Returns an accuracy and value commensurate with the labour and pains involved in making them; and, for the Tables published by the Society, an entire comparableness among the several Returns, without which the Society's Reports must inevitably fail in achieving one of the main objects of Meteorological Observation.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich or Railway Time only), as specified in the following remarks, or at the top of the hour, if the observations are made at intervals of 24 hours, or at the top of the hour, if the observations are made at intervals of 12 hours. It is hoped that the utmost punctuality in the time of reading the instruments will be observed. Observers, in some few cases, may find this impossible; in such instances, they are specially requested to mark opposite every reading the time at which it was taken, if not at 9 A.M. or 9 P.M.

Weather-Glasses and Aneroids. Though well suited to indicate roughly variations of atmospheric pressure, are not to be used for Meteorological purposes. No Barometer should be used for Meteorological purposes, unless it is supplied with some means of adjustment or compensation which will secure that the height of the mercury in the tube is accurately measured from the fluctuating surface of the mercury in the cistern.

The Barometer in which the error arising from the fluctuating surface of the mercury in the cistern is entirely got rid of is FORTIN'S Barometer, the arrangement consisting in applying pressure by means of a screw to the bottom of the cistern, which is made of flexible leather, thus raising or depressing the surface till it just meets the ivory point which forms the zero point of the fixed scale.

The Barometer originally constructed by Mr. Adie of London, and usually called the Board Barometer, has the great convenience of requiring no adjustment of the cistern. Its scale-inches are not true inches, but so much shorter as to compensate the error that would otherwise arise from the fluctuations of the surface of mercury in the cistern. This is an excellent Barometer for ordinary Observers, inasmuch as it entirely eliminates the error of observation likely to arise in not a few cases in setting the instrument to the zero point of the fixed scale when the light is not good. To show the accuracy with which these Barometers are made, it may be stated, that one was compared, during a whole year, with the Society's Standard Barometer, particular care being given to make the comparison when atmospheric pressure was rising or falling very rapidly, with the result that none of the readings differed from those of the Standard more than 0.005 inch.

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

It is absolutely necessary that the Barometer which is to be used shall have been compared with a Standard Barometer. The Barometer should be suspended in as good a light as can be secured, and to facilitate the reading, a piece of white paper may be put behind the tube. It must be hung truly perpendicular, and exposed to neither the sun's direct rays nor the heat of a fire, and must not be hung against a wall heated by a fire. The object being to secure that the whole instrument, including the brass fittings, the contained mercury, and the attached Thermometer, shall be, when read, at one uniform temperature, it is evident that the best position is that which is least liable to sudden changes of temperature.

In taking an Observation, the Attached Thermometer is first noted: the tube must then be gently tapped, and the cistern-adjustment carefully made. The eye, by raising and lowering it, must be brought into the plane of the back and front of the index—usually below the level of the wet bulb, but in no case under the bulb; the muslin must be of medium fineness, and fastened at the neck of the bulb by the cotton, which also supplies it with water. It must be seen to by the Observer that the muslin is always clean and moist, and the water pure. In frosty weather, observation is a matter of much delicacy, and must be made with great care. The bulb must be moistened by immersion from 15 to 30 minutes before the hour of observation. From the film of ice thus formed evaporation will proceed as from the moist cloth in ordinary circumstances.

In reading the Thermometer great care must be taken to bring the eye exactly opposite the tip of the index or column of mercury. The reading ought to be taken to tenths of a degree, and noted in decimals. Thus the Thermometer will be read—39.9, 40.0, or 40.1; or again, 40.4, 40.5, 40.6, according as it indicates a little under, an exact coincidence with, or a little over 40°, or 40.3, respectively. So also 40.3, and 40.4, more or less must be registered 40.2, or 40.3, and 40.4, or 40.5 respectively. In reading Rutherford's Minimum Thermometer, the indication of that end of the index which is next the surface of the spirit is alone noted. On opening the Thermometer Box, the Dry and Wet Bulb Thermometers are to be first, and rapidly, read, inasmuch as they are readily affected by heat from the person of the Observer.

The Hygrometer is read at 9 A.M. and 9 P.M. The Self-Registering Hygrometer is read at 9 P.M. only, as in the case of observing the greatest and least degrees of temperature in the 24 hours preceding. It is not a matter of indifference when the Self-Registering Thermometers are read, since, in winter at least, the extremes may occur at any hour; and it is necessary to refer their occurrence to their proper meteorological day. In the Society's schedules, the indications registered on the 24 are those of a series of phenomena commencing at 9 P.M. on the 24, and extending till 9 P.M. on the 3d.

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

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

The Council of the Society recommend that the Self-Registering Thermometers, and the Dry and Wet Bulb Hygrometers, be kept in Stevenson's Louvre-boarded Box for protection to the weather, as shown in the past by repeated and annoying breakages of Thermometers of similar construction; and, as regards Maximum Thermometers, either Negretti and Zambra's, or Phillips's, whether they will act at the highest temperatures they may be required to register. By the laws of the Society, Members and Observers have a right to have their instruments compared by the Secretary, and to advise with him regarding the purchase of instruments. Very great care should be bestowed on the Observations of the wind.

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-Vane ought to be elevated at least 12 feet above surrounding objects. When it oscillates incessantly, the mean direction should be taken. In all cases, but especially when the Vane is stationary, and when the wind is feeble, reference may be made to the direction of smoke, etc., in well-exposed situations. Careful observations are recommended to be made on the changes in the direction of the wind; and during storms, extra observations at every hour of Greenwich time. Such a system of simultaneous observation, pursued at different Stations, is likely to give highly valuable and important results, particularly in connection with the system of thickly-planted Stations over a limited district round Edinburgh called STORM STATIONS, in the course of being established by the Society for the systematic investigation of the relation of the force of the wind to BAROMETRIC GRADIENTS, and other points connected with storms.

The Council would recommend the Hemispherical Cup Anemometer, a self-registering instrument which shows the amount of Wind that passes it per day; from which also the mean Velocity of the Wind at the time of observation may be ascertained. For indicating the Force of the Wind at any particular hour of observation, the Pressure Anemometer recently brought under the notice of the Society by Mr. T. Stevenson, the Honorary Secretary, and Mr. R. Ballingall, the Society's Observer at Eallabus, 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 unobstructed situation for observation, and partly from the defective nature of the instruments used. The Rain Gauge should not be placed on a slope or terrace, but on a level piece of ground, in an open 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., S., and W. The rim 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-rod attached to a float, the rod ought to be fixed down, and the float rise to its height only at the time the instrument is read, it being found that a stem projecting above the rim of the gauge seriously interferes with the proper measurement of the Rain-fall. When a measuring-glass is used, care should be taken to hold it quite perpendicular. The Rain Gauge ought to be read 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 reading is to be made on the first of the month, and the amount entered for the previous month. Snow-falls may, for convenience, be registered in the rain columns, under the following conditions:—When a Snow shower occurs, it should be noted in the 'Remarks,' and the letter S affixed to the depth of water received in Gauge. The depth of the snow must be measured in some open place where no drift is observed, and registered in addition to, and as a check upon, the indications of the Rain Gauge. For wind, rain, and snow, as indicated in every column, the Observer cannot be too careful to register observations only; and nothing that partakes of the nature of deduction or inference.

Convenient abbreviations for the nomenclature of Clouds will be found on the other side. The amount of Cloud ought to be estimated from the greater or less obscuration of the sky overhead (i.e. within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are 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, as illustrating the condition and currents of the upper and lower regions of the atmosphere. The entries in the schedule are to be made in the following manner:—Thus, in the column Velocity and Direction, 6, S. W. will indicate that the upper strata of Clouds travel with extreme velocity from S.W., and those in the lower regions from W., with one-third the speed of the former. Again, in the second Cloud column, an entry of 4, 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 cast shadows should be entered in the proper column.

As the germination and growth of crops and plants generally depend greatly on the temperature of the soil—its amount and constancy,—the Council recommend that Thermometers be placed in the soil, at intervals of 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, 2100, 2110, 2120, 2130, 2140, 2150, 2160, 2170, 2180, 2190, 2200, 2210, 2220, 2230, 2240, 2250, 2260, 2270, 2280, 2290, 2300, 2310, 2320, 2330, 2340, 2350, 2360, 2370, 2380, 2390, 2400, 2410, 2420, 2430, 2440, 2450, 2460, 2470, 2480, 2490, 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2580, 2590, 2600, 2610, 2620, 2630, 2640, 2650, 2660, 2670, 2680, 2690, 2700, 2710, 2720, 2730, 2740, 2750, 2760, 2770, 2780, 2790, 2800, 2810, 2820, 2830, 2840, 2850, 2860, 2870, 2880, 2890, 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6220, 6230, 6240, 6250, 6260, 6270, 6280, 6290, 6300, 6310, 6320, 6330, 6340, 6350, 6360, 6370, 6380, 6390, 6400, 6410, 6420, 6430, 6440, 6450, 6460, 6470, 6480, 6490, 6500, 6510, 6520, 6530, 6540, 6550, 6560, 6570, 6580, 6590, 6600, 6610, 6620, 6630, 6640, 6650, 6660, 6670, 6680, 6690, 6700, 6710, 6720, 6730, 6740, 6750, 6760, 6770, 6780, 6790, 6800, 6810, 6820, 6830, 6840, 6850, 6860, 6870, 6880, 6890, 6900, 6910, 6920, 6930, 6940, 6950, 6960, 6970, 6980, 6990, 7000, 7010, 7020, 7030, 7040, 7050, 7060, 7070, 7080, 7090, 7100, 7110, 7120, 7130, 7140, 7150, 7160, 7170, 7180, 7190, 7200, 7210, 7220, 7230, 7240, 7250, 7260, 7270, 7280, 7290, 7300, 7310, 7320, 7330, 7340, 7350, 7360, 7370, 7380, 7390, 7400, 7410, 7420, 7430, 7440, 7450, 7460, 7470, 7480, 7490, 7500, 7510, 7520, 7530, 7540, 7550, 7560, 7570, 7580, 7590, 7600, 7610, 7620, 7630, 7640, 7650, 7660, 7670, 7680, 7690, 7700, 7710, 7720, 7730, 7740, 7750, 7760, 7770, 7780, 7790, 7800, 7810, 7820, 7830, 7840, 7850, 7860, 7870, 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9540, 9550, 9560, 9570, 9580, 9590, 9600, 9610, 9620, 9630, 9640, 9650, 9660, 9670, 9680, 9690, 9700, 9710, 9720, 9730, 9740, 9750, 9760, 9770, 9780, 9790, 9800, 9810, 9820, 9830, 9840, 9850, 9860, 9870, 9880, 9890, 9900, 9910, 9920, 9930, 9940, 9950, 9960, 9970, 9980, 9990, 10000.

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

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-Vane ought to be elevated at least 12 feet above surrounding objects. When it oscillates incessantly, the mean direction should be taken. In all cases, but especially when the Vane is stationary, and when the wind is feeble, reference may be made to the direction of smoke, etc., in well-exposed situations. Careful observations are recommended to be made on the changes in the direction of the wind; and during storms, extra observations at every hour of Greenwich time. Such a system of simultaneous observation, pursued at different Stations, is likely to give highly valuable and important results, particularly in connection with the system of thickly-planted Stations over a limited district round Edinburgh called STORM STATIONS, in the course of being established by the Society for the systematic investigation of the relation of the force of the wind to BAROMETRIC GRADIENTS, and other points connected with storms.

The Council would recommend the Hemispherical Cup Anemometer, a self-registering instrument which shows the amount of Wind that passes it per day; from which also the mean Velocity of the Wind at the time of observation may be ascertained. For indicating the Force of the Wind at any particular hour of observation, the Pressure Anemometer recently brought under the notice of the Society by Mr. T. Stevenson, the Honorary Secretary, and Mr. R. Ballingall, the Society's Observer at Eallabus, 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 unobstructed situation for observation, and partly from the defective nature of the instruments used. The Rain Gauge should not be placed on a slope or terrace, but on a level piece of ground, in an open 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., S., and W. The rim 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-rod attached to a float, the rod ought to be fixed down, and the float rise to its height only at the time the instrument is read, it being found that a stem projecting above the rim of the gauge seriously interferes with the proper measurement of the Rain-fall. When a measuring-glass is used, care should be taken to hold it quite perpendicular. The Rain Gauge ought to be read 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 reading is to be made on the first of the month, and the amount entered for the previous month. Snow-falls may, for convenience, be registered in the rain columns, under the following conditions:—When a Snow shower occurs, it should be noted in the 'Remarks,' and the letter S affixed to the depth of water received in Gauge. The depth of the snow must be measured in some open place where no drift is observed, and registered in addition to, and as a check upon, the indications of the Rain Gauge. For wind, rain, and snow, as indicated in every column, the Observer cannot be too careful to register observations only; and nothing that partakes of the nature of deduction or inference.

Convenient abbreviations for the nomenclature of Clouds will be found on the other side. The amount of Cloud ought to be estimated from the greater or less obscuration of the sky overhead (i.e. within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are 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, as illustrating the condition and currents of the upper and lower regions of the atmosphere. The entries in the schedule are to be made in the following manner:—Thus, in the column Velocity and Direction, 6, S. W. will indicate that the upper strata of Clouds travel with extreme velocity from S.W., and those in the lower regions from W., with one-third the speed of the former. Again, in the second Cloud column, an entry of 4, 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.

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SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 2° 2' W, Distance from Sea 2 miles.

Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.

During the MONTH of November 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.			9 h. A.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max. No.	Min. No.	Max. No.	Min. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Direction.	Force.	Direction.	Force.	Velocity (0-10), and Species.	Amount (0-10), and Species.	Velocity (0-10), and Species.	Amount (0-10), and Species.		No. 3 inches.	No. 12 inches.	No. 22 inches.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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NOTATION USED IN GENERAL REMARKS.

a.	denotes aurora.	m.	denotes meteor.
ci.	cirrus.	ms.	meteors.
ci-cu.	cirro-cumulus.	n.	nimbus.
cu.	cumulus.	r.	rain.
cu-s.	cumulo-stratus.	h. r.	heavy rain.
d.	dew.	c. h. r.	continued heavy rain.
f.	fog.	s.	stratus.
fr.	frost.	sc.	squall.
h. fr.	hoar-frost.	s.	sleet.
h.	haze.	so. ha.	solar halo.
h. d.	heavy dew.	sq.	squalls.
h. l.	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. ha.	lunar halo.		

TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction $\frac{1}{10}$ for Temp. (Col. 2), = 29.819
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{10}$ for Temp. (Col. 4), = 29.816
 Mean at Station, corrected, and at 32°, = 29.818
 Correction for height, feet above Mean Sea-level, = 49
 Mean, reduced to 32°, and Sea-level, = 29.867
 Highest Reading, corrected for Index error, on the 7th, = 30.700
 Lowest Do. Do., on the 3th, = 28.881
 Difference, or Monthly Range, = 1.819

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 2th, = 60.5
 Lowest in Month, corrected for Index errors, on the 16th, = 30.0
 Difference, or Monthly Range, = 30.5
 "Corrected Mean" of all the Highest, (Col. 5), = 52.03
 "Corrected Mean" of all the Lowest, (Col. 6), = 34.3
 Difference, or Mean Daily Range, = 10.7
 ** Calculated Mean Temperature of Month, = 40.7
 S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 1th, = 60.5
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 52.03
 Lowest at Night, Black Bulb (corrected for Index errors), on the 1th, = 34.3
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 34.3
 Difference of above means or range ("exposed"), = 10.7

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 45.4
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 43.2
 Computed Temperature of Dew-Point, = 40.7
 Do. Elastic Force of Vapour, = 25.3
 Do. Weight of Vapour in a Cubic Foot of Air, = 84
 Relative Humidity (Saturation = 100), = 84
 RAIN fell on 15 Days; Amount in Inches, = 1.37

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	2	16	9	1	183				
P.M.	1				4	17	8			148				
Mean.	1	0	0	1	3	16	8	1	0	166				

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Observations made and
Return verified by

(Signed) Peter Harper

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park Museum, County of Aberdeen, in Lat. 57° 9' N, Long 2° 6' W, Distance from Sea 2 miles.

Height of Cistern of the Barometer above Mean Sea-Level 444 feet, above Ground 4 feet.

During the MONTH of December 1899.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.		GENERAL REMARKS.		Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No.	9 A.M.		P.M.		9 h. A.M.			As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		Barometer. * No.	Attached Thermometer No.	Barometer. No.	Attached Thermometer No.	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 Direction.	Amount (0-10), and Species.	Velocity (0-10), and Direction.	Amount (0-10), and Species.	Hours.	No. 8 inches.		No. 12 inches.	No. 22 inches.	Temperature of WELL at depth of feet, No.	Temperature at 1 fathom, and Density.		9 A.M.	9 P.M.	Mention the hour at which Storms, including Thunder and Lightning, began and ended.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction $\frac{1}{10}$ for Temp. (Col. 2), = 29.795 35 = 29.760
"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{10}$ for Temp. (Col. 4), = 29.771 37 = 29.765
Mean at Station, corrected, and at 32', = 29.814
Correction for height, feet above Mean Sea-level, = 49
Mean, reduced to 32', and Sea-level, = 29.814
Highest Reading, corrected for Index error, on the 2th, = 30.440
Lowest Do. Do., on the 30th, = 28.455
Difference, or Monthly Range, = 1.985

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 4th, = 55.4
Lowest in Month, corrected for Index errors, on the 15th, = 16.0
Difference, or Monthly Range, = 39.4
"Corrected Mean" of all the Highest, (Col. 5), = 40.5
"Corrected Mean" of all the Lowest, (Col. 6), = 31.7
Difference, or Mean Daily Range, = 8.8
** Calculated Mean Temperature of Month, = 36.1
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 4th, = 55.4
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 40.5
Lowest at Night, Black Bulb (corrected for Index errors), on the 15th, = 16.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 31.7
Difference of above means or range ("exposed"), = 8.8

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 36.6
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 35.1
† Computed Temperature of Dew-Point, = 33.0
† Do. Elastic Force of Vapour, = 188
† Do. Weight of Vapour in a Cubic Foot of Air, = 87
† Relative Humidity (Saturation = 100), = 87
RAIN fell on 24 Days; Amount in Inches, = 5.29

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	8	5	9	5	3		1.34	
P.M.			1	7	8	10	3	2		1.42	
Mean.	0.0	1	7	6	10	4	3	0		1.38	

(Signed) Peter Harper

Observations made and
Return verified by

