

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haads House, County of Aberdeen, in Lat. 57°24', Long. 2°14', Distance from Sea 12 miles.

Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.

During the MONTH of January 1897.

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. Grass.		9 h. A.M.		9 h. P.M.			Readings of the H. Cup Anemometer.		9 A.M.		P.M.		9 h. A.M.			Temperature of WELL at depth of feet. No.	Temperature at 1 fathom, and Density.	0-10.													
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max.	Min.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of Revolutions 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.	Hours.			No. 3 inches.	No. 12 inches.	No. 22 inches.	9 A.M.	9 P.M.			
		* No.	No.	No.	No.	No.	No.	No.	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	29.788	36	29.966	35.5	46	34	44	25	35	32.5	33	33		S.W.	W								4	34	37	37		7	6		1							
	2	29.924	37	29.874	41	43	31	43	24	36.5	34	42	40		S.W.	S								3.4	33	36	37		6	6		2							
	3	29.730	40	29.594	41.5	43	37	42	34	38	36.5	42	40		S.E.	S.E.									37	37	37		6	6		3							
	4	29.614	39	29.602	38	43	34	43	27	42	40	37	36	+	S	S.E.									38	37	37		6	6		4							
	5	29.528	36	29.548	33	38	27	36	21	33	32	29	28.5		S	S.W.								3.8	35	37	37		6	6		5							
	6	29.568	42.5	29.686	40	42	27	41	22	42	41	40	38	+	S.E.	S.E.									36	36	37		6	7		6							
	7	29.750	41	29.886	39	40	38	40	26	40	38	39	36.5		E	E									37	37	37		6	6		7							
	8	29.920	38	29.946	38	40	36	39	34	37.5	35	38	36		S.E.	E									36	37	37		6	6		8							
	9	29.864	35.5	29.470	33	34	33	34	31	33	31	30	29	+	E	E									35	37	37		6	6		9							
	10	29.354	31	29.426	34	32.5	25	33	23	27.5	27	32.5	32	21	N.W.	N.W.									34	37	37		6	6		10							
	11	29.474	38	29.474	38.5	39	32	39	31	39	38.5	39	38.5	+	S.E.	S.E.									35	37	37		6	6		11							
	12	29.452	40	29.520	38	38	36	41	32	38	37.5	38	37	+	S.W.	S.W.									37	37	37		6	6		12							
	13	29.700	36	29.896	36	34.5	32	37	27	34	32.5	34.5	32.5	+	N.W.	N.W.									2	34	37	37		6	6		13						
	14	29.978	34	30.024	34	32	29	38	24	33	32	31	30	+	N.W.	N									2.5	33	36	37		6	6		14						
	15	30.004	33	29.884	33	32.5	28	36	23	33	32	30	29		N.W.	N.W.									2	33	36	37		6	6		15						
	16	29.776	33	29.854	29	33	22	36	18	30.5	30	28	28.5	+	N.W.	W									2	33	36	37		6	6		16						
	17	29.804	28	29.800	30	33	17	32	17	25	25	27.5	27	28	W	N.W.									2.4	32	35	37		5	6		17						
	18	29.760	30	29.846	33	37	23	37	19	31	30.5	32	31.5	+	W	N									2	32	35	37		6	6		18						
	19	29.962	33	30.110	34.5	34	28	37	24	33	32	33	32	+	N	N.E.									32	35	37		6	6		19							
	20	30.154	33.5	30.096	34.5	35	29	35	25	32	31.5	33	32	+	N.E.	N.E.									32	35	37		6	6		20							
	21	29.728	36	29.402	34	39	31	40	27	36	35	35	34	+	N.W.	N									32	35	37		6	7		21							
	22	29.472	23	29.730	33	36	39	40	23	32	31	31.5	30	+	N	N.E.									3.5	32	35	37		8	6		22						
	23	29.804	28	29.794	26	34	19	44	18	24	23.5	22	22		N	N									4.2	32	35	37		5	6		23						
	24	29.408	31	29.138	34	40	20	47	18	30	30	36	34	25.5	S.W.	W									1.7	32	35	36		5	6		24						
	25	29.068	28	28.940	26	34	22	40	20	24.5	23.5	25	24.5	+	N.W.	N.W.									32	35	36		6	7	Snow with high wind.	25							
	26	29.112	31	29.238	31.5	36	28	47	28	29	28.5	31	30.5	+	N.W.	N.W.									3	32	35	36		7	6	heavy fall of snow, gale.	26						
	27	29.664	36	29.636	32	37	28	47	28	35.5	33	32	31	4	N.W.	N.W.									1.8	32	35	36		6	6		27						
	28	29.700	31	29.686	33	36	29	47	29	31	30.5	32	31.5	+	N.W.	N.W.									1.8	32	34	36		6	6		28						
	29	29.572	33.5	29.318	34	35	23	45	21	32	31	26	25.5	+	N.W.	N									3.6	32	34	36		6	6		29						
	30	29.108	27	29.016	34	37	15	37	13	32	31.5	33	32.5	+	S.E.	E									3.2	34	36		6	6		30							
	31	28.994	32	29.106	33	38	30	30	20.5	30	30	30	28.5	+	E	E													6	6	heavy fall of snow, gale, snow with high wind.	31							
Sums.		1813.2	132	1715.3	133	151	16	13	13	113	98	112	126	452										10	1008	1074	1102												
Means.		19	120	19	139	13	25	27	8	8	8	8	5											10															
+ Total Corrections for Instrumental Errors.		29.632	339	29.629	43	37.6	28.1	39.6	24.9	31.8	32.9	31.8	20	4.52										34.5	33.6	35.5	36.7		60	61									
+ Corrections for Diurnal Range.		x100		x100																																			
"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 $\frac{1}{100}$ for Temp. (Col. 2), 29.732.....13..... = 29.712
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 4), 29.729.....15..... = 29.715
 Mean at Station, corrected, and at 32°,..... = 29.714
 Correction for height, feet above Mean Sea-level,..... = 20.4
 Mean, reduced to 32°, and Sea-level,..... = 29.916
 Highest Reading, corrected for Index error, on the 20th,..... = 30.154
 Lowest Do. Do., on the 25th,..... = 28.940
 Difference, or Monthly Range,..... = 1.214

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 1st th,..... = 46.0
 Lowest in Month, corrected for Index errors, on the 30th th,..... = 15.0
 Difference, or Monthly Range,..... = 31.0
 "Corrected Mean" of all the Highest, (Col. 5),..... = 37.6
 "Corrected Mean" of all the Lowest, (Col. 6),..... = 28.1
 Difference, or Mean Daily Range,..... = 9.5
 ** Calculated Mean Temperature of Month,..... = 22.8
 S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 2nd th,..... = 47.0
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun,..... = 39.6
 Lowest at Night, Black Bulb (corrected for Index errors), on the 30th th,..... = 13.0
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass,..... = 24.9
 Difference of above means or range ("exposed"),..... =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11),..... = 32.9
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),..... = 31.8
 ** Computed Temperature of Dew-Point,..... = 29.6
 ** Do. Elastic Force of Vapour,..... = 164
 ** Do. Weight of Vapour in a Cubic Foot of Air,..... =
 ** Relative Humidity (Saturation = 100),..... = 87
 RAIN fell on 20 Days; Amount in Inches,..... = 4.52

WIND.	SUMMARY.									
	Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.
A.M.		3	1	3	5	2	1	2	11	
P.M.		4	3	5	4	1	2	4	8	
Mean.		4	2	4	4	2	3	3	9	0

Observations made and
Return verified by

John Forrest

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haddo House, County of Aberdeen, in Lat. 57° 24', Long. 2° 14', Distance from Sea 12 miles.Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.During the MONTH of February 1897.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. Dry No. _____ Wet No. _____				Rain.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			Temperature of WELL at depth of feet, No. _____	SEA. Temperature at 1 fathom, and Density.	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.			Readings of the H. Cup Anemometer.		9 A.M.		P.M.		9 h. A.M.			0-10.														
		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.	No. _____	Direction.	Force.	Direction.	Force.	No. _____	Velocity (0-10), and Species.		Amount (0-10), and Species.	Velocity (0-10), and Direction.	Amount (0-10), and Species.			No. _____	No. _____			No. _____	9 A.M.	9 P.M.			
		* No. _____	_____	No. _____	_____	No. _____	No. _____	No. _____	No. _____	_____	_____	_____	_____		_____	_____	_____	_____	_____	_____	_____	_____		_____	_____	_____			_____	_____			_____	_____	_____	_____	_____	_____
		inches.	°	inches.	°	_____	_____	_____	_____	_____	_____	_____	_____		_____	_____	_____	_____	_____	_____	_____	_____		_____	_____	_____			_____	_____			_____	_____	_____	_____	_____	_____
	1	29.112	26	29.136	28	28	12	36	10	20	20	14	14		N	N.W															1							
	2	29.030	17.5	29.264	30	30	10	45	7	10.5	10.5	22	21	+	N.W	N.W															2							
	3	29.454	15	29.388	25	25	8	39	6	11.5	11.5	10	10	+	N.W	N.W															3							
	4	29.578	11	29.494	26	29.5	2	35	-2	9	9	30	30	+	W	W															4							
	5	29.408	33	29.308	34	35.5	29	36	25	34	33.5	35.5	35	+	S.E	S.E															5							
	6	29.280	34	29.334	33	36	31	36	29.5	35	34.5	32	31.5		S.E	S.E															6							
	7	29.562	22	29.720	30	32	15	42	15	18	18	28	27.5		S.W	S															7							
	8	29.686	34	29.496	34	40	27	42	23	36.5	36	37	36.5	+	S	S															8							
	9	29.232	38	29.418	34	42	30	51	26	40	39	35	32	+	W	W															9							
	10	29.652	33	29.732	32	42	30	49	25	33	32	31	30.5		W	W															10							
	11	29.764	33	29.868	33.5	38	28	51	23	32.5	32	32	31	+	W	W															11							
	12	29.842	33	29.742	26	40	20	49	18	32	31.5	21	21		W	W															12							
	13	29.556	29	29.498	36	40	14	51	15	27	27	37	26	+	N.W	N.W															13							
	14	29.604	35	29.798	34	37	33	42	31	35	34.5	34	33	+	N.E	N.E															14							
	15	29.972	35	30.062	34	40	31	45	27	34	33.5	31.5	31		S.E	S.W															15							
	16	30.004	38	29.986	39	47.5	29.5	50	26	39	37.5	36	35.5		S.W	W															16							
	17	29.980	36	29.768	36	46.5	31	52	27	35.5	34.5	35	34		W	W															17							
	18	29.598	39	29.484	40	45.5	34	58.5	28	40	38	37	36		S.W	S															18							
	19	29.594	39	29.582	45	49	35	50	28	38.5	36.5	45	44		S.E	S.W															19							
	20	29.548	41.5	29.450	41	48	37	57.5	33	42	39	42	41	+	S.W	S.E															20							
	21	29.726	40	29.938	40	46	35	56	31	39.5	36.5	40	38	+	N.W	N.W															21							
	22	29.968	44	30.010	48	61.5	40	78	38	48	45	50	47		W	W															22							
	23	29.930	47	29.888	43	55	41	65	33	47	43	41	38.5		S.W	N.W															23							
	24	29.934	44.5	29.474	43	47	32	49	26	43.5	40	43.5	40		S	S.W															24							
	25	29.166	46	29.178	49	59	39	63	35	45	44	57	47	+	S	W															25							
	26	29.304	53	29.508	42	57	45	69	40	55	50	40	39		S.W	N.W															26							
	27	29.688	42.5	29.756	38	48	33	59	25	40.5	36	36	33	+	S.W	N.W															27							
	28	29.588	40	29.088	41	43	32	48	25	41	38	40	39.5	+	W	S.E															28							
	29																															29						
	30																															30						
	31																															31						
Sums.		1512	979	1416	133	10	14	13	12	124	135	81	81											453	983	961	986		14	16								
Means.		16	16	16	6	22	6	6	6	6	6	6	6											8.5	33	34	35		5	6								
+ Total Corrections for Instrumental Errors.		x100		x100																																		
+ 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.	" sleet.
fr.	" frost.	s.	" sleet.
h.-fr.	" hoar-frost.	s.	" snow.
h.	" haze.	so. li.	" solar halo.
h. d.	" heavy dew.	sq.	" squall.
hl.	" hail.	sq.	" squalls.
li.	" lightning.	t.	" thunder.
li. cl.	" light clouds.	t. s.	" thunder-storm.
li. sh.	" light showers.	w.	" wind.
lu. co.	" lunar corona.	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	5	Blowing hard
0.5	Very light air	2.	Fresh breeze	5	Blowing 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), = 29.678
"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 4), = 29.673
Mean at Station, corrected, and at 32', = 29.676
Correction for height, feet above Mean Sea-level, = 204
Mean, reduced to 32', and Sea-level, = 29.880
Highest Reading, corrected for Index error, on the 15th, = 30.062
Lowest Do. Do., on the 2th, = 29.030
Difference, or Monthly Range, = 1.032

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 22th, = 61.5
Lowest in Month, corrected for Index errors, on the 4th, = 2.0
Difference, or Monthly Range, = 59.5
"Corrected Mean" of all the Highest, (Col. 5), = 42.4
"Corrected Mean" of all the Lowest, (Col. 6), = 28.0
Difference, or Mean Daily Range, = 14.4
** Calculated Mean Temperature of Month, = 35.2
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 17th, = 78.0
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 50.1
Lowest at Night, Black Bulb (corrected for Index errors), on the 4th, = -2.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 24.1
Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 34.5
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 33.1
†† Computed Temperature of Dew-Point, = 50.8
†† Do. Elastic Force of Vapour, = 172
†† Do. Weight of Vapour in a Cubic Foot of Air, =
†† Relative Humidity (Saturation = 100), = 85
RAIN fell on 14 Days; Amount in Inches, = 0.71

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

Observations made and
Return verified by

John Forrest

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haills House, County of Aberdeen, in Lat. 57°24', Long. 2°14', Distance from Sea 12 miles.Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.During the MONTH of March 1897.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.								SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.		GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.		Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		9 h. A.M.				9 h. P.M.				Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer No.	9 A.M.		P.M.		9 h. A.M.				Sunshine Hours.	9 h. A.M.				Temperature of Wind at each of feet, No.	Temperature of Air, Surface, and Dew- point.	0—10.																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		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.	Dirac- tion.	Force	Dirac- tion.	Force			9 h. A.M.	9 h. P.M.	Velocity (0—6) and Direction.	Amount (0—10), and Species.		Velocity (0—6) and Direction.	Amount (0—10), and Species.	No.	No.	No.	9 A.M.	9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction ++ = 29.161
for Temp. (Col. 2), = 29.171.....:230.....
"Corrected Mean" of Barometer at 9 P.M., minus the Correction ++ = 29.165
for Temp. (Col. 4), = 29.172.....:237.....
Mean at Station, corrected, and at 32°,+100..... 29.263
Correction for height, feet above Mean Sea-level, = 198
Mean, reduced to 32°, and Sea-level, = 29.461
Highest Reading, corrected for Index error, on the 7th, = 29.830
Lowest Do. Do., on the 3th, = 28.478
Difference, or Monthly Range, = 1.352

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 24th, = 58.5
Lowest in Month, corrected for Index errors, on the 3th, = 25.0
Difference, or Monthly Range, = 33.5
"Corrected Mean" of all the Highest, (Col. 5), = 45.9
"Corrected Mean" of all the Lowest, (Col. 6), = 33.5
Difference, or Mean Daily Range, = 12.4
** Calculated Mean Temperature of Month, = 39.7
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 24th, = 74.5
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 54.7
Lowest at Night, Black Bulb (corrected for Index errors), on the 4th, = 18.4
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 29.4
Difference of above means or range ("exposed"), = 25.3

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), = 37.1
Computed Temperature of Dew-Point, = 34.8
Do. Elastic Force of Vapour, = 204
Do. Weight of Vapour in a Cubic Foot of Air, = 87
Relative Humidity (Saturation = 100), = 87
RAIN fell on 26 Days; Amount in Inches, = 4.00

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

Observations made and
Return verified byJohn Forrest

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haddo House, County of Aberdeen, in Lat. 57° 24', Long. 2° 14', Distance from Sea 12 miles.

Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.

During the MONTH of April 1897.

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.		Temperature of WELL at depth of feet, No.						Temperature at 1 fathom, and Drift.		0-10.			
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max.	Min.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Velocity (0-10), and Species.	Amount (0-10), and Species.	Velocity (0-10), and Direction.	Amount (0-10), and Species.	No.	No.	No.	No.					No.	No.	No.	No.		
		* No.	inches.	°	inches.	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°	°					°	°	°	°	°	°
		No.	inches.	°	inches.	°	No.	No.	No.	No.	Dry bulb.	Wet bulb.	Dry bulb.		Wet bulb.	No. of inches fell.	No.	Direction.	Force.	Direction.	Force.	No.	9 h. A.M.	9 h. A.M.	12 inches.	22 inches.					Temperature at 1 fathom, and Drift.	9 A.M.	9 P.M.	9 A.M.	9 P.M.	
1	28.910	36	29.168	34	40	28	52	24	36	35	31	30	x		N		N					1.8	37	40	40		6	6	Snow Hail.	1						
2	29.340	34	29.460	32	42	23	62	22	32	31	25	24.5	x		N.H		N.H					6.1	36	39	40		6	6	3 mi. S.W.	2						
3	29.434	34	29.400	35	42	21	56	17	32	32	33	32	x		S.E		S.E					3.4	34	39	40		6	6	Snow Showers.	3						
4	29.442	37	29.662	35	46	30	64	21	37.5	35	30	28		31	N.E		E					6.2	37	39	40		6	6		4						
5	29.800	41	29.694	36	47	24	64	17	45	40	32	31			N.E		S.E					6.8	35	40	40		5	5		5						
6	29.546	43	29.462	38	44	22	58	21	43	37.5	37	36	x		S.E		S.E					4.6	39	40	40		5	6		6						
7	29.414	40	29.700	37	40	23	56	29	38	37	34	33	x		S.E		S.H					2.8	40	40	40		6	6		7						
8	29.758	45	29.784	36	48	30	62	24	43	41	34	22.5			S		S.E					7.2	40	40	40		6	6		8						
9	29.596	41	29.576	39	46	31	44	24	40	38.5	37.5	36.5	x		S.E		N.H						40	41	40		6	6		9						
10	29.798	45.5	29.944	38	52	30	71	25	44	41	32	31			N.H		N.H					10	40	41	40		6	5		10						
11	29.786	46	29.474	41.5	48	30	58	22	46	41	41	39	x	22	S		S.E					3.1	41	41	40		6	6		11						
12	29.392	45	29.542	42	50	40	64	33	43.5	42	41	40.5	x		S		S.E					2.2	42	42	41		6	6		12						
13	29.512	43	29.088	42	42	40	45	35	42	41	40	39.5	x		S.E		S.E						42	42	41		6	6		13						
14	28.984	45	29.263	40	51	33	62	34	43	40	36	30	x		H		H					4.2	43	41	41		5	5	Hail.	14						
15	29.486	42	29.522	43	54	30	73	23	46.5	41	41	38			S.H.		S.H					6.5	43	42	41		5	3		15						
16	29.272	45	29.416	43	53	30	70	23	46	40	40	38	x		S.H		H					5.8	43	43	42		6	5		16						
17	29.372	51	29.222	42	57.5	31	77	25	48	42	38	37.5	x		H		N.H					6.7	43	43	42		5	6	Thunder & Hail.	17						
18	29.462	48	29.578	43	53	26	72	30	46	42	40	38.5	x	70	N.H		N.H					8.2	43	44	42		6	5	Hail.	18						
19	29.454	45	29.280	44	50	34	58	29	44	41	43	42			S		S						43	44	42		6	6		19						
20	29.274	44	29.414	44	49	36	62	29	43	42	42	41	x		N.E		S.E					4	44	44	43		6	5		20						
21	29.642	48	29.806	41	53	36	73	27	38	32.5	36	34.5			N.E		N.E					7	45	44	43		5	5		21						
22	29.974	43	30.052	40	50	30	70	26	45	41.5	33.5	32.5			N.		N.E					2.6	43	45	43		5	3		22						
23	30.048	39.5	29.986	42	49	27	60	23	45	41	40	38			N.E		E					3.4	44	45	43		4	3		23						
24	29.922	41	29.894	42	50	38	63	33	45	41	38	37	x		N.E		N.E					11	46	45	43		3	4		24						
25	29.810	50	29.886	44	52	28	64	26	49.5	44	40.5	40		03	E		E					8.7	46	46	44		4	4		25						
26	29.694	46.5	29.784	41	51	35	60	32	44	42	38	37.5	x		S		S.E					4.5	46	46	44		5	5		26						
27	29.816	42	29.800	44	52	30	65	25	43	40.5	43	42	x		E		S.E						46	46	44		5	5		27						
28	29.780	50.5	29.694	46	57	37	79	33	53	50	43	42			S.E		S.					3.3	48	46	44		5	5		28						
29	29.552	51	29.324	47	52	30	68	30	50	44	45	43.5	x		S.H		S					2.8	47	46	45		5	4		29						
30	29.248	48	29.366	44	53	34.5	74	31	47	43	42	41		36	H		N.H.					8.2	46	46	45		4	4	Hail.	30						
31																															31					
Sums.		1716.11		1515.11		10	9	79.3	91.2	62	91	124											1262	1282	1253			16		NOTATION USED IN GENERAL REMARKS.						
Means.		88.6	79.4	131.6		16	27	79.3	91.2	62	91	124																								
+ Total Corrections for Instrumental Errors.		+100		+100																																
+ 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 $\frac{1}{100}$ for Temp. (Col. 2), = 29.619
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 4), = 29.635
 Mean at Station, corrected, and at 32°, = 29.627
 Correction for height, feet above Mean Sea-level, = 201
 Mean, reduced to 32°, and Sea-level, = 29.828
 Highest Reading, corrected for Index error, on the 1st, = 30.052
 Lowest Do. Do., on the 31st, = 28.940
 Difference, or Monthly Range, = 1.082

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 1st, = 57.5
 Lowest in Month, corrected for Index errors, on the 31st, = 21.0
 Difference, or Monthly Range, = 36.5
 "Corrected Mean" of all the Highest, (Col. 5), = 49.3
 "Corrected Mean" of all the Lowest, (Col. 6), = 31.1
 Difference, or Mean Daily Range, = 18.2
 ** Calculated Mean Temperature of Month, = 40.2
 S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 1st, = 79.0
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 63.5
 Lowest at Night, Black Bulb (corrected for Index errors), on the 31st, = 17.0
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 26.4
 Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 40.2
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 38.2
 Computed Temperature of Dew-Point, = 35.8
 Do. Elastic Force of Vapour, = 209
 Do. Weight of Vapour in a Cubic Foot of Air, =
 Do. Relative Humidity (Saturation = 100), = 85
 RAIN fell on 18 Days; Amount in Inches, = 1.66

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

Observations made and
Return verified by

John Torrance

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haddo House, County of Aberdeen, in Lat. 57°24', Long. 2°14', Distance from Sea 12 miles.Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.During the MONTH of May 1897.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.		GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.		Days of Month.					
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			No. of flashes 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.			9 h. P.M.								
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max.	Min.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	9 h. A.M.			9 h. P.M.	Direction.	Force.	Direction.		Force.	9 h. A.M.	9 h. P.M.	Velocity (0-10), and Direction.	Amount (0-10), and Direction.		Velocity (0-10), and Direction.	Amount (0-10), and Direction.	No.	No.	No.	9 A.M.	9 P.M.			
		* No.		No.		No.	No.	No.	No.																												
		inches.	°	inches.	°																																
1	29.478	48	29.300	49	57	35	79	32	45	40	47	45	36	36	N.	S.W.										7.6	46	46	45		4	4		1			
2	29.158	50	29.194	45	56	40	76	33	48	43	41	36	X		N.	S.W.										6.2	48	47	45		4	3		2			
3	29.358	54	29.496	45	54	32	78	26	52	43	40	36	X		N.W.	N.										7.2	47	47	46		3	4	<i>Hail blown.</i>	3			
4	29.614	51	29.208	48	50	29	65	23	47	40	48	44	X		S.W.	S.W.										4.2	46	47	46		4	3		4			
5	29.212	53	29.404	51	57	39	73	33	49	42	39	36	5		S.W.	N.										12	46	47	46		2	4		5			
6	29.536	50	29.684	41	57	32	76	28	46	41	40	39	+		N.W.	N.W.										8.8	46	47	46		4	4	<i>do.</i>	6			
7	29.742	47	29.666	43	54	33	63	27	43	38	42	41	+		E.	S.E.										6	46	47	46		4	4		7			
8	29.440	52	29.498	43	57	38	71	33	54	50	41	39	+		S.W.	N.W.										2.8	48	47	46		4	4		8			
9	29.754	49	29.838	44	52	38	70	34	46	42	41	39	26		N.W.	N.										9.2	47	47	46		5	4	<i>Hail S.</i>	9			
10	29.628	46	29.564	38	49	34	63	32	41	47	36	34	+		N.W.	N.										4.2	47	47	46		4	4	<i>Steel & more.</i>	10			
11	29.516	42	29.658	37	43	32	57	30	42	40	35	32	+		N.	N.										3.2	43	46	46		4	4	<i>Hail & more.</i>	11			
12	29.778	41	29.924	39	46	35	65	32	41	37	37	35	+		N.W.	N.										1.6	43	46	46		4	5	<i>Snow blown.</i>	12			
13	29.952	41	29.826	41	51	34	75	31	41	37	37	35	+		N.W.	N.E.										7.6	43	46	46		5	5		13			
14	29.820	47	29.922	51	58	38	80	38	49	46	53	51			S.	S.E.										7	47	46	46		4	1		14			
15	30.108	56	30.248	57	59	40	61	38	57	52	47	45			S.E.	S.										1.8	52	48	46		4	2		15			
16	30.266	58	30.256	57	63	35	74	31	60	54	46	44	70		S.E.	E.										12.1	50	48	46		2	5		16			
17	30.200	59	30.204	50	65	33	84	30	61	55	45	44			N.E.	N.										11.6	52	49	47		4	3		17			
18	30.196	57	30.208	47	56	41	75	35	50	45	46	39			N.W.	N.										11.7	52	51	47		4	4		18			
19	30.134	47	30.088	46	55	38	73	32	46	42	43	40			N.	N.E.										8.5	51	51	47		3	3		19			
20	30.028	51	29.984	48	57	41	76	42	51	47	42	41			N.	S.E.										10.8	53	52	48		4	4		20			
21	29.956	50	29.866	47	57	40	77	40	52	49	41	40			N.W.	S.E.										9.1	53	53	49		5	4		21			
22	29.784	47	29.758	46	56	41	75	39	46	43	43	41			N.E.	N.										6	52	53	49		4	4		22			
23	29.732	47	29.770	46	57	42	75	40	52	47	42	40			N.	N.										11.8	53	53	50		4	4		23			
24	29.786	47	29.694	46	54	42	75	41	46	42	43	41			N.E.	E.										5	52	52	50		4	5		24			
25	29.520	46	29.315	45	44	41	47	42	43	42	43	42	+		S.E.	S.E.										4	52	50		5	5		25				
26	29.176	46	29.142	47	49	40	55	42	44	43	45	44	+		S.E.	S.										4	52	50		5	4		26				
27	29.206	47	29.224	48	58	35	71	31	47	45	46	45			S.E.	S.E.										6.2	49	50	49		4	5		27			
28	29.258	48	29.098	48	49	38	54	42	48	48	46	46	+		N.E.	E.										5	51	49		5	5		28				
29	28.978	52	29.192	49	57	44	68	43	49	46	47	45	+		S.E.	S.E.										6.3	51	51	49		5	3		29			
30	29.338	53	29.468	52	60	46	74	42	52	48	48	47	64		S.E.	S.E.										7.2	51	51	49		4	4		30			
31	29.588	59	29.796	52	67	44	91	40	60	46	47	46	64		S.	S.E.										10.5	54	51	49		5	4	<i>Thunder 3.44.</i>	31			
Sums.	1514.16																										1210										
Means.	29.484		29.467		56.8		77.1		50.5		47.2																	13.9									
+ Total Corrections for Instrumental Errors.	20.240		20.693		18.90		15.20		14.55		14.35																	17.8									
+ Corrections for Diurnal Range.	29.653		29.665																									13									
+ Corrected Means.	29.453		29.465		46.1		57.9		46.0		46.9																	49.0									
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 \pm = 29.694
for Temp. (Col. 2), \pm 1.33, \pm 0.59.

"Corrected Mean" of Barometer at 9 P.M., minus the Correction \pm = 29.418
for Temp. (Col. 4), \pm 1.65, \pm 0.11.

Mean at Station, corrected, and at 32°, \pm 0.10 = 29.716

Correction for height, feet above Mean Sea-level, = 199

Mean, reduced to 32°, and Sea-level, = 29.915

Highest Reading, corrected for Index error, on the 16th, = 30.266

Lowest Do. Do., on the 16th, = 29.098

Difference, or Monthly Range, = 1.168

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 21th, = 64.0

Lowest in Month, corrected for Index errors, on the 11th, = 29.0

Difference, or Monthly Range, = 35.0

"Corrected Mean" of all the Highest, (Col. 5), = 54.9

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

Difference, or Mean Daily Range, = 17.0

** Calculated Mean Temperature of Month, = 46.4

S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 21th, = 91.0

"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 40.4

Lowest at Night, Black Bulb (corrected for Index errors), on the 11th, = 23.0

"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 34.9

Difference of above means or range ("exposed"), = 68.0

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 46.0Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 42.8# Computed Temperature of Dew-Point, = 39.2# Do. Elastic Force of Vapour, = 240# Do. Weight of Vapour in a Cubic Foot of Air, = 48# Relative Humidity (Saturation = 100), = 98RAIN fell on 15 Days; Amount in Inches, = 1.96

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

Observations made and
Return verified byJohn Forrest

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Naddo House, County of Aberdeen, in Lat. 57°24', Long. 2°14', Distance from Sea 12 miles.Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 8 feet.During the MONTH of June 1897.

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. <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.		No. of Inches 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.						
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force	Direction.	Force	9 h. A.M.	9 h. P.M.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	No. 3 inches.	No. 12 inches.					No. 22 inches.
inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	No.	No.	Direction.	Force	Direction.	Force	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
1	29.940	61	29.902	52	65	41	83	37	59	57	47	46			S.E.								11.6	5.6	5.3	5.0		4.4	4	7.4	1	
2	29.966	61	29.968	52	65	43	85	41	61	56	47	46			E								8.2	5.7	5.4	5.0		4.4	4	7.4	2	
3	30.000	49	29.992	49	58	45	61	44	47	46	48	45			N									5.4	5.5	5.7		6.6			3	
4	29.922	50	29.912	51	63	46	77	47	51	50	51	50	+		N.W.								5.8	5.4	5.5	5.1		6.4			4	
5	29.906	56	29.864	58	72	48	93	48	60	56	57	56			N.W.								3.	5.6	5.5	5.1		3.4			5	
6	29.878	58	29.886	59	60	45	69	47	52	50	45	42	+	21	N.W.									5.6	5.5	5.1		4.4			6	
7	29.934	50	29.944	48	53	39	74	38	49	43	43	40			N								3.8	5.4	5.4	5.1		5.4			7	
8	29.910	52	29.814	47	53	32	70	28	52	47	43	40			E								6.4	5.2	5.3	5.1		4.4			8	
9	29.710	51	29.742	48	52	39	68	32	47	41	44	40	+		S.E.								1.4	5.2	5.3	5.1		4.4			9	
10	29.822	56	29.868	48	61	34	75	28	56	49	49	47			S.E.								10.4	5.2	5.3	5.1		4.4			10	
11	29.842	56	29.842	59	75	46	79	42	56	55	60	58	+		S								4.4	5.5	5.4	5.2		4.4			11	
12	29.892	57	29.904	63	75	46	88	43	68	60	62	58			S								8.4	6.0	5.5	5.2		4.4			12	
13	29.898	59	29.828	60	63	54	73	50	58	57	57	57	+	89	E								1.8	5.8	5.6	5.2		4.4			13	
14	29.598	55	29.676	54	58	50	62	48	52	51	50	48	+	75	N.E.								2	5.6	5.6	5.3		4.6			14	
15	29.722	55	29.676	53	62	41	86	37	53	47	50	49	+		N								7.6	5.3	5.6	5.3		5.3			15	
16	29.258	51	29.184	45	53	41	69	41	48	47	43	41	+		N.E.								10	5.2	5.4	5.3		5.6			16	
17	29.248	51	29.344	49	56	43	75	42	50	44	46	43	+	72	N.W.								2.8	5.1	5.3	5.2		6.5			17	
18	29.276	50	29.364	48	56	42	71	40	50	46	44	43	+		N.W.								9.6	5.3	5.4	5.2		6.5			18	
19	29.628	53	29.552	49	57	40	83	38	51	45	45	43	+		N.W.								4.8	5.2	5.4	5.2		5.3			19	
20	29.534	51	29.648	50	55	43	71	42	49	45	48	45		12	S.E.								11.4	5.4	5.4	5.3		6.4			20	
21	29.488	60	29.634	58	68	46	88	45	60	56	56	50			S									5.6	5.5	5.3		4.6			21	
22	29.782	62	29.786	61	63	46	81	40	61	54	60	58	+		S.W.								1.8	5.7	5.6	5.3		5.3			22	
23	29.788	60	29.750	57	64	53	67	50	59	58	53	52	+		S									5.8	5.6	5.3		3.4			23	
24	29.778	59	29.858	55	64	48	87	50	58	53	52	49	52		N.W.								10	5.7	5.6	5.4		4.4			24	
25	29.860	58	29.784	58	63	45	82	42	56	51	56	54			S								8.8	5.7	5.7	5.4		4.4			25	
26	29.758	59	29.822	58	68	48	82	45	61	58	54	52			S.E.								1.5	5.9	5.7	5.4		3.4			26	
27	29.864	59	29.868	56	65	47	81	45	58	52	50	49			S.E.								6.2	5.8	5.8	5.5		4.3			27	
28	29.852	60	29.834	57	65	41	83	38	60	56	54	53			S.E.								6.2	5.8	5.8	5.5		4.3			28	
29	29.762	60	29.748	57	71	50	90	48	62	60	54	53			S.E.								6.4	6.1	5.8	5.5		4.3	7.4		29	
30	29.786	57	29.860	57	70	50	90	48	57	55	55	51			N								4.6	6.1	5.8	5.5		3			30	
31																														31		
Sums.		21613		21512	17	725	165	12	13	131	132	121	132											13	14							
Means.		892.92	1697	892.82	165	22.4	11	21	6	16.5	11	21.5	26											16.69	16.57	15.73						
+ Total Corrections for Instrumental Errors.		29.754	59	29.761	58	62	54	81	42	55	4	50	48	13	3.71									146	55.6	55.2	52.4		4.4	42		
+ 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.	circo-cumulus.	n.	nimbus.
ci-s.	circo-stratus.	r.	rain.
cu.	cumulus.	h. r.	heavy rain.
cu-s.	cumulo-stratus.	c. h. r.	continued heavy rain.
d.	dew.	s.	stratus.
f.	fog.	sc.	scud.
fr.	frost.	s.	sleet.
h-fr.	hoar-frost.	s.	snow.
h.	haze.	so. ha.	solar halo.
h. d.	heavy dew.	sq.	squall.
hl.	hail.	sq.	squalls.
l.	lightning.	t.	thunder.
li. cl.	light clouds.	t. s.	thunder-storm.
li. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	g.	gale of wind.
lu. ha.	lunar halo.		

TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction $\frac{1}{10}$ for Temp. (Col. 2), = 29.780
"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{10}$ for Temp. (Col. 4), = 29.793
Mean at Station, corrected, and at 32°, = 29.797
Correction for height, feet above Mean Sea-level, = 197
Mean, reduced to 32°, and Sea-level, = 29.954
Highest Reading, corrected for Index error, on the 3 th, = 30.000
Lowest Do. Do., on the 16 th, = 29.184
Difference, or Monthly Range, = 0.816

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 11 th, = 75.0
Lowest in Month, corrected for Index errors, on the 8 th, = 32.5
Difference, or Monthly Range, = 42.5
"Corrected Mean" of all the Highest, (Col. 5), = 62.5
"Corrected Mean" of all the Lowest, (Col. 6), = 44.2
Difference, or Mean Daily Range, = 18.3
** Calculated Mean Temperature of Month, = 53.4
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 5 th, = 93.0
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 48.1
Lowest at Night, Black Bulb (corrected for Index errors), on the 6 th, = 28.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 42.1
Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 53.1
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 50.2
Computed Temperature of Dew-Point, = 47.3
Do. Elastic Force of Vapour, = 326
Do. Weight of Vapour in a Cubic Foot of Air, =
Relative Humidity (Saturation = 100), = 80
RAIN fell on 13 Days; Amount in Inches, = 3.71

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

Observations made and
Return verified by

(Signed)

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 ascertain the accuracy of 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 Stations. It being found that differences between the Returns from two Stations, so very considerable as to render them quite incommensurable, may arise from dissimilarity in the position of the 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 they have expended 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 column 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 read, mercury, and the attached Thermometer, shall be, when contained at one uniform temperature, it is evident that the best position is that which is least liable to sudden changes of temperature.

In taking an Observation, the Attached Thermometer is first noted: the tube must then be gently tapped, and the cistern-adjustment carefully made. The eye, by raising and lowering it, must be brought into the plane of the back and front of the index—usually the lower edge of the vernier, which must be carefully adjusted so as to form exactly a tangent to the convex surface of the mercury in the tube. Observations must be taken quickly, so as to prevent heat from the observer's hands and person from affecting the mercury. 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 29.365 inches, either of the following is sometimes set down—viz. as 30.365 inches, 28.365 inches, or 29.815 inches. Experience having shown that even the very best Observers make these mistakes, particular attention is directed to the matter.

When a Barometer having adjustable surfaces has to be removed from its fastenings, the ivory peg must first be screwed so as to form 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 book, and gently tap the air to ascend through 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.

The Council of the Society recommend that the Self-Registering Thermometers, and the Dry and Wet Bulb Hygrometers, be kept in Stevenson's Ivory-boarded Box, for the Protection of the instruments, painted white inside and outside, and the Thermometers, secured to four stout posts, also painted white, firmly fixed in the ground. The posts must be of such a length that, when the Thermometers are hung in position the Bulbs of the Minimum Thermometer, and of the Dry and Wet Bulb Thermometers, will be exactly at the same height of four feet above the ground, the Maximum Thermometer being hung immediately above the Minimum Thermometer. The Ivory-boarded 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 the 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 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 changes to separate. Let the Thermometer be taken in the land 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 attached 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 of applying the requisite amount of heat is by bringing the end of the tube slowly down towards a minute flame from a gas-burner; or, if gas be not at hand, a piece of 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 'glass jackets' must also be used, being placed preferably 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 a single frame. As apparently slight deviations from 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-cup must be covered, and altogether placed to the side, and a little below the level of the wet bulb, but in no case under the bulb; the muslin must be of medium fineness, and fastened at the neck of the bulb by the cotton, which also supplies it with water. It must be seen 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 40½°, respectively. So also 40½°, or 40°-6 more or less, must be registered 40°-3, or 40°-3, and 40°-7, or 40°-8 respectively. In reading Rutherford's Minimum Thermometer, the indication of that end of the index which is next the surface of the spirit is alone noted. On opening the Thermometer 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 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 3d are those of a series of phenomena commencing at 9 P.M. on the 2d, and extending till 9 P.M. on the 3d.

No instrument ought to be used for Meteorological purposes till it has been carefully tested, by comparison with a Standard Thermometer. When such Thermometers are attached to the stem, and 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 sun or cooled by nocturnal radiation. At or near the time of high

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 Velocity and Force can be deduced. It is 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 Eddisbury, are recommended as likely to secure uniformity in making observations on the Force of the Wind.

Many causes conspire to produce anomalies in Rain Returns, arising partly from the difficulty of obtaining a perfectly 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, 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 indeed 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 over-head 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—their annual amount and constancy—the Council recommend that Underground Thermometers, Observations in this interesting department be made at 9 A.M. by Thermometers permanently fixed in the soil, their bulbs being sunk to depths of 3, 12, and 22 inches, and the stems above ground protected from the sun's rays, and fitted with sloping tin collars, to prevent rain-water being conveyed to the bulbs by the stems or wooden frames.

A knowledge of the Temperature of the Sea is not only in itself, but in its relations to that of our island, of most important branch of Meteorology. The Council therefore recommend that the Temperature of the Sea be carefully taken by a properly constructed apparatus, from boats 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, 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 purposes, and greater depths, noting always the Temperature of the Air, and the Hour of Observation. It is also very desirable that observations on the daily Maxima and Minima by Thermometers continuously immersed, be instituted at points along the coast, by the method proposed by Mr. T. Stevenson, and already commenced at Peterhead and Liverpool. The Temperature of the water at the bottom of Wells ought, when practicable, to be taken, both the depth of the Well and of the water being noted.

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°, as an Ozonic entry in the schedule will indicate that the Ozonic 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, 6, 4, or blowing fresh.

Too much importance cannot be attached to the electric condition of the atmosphere in connection with terrestrial Electricity, trial magnetism, barometrical, thermometrical, and 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 assigned. The use of contractions ought, therefore, to be taken every advantage of, and a list of such as are in general usage given at the foot of the column. Besides special and extraordinary Observations, great prominence ought to be given in this column to Precipitation, great differences in character, colour, velocity, and direction between the Lower and Upper Strata of clouds, the Column of the Sky, etc. Remarks ought to be made on the occurrence of Meteors, Auroras, Boreas, 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, and their maximum and ending, as well as such Notes on Storms as have been hinted at above. When lofty hills are in the vicinity of a Station, the Height of Clouds and of the Snow-line in winter should be recorded. By the use of abbreviations, the state of the weather at 9 A.M. and 9 P.M. should be registered, either in two columns, otherwise uncoupled, or ruled off for the purpose, from the column of Remarks.

Observations in connection with the Periodic Return of the Observations in Seas, possess not only great scientific value, but connection with are of considerable importance in connection with the agricultural, 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 crops, and not 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 it should have full power to reject any instrument which, on being presented for comparison, does not afford him satisfaction.

(By Order)

EDINBURGH, December 1891.

First Out	In Rain or Flower	Appearing above Ground	Sowing or Planting	First in Blossom	First in Fruit	First in Harvest
Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa
Asparagus	Asparagus	Asparagus	Asparagus	Asparagus	Asparagus	Asparagus
Barley	Barley	Barley	Barley	Barley	Barley	Barley
Beet	Beet	Beet	Beet	Beet	Beet	Beet
Broomrape	Broomrape	Broomrape	Broomrape	Broomrape	Broomrape	Broomrape
Butterbean	Butterbean	Butterbean	Butterbean	Butterbean	Butterbean	Butterbean
Carrot	Carrot	Carrot	Carrot	Carrot	Carrot	Carrot
Cauliflower	Cauliflower	Cauliflower	Cauliflower	Cauliflower	Cauliflower	Cauliflower
Celery	Celery	Celery	Celery	Celery	Celery	Celery
Cherry	Cherry	Cherry	Cherry	Cherry	Cherry	Cherry
Chestnut	Chestnut	Chestnut	Chestnut	Chestnut	Chestnut	Chestnut
Corn	Corn	Corn	Corn	Corn	Corn	Corn
Cucumber	Cucumber	Cucumber	Cucumber	Cucumber	Cucumber	Cucumber
Custard Apple	Custard Apple	Custard Apple	Custard Apple	Custard Apple	Custard Apple	Custard Apple
Fig	Fig	Fig	Fig	Fig	Fig	Fig
Grape	Grape	Grape	Grape	Grape	Grape	Grape
Guava	Guava	Guava	Guava	Guava	Guava	Guava
Honey-suckle	Honey-suckle	Honey-suckle	Honey-suckle	Honey-suckle	Honey-suckle	Honey-suckle
Juniper	Juniper	Juniper	Juniper	Juniper	Juniper	Juniper
Lemon	Lemon	Lemon	Lemon	Lemon	Lemon	Lemon
Lime	Lime	Lime	Lime	Lime	Lime	Lime
Loganberry	Loganberry	Loganberry	Loganberry	Loganberry	Loganberry	Loganberry
Mango	Mango	Mango	Mango	Mango	Mango	Mango
Marionberry	Marionberry	Marionberry	Marionberry	Marionberry	Marionberry	Marionberry
Medlar	Medlar	Medlar	Medlar	Medlar	Medlar	Medlar
Nectarine	Nectarine	Nectarine	Nectarine	Nectarine	Nectarine	Nectarine
Orange	Orange	Orange	Orange	Orange	Orange	Orange
Peach	Peach	Peach	Peach	Peach	Peach	Peach
Pear	Pear	Pear	Pear	Pear	Pear	Pear
Plum	Plum	Plum	Plum	Plum	Plum	Plum
Raspberry	Raspberry	Raspberry	Raspberry	Raspberry	Raspberry	Raspberry
Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry
Swan	Swan	Swan	Swan	Swan	Swan	Swan
Tea	Tea	Tea	Tea	Tea	Tea	Tea
Ugli	Ugli	Ugli	Ugli	Ugli	Ugli	Ugli
Walnut	Walnut	Walnut	Walnut	Walnut	Walnut	Walnut
Watermelon	Watermelon	Watermelon	Watermelon	Watermelon	Watermelon	Watermelon
Yew	Yew	Yew	Yew	Yew	Yew	Yew

Observations in connection with the Periodical Return of the Seasons.

First in Blossom	First in Fruit	First in Harvest	First in Seed	First in Leaf	First in Root	First in Stem
Apple	Apple	Apple	Apple	Apple	Apple	Apple
Black Currant	Black Currant	Black Currant	Black Currant	Black Currant	Black Currant	Black Currant
Broom	Broom	Broom	Broom	Broom	Broom	Broom
Butterbean	Butterbean	Butterbean	Butterbean	Butterbean	Butterbean	Butterbean
Chestnut	Chestnut	Chestnut	Chestnut	Chestnut	Chestnut	Chestnut
Cherry	Cherry	Cherry	Cherry	Cherry	Cherry	Cherry
Corn	Corn	Corn	Corn	Corn	Corn	Corn
Cucumber	Cucumber	Cucumber	Cucumber	Cucumber	Cucumber	Cucumber
Custard Apple	Custard Apple	Custard Apple	Custard Apple	Custard Apple	Custard Apple	Custard Apple
Fig	Fig	Fig	Fig	Fig	Fig	Fig
Grape	Grape	Grape	Grape	Grape	Grape	Grape
Guava	Guava	Guava	Guava	Guava	Guava	Guava
Honey-suckle	Honey-suckle	Honey-suckle	Honey-suckle	Honey-suckle	Honey-suckle	Honey-suckle
Juniper	Juniper	Juniper	Juniper	Juniper	Juniper	Juniper
Lemon	Lemon	Lemon	Lemon	Lemon	Lemon	Lemon
Lime	Lime	Lime	Lime	Lime	Lime	Lime
Loganberry	Loganberry	Loganberry	Loganberry	Loganberry	Loganberry	Loganberry
Mango	Mango	Mango	Mango	Mango	Mango	Mango
Marionberry	Marionberry	Marionberry	Marionberry	Marionberry	Marionberry	Marionberry
Medlar	Medlar	Medlar	Medlar	Medlar	Medlar	Medlar
Nectarine	Nectarine	Nectarine	Nectarine	Nectarine	Nectarine	Nectarine
Orange	Orange	Orange	Orange	Orange	Orange	Orange
Peach	Peach	Peach	Peach	Peach	Peach	Peach
Pear	Pear	Pear	Pear	Pear	Pear	Pear
Plum	Plum	Plum	Plum	Plum	Plum	Plum
Raspberry	Raspberry	Raspberry	Raspberry	Raspberry	Raspberry	Raspberry
Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry	Strawberry
Swan	Swan	Swan	Swan	Swan	Swan	Swan
Tea	Tea	Tea	Tea	Tea	Tea	Tea
Ugli	Ugli	Ugli	Ugli	Ugli	Ugli	Ugli
Walnut	Walnut	Walnut	Walnut	Walnut	Walnut	Walnut
Watermelon	Watermelon	Watermelon	Watermelon	Watermelon	Watermelon	Watermelon
Yew	Yew	Yew	Yew	Yew	Yew	Yew

Have the goodness also to state any information you may be able to collect relative to the Epidemic diseases prevailing among cattle; and the Agricultural condition of the Crops of Grain, Hay, Potatoes, Turnips, Fruits, etc., in perfection; whether any have suffered from blight, disease, etc., whether

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haddo House, County of Aberdeen, in Lat. 57° 24', Long. 2° 14', Distance from Sea 12 miles.Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.During the MONTH of July 1897.

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. Sun's rays		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.												
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Direction.	Force	Direction.	Force	Velocity (0-10), 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.								
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°	°						°	°
		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.						No.	No.
	1	29.830	55	29.904	54	65	50	80	47	53	52	49.5	48	+	N.W.	N							2.5	58	59	56		6	5		1		
	2	29.832	61	29.808	61	75	48	97	45	62	57.5	60	56		S	S.W							7.6	59	59	56		5	3		2		
	3	29.394	58	29.332	55	61	50	73	45	55	50	52.5	48		S.W.	N.W							2	58	59	56		3	3		3		
	4	29.496	55	29.668	55	59	49	71	47	55	51	52	50	22	N.W	W							4	56	58	56		4	3		4		
	5	29.336	58	29.066	59	67	48	80	46	58	55	58	52	+	S	W							2.5	57	58	56		4	3		5		
	6	29.048	60	29.032	54	60	48	76	43	57	50	51	50	+	S.W	N.W							4.2	57	58	56		3	3		6		
	7	29.200	54	29.396	61	56	45	76	42	50	46.5	46	43	+	N.W	N.W							5.8	54	54	56		3	4		7		
	8	29.472	56	29.362	54	60.5	37	84	34	55	49	53	52.5	+	S	S							4	55	56	56		4	3		8		
	9	29.428	59	29.676	55	68	47	93	43	60	55	50	49	+	N.W	N.							6.2	56	56	56		3	3		9		
	10	29.918	61	30.034	55	68	43.5	90	39.5	57	51	51	49		N.W	S.E.							9.3	57	57	56		5	5		10		
	11	30.088	62	30.088	57	69	38	89	34	62	56	52	50	37	S.E	S.E.							11.4	57	57	56		4	3		11		
	12	30.120	63	30.122	56	66	41	79	38	62	58	54	50		S.	S							10.8	58	58	56		5	5		12		
	13	30.112	61	29.57	68	44	44	36	58	58	53	51	50		S.	S.E							10.8	57	58	56		5	4		13		
	14	29.970	60	29.900	57	66	40	79	37	66	57	53	50		S.E.	N.							13	58	58	57		4	3		14		
	15	850	60	850	56	70	46	91	40	66	55	52	50		N.W	N.E							12.2	60	60	56		4	4		15		
	16	900	60	29.948	55	51	51	69	46	56	64	61	59		N.	N.W							1.4	58	59	56		5	4		16		
	17	29.924	58	29.892	56	72	41	94	37	59	56	54	52		N.E	N.W							9.8	58	59	56		4	4		17		
	18	29.872	64	29.846	62	76	46	93	44	65	60	56	52		N.E	N.							12.8	59	59	57		4	3		18		
	19	29.708	65	29.664	58	69	45	89	39	65	58	54	52		N.W	N.W							8.8	60	59	57		4	4		19		
	20	29.532	60	29.512	56	66	51	86	48	59	58	52	50		N.	N.W							8.2	60	60	57		4	3		20		
	21	29.542	56	29.628	56	60	51	69	51	54	52.5	53	52	+	N.W	N.							58	60	57		3	5		21			
	22	29.666	58	29.698	57	68	53	89	52	58	55	54	52.5		N	N.W							5.6	59	59	57		5	4		22		
	23	29.764	58	29.776	57	66	53	88	54	58	56	54	53.5		N.W	S.E							2.5	60	59	57		4	5		23		
	24	29.768	66	29.652	63	74	52	95	46	69	62	59	58	+	S	S.E.							6.2	62	59	57		5	3		24		
	25	29.382	62	29.344	60	71	54	92	47	60	58	56	54	157	S	S.E.							3.2	61	60	57		5	4		25		
	26	29.256	63.5	29.378	60	68	46	90	43	61	56	57	54	+	S.W	S.W							2.4	60	60	57		4	3		26		
	27	29.406	61	29.512	58	66	50	90	46	59	54	54	52	+	W	W.							5.2	59	59	57		4	3		27		
	28	29.622	58	29.672	57	65	51	92	49	57	54	54	53	+	N.W	S.E.							2.2	57	59	57		4	4		28		
	29	29.888	63	29.916	60	72	52	99	49	64	59	57	56		S	S.E							8.2	61	59	57		3	3		29		
	30	30.024	61.5	30.088	58	68	52	91	47	61	58	55	52		N.W	S.E.							7.2	61	60	57		3	3		30		
	31	30.032	60	29.958	56	66	52	85	48	60	56.5	52	51	28	S.	S.E							6.8	61	60	57		4	3		31		
Sums.		16142	111	16154	115	15	11	14	17	15	15	11	10										1964	1811	1818	1751		127	112				
Means.		29.830	55	29.804	54	65	50	80	47	53	52	49.5	48										58.4	58.6	56.4								
+ Total Corrections for Instrumental Errors.		X 100		X 100																													
+ 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 $\frac{1}{100}$ for Temp. (Col. 2), = 29.714
"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{100}$ for Temp. (Col. 4), = 29.728
Mean at Station, corrected, and at 32', = 29.721
Correction for height, feet above Mean Sea-level, = 196
Mean, reduced to 32', and Sea-level, = 29.917
Highest Reading, corrected for Index error, on the 12th, = 30.122
Lowest Do. Do., on the 6th, = 29.032
Difference, or Monthly Range, = 1.090

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 18th, = 76.0
Lowest in Month, corrected for Index errors, on the 8th, = 37.0
Difference, or Monthly Range, = 39.0
"Corrected Mean" of all the Highest, (Col. 5), = 66.3
"Corrected Mean" of all the Lowest, (Col. 6), = 47.5
Difference, or Mean Daily Range, = 18.8
** Calculated Mean Temperature of Month, = 56.9
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 29th, = 99.0
"Corrected Mean" (Col. 7), of Black Bulb, Max. in Sun, = 83.3
Lowest at Night, Black Bulb (corrected for Index errors), on the 8th, = 34.0
"Corrected Mean" (Col. 8), of Black Bulb, Min. on grass, = 43.9
Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 56.4
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 53.2
Computed Temperature of Dew-Point, = 50.2
Do. Elastic Force of Vapour, = 364
Do. Weight of Vapour in a Cubic Foot of Air, =
Relative Humidity (Saturation = 100), = 80
RAIN fell on 12 Days; Amount in Inches, = 1.44

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		3	2	3	2	6	3	1	11		
P.M.		5	1		10	2	2	3	8		
Mean.		4	2	1	6	4	3	2	9		

Observations made and
Return verified by

John Forrest

(Signed)

FOR TAKING METEOROLOGICAL

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

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 Nation'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.

In taking an Observation, the Attached Thermometer is first noted: the tube must then be gently tapped, and the cistern adjusted 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 affecting the person from whom the heat is to be taken. The observer must be careful in adjusting the vernier, and reading of the Barometer. A mistake not infrequently 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.

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 plug tight, so to prevent the escape of mercury; then screw up the mercury right, so 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 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.

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 in 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

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-cup must be covered, and altogether placed to the side, and a little below the level of the wet bulb, but in no case under the bulbs; the muslin must be of medium fineness, and fastened at the neck of the bulb by the cotton, which also supplies it with water. It must be seen by the Observer that the muslin is always clean and moist, and the water pure. In frosty weather, observation is a matter of much delicacy, and must be made with great care. The bulb must be moistened by immersion from 15 to 30 minutes before the hour of observation. From the film of ice thus formed evaporation will proceed as from the moist cloth in ordinary circumstances.

In reading the Thermometer great care must be taken to bring

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 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

1. As regards the remaining 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, exact observations are 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 VARIATIONS, and other points connected with storms.

[illegible]

Clouds. To be estimated from the overhead. The amount of Cloud overlying the sky overboard ($\frac{1}{4}$ within 20° or 30° of the zenith) is estimated from the greater or less obscuration of the sky overboard ($\frac{1}{4}$ within 20° or 30° of the zenith). The stratification 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 overboard 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 is 1 Direction

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.

Sunshine.

As the germination and growth of crops and plants generally depend greatly on the temperature of the soil,—its underground amount and constancy,—the Council recommend that Observations in this interesting department be made at 9 A.M., by Thermometers permanently fixed in the soil, their bulbs being sunk to depths of 3, 12, and 22 inches, and the stony or bare above ground protected from the sun's rays, and fitted with sloping iron 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 useful, but in its relations to that of our island, a most important branch of Meteorology. The Council therefore recommend that the Temperature of the Sea be ascertained by a properly constructed apparatus from boats, or, if this be impracticable, from the ends of piers and rocks round the coasts, where it is not influenced by that of river water, and as little as possible by currents sweeping along the coast, and thus ascertaining the temperature of the land, either greatly heated by the sun or cooled by nocturnal radiation. At or near theme of high

OBSERVATIONS,

Ozone. The paper is affixed by a pin to a board in the meter 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 $3\frac{3}{4}$ 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—7 is 4, or blowing fresh.

Remarks. 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 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, and direction between the Lower and Upper Strata of clouds, their near or

Observations in connection with the Periodic Return of the Observers to Seasons, possess not only great scientific value, but connection with one of the most important in connection with the Periodic Return of the Observers to the Periodic Return of the 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 in-

EDINBURGH, December 1891.

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.		SHRUBS, ETC.		FRUITS.		MIGRATORY BIRDS.	
In Flower.	First in Blossom.	Barberry,	Apple,	Black Currant,	First in Blossom.	Cuckoo,	NEARLY ALL.
In Leaf.	First in Blossom.	Broom,	Cherry,	Cherry,	First in Blossom.	Cutlet,	NEARLY ALL.
		Hazel,	Gean,	Gooseberry,	First in Blossom.	House-Swallow,	NEARLY ALL.
		Hawthorn,	Holly,	Lapwing,	First in Blossom.	Lapwing,	NEARLY ALL.
		Laburnum,	Laburnum,	Peach,	First in Blossom.	Peach,	NEARLY ALL.
		Mezereon,	Mezereon,	Pear,	First in Blossom.	Pear,	NEARLY ALL.
		Mountain Ash or Rowan,	Mountain Ash or Rowan,	Plum,	First in Blossom.	Plum,	NEARLY ALL.
		Red Flowering Currant,	Red Flowering Currant,	Strawberry,	First in Blossom.	Strawberry,	NEARLY ALL.
		Rhododendron Ponticum,	Rhododendron Ponticum,		First in Blossom.		NEARLY ALL.
		White,	White,		First in Blossom.		NEARLY ALL.

Have the goodness also to state any information you may be able to collect relative to the Crops of Grain, Hay, Potatoes, Turnips, Fruits, etc., whether plentiful or in perfection; and the Agricultural condition of the district generally. blyth, diseases, etc. Whether

EDINBURGH, December 1891.

ember 1891.

To the SECRETARY

Scottish Meteorological Society,

122 George Street.

EDINBURGH.

BOOK POST.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Staddo House, County of Aberdeen, in Lat. 57° 24', Long. 2° 14', Distance from Sea 12 miles.

Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.

During the MONTH of August 1897.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.								
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of days in which it fell.	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.					
		* No.	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	29.894	57	29.872	58	66	46	81	42	54	53.5	55	57		S.E.	S.E.							5.8	59	60	58		3		1	
	2	29.872	64	29.988	58	73	52	85	48	67	62	55	54	x	S.E.	N.							4.2	64	61	58		4		2	
	3	30.044	61	29.998	58	65	55	75	52	61	57	55	52		S.E.	S.E.							2.4	63	61	58		4		3	
	4	29.946	64	29.804	64	78	52	93	49	66	63	61	60	x	S.E.	S.E.							8.4	64	61	58		4		4	
	5	29.652	65	29.516	62	78	52	83	50	64	61	59	58		S.E.	S.E.							6.8	64	62	58		5		5	
	6	29.384	61	29.380	61	71	55	85	52	59.5	59	59	57.5	x	S.E.	E.							7	62	62	59		5		6	
	7	29.476	63	29.534	60	74	51	97	47	69	64	56	55	x	S.W.	N.E.							3.2	65	62	59		3		7	
	8	29.486	63	29.448	59	68	55	82	52	62	59.5	55.5	55	x	S.E.	N.W.							2.8	64	62	59		4		8	
	9	29.472	60	29.572	59	65	55	79	53	57	55	55	54		N.W.	N.							1.5	60	62	59		5		9	
	10	29.646	59	29.662	59	66	55	85	53	57	55	55	54		N.W.	S.E.							2	60	62	59		5		10	
	11	29.624	58	29.534	57	58	54	63	53	55.5	55	55	54	x	E.	N.E.								59	61	59		5		11	
	12	29.566	56	29.684	56	65	53	79	57	56.5	55	55	52	x	N.	S.W.							6.2	59	60	59		3		12	
	13	29.664	60	29.512	58	65	57	76	48	59	56	56	53	x	S.	S.E.							.8	59	60	59		4		13	
	14	29.436	64	29.468	57	68	57	85	48	64	58	53	57	x	S.W.	S.							10.2	61	60	59		4		14	
	15	29.484	63	29.426	58	66	50	85	47	60	56	56	55	x	109	3	S.						4.8	59	60	58		3		15	
	16	29.402	63	29.394	58	69	42	89	39	63	56	56	57.5		S.W.	N.							10.8	60	60	58		4		16	
	17	29.012	63	29.064	59	68.5	52	87	49	62	58.5	56	50	x	S.W.	N.							7.8	60	60	58		4		17	
	18	29.274	62	29.396	55	67	42	90	43	59	52	48	47	x	N.W.	S.E.							10.8	59	60	58		4		18	
	19	29.368	61	29.376	56	67	41	90	39	58	52	48	47	x	S.W.	N.							8.8	58	60	58		4		19	
	20	29.094	59	28.962	59	62	46	67	42	57	55	59	57	x	S.E.	S.W.							1	57	59	58		5		20	
	21	28.982	58	29.024	55	62	50	79	46	59	57	52.5	50	x	N.	S.E.							4.2	59	59	58		4		21	
	22	29.148	60	29.200	56	67	48	89	42	59	55	54	22.5	x	72	N.W.	S.W.						9	57	59	58		5		22	
	23	29.388	59	29.400	54	65.5	44	82	43	58.5	57	57	49		N.W.	N.							8.8	57	59	58		5		23	
	24	29.454	60	29.556	55	60	50	72	42	60	56	57	53.5	x	S.E.	S.E.							4.2	59	59	58		4		24	
	25	29.586	59	29.634	58	64.5	46	78	44	60	57	67	66		E.	S.E.							6.2	60	59	58		5		25	
	26	29.556	59	29.422	59	61	55	68	55	58	56	57	56		S.E.	S.E.							1	60	60	58		4		26	
	27	29.368	59	29.400	57	68	55	86	50	57.5	57	55	52	x	S.E.	N.							6.7	59	60	58		3		27	
	28	29.494	62.5	29.516	56	65	50	84	46	63	56	53	57.5	x	S.E.	S.W.							7.2	59	60	58		4		28	
	29	29.544	63	29.310	58	65	49	79	47	63	58	56	55		44	S.E.	S.E.						7.8	59	59	58		4		29	
	30	29.146	61	29.136	57	63	54	77	53	60	56	55	53	x	S.	S.							4.8	59	59	58		3		30	
	31	29.178	60	29.208	56	67	46	88	42	60	55	52	57		21	S.	S.E.						6.8	57	59	58		3		31	
	Sums.	9145.60	1891.91	914.516	1794.2065	1558	2538	1473	1865	2065	1708	1660											1862	1867	1807						
	Means.	471	60	468	57.8	66.6	50.2	81.9	47.5	60.2	56.7	55.1	53.6	20	3.05								172	60.1	60.2	58.2					
	+ Total Corrections for Instrumental Errors.	110		110																											
	+ 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.		
cl.-cu.	" cirro-cumulus.	n.	" nimbus.		
cl.-s.	" cirro-stratus.	r.	" rain.		
cu.	" cumulus.	c. h. r.	" heavy rain.		
cu.-s.	" cumulo-stratus.	c. h. r.	" continued heavy rain.		
d.	" dew.	s.	" stratus.		
f.	" fog.	sc.	" squall.		
fr.	" frost.	s.	" sleet.		
h.-fr.	" hoar-frost.	s.	" snow.		
h.	" haze.	so. ha.	" solar halo.		
h. d.	" heavy dew.	sq.	" squall.		
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. 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.
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.	so. ha.	solar halo.
h.	haze.	sq.	squall.
h. d.	heavy dew.	sq.	squalls.
hl.	hail.	t.	thunder.
l.	lightning.	t. s.	thunder-storm.
li. cl.	light clouds.	w.	wind.
li. sh.	light showers.	g.	gale of wind.
lu. co.	lunar corona.		
lu. 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), = 29.587

"Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{10}$ for Temp. (Col. 4), = 29.578

Mean at Station, corrected, and at 32°, = 29.498

Correction for height, feet above Mean Sea-level, = 193

Mean, reduced to 32°, and Sea-level, = 29.691

Highest Reading, corrected for Index error, on the 3rd th., = 30.044

Lowest Do. Do., on the 2nd th., = 28.968

Difference, or Monthly Range, = 1.076

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 1st th., = 78.0

Lowest in Month, corrected for Index errors, on the 16th th., = 41.0

Difference, or Monthly Range, = 37.0

"Corrected Mean" of all the Highest, (Col. 5), = 66.6

"Corrected Mean" of all the Lowest, (Col. 6), = 50.3

Difference, or Mean Daily Range, = 16.3

** Calculated Mean Temperature of Month, = 58.5

S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 1st th., = 97.0

"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 81.9

Lowest at Night, Black Bulb (corrected for Index errors), on the 16th th., = 39.0

"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 47.5

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

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 57.7

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 55.2

†† Computed Temperature of Dew-Point, = 53.0

†† Do. Elastic Force of Vapour, = 4.03

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

†† Relative Humidity (Saturation = 100), = 84

RAIN fell on 20 Days; Amount in Inches, = 3.05

WIND.	SUMMARY.										
	Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		1	2	13	4	5	1	5			
P.M.		1	2	13	4	4	5	1			
Mean.		1	1	2	13	4	4	3	3	0	

Observations made and Return verified by John Forrest

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Hadar House, County of Aberdeen, in Lat. 57° 24', Long. 2° 14', Distance from Sea 12 miles.

Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.

During the MONTH of September 1897.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.		GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of Rain 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.			Temperature of WELL at depth of feet, No.	Temperature at 1 fathom, and Depth.			0—10.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		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.			Direction.	Force.	Direction.	Force.	No.	9 h. A.M.	Velocity (0—6) and Direction.	Amount (0—10), and Species.	Velocity (0—6) and Direction.	Amount (0—10), and Species.	No.	3 inches.						No. 12 inches.	No. 22 inches.	9 A.M.	9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction $\frac{1}{1000}$ for Temp. (Col. 2), = 29.636
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction $\frac{1}{1000}$ for Temp. (Col. 4), = 29.650
 Mean at Station, corrected, and at 32°, = 29.643
 Correction for height, feet above Mean Sea-level, = 199
 Mean, reduced to 32°, and Sea-level, = 29.842
 Highest Reading, corrected for Index error, on the 13 th, = 30.288
 Lowest Do. Do., on the th, = 28.918
 Difference, or Monthly Range, = 1.370

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 12 th, = 68.0
 Lowest in Month, corrected for Index errors, on the 4 th, = 31.0
 Difference, or Monthly Range, = 37.0
 "Corrected Mean" of all the Highest, (Col. 5), = 59.3
 "Corrected Mean" of all the Lowest, (Col. 6), = 40.3
 Difference, or Mean Daily Range, = 19.0
 ** Calculated Mean Temperature of Month, = 49.5
 S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 12 th, = 93.0
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 74.1
 Lowest at Night, Black Bulb (corrected for Index errors), on the 5 th, = 29.0
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 34.8
 Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 49.3
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 47.0
 # Computed Temperature of Dew-Point, = 44.5
 # Do. Elastic Force of Vapour, = 2.94
 # Do. Weight of Vapour in a Cubic Foot of Air, = 84
 # Relative Humidity (Saturation = 100), = 84
 RAIN fell on 22 Days; Amount in Inches, = 2.40

WIND.	SUMMARY.									
	Direction.	N	NE	E	SE	S	SW	W	NW	Mean or Variable.
A.M.		3	1	1	3	5	5	2	10	
P.M.		1	1	1	3	1	7	8	9	
Mean.		2	1	1	3	3	6	5	9	

Observations made and
Return verified by

John Forrest

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haddo House, County of Aberdeen, in Lat. 57°24', Long. 2°14', Distance from Sea 12 miles.

Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet.

During the MONTH of October 1897.

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. Sun's rays Grass.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.		9 h. A.M.		9 h. A.M.			9 P.M.									
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. No.	Min. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	No.	Direction.	Force.	Direction.	Force.	Readings of the H. Cup Anemometer No.	9 h. A.M.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.		No. 3 inches.	No. 12 inches.				No. 22 inches.	Temperature of WELL at depth of feet, No.	Temperature at 1 fathom, and Density.	9 A.M.	9 P.M.
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°	°	°	°	°		°	°				°	°	°	°	°
	1	29.732	52	29.876	48	55	43	67	35	52	50	43	42.5	+	NW	W											8	52	53	52		6	4	1			
	2	29.872	47	29.770	51	53	36	58	20	46	45	51	50.5	+	E	S											48	52	52		3	4	2				
	3	29.772	49	29.944	49	51	41	73	34	50.5	47	47	46	+	NW	N											4.8	49	52	52		6	4	3			
	4	30.136	49	30.134	47	57	43	76	36	53	48.5	46	44.5		W	SW											6.8	49	52	52		4	4	4			
	5	30.056	52	29.958	51	55	45	65	42	51.5	49	51.5	49		S	S											3.8	50	52	52		4	3	5			
	6	30.024	45	30.036	44	60	36	75	29	51	48	41	40		E	W											7.6	47	52	52		3	2	6			
	7	29.938	44	29.802	43	57	34	75	30	43	42	40	39	+	S	SW											5.8	46	51	51		3	2	7			
	8	29.572	51	29.608	45	57	43	73	36	51	49	41	40	+	SW	NW												4.5	50	51	51		4	3	8		
	9	29.698	47	29.722	47	57	40	61	34	46	43	47	45	+	W	W												1.2	47	51	51		3	3	9		
	10	29.436	52	29.260	45	57	41	71	39	55	51	42	40	+	SW	SW												6.2	49	51	51		4	4	10		
	11	29.324	46	29.458	43	52	39	63	36	46	43	40	39	+	NW	NW												2.8	47	50	51		4	4	11		
	12	29.508	42	29.496	47	44	34	63	32	39	37	34	33	+	NW	NW												2.2	44	49	50		5	6	12		
	13	29.336	38	29.434	40	47	31	59	28	37	34.5	37	35	+	NW	NW												3.6	40	48	50		4	4	13		
	14	29.454	38	29.442	37	42	31	60	28	38	37	34	33	+	W	SW												3.2	39	48	50		4	5	14		
	15	29.328	42	29.006	48	52	33	51	32	42	40	52	51	+	E	E												4.2	47	49		4	5	15			
	16	29.012	50	29.274	47	57	46	63	43	53	52.5	49	46	+	S	W												4.8	48	47	48		4	3	16		
	17	29.336	52	29.320	53	56	42	62	40	54	53.5	52	51	+	S	SW												5.0	48	48		4	4	17			
	18	29.356	53	29.580	49	59	44	72	41	58	54	47	46		E	SW												7.8	50	49	48		4	3	18		
	19	29.772	48	29.964	46	59	39	71	32	48	46.5	44.5	43		W	SW												6.1	48	49	49		3	3	19		
	20	30.080	49	30.192	43	63	41	69	38	50	47.5	41	40	+	SW	SW												1.3	49	49	49		3	3	20		
	21	30.216	41	30.276	42	64	32	70	29	43	41	39	38		E	NW												7.8	48	49	49		1	2	21		
	22	30.296	45	30.246	42	62	33	69	31	46.5	45	40	39		W	W												7.2	42	48	49		3	3	22		
	23	30.126	45	30.102	48	50	38	68	42	44.5	44	48	46		SE	SE												12	45	48	49		4	6	23		
	24	30.124	48.5	30.130	48	50	45	51	42	48	46	47	46		SE	SE													47	48	49		6	5	24		
	25	30.128	50	30.062	48	51	46	50	44	48	45	48	46		SE	SE													47	48	49		6	3	25		
	26	29.958	51	30.030	45	54	44	62	41	50	48	44	43		SE	SE												4.7	47	48	48		4	3	26		
	27	30.032	43	29.964	47	50	36	52	32	44	43.5	46.5	46		SE	SE													47	48	48		3	4	27		
	28	29.924	47	29.902	46	57	42	63	36	47	46.5	44	43.5		SE	SE												2.4	46	47	48		4	3	28		
	29	29.818	48	29.768	47	53	41	54	36	48	48	45	44.5		SE	SE													46	47	48		3	2	29		
	30	29.728	46	29.948	51	57	43	65	38	44	43.5	52	57		SE	SE												2.1	44	47	48		2	2	30		
	31	30.136	49	30.172	49	53	46	52	35	49	48.5	49	48.5	+	SE	SE													48	47	48		4	5	31		
Sums.		13136	1439	14152	1426	1311	11	18	13	14	15	131	123	13														97.5	1446	1526	1541		119	110			
Means.		29.783	46.1	29.804	46.8	54.5	39.6	64.0	35.9	47.6	45.7	44.6	43.4															46.6	49.2	49.7		38.3	35				
+ Total Corrections for Instru- mental Errors.		+110		+110																																	
+ Corrections for Diurnal Range.																																					
"Cor- rected Means."																																					
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						

NOTATION USED IN GENERAL REMARKS.					
a.	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.	c. h. r.	" continued heavy rain.		
d.	" dew.	s.	" stratus.		
f.	" fog.	sc.	" squall.		
fr.	" frost.	s.	" sleet.		
h.-fr.	" hoar-frost.	s.	" snow.		
h.	" haze.	so. ha.	" solar halo.		
h. d.	" heavy dew.	sq.	" squall.		
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 very hard
1	Light air	3	Very fresh	6	Violent gale

NOTATION USED IN GENERAL REMARKS.

a.	denotes aurora.	m.	denotes meteor.
ci.	cirrus.	ms.	meteors.
ci-cu.	cirro-cumulus.	n.	nimbus.
ci-s.	cirro-stratus.	r.	rain.
cu.	cumulus.	h.r.	heavy rain.
cu-s.	cumulo-stratus.	c.h.r.	continued heavy rain.
d.	dew.	s.	stratus.
f.	fog.	sc.	scud.
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.
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 \uparrow for Temp. (Col. 2), = 29.844
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction \uparrow for Temp. (Col. 4), = 29.868
 Mean at Station, corrected, and at 32°, = 29.856
 Correction for height, feet above Mean Sea-level, = 199
 Mean, reduced to 32°, and Sea-level, = 30.055
 Highest Reading, corrected for Index error, on the 22th, = 30.296
 Lowest Do. Do., on the 15th, = 29.938
 Difference, or Monthly Range, = 1.308

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 21th, = 64.0
 Lowest in Month, corrected for Index errors, on the 13th, = 31.0
 Difference, or Monthly Range, = 33.0
 "Corrected Mean" of all the Highest, (Col. 5), = 54.5
 "Corrected Mean" of all the Lowest, (Col. 6), = 39.6
 Difference, or Mean Daily Range, = 14.9
 ** Calculated Mean Temperature of Month, = 47.0
 S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 1th, = 45.0
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 64.0
 Lowest at Night, Black Bulb (corrected for Index errors), on the 13th, = 28.0
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 35.9
 Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 46.1
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 44.6
 ** Computed Temperature of Dew-Point, = 42.9
 ** Do. Elastic Force of Vapour, = .277
 ** Do. Weight of Vapour in a Cubic Foot of Air, = .89
 ** Relative Humidity (Saturation = 100), = 89
 RAIN fell on 16 Days; Amount in Inches, = 2.18

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

Observations made and
Return verified by

John Forrest

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Adabo House, County of Aberdeen, in Lat. 57° 24', Long. 2° 14', Distance from Sea 12 miles.

Height of Cistern of the Barometer above Mean Sea-Level 150 feet, above Ground 3 feet.

During the MONTH of November 1897

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.		GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.		Days of Month.				
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No.	9 A.M.		P.M.		SUNSHINE. Hours.	9 h. A.M.			Temperature of Well at depth of feet, No.	Temperature at 1 fathom, and Density.				0-10.			
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force	Direction.	Force		9 h. A.M.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.		Amount (0-10), and Species.	No. 3 inches.							No. 12 inches.	No. 22 inches.	9 A.M.	9 P.M.
		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.	nebulae.
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.	hall.	sqs.	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), = 29.903..... \ddagger29.863
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction \ddagger = 29.863
 for Temp. (Col. 4), = 29.907..... \ddagger29.862
 Mean at Station, corrected, and at 32°, = 29.862
 Correction for height, feet above Mean Sea-level, = 2.00
 Mean, reduced to 32°, and Sea-level, = 30.062
 Highest Reading, corrected for Index error, on the 20th, = 30.362
 Lowest Do. Do., on the 25th, = 28.560
 Difference, or Monthly Range, = 1.802

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 19th, = 58.0
 Lowest in Month, corrected for Index errors, on the 16th, = 19.0
 Difference, or Monthly Range, = 39.0
 "Corrected Mean" of all the Highest, (Col. 5), = 49.5
 "Corrected Mean" of all the Lowest, (Col. 6), = 38.1
 Difference, or Mean Daily Range, = 11.4
 ** Calculated Mean Temperature of Month, = 43.8
 S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 17th, = 69.0
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 51.1
 Lowest at Night, Black Bulb (corrected for Index errors), on the 16th, = 19.0
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 34.6
 Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 42.9
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 41.4
 ** Computed Temperature of Dew-Point, = 39.6
 ** Do. Elastic Force of Vapour, = .244
 ** Do. Weight of Vapour in a Cubic Foot of Air, = .88
 ** Relative Humidity (Saturation = 100), = 88
 RAIN fell on 16 Days; Amount in Inches, = 2.09

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		3	1	12	3	5	2	4	-		
P.M.		-	3	1	11	1	4	3	7	-	
Mean.		2	2	1	11	2	4	3	5	0	-

Observations made and
 Return verified by

John Forrest

(Signed)

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Kaddo House, County of Aberdeen, in Lat. 57° 24', Long. 2° 44', Distance from Sea 12 miles.
Height of Cistern of the Barometer above Mean Sea-Level 180 feet, above Ground 3 feet. During the MONTH of December 1897.
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, Sun-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.			0-10.							
		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 (0-6) 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.	Temperature of Well at depth of feet, No.	Temperature at 1 fathom, and Density.	9 A.M.	9 P.M.					
		* No.	°	* No.	°	No.	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	29.158	34	29.688	33	37.5	26	38	22	30	30	27	26.5	+	4.6	N.W.															1		
	2	29.958	35	30.062	34	39	26	39	22	34	33	32.5	32	+	4.2	N.W.																2	
	3	29.912	30	29.682	35	39	25	40	23	27	26.5	35	34.5		5	S																3	
	4	29.702	37	29.794	34	40	25	41	27	37	36.5	32	31	+	4.2	S																4	
	5	29.764	42	29.632	43	44	38	44	36	42	40	43	42	+	4.6	S																5	
	6	29.412	43	29.268	36	44	33	45	30	44	43	31	30.5	+	5	W																6	
	7	29.200	41	28.654	42	48	37	47	35	39	37	41	39	+	5	S.W.																7	
	8	28.508	37	28.224	37	38	32	38	26	34	31	36	35	+	2	S																8	
	9	28.422	39	28.808	37	40.5	31	40	26	38	37	36	35	+	4.2	N.W.																	9
	10	28.804	35	28.784	36	39	30	39	26	33	31.5	38	34.5	+	5.2	S.W.																	10
	11	28.874	37	29.126	38	36	35	37	32	36	35	36	35	+	4.2	W																	11
	12	29.244	33	29.256	31	37	24	37	24	26	26	25	25	1.64	4.2	W																	12
	13	29.172	37	29.066	41	49	22	48	18	39	37	40	39	+	5.2	S.E.																	13
	14	28.908	41	29.056	38	46	35	45	32	39	37	36	35	+	5.2	S																	14
	15	28.952	43	29.220	40	46	32	47	28	44	43	36	35	+	5	S.W.																	15
	16	29.184	44	29.162	47	48	35	49	32	45	44.5	47	46	+	3.2	S.W.																	16
	17	29.354	47	29.682	47	52	38	50	35	48	44	46	44	+	5.2	S.W.																	17
	18	29.868	42	30.054	36	43	30	48	26	40	38	30	29.5		2	W																	18
	19	30.124	32	30.148	32	40	26	50	22	28	27.5	26	26	35	5	S																	19
	20	30.206	38	30.256	40	41	25	40	20	38	36.5	39	37		5.2	S																	20
	21	30.308	37	30.346	34	40.5	26	41	20	36	35	29	28		5.2	S.W.																	21
	22	30.284	31	30.238	27	32	24	33	28	25	25	23	23		4.2	N.W.																	22
	23	30.196	27	30.164	30	36	18	33	15	22	22	27	27		5.2	S.W.																	23
	24	29.974	35	29.882	32.5	40	26	42	21	34	32	29	29		5	S.E.																	24
	25	29.784	32	29.806	35	40	27	41	23	29.5	28.5	32	31.5		5.2	S.W.																	25
	26	29.656	39	29.340	45	52	34	50	32	41.5	41	46	45.5	+	5	S.W.																	26
	27	29.250	43	29.054	41	43	37	42	35	43	42	39	38.5	+	5.2	N.W.																	27
	28	29.148	35	29.094	39	41	28	41	25	30	29.5	36	35		5.2	S.W.																	28
	29	28.888	41	28.686	41	49	35	48	32	40	39	41	40	+	5.2	S.W.																	29
	30	28.438	46	28.526	43	49	38	45	35	46	44	42	41	+	5	S.W.																	30
	31	28.488	48	28.798	39	42	32	44	29	41	39	35	34	+	5	S.W.																	31
Sums.		16515	14	12124	13	141	15	13	12	141	154	14	154																				
Means.		29.414	38.1	29.661	37.5	42.3	30.0	42.6	27.0	36.4	35.2	35.1	34.3	2.83																			
+ Total Corrections for Instrumental Errors.		393		404																													
+ Corrections for Diurnal Range.		+110		+110																													
"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.	sleet.		
fr.	frost.	s.	snow.		
h.-fr.	hoar-frost.	sq. ha.	solar halo.		
h.	haze.	sq.	squall.		
h. d.	heavy dew.	sq.	squalls.		
li.	hail.	t. s.	thunder.		
l. 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 for Temp. (Col. 2), = 29.478
"Corrected Mean" of Barometer at 9 P.M., minus the Correction \ddagger for Temp. (Col. 4), = 29.490
Mean at Station, corrected, and at 32', = 29.484
Correction for height, feet above Mean Sea-level, = 2.02
Mean, reduced to 32', and Sea-level, = 686
Highest Reading, corrected for Index error, on the 21st, = 30.346
Lowest Do. Do., on the 8th, = 28.224
Difference, or Monthly Range, = 2.122

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 17th, = 52.0
Lowest in Month, corrected for Index errors, on the 23rd, = 18.0
Difference, or Monthly Range, = 34.0
"Corrected Mean" of all the Highest, (Col. 5), = 42.3
"Corrected Mean" of all the Lowest, (Col. 6), = 30.0
Difference, or Mean Daily Range, = 12.3
** Calculated Mean Temperature of Month, = 36.2
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 17th, = 50.0
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 42.6
Lowest at Night, Black Bulb (corrected for Index errors), on the 23rd, = 15.0
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 27.0
Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 35.8
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 34.8
†† Computed Temperature of Dew-Point, = 33.4
†† Do. Elastic Force of Vapour, = 193
†† Do. Weight of Vapour in a Cubic Foot of Air, = 92
†† Relative Humidity (Saturation = 100), = 92
RAIN fell on 20 Days; Amount in Inches, = 2.83

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.					5	11	6	2	7		
P.M.					1	3	6	12	4	5	
Mean.		0	0	1	4	8	9	3	6	0	

Observations made and
Return verified by

John Forrest

(Signed)

OBSERVATIONS,

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, the accuracy of which, both as regards direction and

A Wind-Vane ought to be elevated at least 12 feet above surrounding objects.

1. As regards Direction. 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 weather.

2. As regards Velocity and Pressure.

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. K. Balingall, the Society's Observer at Ballabro, 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

Rain Gauge.

perfectly unobjectionable situation is observed, 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 from surrounding objects as is desirable, the gauge should be taken to place it at some distance from shrubs, trees, buildings, or other obstructions, at least as many feet from their base as they are in height. The more important directions, towards which it is most desirable to have a free exposure, are, in the order of their importance, S.W., N.E., S.E., and W. The 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 itself interferes with the proper measurement of the rainfall. 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-storm 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 one 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 ($\frac{1}{4}$ within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are viewed obliquely; and thus, being liable 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 free from a scale of 0 to 10; 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 well as at intervals of 3 hours, during the day, and at intervals of 1 hour, 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 order in which the observations are made.

the following manner:—Thus, in the column Velocity and Direction, 6, S. W. will indicate that the upper strata of Clouds travel with 2, W. extreme velocity from S.W., and those in the lower regions from S.W., with one-third the speed of the former. Again, in the second column, an entry of $\frac{4}{3}$, S.E. will indicate that the higher $\frac{2}{3}$, C.E.S.T. regions are covered to the amount of 4-tenths with stratus Clouds, and that the sky is further observed, 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.

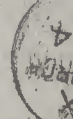
The approximate number of Hours in which objects in the sun's rays cast shadows, should be entered in the proper

As the germination and growth of crops and plants generally depend greatly on the Temperature of the soil,—this is the most important element of the soil,—the amount and constancy—the Comell recommend that the Temperature of the soil should be regulated. Observations in this interesting department he made at 9 A.M., by Thermometers permanently fixed in the soil, thirteen bulbs being sunk to depths of 3, 12, and 23 inches, and the stems above ground protected from the sun's rays, and fitted with stoppers of glass, 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, but in its relations to that of our island, a most important and important branch of Meteorology. The Comell therefore recommend that the Temperature of the Sea be carefully taken by a properly constructed apparatus, from boats, or, if this be impracticable, from the ends of piers and rocks round the coast, where it is not influenced by that of river tanks and limited

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

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The goodness also to state any information you may be able to collect relative to the Crops of Grain, Hay, Potatoes, &c., whether plentiful, or in perfection; whether any have suffered from blight, disease, etc. Fruit, &c., and the Agricultural condition of the district generally.

Barberry
Bourtree
Broom,
Hazel,
Hawtho
Holly,
Laburnu
Lilac,
Mezerio
Mounta
Red Flo
Rhodod
Whip,