

# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Harro 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 1898.

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 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.										
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max. No.	Min. No.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of clouds, if which it fell.	Amount in inches.	Direction.	Force.	Direction.	Force.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	No. 3 inches.	No. 12 inches.		No. 22 inches.	Temperature of Well at depth of feet.			Temperature at 1 fathom, and Dewy.	9 A.M.	9 P.M.	
		* No.		No.		No.	No.	No.	No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No.	No.	Direction.	Force.	Direction.	Force.	9 h. A.M.				Hours.										
		Inches.	°	Inches.	°																														
	1	29.046	38	29.244	37	40	32	41	28	37	36	34	33		S.W.		N.W.							3	36	37	38			3	3	1			
	2	29.424	38	29.632	41	43	33	44	20	35.5	35	39	38.5	+	N.		N.E.								35	37	38			3	4	2			
	3	29.915	39	29.544	39	42	36	41	32	38	37.5	36	35	+	N.W.		N.W.								37	37	38			4	4	3			
	4	29.582	49	29.536	39	45	35	43	32	42	41	35	34	+	S		N.W.								38	38	38			4	3	4			
	5	29.536	33	29.432	39	45.5	25	44	21	26	26	37	36.5	+	N.		S.E.							3.6	34	38	38			3	4	5			
	6	29.232	39	29.436	37	49	33	48	29	38	38	32	31.5	+	S		N.							1.2	36	37	38			5	4	6			
	7	29.426	36	29.598	36	42	28	41	23	34	32	34	33	+	N.		N.							4.4	34	37	38			4	4	7			
	8	29.352	41	29.438	41	47	33	48	30	42	40	40	39	26	S		S								36	36	38			4	4	8			
	9	29.512	39	29.604	36	42	29	42	24	38	37	32	31.5	+	S.W.		N.							2.4	36	37	38			3	3	9			
	10	29.646	40	29.674	39	45	28	44	23	38	36	34	33	+	S		S.W.								33	36	38			3	3	10			
	11	29.582	40	29.734	45	53	33	53	29	41	40	45	44.5		S.W.		S							2.2	36	36	38			3	4	11			
	12	29.908	46	30.186	36	46	29	46	24	46	43	30	29.5		N.W.		N.W.								41	37	38			4	4	12			
	13	30.088	41	29.948	45	49	38	57	35	42	41	45	44		S.W.		S.W.							1.4	35	37	38			4	3	13			
	14	29.424	45	30.072	42	49	38	50	34	40	42.6	40	39		S.W.		N.								39	37	38			3	3	14			
	15	30.082	34	30.118	35	37	28	37	24	29.5	29.5	30	30		S		S.W.								34	38	38			4	4	15			
	16	30.052	36	29.922	39	48	30	48	28	36	35	37	36		S		S.W.							4.3	33	37	38			4	4	16			
	17	29.806	45	29.836	44	48	40	48	38	47	44	44	42.5		S		S.W.								37	37	38			4	3	17			
	18	29.582	46	29.468	46	54	42	56	39	46	43	45	44		S.W.		S.W.							1.5	39	37	38			3	3	18			
	19	29.332	51	29.582	42	55	43	60	40	51	48	37	36	+	S.W.		N.							2.4	43	38	38			2	2	19			
	20	29.822	39	29.874	37	55	32	49	26	37	35	34	33		S.W.		N.							1.6	37	38	38			2	2	20			
	21	29.848	41	30.008	35	43	35	48	31	40	38	35	33		N.		N.							2.6	37	38	38			3	4	21			
	22	29.846	36	30.152	33	44	27	45	25	33	32	27	26.5	+	N.W.		S.W.							2.7	36	38	38			3	2	22			
	23	30.112	35	29.998	39	47	25	47	23	35	34	38	37		41	S.W.	S.W.							2.4	34	38	38			3	2	23			
	24	30.004	43	30.002	38	50	32	54	28	45	42	34	33		N.		N.W.							1.8	40	38	38			2	3	24			
	25	29.886	34	29.782	42	50	25	52	22	32	31.5	40	39		S		S.W.							4.8	33	37	38			3	3	25			
	26	29.684	46	29.658	47	55.5	41	50	39	47	44	48	44		S.W.		N.								39	37	38			3	5	26			
	27	29.794	45	29.944	45	45	40	46	37	44.5	44	45	44	+	N.E.		S.W.								42	38	38			4	6	27			
	28	30.078	43	30.076	43	50	34	54	30	43	41	42	40		N.W.		S							3.4	39	38	38			6	4	28			
	29	29.894	47	29.544	49	54	42	60	38	46	44	45	43		S		S.W.							1.5	40	39	39			4	2	29			
	30	29.482	47	29.204	49	53	45	52	41	47	43	48	44		S.W.		N.							1.6	42	39	39			2	3	30			
	31	29.784	42	29.666	43	52.5	39	56	34	40	37	42	41.5	+	57	N.	S.E.							3.8	40	40	39			3	2	31			
	Sums.	1614	13	1615	17	1305	1050	1498	927	1242	1180	1184	1148	12										45.9	1141	1163	1181			107	104				
	Means.	29.225	41.1	29.749	42.1	47.6	33.9	48.2	30.2	39.9	38.4	38.2	37.0											36.8	37.5	38.2			3	3	0				
	+ 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				

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\frac{1}{100}$  for Temp. (Col. 2), = 29.801  
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{100}$  for Temp. (Col. 4), = 29.823  
 Mean at Station, corrected, and at 32° = 29.812  
 Correction for height, feet above Mean Sea-level, = 20.1  
 Mean, reduced to 32°, and Sea-level, = 30.013  
 Highest Reading, corrected for Index error, on the 12 th., = 30.186  
 Lowest Do. Do., on the 1 th., = 29.046  
 Difference, or Monthly Range, = 1.140

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 10 th., = 55.0  
 Lowest in Month, corrected for Index errors, on the 5 th., = 25.0  
 Difference, or Monthly Range, = 30.0  
 "Corrected Mean" of all the Highest, (Col. 5), = 47.6  
 "Corrected Mean" of all the Lowest, (Col. 6), = 33.9  
 Difference, or Mean Daily Range, = 13.7  
 \*\* Calculated Mean Temperature of Month, = 40.8  
 S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 19 th., = 60.0  
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 48.3  
 Lowest at Night, Black Bulb (corrected for Index errors), on the 5 th., = 21.0  
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 30.2  
 Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 39.0  
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 34.4  
 Computed Temperature of Dew-Point, = 36.0  
 Do. Elastic Force of Vapour, = 212  
 Do. Weight of Vapour in a Cubic Foot of Air, = 90  
 Relative Humidity (Saturation = 100), = 90  
 RAIN fell on 12 Days; Amount in Inches, = 1.18

WIND.	SUMMARY.										Mean Force.	Mean Velocity in miles per day
	Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.		
A.M.		1	1	-	-	9	11	5	4	-		
P.M.		-	1	-	2	3	11	9	5	-		
Mean.		1	1	0	1	6	11	7	4	0		

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

Observations made and  
 Return verified by

John Torrance

(Signed)







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haids 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 1898.

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 Days, 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 Sunrays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.				Direction.	Force.	Direction.	Force.		Velocity (0—6), and Species.	Amount (0—10), and Species.	Velocity (0—6), and Direction.	Amount (0—10), and Species.			No. 1 inches.	No. 2 inches.					No. 3 inches.	9 A.M.	9 P.M.
		inches.	°	inches.	°																															
	1	29.462	47	29.010	43	55	38	65	33	48.5	40	39	37	+	W	N.W								5.8	42	40	39		2	3		1				
	2	28.600	43	29.308	37	42	33	48	29	41	39	34	33	+	W	N									39	40	39		3	2		2				
	3	29.324	36	29.162	35	40	31	46	26	34.5	32.5	31	30	+	S.W	N								3.2	36	39	39		2	3		3				
	4	29.095	32.5	29.294	33	36.5	28	48	23	32	30.5	31	30	+	N.W	N								2.6	34	39	39		3	4		4				
	5	29.576	33	29.370	33	38	27	48	24	31	31	32	31	+	N.W	S.W								3.7	35	38	39		5	5		5				
	6	29.096	33	29.062	21	38	24	51	22	35.5	34	27	27	185	S.W	N.W								6.1	35	38	39		5	2		6				
	7	29.148	33	29.364	34	38	27	47	23	33	32	34	33	+	W	W								5.2	33	37	38		2	2		7				
	8	29.392	36.5	29.650	34	41	30	51	27	37.5	35	32	31	+	W	W								6.2	34	37	38		2	3		8				
	9	29.614	38	29.576	41	45	31	43	28	38	37	40	39	+	S.W	S.W									35	37	38		4	5		9				
	10	29.636	43	29.596	46	50	38	52	34	44	43	45	44		S.W	S.W									37	37	38		5	4		10				
	11	29.634	41	29.768	44	51	36	61	32	40	38	40	42		S.W	S.W								4.4	39	38	38		4	4		11				
	12	29.532	44	29.404	39	48	32	47	24	44	42	36	35		S.W	N.W									39	38	38		4	3		12				
	13	29.576	35	29.364	38	46	31	55	24	33	31	36	34	x	16	S	S.W							5	34	38	38		3	2		13				
	14	29.458	39	29.652	41	50	29	54	23	38	35.5	40	39	x	N.W	S.W								6.2	35	38	39		2	2		14				
	15	29.200	48	29.176	42	55	38	63	33	53	48	40	28	x	S.W	N.W								4.8	42	38	39		2	3		15				
	16	29.206	36	29.542	37	39	31	46	28	35	32	36	34	x	N.W	N.W								5.5	36	38	39		3	5		16				
	17	29.632	37	29.594	35	36	31	41	25	35	32	33	32	x	N.W	N.W									35	38	39		5	3		17				
	18	29.614	35	29.650	33	36	31	46	25	35	32	32	31		N.W	N.W								1.8	34	38	39		3	4		18				
	19	29.322	36	28.896	37	40	35	43	31	35	34	36	35	x	W	S.W									34	38	39		5	5		19				
	20	28.772	30	28.660	32	35	26	46	22	28	28	31	30	x	38	N.W	S.E							4.6	33	37	38		4	4		20				
	21	28.982	33	29.018	34	42	20	55	17	32	32	32	31	x	N.	N.								4.8	33	37	38		4	3		21				
	22	29.208	35	29.476	32	41	26	53	23	34	33	27	27	x	N.W	N.W								2.4	34	37	38		3	3		22				
	23	29.620	35	29.772	27	38	25	50	21	33	32	21	21	x	N.W	N.W								8.	34	37	38		4	3		23				
	24	29.784	25	29.788	34	43	14	52	12	23.5	23.5	32	31		W.	S.								4.2	32	36	38		3	3		24				
	25	29.664	37	29.280	39	40	30	42	28	38	36	38	37	x	S.	S.E									33	36	37		3	3		25				
	26	29.324	36	29.580	36	43	34	57	32	36	34	33	32	x	W.	W.								7.	35	36	37		3	3		26				
	27	29.592	37	29.602	35	46	30	55	25	38	35	32	31		W.	W.								4.6	34	36	37		3	5		27				
	28	29.600	36	29.456	34	44	32	55	27	36.5	33	32	31		89	10.	W.							7.4	34	36	37		5	4		28				
	29																															29				
	30																																30			
	31																																31			
Sums.		13210	14	13710	12	11	10	11	12	133	102	9	76												13	990	1052	1072		96	95					
Means.		823.816	1030	821.100	1016	1196	838	1414	733	1022	965	955	515												15	354	370	38.3		343	4					
+ Total Corrections for Instru- mental Errors.		29.744	371	29.396	36.3	42.7	29.9	50.5	25.8	36.5	34.5	34.1	32.7	20	228										1034	354	370	38.3								
+ Correc- tions for Diurnal Range.		3813																																		
"Cor- rected Means."		+110		+110																																
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  $\frac{1}{100}$  = 29.468  
 for Temp. (Col. 2), = 29.491 - 22 }  
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{100}$  = 29.487  
 for Temp. (Col. 4), = 29.506 - 19 }  
 Mean at Station, corrected, and at 32°, = 29.468  
 Correction for height, feet above Mean Sea-level, = 20.3  
 Mean, reduced to 32°, and Sea-level, = 29.671  
 Highest Reading, corrected for Index error, on the 24th, = 29.788  
 Lowest Do. Do., on the 2th, = 28.600  
 Difference, or Monthly Range, = 1.188

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 1st, = 55.0  
 Lowest in Month, corrected for Index errors, on the 24th, = 14.0  
 Difference, or Monthly Range, = 41.0  
 "Corrected Mean" of all the Highest, (Col. 5), = 42.7  
 "Corrected Mean" of all the Lowest, (Col. 6), = 29.9  
 Difference, or Mean Daily Range, = 12.8  
 \*\* Calculated Mean Temperature of Month, = 36.3  
 S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 1st, = 65.0  
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 50.5  
 Lowest at Night, Black Bulb (corrected for Index errors), on the 14th, = 12.0  
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 25.8  
 Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 35.3  
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 33.6  
 \*\* Computed Temperature of Dew-Point, = 31.0  
 \*\* Do. Elastic Force of Vapour, = 174  
 \*\* Do. Weight of Vapour in a Cubic Foot of Air, =  
 \*\* Relative Humidity (Saturation = 100), = 86  
 RAIN fell on 20 Days; Amount in Inches, = 2.28

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

Observations made and  
 Return verified by

John Forrest

(Signed)







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Hounds 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 1898.

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.			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.	Min.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Direction.	Force.	Direction.	Force.	Velocity (0-6), and Species.	Amount (0-10), and Species.	Velocity (0-6), and Species.	Amount (0-10), and Species.	No.	No.	No.	9 A.M.		9 P.M.				
		* No.	inches.	No.	inches.	No.	No.	No.	No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours it fell.	No.	No.	No.	No.	No.	No.	No.	No.	inches.	inches.	inches.		inches.	inches.			
		No.	inches.	No.	inches.	No.	No.	No.	No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours it fell.	No.	No.	No.	No.	No.	No.	No.	No.	inches.	inches.	inches.		inches.	inches.			
	1	28.942	36	28.934	35	41	30	54	25	35	32	31	X	H.	N.H.							8	34	36	37		4	4		1		
	2	29.220	39	29.396	36	45	32	57	27	39	37	32	31	X	N.H.	N.H.							4.2	35	36	37		4	4		2	
	3	29.428	36	29.602	36	40	32	57	28	35	34	32	31	X	N.H.	N.H.							1.7	34	36	37		4	4		3	
	4	29.632	36	29.694	35	41	31	55	28	38	37	33	32.5	X	N.H.	N.H.							3.6	35	37	37		4	4		4	
	5	29.548	32	29.342	35	35	28	41	21	30	28	33	32.5	X	H.	S.H.								33	37	37		5	5		5	
	6	29.876	35	29.624	36	43	30	55	27	35	34.5	35	34.5	X	S.E.	S.E.							3.6	34	36	37		5	6		6	
	7	29.822	35	29.924	32	39	31	55	27	34	33.5	27	26	X	S.	H.							2.4	35	37	37		6	6		7	
	8	29.910	34	29.842	34	45	23	60	16	33	32	33	32	X	H.	S.H.							8.2	33	37	37		6	5		8	
	9	29.790	36	29.768	37	53	30	63	23	38	37	34	33	X	N.H.	H.							8.4	35	37	37		4	4		9	
	10	29.806	43	29.916	40	52	34	66	31	43	40	38	37	X	S.H.	S.H.							7.6	37	37	37		3	3		10	
	11	29.832	38	29.732	43	56	26	76	27	44	41	44	40	X	S.	S.H.							6.8	36	38	38		3	3		11	
	12	29.560	45	29.658	38	51	33	76	30	45	42	33	32	X	S.	H.							2.8	42	39	38		2	2		12	
	13	29.538	40	29.322	41	48	28	52	23	39.5	36	40	38	X	S.	N.H.								37	39	38		2	1		13	
	14	29.480	40	29.632	32	46	30	62	26	40	37	27	26	X	N.H.	N.H.							5.2	37	39	38		1	2		14	
	15	29.310	39	29.200	41	51	26	63	18	38	36	41	39	X	S.	N.H.							1.2	36	38	38		2	1	Aurora. Very Bright.		15
	16	29.388	44	29.062	43	56	36	70	28	43.5	41	44	40	X	S.H.	H.								38	38	38		1	1		16	
	17	29.260	51	29.228	52	61	42	75	38	43	42	52	50	X	S.H.	S.H.							2.2	42	41	39		1	1		17	
	18	29.114	54	29.116	44	61	44	76	37	56.5	50	40	38	X	S.H.	N.H.							3.6	45	41	39		1	1		18	
	19	29.412	43	29.662	36	40	33	64	28	39.5	36	34	32	X	N.H.	N.H.							7.4	41	42	40		1	2		19	
	20	29.784	38	29.780	39	47	29	61	24	36.5	33	36	35	X	H.	N.H.							5.2	39	41	40		2	3		20	
	21	29.814	31.5	29.866	36	49	35	66	28	41	39	33	32	X	N.H.	N.H.							4.5	39	41	40		3	3		21	
	22	29.738	41.5	29.540	42	50	29	66	24	42	39	41	40	X	H.	S.							2.2	40	41	40		3	3		22	
	23	29.642	43	29.804	38	46	39	60	37	43	40	35	34	X	N.	N.E.							6.2	42	41	40		4	3		23	
	24	29.924	37	30.112	37	44	32	58	28	37	35	33	32	X	N.E.	N.E.							8.4	38	41	40		3	3		24	
	25	30.166	41	30.164	36	44	30	59	22	42	35	33	32	X	N.E.	N.E.							6.2	37	41	40		3	3		25	
	26	29.910	37	29.800	37	41	30	60	25	36	32	35	32	X	N.E.	N.E.							2.1	37	40	40		3	3		26	
	27	29.726	39	29.680	36	43	35	48	26	40	36	33	32	X	N.E.	N.E.							6	38	40	40		4	4		27	
	28	29.434	37	29.236	35	41	32	50	30	36	35	33	32	X	E.	N.E.								37	40	40		4	4		28	
	29	29.126	37	29.208	35	42	31	48	29	36	35	32	31	X	S.E.	N.H.							4	38	40	40		4	4		29	
	30	29.244	38	29.366	33	47	30	64	33	37	36	32	31	X	H.	N.H.							1.8	38	40	40		5	3		30	
	31	29.464	44	29.506	38	50	29	76	22	44	40	35	34	X	H.	H.							8.2	39	40	40		5	5		31	
Sums.		17212	151	7211	15	10	10	13	15	15	13	10	9	21									1227	1161	1207	1196		104	103			
Means.		916354	1230	91716	1172	1448	988	1793	118	1225	11576	1095	1052	24	2.60								37.4	38.9	38.6		34	33				
+ 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	

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\frac{1}{100}$  for Temp. (Col. 2), 29.670.....28.....29.642  
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{100}$  for Temp. (Col. 4), = 29.672.....24.....29.657  
 Mean at Station, corrected, and at 32°,.....29.657  
 Correction for height, feet above Mean Sea-level,.....202  
 Mean, reduced to 32°, and Sea-level,.....29.859  
 Highest Reading, corrected for Index error, on the 25th,.....30.166  
 Lowest Do. Do., on the 1th,.....28.942  
 Difference, or Monthly Range,.....1.224

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 17th,.....61.0  
 Lowest in Month, corrected for Index errors, on the 8th,.....23.0  
 Difference, or Monthly Range,.....38.0  
 "Corrected Mean" of all the Highest, (Col. 5),.....46.7  
 "Corrected Mean" of all the Lowest, (Col. 6),.....31.5  
 Difference, or Mean Daily Range,.....15.2  
 \*\* Calculated Mean Temperature of Month,.....39.1  
 S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 25th,.....46.0  
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun,.....61.1  
 Lowest at Night, Black Bulb (corrected for Index errors), on the 8th,.....16.0  
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass,.....26.4  
 Difference of above means or range ("exposed"),.....45.1

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11),.....37.4  
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),.....35.4  
 # Computed Temperature of Dew-Point,.....32.7  
 # Do. Elastic Force of Vapour,.....185  
 # Do. Weight of Vapour in a Cubic Foot of Air,.....83  
 # Relative Humidity (Saturation = 100),.....83  
 RAIN fell on 24 Days; Amount in Inches,.....2.68

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		1	1	1	2	5	4	7	7		
P.M.		6		1	1	5	5	13			
Mean.		0	5	1	2	3	4	6	10	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 *April* 189*8*.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS.		Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No.	9 A.M.		P.M.		9 h. A.M.					Temperature of Well at depth of feet. No.	Temperature at 1 fathom, and Density.		0-10.	As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		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		Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	SUNSHINE. Hours.	No. inches.	No. 10 inches.							No. 25 inches.	9 A.M.		9 P.M.		Mention the hour at which Storms, including Thunder and Lightning, began and ended.																																																																																																																																																																																																																																																																																																																																																																																																																																																						
																																			inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	

## NOTATION USED IN GENERAL REMARKS.

a.	denotes aurora.	in.	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.	scud.
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.
h. l.	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  $\uparrow\uparrow$  = *29.604*  
for Temp. (Col. 2), = *29.65*  $\uparrow\uparrow$  = *47*  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\uparrow\uparrow$  = *29.622*  
for Temp. (Col. 4), = *29.661*  $\uparrow\uparrow$  = *39*  
Mean at Station, corrected, and at 32°, = *29.613*  
Correction for height, feet above Mean Sea-level, = *199*  
Mean, reduced to 32°, and Sea-level, = *29.812*  
Highest Reading, corrected for Index error, on the 24 th, = *29.932*  
Lowest Do. Do., on the 10 th, = *28.980*  
Difference, or Monthly Range, = *0.952*

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 7 th, = *57.0*  
Lowest in Month, corrected for Index errors, on the 1 th, = *28.0*  
Difference, or Monthly Range, = *29.0*  
"Corrected Mean" of all the Highest, (Col. 5), = *50.2*  
"Corrected Mean" of all the Lowest, (Col. 6), = *37.1*  
Difference, or Mean Daily Range, = *13.1*  
\*\* Calculated Mean Temperature of Month, = *43.6*  
S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 7 th, = *79.0*  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = *60.1*  
Lowest at Night, Black Bulb (corrected for Index errors), on the 1 th, = *21.0*  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = *32.2*  
Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = *43.3*  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = *41.2*  
Computed Temperature of Dew-Point, = *38.7*  
Do. Elastic Force of Vapour, = *235*  
Do. Weight of Vapour in a Cubic Foot of Air, = *84*  
Relative Humidity (Saturation = 100), = *84*  
RAIN fell on 20 Days; Amount in Inches, = *5.52*

WIND.		SUMMARY.				
Direction.		N	NE	E	SE	S
A.M.	1				14	56
P.M.	1				19	12
Mean.	0	1	0	18	3	4

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 the use of Maximum Thermometers, either Negretti and Zambra's, or Phillips's, whether they will act at the highest temperatures they may be recommended to resist. By the laws of the Society, Members and Observers have a right to have their instruments compared by the Secretaries, and to advise with him regarding the purchase of instruments. Very great care should be bestowed on the Observations of the Wind, the accuracy of which, both as regards Direction and Force, is so essential towards the right discussion of many of the problems of the science.

A Wind-Vane ought to be elevated on a pole, so as to be free from surrounding objects. When it oscillates constantly in one direction, that 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

2. As regards amount and mean Velocity of the Wind at the time of Passage, the Council would recommend the Hemispherical Cup Anemometer—a self-registering instrument which shows the amount of Wind that passes in per day, from which also the mean Velocity of the Wind at the time of

The observation may be ascertained. For indicating the force of the Wind at any particular hour of observation, the Pressure Barometer recently brought under the notice of the Society by Mr. T. Stevenson, the Honorary Secretary, and Mr. R. Ballingal, the society's Observer at Eallanhus, are recommended as likely to secure uniformity in making observations on the Force of the Wind.

Main causes conspire to produce anomalies in Rain Returns, arising partly from the difficulty of obtaining a perfectly unobscurable situation for observation, and partly from the defective nature of the instruments used. The Rain Gauge is, indeed, subject to a slope of surface, but in a level piece of ground, in an open situation, it affords a fair scene for it. As it is often difficult to obtain a position so free and unobstructed by surrounding objects as is desirable, trees should be taken to place it some distance from shrubs, trees, buildings, or other obstructions, at least as many feet from their base as they are in height. The more important directions, towards which it is most desirable to have a free exposure, are, in the order of the 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 b<sup>t</sup> a height of one foot above

ground, over grass. In such gauges as Fleming's gauge 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-gauge. When a measuring-glass is used care should be taken to hold it in the perpendicular position, and the reading ought to be made at the eye level. The rain-gauge entered in the list of the instruments at the top of 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 net drift is observed, and registered in addition to, and as a check upon, the indications of the Rain Gauge. For wind, rain, and snow, it is 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 hereafter be found on the other side. The amount of Cloud ought to be estimated from the greater or less observation of the sky overhead (i.e. within  $20^{\circ}$  or  $30^{\circ}$  of the zenith). The strata of Clouds that appear near the horizon are viewed obliquely; and clouds, being unable to judge of their amount, we ought not to take them into account in the Clouds' column, though their appearance and changes may be noted among the Remarks. The amount of Cloud is entered from a scale of 0 to 10; thus, when the sky overhead is free from Clouds it is entered 0; when half-covered by Clouds, 5; wholly covered, 10, and so on.

Observations of Clouds are made at 9 a.m. and at sunset, as instructed in the Remarks. The amount of Clouds is entered in the Remarks. Insisting 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, 3, 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 N.W., with one-third the speed of the former. Again, in the second column, an entry of  $\frac{4}{4}$ , st. will indicate that the higher 2, east-st. 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

As the germination and growth of crops and plants generally depend greatly on the temperature of the soil,—its amount and constancy,—the Council recommend that Observations in this interesting department be made at 9 A.M., by Thermometers permanently fixed in the soil, their rays cast shadows, should be entered in the proper sunshine column.

the bulbs being sunk to depths of 3, 12, and 22 inches and the stems being placed in the water at depths of 1, 10, and 20 inches. The bulbs being ground protected from the sun's rays, and fitted with sloping collars, to prevent rain-water being conveyed to the bulbs by the stems.

A knowledge of the Temperature of the Sea is not only in itself important, 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 carefully taken by a properly constructed apparatus, from boats, or from the shore, at least twice a day, and that the observations be so fitted that they be unimpeachable, from the ends of piers and rocks round the island, so that it is not influenced by heat 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

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100

122 George

Street,

EDIN.

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[illegible]

UCKOO, . . .  
URLEW, . . .  
HOUSE-SWALLOWING, . . .  
LOVER, . . .  
AND-MARTIN, . . .  
EARING, . . .  
WAN, . . .  
ALL OR CORN

[illegible][illegible]

FRUIT  
le, .  
rk Currant  
y, .  
h, .  
berry,  
berry,

First in Blossom.	Apple	Cherry	Gear	Goose	Pear	Plum	Straw
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Barberry, . . .  
Boutree or Elder, . . .  
Broom, . . .  
Hazel, . . .  
Hawthorn, . . .  
Holly, . . .  
Laburnum, . . .  
Lilla, . . .  
Mezezon, . . .  
Mountain Ash or Rowan, . . .  
Red Flowering Currant, . . .  
Rhododendron Ponticum, . . .  
Whip, . . .

SHRUBS, ETC.

the crops of grain, hay, fruits, etc., or in perdition; whether any have suffered from blight, disease, etc., and the agricultural condition of the district generally.

SHRUBS, &C.	Barberry, Broom, Hazel, Hawthorn, Holly, Laburnum, Lilac, Mezerion, Mountain Ash or Rowan, Red Flowering Currant, Rhododendron Ponticum, Whin.
First in Blossom.	Apple, Black Currant, Cherry, Cean, Gooseberry, Peach, Pear, Plum, Strawberry,
FRUITS.	
First in Blossom.	
Fruit in generally.	
MEGATORY BIRDS.	Cuckoo, Curlew, House Swallow, Lapwing, Plover, Sand-Martin, Starling, Swan, Rail or Corn Crane.
First Arrival.	
Departure.	

EDINBURGH.

Scottish Meteorological Society,

122 George Street.

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## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Hands 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 1895.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.		Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			No. of Days in which it fell.	Amount in inches.	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.	9 h. A.M.			Temperature of Wells at depth of feet, No.	Temperature at 1 fathom, and Density.		0-10.		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.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Shrubs No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.				Direction.	Force	Direction.	Force						No.						9 h. A.M.	No. 8 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  $\frac{1}{10}$  for Temp. (Col. 2), = 29.655 = 29.600  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 4), = 29.624  
Mean at Station, corrected, and at 32° = 29.622  
Correction for height, feet above Mean Sea-level, = 2.00  
Mean, reduced to 32°, and Sea-level, = 29.622  
Highest Reading, corrected for Index error, on the 18th, = 30.116  
Lowest Do. Do., on the 11th, = 28.574  
Difference, or Monthly Range, = 1.542

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 21st, = 62.0  
Lowest in Month, corrected for Index errors, on the 18th, = 27.5  
Difference, or Monthly Range, = 34.5  
"Corrected Mean" of all the Highest, (Col. 5), = 54.5  
"Corrected Mean" of all the Lowest, (Col. 6), = 38.2  
Difference, or Mean Daily Range, = 16.3  
\*\* Calculated Mean Temperature of Month, = 46.4  
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 5th, = 83.0  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 72.7  
Lowest at Night, Black Bulb (corrected for Index errors), on the 9th, = 20.0  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 34.1  
Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 45.6  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 43.0  
Computed Temperature of Dew-Point, = 40.0  
Do. Elastic Force of Vapour, = 2.48  
Do. Weight of Vapour in a Cubic Foot of Air, = 81  
Relative Humidity (Saturation = 100), = 81  
RAIN fell on 19 Days; Amount in Inches, = 2.81

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		1	2	2	3	3	4	3	13		
P.M.		2	4	7	3	4	2	9			
Mean.		2	3	1	5	3	4	2	11	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 June 1898.

The Hours of Observation are of Greenwich Time.

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

Observations taken at Hasle 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 1898.

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.		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.	No.	No.						
		* No.		No.		No.	No.	No.	No.																						
		inches.	°	inches.	°																										
	1	29.796	60	29.720	58	66	48	88	44	59	53	56	55	+	S.W.		S.W.					61	59	55					1		
	2	29.578	61	29.498	60	64	51	83	49	58	51	44	43	+	S.W.		N.W.					60	59	56					2		
	3	29.492	56	29.632	50	60	40	83	35	54	50	48	45	+	N.W.		N.W.					56	58	56					3		
	4	29.804	53	29.924	52	60	48	83	46	50	48	49	46	+	N.W.		S.W.					56	58	56					4		
	5	29.932	56	29.804	57	62	44	72	43	55	49	57	57	+	W.		N.W.					58	58	56					5		
	6	29.824	60	29.756	60	67	54	84	52	63	60	59	54		S.W.		N.W.					59	58	56					6		
	7	29.788	62	29.890	56	64	53	83	47	60	54	55	52		N.W.		N.W.					59	58	56					7		
	8	29.958	58	30.028	53	62	47	81	42	55	50	48	44		N.W.		N.W.					57	58	56					8		
	9	30.114	59	30.128	56	65	43	87	40	59	53	52	48		N.		N.E.					58	58	56					9		
	10	30.152	60	30.176	61	71	45	88	40	61	56	60	47		N.W.		N.					60	58	56					10		
	11	30.130	64	29.992	59	72	51	100	46	65	58	57	55		N.W.		W.					62	59	56					11		
	12	29.768	62	29.626	57	72	51	95	45	61	57	55	53	+	S.W.		N.W.					61	59	57					12		
	13	29.512	53	29.698	53	57	43	76	44	51	50	46	44	+	N.W.		N.					57	59	58					13		
	14	29.646	53	29.702	56	67	38	85	34	56	51	52	49		W.		N.W.					57	59	57					14		
	15	29.824	65	29.818	59	72	44	94	40	63	55	57	55		W.		W.					59	58	57					15		
	16	29.764	60	29.756	58	68	53	94	47	59	54	56	53		N.W.		N.W.					60	59	57					16		
	17	29.826	60	29.574	58	62	48	89	44	57	51	53	52	+	W.		S.E.					59	59	57					17		
	18	29.386	61	29.524	53	67	49	91	48	62	57	49	48	+	N.W.		N.W.					60	59	57					18		
	19	29.718	56	29.784	48	55	42	71	41	53	48	41	40		N.W.		W.					57	59	57					19		
	20	29.834	53	29.856	55	59	34	85	30	53	48	63	50		W.		N.					54	58	57					20		
	21	29.814	60	29.692	56	68	40	84	37	58	53	54	52		S.		S.W.					57	58	57					21		
	22	29.596	67	29.420	61	74	52	96	49	70	62	59	57		S.E.		S.E.					62	58	57					22		
	23	29.264	58	29.498	54	56	49	78	43	55	52	50	47	+	S.		N.W.					58	58	57					23		
	24	29.636	53	29.760	52	54	47	58	45	51	47	47	44		N.W.		W.					54	58	57					24		
	25	29.814	56	29.864	52	65	39	88	33	57	51	47	45		N.W.		S.E.					55	57	56					25		
	26	29.892	62	29.894	56	67	42	91	37	62	56	55	53		S.		S.					58	57	56					26		
	27	29.864	62	29.786	57	64	53	85	51	62	58	54	53	+	S.E.		S.E.					61	58	56					27		
	28	29.568	58	29.752	55	58	53	73	52	58	57	54	53	+	S.E.		S.E.					60	59	57					28		
	29	29.922	51	29.942	56	57	46	71	46	49	46	53	51	+	N.W.		N.W.					54	58	56					29		
	30	29.974	55	29.848	53	65	48	81	47	54	50	52	51	+	W.		S.E.					56	58	56					30		
	31	29.732	58	29.726	58	70	49	85	46	62	57	56	54	+	S.W.		W.					58	58	56					31		
Sums.		29.814	11	29.713	11	1119	1119	1119	1119	1119	1119	1119	1119									1803	1804	1750							
Means.		29.775	58.5	29.778	55.5	64.19	46.58	83.93	43.32	57.8	52.96	52.51	50.04	1.26								58.16	58.29	56.45							
+ Total Corrections for Instrumental Errors.		X-110		X-110																											
+ Corrections for Diurnal Range.																															
"Corrected Means."		29.885		29.888		83.93	43.32	57.8	52.96	52.51	50.04	50.04	50.04																		
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.
ch.	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.	sq.s.	squalls.
l.	lightning.	t.	thunder.
li. cl.	light clouds.	t. s.	thunder-storm.
li. sh.	light showers.	w.	wind.
lu. co.	lunar corona.	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  $\pm$  = 29.805  
for Temp. (Col. 2), 29.805 - 0.001 = 29.804  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\pm$  = 29.815  
for Temp. (Col. 4), 29.815 - 0.001 = 29.814  
Mean at Station, corrected, and at 32°, 29.814  
Correction for height, feet above Mean Sea-level, 196  
Mean, reduced to 32°, and Sea-level, 30.036  
Highest Reading, corrected for Index error, on the 9 th., 30.258  
Lowest Do. Do., on the th., 29.374  
Difference, or Monthly Range, 0.914

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 11 th., 74.0  
Lowest in Month, corrected for Index errors, on the 10 th., 34.0  
Difference, or Monthly Range, 40.0  
"Corrected Mean" of all the Highest, (Col. 5), 64.2  
"Corrected Mean" of all the Lowest, (Col. 6), 46.6  
Difference, or Mean Daily Range, 17.6  
\*\* Calculated Mean Temperature of Month, 55.4  
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 11 th., 100.0  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, 83.9  
Lowest at Night, Black Bulb (corrected for Index errors), on the 10 th., 30.0  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, 43.3  
Difference of above means or range ("exposed"), 53.9

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), 55.2  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), 51.5  
Computed Temperature of Dew-Point, 48.0  
Do. Elastic Force of Vapour, 33.5  
Do. Weight of Vapour in a Cubic Foot of Air, 77  
Relative Humidity (Saturation = 100), 77  
RAIN fell on 14 Days; Amount in Inches, 1.26

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		1	-	-	3	2	5	6	13	-	
P.M.		3	1	-	6	1	3	5	12	-	
Mean.		2	1	0	4	2	4	6	12	0	

Observations made and  
Return verified by

John Torrey

(Signed)







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Naddo House, County of Meriden, 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 1898.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			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.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.			9 h. A.M.					0-10.				
		Barometer. * No.	Attached Ther- mometer	Barometer. No.	Attached Ther- mometer	Max. No.	Min. No.	Max. in Sunrays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	No. of days 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.	9 A.M.	9 P.M.			
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	
		°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	
	1	29.660	65	29.526	63	70	52	93	48	66	58	62	60	+	S.W	3.W									60	58	56				1		
	2	29.416	64	29.318	61	69	60	80	57	65	60	58	57	+	S.W	3.W									60	58	57				2		
	3	29.312	62	29.348	64	66	49	90	43	61	53	62	60		S.W	3.W									57	58	57				3		
	4	29.442	62	29.585	55	60	46	90	42	60	53	50	48	+	W	N.W									57	58	57				4		
	5	29.406	54	29.206	53	56	45	57	43	51	50	50	49	+	S.E	N.E									55	58	57				5		
	6	29.405	59	29.482	54	65	47	90	43	58	53	50	48	+	N.W	W									56	57	57				6		
	7	29.488	55	29.503	53	65	45	92	43	55	52	48	45	+	S.E	S.E									57	58	57				7		
	8	29.548	56	29.672	55	65	42	72	39	55	53	50	49	+	S.E	N									57	58	57				8		
	9	29.740	54	29.780	50	68	48	81	46	53	50	45	43		N	N									56	58	57				9		
	10	29.406	54	29.524	59	71	40	86	36	55	52	55	56	+	S.E	W									57	57	56				10		
	11	29.716	60	29.712	63	79	46	88	44	59	56	61	58		S.E	S.W									57	57	56				11		
	12	29.704	66	29.542	63	71	50	85	46	66	57	60	58		S	S									58	58	56				12		
	13	29.620	67	29.702	67	73	57	92	52	67	61	62	60	+	S	S									61	59	56				13		
	14	29.728	68	29.734	63	74	49	92	45	68	62	61	58		S	S									60	59	57				14		
	15	29.848	60	29.886	60	70	42	92	38	60	58	58	57		N.W	S.W									57	59	57				15		
	16	29.840	59	29.876	57	68	50	61	45	59	57	55	54	+	N.W	S.E									59	59	57				16		
	17	29.940	59	29.976	57	65	52	63	51	58	55	54	53		S.E	S.E									59	59	57				17		
	18	30.008	61	30.012	58	64	42	81	35	61	57	52	51		S.E	S.E									57	59	57				18		
	19	30.086	57	30.066	57	57	45	66	39	57	56	54	53	+	S.E	S.E									58	59	57				19		
	20	29.978	58	29.912	57	60	56	67	46	56	56	55	54		S.E	S.E									58	59	57				20		
	21	29.916	60	29.872	58	71	55	87	51	60	58	56	55	+	S	S.E									59	59	57				21		
	22	29.716	60	29.504	63	69	54	82	53	60	58	61	60	+	S	S									60	59	57				22		
	23	29.734	58	29.752	57	68	53	88	53	57	54	52	51	+	N.W	W									60	60	57				23		
	24	29.830	59	29.942	50	65	46	82	36	58	51	48	47		W	W									57	60	58				24		
	25	29.920	55	29.788	55	64	37	78	30	56	51	53	51		S.W	S.W									55	58	58				25		
	26	29.676	61	29.334	59	69	50	84	44	63	58	57	56	+	S	S									58	58	57				26		
	27	29.244	59	29.096	51	56	51	74	45	57	52	45	44	+	N.W	W									58	59	57				27		
	28	29.272	57	29.416	50	56	43	80	36	54	48	48	47	+	S.W	S.W									54	58	57				28		
	29	29.512	54	29.110	53	60	43	73	35	53	47	51	50	+	S.W	S.W									54	57	57				29		
	30	29.214	58	29.200	52	56	48	75	40	54	54	50	50	+	W	E									56	57	57				30		
	31	29.636	52	29.836	51	59	44	80	39	51	47	47	45	+	N.W	N.W									52	56	56				31		
Sums.		918.840	1841	918.652	1765	2015	1589	2521	1346	1818	1696	1779	1607												1779	1807	1763						
Means.		29.641	59.7	29.650	56.9	65.0	51.2	81.3	43.4	58.6	54.7	57.4	51.8												57.4	58.3	56.9						
+ Total Corrections for Instru- mental Errors.		+110		+110																													
+ Correc- tions 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		

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\uparrow$  = 29.668  
for Temp. (Col. 2), = 29.751.....83  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\uparrow$  = 29.684  
for Temp. (Col. 4), = 29.760.....76  
Mean at Station, corrected, and at 32°,..... = 29.676  
Correction for height, feet above Mean Sea-level,..... = 195  
Mean, reduced to 32°, and Sea-level,..... = 29.871  
Highest Reading, corrected for Index error, on the 8 th,..... = 30.122  
Lowest Do. Do., on the 29 th,..... = 29.220  
Difference, or Monthly Range,..... = 0.902

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 11 th,..... = 77.0  
Lowest in Month, corrected for Index errors, on the 25 th,..... = 34.0  
Difference, or Monthly Range,..... = 43.0  
"Corrected Mean" of all the Highest, (Col. 5),..... = 65.0  
"Corrected Mean" of all the Lowest, (Col. 6),..... = 51.2  
Difference, or Mean Daily Range,..... = 13.8  
\*\* Calculated Mean Temperature of Month,..... = 58.1  
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 11 th,..... = 92.0  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun,..... = 81.3  
Lowest at Night, Black Bulb (corrected for Index errors), on the 14 th,..... = 30.0  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass,..... = 43.4  
Difference of above means or range ("exposed"),..... =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11),..... = 56.3  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),..... = 53.6  
# Computed Temperature of Dew-Point,..... = 51.0  
# Do. Elastic Force of Vapour,..... = 347  
# Do. Weight of Vapour in a Cubic Foot of Air,..... =  
# Relative Humidity (Saturation = 100),..... = 83  
RAIN fell on Days; Amount in Inches,..... = 2.98

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		2	-	-	8	6	6	3	6	-	-
P.M.		2	1	1	7	5	8	5	2	-	-
Mean.		2	1	1	7	5	7	4	4	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 1835, was to secure PERFECT UNIFORMITY in the system of observation pursued at all its Stations. Uniformity in the observations is absolutely necessary to justify the publication of Monthly Results from different observations, it being found that differences between the Returns from two Stations, so very considerable as to render them quite incommensurate, may arise from dissimilarity in the position or shelter of instruments, different hours of observation, or even from the use of differently constructed instruments. It is therefore hoped, that those who kindly furnish Reports to the Society will, by a scrupulous attention to the following Directions, secure for their Monthly Returns an accuracy and value commensurate with the labour and pains involved in making them; and, for the Tables published by the Society, an entire comparableness among the several Returns, without which the Society's Reports must inevitably fail in achieving one of the main objects of Meteorological Observation.

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

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

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

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

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

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

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

In taking an Observation, the Attached Thermometer is first noted: the tube must then be gently tapped, and the cistern-adjustment carefully made. The eye, by raising and lowering it, must be brought into the plane of the back and front of the index—usually the lower edge of the vernier, which must be carefully adjusted so as to form exactly a tangent to the convex surface of the mercury in the tube. Observations must be taken quickly, so as to prevent 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 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 unscrewing the foot 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 Protection.

Thermometers, painted white inside and outside, and Hygrometers, painted white inside and outside, and Ivory-boarded Boxes, to four foot posts, also painted white, firmly fixed in the ground. The posts must be of a length that, when the Thermometers are hung in position, the Balls 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 so that the sun's rays have access during as much of the day as surrounding conditions enable the Observer to secure. The Thermometers are suspended on cross-ties 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 OF 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 Umades of places with each other as regards their most important features.

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

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

The bulbs of the Thermometers for registering the greatest heat during night, have a black coating, which may easily be made, or mended, by the application of a mixture of lampblack and printer's ink. They are placed in shallow blackened boxes, whose sides protect the bulbs from the sun. The Maximum 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 should they be exposed to the Minimum Thermometer by dislocation. Black-bulb endothermic-in-glass jackets may also be used, being indeed preferable to the above. It must, however, be added, that the whole subject of the observation of Solar and Terrestrial Radiation is not yet 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 upon the same frame. As at an early slight deviation from the Hygrometrical Observations. Observations 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 that it will bring the tubes forward by an inch from any point to which it may be appended; the water cup must be covered, and altogether placed under the bulb; the bulb must be of metal thickness, and fastened at the neck of the bulb by the cord, which also supplies it with water. It must be seen to by the Observer, that the mesh is always clean and moist and the water pure. In frosty weather observation is a matter of much delicacy, and must be done with care. The bulb must be moistened by immersion from 15 to 30 minutes before the hour of observation. From the film of ice so formed evaporation will proceed as from the moist cloth in ordinary circumstances.

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

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

No instrument ought to be used for Meteorological purposes till it has been carefully tested by comparison with a standard Thermometer. When such Thermometers are not readily given 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

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, whichever 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 Secretaries, 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 of the more importance 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 series of simultaneous observations, 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 CHANGES, and other points connected with storms.

The Council would recommend the Hemispherical Cup Anemometer, a self-registering instrument which shows the amount of Wind that passes it per day; from which also the mean Velocity of the Wind at the time of observation may be ascertained. For indicating the Force of the Wind at any particular hour of observation, the Pressure

Anemometers recently brought under the notice of the Society by Mr. T. Stevenson, the Honorary Secretary, and Mr. R. Ballingall, the Society's Observer at Fallowbank, are recommended as likely to secure uniformity in making observations on the Force of the Wind.

Many causes conspire to produce anomalies in Rain Returns, arising partly from the difficulty of obtaining a perfectly unobstructed situation for observation, and partly from the defective nature of the instruments used. The Rain Gauge should not be placed on a slope or terrace, but on a level piece of ground, in an open situation as the Observer can secure for it. As it is often difficult to obtain a position as free and unobstructed by surrounding objects as is desirable, care should be taken to place it at some distance from shrubs, trees, buildings, or other obstructions, at least as many feet from their base as they are in height. The more important directions towards which it is most desirable to have free exposure, are, in the order of their importance, S.W., N.E., S.E., S., and W. The rain 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 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 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 Rain columns, above the snow, or the following method is recommended. When a Snow-fall has occurred, it should be noted in the 'Rain' column, and the letter S affixed to the depth of snow received in the gauge. The depth of the snow must be measured in an open place where drift is observed, and registered in addition to the snow which is on the indications of the Rain Gauge. For wind, rain, and snow, 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 non-ventures of Clouds will be found on the other side. The amount of Cloud ought to be estimated from the greater or less observation of the sky overhead (i.e. within 90° 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, S. S.W. will indicate that the upper strata of Clouds travel with the sky overhead (i.e. within 90° 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.

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

When what Feet-Papers are used, Schönbem's or Moffat's, etc. Memoir 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 3.5, as an Ozone entry in the schedule will indicate that the Ozone paper is tinted as 3 on the scale, that the wind is from the N.W., and that its force on the scale 0—5 is 4, or blowing fresh.

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

The Remarks column is unavoidably too narrow. Some of the most valuable Observations that can be taken are those for which no rules can be given nor hours assigned. The use of contractions ought, therefore, to be taken every advantage of, and a list of such as are in general use is given at the foot of the column. Besides special and extraordinary Observations, great prominence ought to be given in this column to prevalent Diseases, differences in character, colour, &c., and direction between the Lower and Upper Strata of clouds, the Colour of the Sky, etc. Remarks ought to be made on the occurrence of Meteors, Auroræ Boreales, remarkable depressions, elevations, and fluctuations of the Barometer, Thunder-Storms, and remarkable falls of Snow, Hail, or Rain, the Hour of Storms of Wind commencing, attaining their maximum, and ending, as well as such Notes on Storms as have been hinted at above. When lofty hills are in the vicinity of a Station, the Height of Clouds and of the Snow-line in winter should be recorded. By the use of abbreviations, the state of the weather at 9 A.M. and 9 P.M. should be registered, either in two columns, otherwise uncoupled, or ruled off for the purpose, from the column of 'Remarks.' Observations in connection with the Periodic Return of the Seasons, possess not only great scientific value, but connection with are of considerable importance in connection with the Periodic Return of the Seasons, Agriculture, Horticulture, and Natural History. The Council would direct the special attention of Observers to the registration of such phenomena, so that the published Summaries may fairly represent the whole of Scotland. Observations ought to be confined to individual trees and shrubs; to particular species of birds, and, in the case of crops to specified sorts reared from year to year on a selected piece of ground or farm. The Annual Table, published yearly in the Society's Journal, will indicate the species of plants and animals to which special attention is more particularly directed.

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

EDINBURGH, December 1881.

FOREST TREES.	PLANTS.	MIGRATORY BIRDS.	First Arrival.	Departure.
Alder.	Barley.	Cuckoo.		
Ash.	Bare or Bigg.	House-Swallow.		
Beech.	Oats.	Lapwing.		
Birch.	Wheat.	Plover.		
Elm.	Beans.	Sand-Martin.		
Larch.	Peas.	Starling.		
Oak.	Turnips.	Swan.		
Sycamore or Plane.	Rye Grass.	Rail or Corn Crane.		

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

SHRUBS, ETC.	First in Blossom.	First in Blossom generally.	Fruit Ripe.	First in Blossom.	First in Blossom generally.	Fruit Ripe.
Barberry.	Apple.	Cuckoo.				
Bourtree or Elder.	Black Currant.	Curlew.				
Broom.	Cherry.	House-Swallow.				
Hazel.	Gean.	Lapwing.				
Hawthorn.	Gooseberry.	Plover.				
Holly.	Peach.	Sand-Martin.				
Lilac.	Pear.	Starling.				
Mezereum.	Plum.	Swan.				
Mountain Ash or Rowan.	Strawberry.	Rail or Corn Crane.				
Red Flowering Currant.						
Rhododendron Ponticum.						
Whin.						

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

To the SECRETARY

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.



## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Haudo 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 1898.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.	Days of Month.	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.			9 h. A.M.							
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max. No.	Min. No.	Max. No.	Min. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Direction.	Force.	Direction.	Force.	Velocity (0-10), and Direction.	Amount (0-10), and Species.	Velocity (0-10), and Direction.	Amount (0-10), and Species.		No. 9 inches.	No. 12 inches.	No. 22 inches.					
		* No.	inches.	"	inches.	"	"	"	"	"	"	"	"		"	"	"	"	"	"	"	"		"	"	"					"
	1	29.684	59	29.870	53	57	44	82	37	60	56	48	47		S.W.	S.W.							54	56	56					1	
	2	29.612	54	29.796	55	60	50	75	44	53	52	53	52	+	S.E.	N.W.							54	56	56					2	
	3	29.840	60	30.024	60	79	53	96	50	63	62	54	53	88	S.E.	S.W.							57	57	56					3	
	4	30.114	67	30.051	59	78	56	93	49	74	66	54	53		S.E.	S.E.							60	58	56					4	
	5	29.988	62	29.982	65	85	46	97	39	67	64	63	62		S.E.	S.E.							59	59	57					5	
	6	29.892	66	29.824	64	77	56	82	50	71	66	62	61		S.E.	S.E.							63	60	57					6	
	7	29.746	65	29.726	60	80	54	96	49	70	65	57	56	+	S.E.	S.E.							62	60	58					7	
	8	29.640	64	29.684	61	74	57	96	46	71	65	58	57	+	S	S.W.							61	61	58					8	
	9	29.530	59	29.524	54	66	58	82	46	57	56	48	47	+	N.W.	S.W.							60	60	58					9	
	10	29.412	60	29.476	53	68	49	85	41	60	56	47	45		S.W.	W							58	60	58					10	
	11	29.432	58	29.392	56	56	49	68	41	58	55	53	52	12	S	S.W.							56	59	58					11	
	12	29.604	56	29.628	54	56	48	81	35	55	49	51	50		N.W.	S							54	58	58					12	
	13	29.598	55	29.594	55	66	45	77	40	54	52	50	49	+	S	S.W.							54	57	57					13	
	14	29.522	52	29.890	54	68	50	84	45	67	60	50	48	+	W	W							57	57	57					14	
	15	30.006	53	30.024	52	60	41	84	34	53	50	50	49		S.E.	S.E.							54	57	57					15	
	16	29.950	58	29.750	57	73	45	82	54	66	61	55	53		S	S.E.							53	57	57					16	
	17	29.622	60	29.458	60	70	52	80	47	61	59	60	59		S.E.	S.E.							57	57	57					17	
	18	29.408	59	29.548	47	64	50	86	48	60	59	41	40	23	S	N.W.							58	57	57					18	
	19	29.640	49	29.672	47	57	37	78	31	52	47	45	44		S.W.	S.W.							50	56	57					19	
	20	29.454	52	29.502	57	66	41	77	36	56	55	57	56	+	S	S.W.							54	56	56					20	
	21	29.648	50	29.772	50	64	43	72	35	50	46	46	44		N.W.	S.W.							54	56	56					21	
	22	29.926	49	30.020	50	57	41	70	35	48	44	47	44		N.W.	N.W.							53	56	56					22	
	23	30.018	50	30.064	49	56	43	77	26	49	45	47	45		S.E.	S.E.							52	55	55					23	
	24	29.992	50	29.802	47	55	42	58	37	49	46	43	41		S.E.	S.E.							51	53	55					24	
	25	29.844	48	29.838	44	52	38	62	37	46	43	40	39	60	S	S							50	54	55					25	
	26	29.802	49	29.432	49	55	35	59	29	51	47	47	46		S	S							50	53	54					26	
	27	29.488	50	29.364	51	57	35	67	29	51	49	50	48		S	S							49	53	54					27	
	28	29.252	52	29.432	46	52	30	67	46	51	50	42	41	+	S.E.	N.W.							53	53	54					28	
	29	29.500	46	29.532	50	57	35	72	29	52	48	48	47	+	S	S.W.							48	52	53					29	
	30	29.646	53	29.800	52	57	50	54	47	55	53	49	48	13	S.E.	S							52	52	53					30	
	31																													31	
Sums.		7120	3	16410	12	15	11	13	16	11	14	12	14										11	14	18						
Means.		29.728	16	29.771	11	12	16	22	2	23	12	1	27									164	169	186							
+ Total Corrections for Instrumental Errors.		29.699	55	29.726	55	63	56	77	40	57	54	50	49	12								54	56	56							
+ Corrections for Diurnal Range.		+110		+110																		55									
"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.
cl.	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.	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  $\ddagger$  for Temp. (Col. 2), 29.737  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\ddagger$  for Temp. (Col. 4), 29.769  
Mean at Station, corrected, and at 32°, 29.753  
Correction for height, feet above Mean Sea-level, 1.97  
Mean, reduced to 32°, and Sea-level, 29.950  
Highest Reading, corrected for Index error, on the 4 th., 30.114  
Lowest Do. Do., on the 28 th., 29.252  
Difference, or Monthly Range, 0.862

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 5 th., 85.0  
Lowest in Month, corrected for Index errors, on the 26 th., 35.0  
Difference, or Monthly Range, 50.0  
"Corrected Mean" of all the Highest, (Col. 5), 64.1  
"Corrected Mean" of all the Lowest, (Col. 6), 45.6  
Difference, or Mean Daily Range, 18.5  
\*\* Calculated Mean Temperature of Month, 54.8  
S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 5 th., 97.0  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, 77.6  
Lowest at Night, Black Bulb (corrected for Index errors), on the 21 th., 39.2  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, 40.7  
Difference of above means or range ("exposed"),

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), 54.1  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), 51.7  
# Computed Temperature of Dew-Point, 49.3  
# Do. Elastic Force of Vapour, 351  
# Do. Weight of Vapour in a Cubic Foot of Air,   
# Relative Humidity (Saturation = 100), 83  
RAIN fell on 2 Days; Amount in Inches, 1.96

WIND.	SUMMARY.									
	Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.
A.M.					12	10	3	1	4	
P.M.					9	5	10	2	4	
Mean.		0	0	0	11	7	6	2	4	0

Observations made and  
Return verified by

John Forrest

(Signed)







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Harbour 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 1898.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.	Days of Month.		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		9 h. A.M.								
		No.	Barometer.	No.	Barometer.	No.	Barometer.	No.	Barometer.	No.	Barometer.	No.	Barometer.		No.	Barometer.	No.	Barometer.	No.	Barometer.	No.	Barometer.	No.	Barometer.	No.					Barometer.	No.
	1	29.830	50	29.898	56	67	46	76	41	55	52	54	52		S.W.	S.W.							53	53	53				1		
	2	29.808	57	29.970	57	74	49	92	41	66	61	54	52		S.W.	S.W.							53	54	53				2		
	3	30.016	50	30.042	51	70	45	86	39	64	60	47	46		S	S							53	55	54				3		
	4	30.028	52	30.152	51	57	37	89	34	60	57	48	47		S.W.	S.W.							51	55	54				4		
	5	30.250	49	30.162	52	65	46	83	45	50	50	51	50		S.W.	S.W.							50	54	54				5		
	6	30.156	54	29.950	51	55	47	73	47	54	51	49	48		S	S.W.							53	54	54				6		
	7	29.852	51	29.760	52	54	44	73	39	49	49	51	50		S.W.	S.W.							52	54	54				7		
	8	29.762	54	29.650	53	57	50	74	41	54	53	51	50		S	S							51	53	53				8		
	9	29.664	54	29.752	51	58	43	68	41	54	53	50	49	+	S	S							52	53	53				9		
	10	29.660	52	29.765	50	55	41	61	40	52	51	49	48		S	S.W.							51	53	53				10		
	11	29.874	50	29.830	44	53	42	70	34	49	48	36	35	+	N.W.	N.W.							50	53	53				11		
	12	29.784	48	29.732	48	52	35	62	29	47	46	46	45	+	N.W.	N.W.							48	52	53				12		
	13	29.724	46	29.708	49	50	38	60	33	46	45	47	46	+	N.W.	S							48	52	53				13		
	14	29.668	52	29.572	48	47	42	50	37	52	51	46	45	+	S.W.	S.W.							49	51	52				14		
	15	29.418	49	29.342	46	46	44	47	39	47	43	45	43	+	S.W.	S.W.							48	51	52				15		
	16	29.226	45	29.200	43	51	40	63	35	45	42	40	38	+	S.W.	S.W.							45	50	52				16		
	17	29.120	46	29.144	43	45	40	45	34	44	41	41	40	+	N.W.	S.W.							45	49	51				17		
	18	29.268	41	29.296	43	45	36	44	34	39	38	40	39	+	S	S.W.							43	48	50				18		
	19	29.296	43	29.424	48	47	39	49	36	45	45	47	47	+	S.W.	S.W.							43	47	49				19		
	20	29.432	49	29.372	49	50	42	51	37	47	46	47	47	+	S.W.	S.W.							47	48	49				20		
	21	29.374	51	29.338	50	58	47	57	44	51	50	48	47		S.W.	S.W.							48	49	49				21		
	22	29.160	52	29.158	52	59	48	72	42	54	51	50	48		S	S.W.							50	50	50				22		
	23	29.476	51	29.606	45	50	46	65	37	51	46	40	38	+	N.W.	S.W.							48	50	50				23		
	24	29.404	49	29.202	42	46	38	61	31	47	45	37	36	+	S	N							47	49	50				24		
	25	29.348	45	29.222	49	51	38	53	30	44	38	48	48	+	S.W.	S.W.							44	49	50				25		
	26	29.288	49	29.366	45	46	41	63	35	51	45	42	41		N	N							46	48	50				26		
	27	29.472	42	29.506	44	48	34	67	30	45	43	40	39		S	S.W.							43	48	49				27		
	28	29.516	40	29.500	46	50	33	61	28	40	39	46	46	+	S	S.W.							42	47	49				28		
	29	29.342	47	29.148	47	48	39	50	32	46	46	45	44	+	N.W.	N.W.							47	48	49				29		
	30	28.878	47	28.664	47	50	42	49	37	46	45	46	45	+	N.W.	N.W.							47	48	49				30		
	31	28.828	49	29.174	42	48	44	46	42	47	45	39	36	+	N.W.	N.W.							47	48	49				31		
Sums.		916.022	514	915.108	494	1652	1308	1962	1144	1541	1475	1420	1388	17									1494	1573	1593						
Means.		29.549	48.8	29.533	48.2	53.3	41.8	63.3	36.9	49.7	47.6	45.8	45.0	3.45									48.1	50.7	51.3						
+ Total Corrections for Instrumental Errors.		57.9																													
+ Corrections for Diurnal Range.																															
+ "Corrected Means."																															
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 2),  $29.659 - 0.059 = 29.605$

"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 4),  $29.594 - 0.054 = 29.540$

Mean at Station, corrected, and at 32°  $29.620 - 0.032 = 29.588$

Correction for height, feet above Mean Sea-level,  $1.98$

Mean, reduced to 32°, and Sea-level,  $29.588 - 1.98 = 27.608$

Highest Reading, corrected for Index error, on the 5th,  $30.250$

Lowest Do. Do., on the 30th,  $28.614$

Difference, or Monthly Range,  $1.636$

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 28th,  $94.0$

Lowest in Month, corrected for Index errors, on the 28th,  $35.0$

Difference, or Monthly Range,  $59.0$

"Corrected Mean" of all the Highest, (Col. 5),  $53.3$

"Corrected Mean" of all the Lowest, (Col. 6),  $41.8$

Difference, or Mean Daily Range,  $11.5$

\*\* Calculated Mean Temperature of Month,  $47.6$

S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 2th,  $92.0$

"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun,  $63.3$

Lowest at Night, Black Bulb (corrected for Index errors), on the 28th,  $28.0$

"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass,  $36.9$

Difference of above means or range ("exposed"),  $26.4$

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11),  $47.8$

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),  $46.3$

\*\* Computed Temperature of Dew-Point,  $44.5$

\*\* Do. Elastic Force of Vapour,  $296$

\*\* Do. Weight of Vapour in a Cubic Foot of Air,  $89$

\*\* Relative Humidity (Saturation = 100),  $89$

RAIN fell on 17 Days; Amount in Inches,  $3.45$

WIND.		SUMMARY.										
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day
A.M.		-	3	-	10	9	2	1	5	0		
P.M.		-	1	-	14	4	6	2	3	0		
Mean.		0	2	0	12	7	4	2	4	0		

\* Each instrument tested at the Office in Edinburgh bears the stamp "S.M.S.," and a number to be entered in the Heading; or the Number and Initials of the Maker may be here given.

† Embouchure corrections for both capillarity and Index Errors.

‡ The Diurnal Range for Scotland is as yet unknown.

§ Practically, though not absolutely a minus correction.

|| These "Hygrometrical Deductions" are calculated from Glaisher's Hygrometrical Tables, Second Edition only.

\*\* While the Diurnal Range is unknown, the Arithmetical Mean of Cols. 5 and 6 will be entered as the "Calculated Mean Temperature."

\*\*\* Any observations not taken under the Conditions specified in the Directions on the other side, or noted at the Top of each column, must be marked as such by the observer, in each Schedule. See over.

Observations made and  
Return verified by

John Forrest

(Signed)







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Harold 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 November 1898.

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.		9 A.M.		P.M.		No. 3 inches.	No. 12 inches.	No. 22 inches.					
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force.	Direction.	Force.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.								SUNSHINE.
		* No.	inches.	No.	inches.	No.	No.	No.	No.	No.	No.	No.	No.			No.	No.	No.	No.	No.	No.	No.	No.								No.
		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
		29.324	39	29.398	46	56	26	58	25	41	39	46	44			S.W.		S.W.						42	47	48					1
	2	28.774	54	28.810	50	55	45	60	40	55	52	48	46			S.W.		S.W.						48	47	48					2
	3	28.888	47	28.988	39	40	38	54	30	44	40	38	37	+		W		N.W.						44	47	48					3
	4	28.968	44	29.042	41	47	35	55	29	45	41	38	36			W		W						42	46	48					4
	5	29.140	39	29.326	40	45	37	55	29	40	38	37	35			S.W.		S.W.						42	46	47					5
	6	29.546	37	29.600	42	49	31	56	25	40	37	40	39			S.W.		S.W.						40	44	47					6
	7	29.596	46	29.584	47	45	37	48	30	38	36	47	46			S		S						44	44	47					7
	8	29.616	46	29.802	38	48	32	58	25	44	42	32	32			S		S						44	44	47					8
	9	29.908	34	29.900	37	48	27	56	21	32	31	33	33			W		S.W.						38	44	46					9
	10	29.828	36	29.750	37	50	28	53	25	34	34	32	33			S		S.E.						40	44	46					10
	11	29.724	42	29.682	47	49	29	57	24	43	43	47	47			S.E.		S.E.						40	44	46					11
	12	29.476	50	29.364	49	49	43	49	40	49	48	48	47	+		S.E.		S.E.						46	44	46					12
	13	29.684	44	29.760	38	46	41	53	40	43	41	32	31	+	52	N.W.		W						44	44	46					13
	14	29.664	42	29.784	40	46	31	45	25	41	40	37	36	+		S.E.		S.W.						42	44	46					14
	15	29.864	37	29.868	37	50	30	60	25	35	34	33	32			W		S.W.						41	44	46					15
	16	29.760	40	29.748	46	53	31	58	26	40	39	46	45			S		S						40	43	45					16
	17	29.804	45	29.998	46	55	44	63	31	46	45	47	45			W		W						42	43	45					17
	18	30.006	49	29.988	50	53	44	52	38	49	47	47	46			S		S						45	44	45					18
	19	29.986	41	29.924	41	47	34	50	29	36	35	37	37			S		S						42	44	45					19
	20	29.762	43	29.598	33	43	36	48	30	40	38	42	42	+	16	S.W.		N.W.						42	44	45					20
	21	29.672	37	29.912	35	46	30	46	25	36	35	31	30	+		N.W.		N.W.						40	44	45					21
	22	29.896	34	29.508	31	33	28	35	22	31	29	26	25	+		N.W.		N.E.						36	42	44					22
	23	29.142	38	29.042	38	39	23	37	20	34	35	37	37	+		S.E.		S.E.						36	41	44					23
	24	29.026	37	28.896	39	40	33	40	32	37	36	38	37	+		S.E.		S.E.						38	41	43					24
	25	28.844	40	28.958	41	42	38	41	36	41	40	41	40	+		W		W						40	41	43					25
	26	29.050	40	28.974	39	40	36	39	35	39	39	36	35	+		E		N						39	41	42					26
	27	28.904	39	29.072	38	40	31	40	24	37	35	37	36	+	2.54	N.W.		N						37	41	42					27
	28	29.182	35	29.312	32	38	31	36	26	33	32	28	26	+		N		N.W.						36	40	42					28
	29	29.258	24	29.188	27	28	18	31	13	20	20	23	23			W		N.W.						36	40	42					29
	30	29.184	33	28.982	38	40	22	39	16	33	32	39	38		56	S.W.		S.W.						35	40	42					30
	31																														31
Sums.		1753		1914		11	13	11		11	12	10	14											120	130	135					
Means.		13476		1378		169	1000			1176	1133	1101	1116											156							
+ Total Corrections for Instrumental Errors.		29.449		29.459		633	489	279	392	378	380	272	13382											407	434	452					
+ Corrections for Diurnal Range.		+110		+110		-	-	-	-	-	-	-	-																		
"Corrected Means."		29.559		29.569																											
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\ddagger$  = 29.528  
for Temp. (Col. 2), = 29.559 ..... 0.3.1.  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\ddagger$  = 29.538  
for Temp. (Col. 4), = 29.569 ..... 0.3.1.  
Mean at Station, corrected, and at 32° ..... = 29.533  
Correction for height, feet above Mean Sea-level, ..... = 2.01  
Mean, reduced to 32°, and Sea-level, ..... = 29.734  
Highest Reading, corrected for Index error, on the 18th, ..... = 30.116  
Lowest Do. Do., on the 7th, ..... = 28.884  
Difference, or Monthly Range, ..... = 1.232

S.R. THERMOMETER, (in shade, etc.) Highest in Month, (corrected for Index Errors), on the 18th, ..... = 56.0  
Lowest in Month, corrected for Index errors, on the 29th, ..... = 18.0  
Difference, or Monthly Range, ..... = 38.0  
"Corrected Mean" of all the Highest, (Col. 5), ..... = 45.6  
"Corrected Mean" of all the Lowest, (Col. 6), ..... = 33.3  
Difference, or Mean Daily Range, ..... = 12.3  
\*\* Calculated Mean Temperature of Month, ..... = 39.5  
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 2th, ..... = 60.0  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, ..... = 48.9  
Lowest at Night, Black Bulb (corrected for Index errors), on the 7th, ..... = 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), ..... = 38.6  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), ..... = 34.5  
\*\* Computed Temperature of Dew-Point, ..... = 36.1  
\*\* Do. Elastic Force of Vapour, ..... = 2.13  
\*\* Do. Weight of Vapour in a Cubic Foot of Air, ..... =  
\*\* Relative Humidity (Saturation = 100), ..... = 92  
RAIN fell on 13 Days; Amount in Inches, ..... = 3.80

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		1	2	5	6	6	4	-	-	-	
P.M.		2	1	5	5	8	3	5	-	-	
Mean.		2	1	2	5	5	7	4	4	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° 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 December 1898.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.		Days of Month.	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			9 h. A.M.		9 h. P.M.		9 A.M.		P.M.			9 h. A.M.					As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.			
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Direction.	Force.	Direction.	Force.	Velocity (0-6) and Direction.	Amount (0-10), and Species.	Velocity (0-6) and Direction.	Amount (0-10), and Species.		No. 3 inches.	No. 12 inches.	No. 22 inches.			0-10.			Mention the hour at which Storms, including Thunder and Lightning, began and ended.
		* No.		No.		No.	No.	No.	No.																				9 A.M.	9 P.M.		
		inches.	°	inches.	°																											
	1	29.020	39	28.930	40	50	33	51	28	41	40	40	40	+	W		S.W							37	40	41				1		
	2	28.802	40	28.922	38	41	38	41	35	38	37	36	34	+	N.W		N.W							39	40	41				2		
	3	29.262	38	29.042	47	48	32	47	25	37	34	46	45	+	W		S.E.							37	40	41				3		
	4	29.008	41	29.110	48	55	35	52	28	40	38	49	47	+	S		S.W							40	41	41				4		
	5	29.142	48	29.292	45	53	43	55	44	51	48	42	41	+	S		S.W							43	42	42				5		
	6	29.282	48	29.152	42	52	39	48	32	47	44	38	36		S.W		W							42	42	42				6		
	7	29.074	41	29.042	39	42	36	41	28	37	35	37	35	+	S.W		N.W							39	41	42				7		
	8	29.614	39	29.336	38	42	35	40	29	37	34	35	32	+	N.W		S							39	41	42				8		
	9	28.944	42	29.300	39	48	32	48	24	41	39	36	34		S		W.							39	40	41				9		
	10	29.128	44	29.686	40	50	37	49	30	45	40	37	35	+	W		W.							39	41	41				10		
	11	29.724	45	29.732	50	55	36	55	28	49	46	50	48	+	S		S.W							40	41	41				11		
	12	29.442	50	29.792	42	52	47	51	40	50	47	40	38	+	S.W		N.W							43	41	41				12		
	13	29.958	36	29.760	41	52	33	49	29	32	31	39	38		S.W		S.W							39	41	41				13		
	14	29.404	48	29.338	41	49	40	46	35	48	46	39	38	+	N.W		N.W							42	41	41				14		
	15	29.698	40	29.834	38	44	35	53	31	39	36	36	35	+	N.W		S.W							38	41	41				15		
	16	29.542	47	29.726	43	51	34	53	32	51	49	42	40	+	N.W		N.W							39	40	41				16		
	17	29.750	40	29.658	40	43	37	44	33	39	37	37	36	+	S		S.E							39	40	41				17		
	18	29.372	43	29.578	35	41	31	45	27	42	39	32	30	+	W		W							39	40	41				18		
	19	29.396	36	29.776	37	37	31	37	26	35	33	36	34	+	W		N.W							34	39	40				19		
	20	29.988	34	29.938	34	34	30	34	26	32	31	32	32	+	W		N.W							34	37	40				20		
	21	30.012	38	30.042	35	40	31	45	27	38	37	32	31	+	W		W							34	37	39				21		
	22	29.884	33	29.864	41	43	27	41	23	30	30	42	41		S		S							33	37	39				22		
	23	29.722	43	29.632	43	45	40	45	34	42	40	44	42	+	S.E.		S.E							37	37	39				23		
	24	29.658	44	29.828	36	46	32	51	28	42	40	34	33	+	S.W		S.W							40	37	39				24		
	25	29.640	46	29.418	49	52	33	57	29	46	44	52	50	+	S		S.W							37	38	39				25		
	26	29.170	50	29.230	42	53	38	53	33	48	45	41	38		S.W		S.W							41	39	39				26		
	27	28.628	46	28.154	46	47	38	48	33	45	44	43	40	+	S.E		S.W							40	39	39				27		
	28	28.724	43	29.024	37	44	34	44	32	40	39	35	33	+	W		S.W							40	39	39				28		
	29	28.986	32	29.154	35	36	24	36	21	25	25	33	32	+	W		N							34	38	39				29		
	30	29.436	33	29.564	31	33	26	38	22	32	31	27	27		N.W		S.W							34	38	38				30		
	31	29.216	26	29.026	38	39	21	39	16	37	35	38	37	+	S.E		S.E							33	37	38				31		
Sums.		1514.2		1518.4		11	17	12	14	12	14	12	14											1184	1225	1249						
Means.		29.481		29.481		40.3	45.7	34.1	46.2	29.3	40.3	38.5	37.7	21	2.63									38.3	39.5	40.3						
+ Total Corrections for Instrumental Errors.		+120		+120																												
+ Corrections for Diurnal Range.																																
"Corrected Means."		29.595		29.560																												
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\ddagger$  = 29.481  
for Temp. (Col. 2), = 29.515.....0.034  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\ddagger$  = 29.529  
for Temp. (Col. 4), = 29.560.....0.031  
Mean at Station, corrected, and at 32°,.....29.485  
Correction for height, feet above Mean Sea-level,..... = .....  
Mean, reduced to 32°, and Sea-level,..... = .....  
Highest Reading, corrected for Index error, on the 21 th,..... = 30.152  
Lowest Do. Do., on the 27 th,..... = 28.264  
Difference, or Monthly Range,..... = 1.888

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 11 th,..... = 55.0  
Lowest in Month, corrected for Index errors, on the 31 th,..... = 21.0  
Difference, or Monthly Range,..... = 34.0  
"Corrected Mean" of all the Highest, (Col. 5),..... = 45.7  
"Corrected Mean" of all the Lowest, (Col. 6),..... = 34.1  
Difference, or Mean Daily Range,..... = 11.6  
\*\* Calculated Mean Temperature of Month,..... = 39.9  
S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 4 th,..... = 55.0  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun,..... = 46.2  
Lowest at Night, Black Bulb (corrected for Index errors), on the 31 th,..... = 16.0  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass,..... = 29.3  
Difference of above means or range ("exposed"),..... = .....

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11),..... = 39.6  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),..... = 37.8  
Computed Temperature of Dew-Point,..... = 35.4  
Do. Elastic Force of Vapour,..... = .208  
Do. Weight of Vapour in a Cubic Foot of Air,..... = .....  
Relative Humidity (Saturation = 100),..... = 85  
RAIN fell on 21 Days; Amount in Inches,..... = 2.63

WIND.	SUMMARY.										Calm or Variable.	Mean Force.	Mean Velocity in miles per day.
	Direction.	N	NE	E	SE	S	SW	W	NW				
A.M.		-	-	-	3	7	6	9	6	-			
P.M.		1	-	-	4	2	12	5	7	-			
Mean.		1	0	0	4	4	9	7	6	0			

Observations made and  
Return verified by

John Forrest

(Signed)



