

# SCOTTISH METEOROLOGICAL SOCIETY.

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

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

During the MONTH of January 1904.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. 9 h. A.M.	9 A.M.		P.M.		SUNSHINE. Hours.	9 h. A.M.						Temperature of WELL at depth of feet, No. 1 fathom, and Density.	Temperature at 1 fathom, and Density.	0-10. 9 A.M. 9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		Barometer. * No.	Attached Thermometer. No.	Barometer. No.	Attached Thermometer. No.	Max. No.	Min. No.	Max. in Sun's rays No.	Min. on Grass. No.	Dry bulb.	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.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\ddagger$  for Temp. (Col. 2), = 29.783

"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\ddagger$  for Temp. (Col. 4), = 29.666

Mean at Station, corrected, and at 32°, = 29.670

Correction for height, feet above Mean Sea-level, = 50

Mean, reduced to 32°, and Sea-level, = 29.710

Highest Reading, corrected for Index error, on the 21<sup>st</sup>, = 30.605

Lowest Do. Do., on the 14<sup>th</sup>, = 28.440

Difference, or Monthly Range, = 2.165

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 18<sup>th</sup>, = 50.6

Lowest in Month, corrected for Index errors, on the 12<sup>th</sup>, = 27.4

Difference, or Monthly Range, = 23.2

"Corrected Mean" of all the Highest, (Col. 5), = 42.9

"Corrected Mean" of all the Lowest, (Col. 6), = 33.7

Difference, or Mean Daily Range, = 9.2

\*\* Calculated Mean Temperature of Month, = 38.3

S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 14<sup>th</sup>, = 50.6

"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 42.9

Lowest at Night, Black Bulb (corrected for Index errors), on the 14<sup>th</sup>, = 33.7

"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 33.7

Difference of above means or range ("exposed"), = 9.2

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 37.9

Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 36.0

†† Computed Temperature of Dew-Point, = 34.0

†† Do. Elastic Force of Vapour, = 1.91

†† Do. Weight of Vapour in a Cubic Foot of Air, = 84

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

RAIN fell on 20 Days; Amount in Inches, = 2.29

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		1	00	2	6	16	6	00			
P.M.		1	00	2	5	19	2	2	0		
Mean.		2	00	4	11	35	8	2	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.

† Enclosing corrections for both capillarity and Index Errors.

‡ The Diurnal Range for Scotland is as yet unknown.

†† These "Hygrometrical Corrections" 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 Peter Harper

(Signed)







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park Aberdeen County of \_\_\_\_\_, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea \_\_\_\_\_ miles.

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

During the MONTH of February 1904.

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.		9 h. A.M.							
		Barometer. No. _____	Attached Ther- mometer No. _____	Barometer. No. _____	Attached Ther- mometer No. _____	Max. No. _____	Min. No. _____	Max. in Sun's rays No. _____	Min. on Grass. No. _____	Dry bulb. No. _____	Wet bulb. No. _____	Dry bulb. No. _____	Wet bulb. No. _____			Direction. No. _____	Force No. _____	Direction. No. _____	Force No. _____	Velocity (0-10), and No. _____	Amount (0-10), and No. _____	Velocity (0-10), and No. _____	Amount (0-10), and No. _____	No. _____	No. _____	No. _____					
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+ Total Corrections for Instrumental Errors.																															
+ Corrections for Diurnal Range.																															
"Corrected Means."																															
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

NOTATION USED IN GENERAL REMARKS.

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\dagger\dagger$  = \_\_\_\_\_  
for Temp. (Col. 2), = \_\_\_\_\_

"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\dagger\dagger$  = \_\_\_\_\_  
for Temp. (Col. 4), = \_\_\_\_\_

Mean at Station, corrected, and at 32°, = \_\_\_\_\_

Correction for height, \_\_\_\_\_ feet above Mean Sea-level, = \_\_\_\_\_

Mean, reduced to 32°, and Sea-level, = \_\_\_\_\_

Highest Reading, corrected for Index error, on the \_\_\_\_\_ th, = \_\_\_\_\_

Lowest Do. Do., on the \_\_\_\_\_ th, = \_\_\_\_\_

Difference, or Monthly Range, = \_\_\_\_\_

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

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

Difference, or Monthly Range, = \_\_\_\_\_

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

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

Difference, or Mean Daily Range, = \_\_\_\_\_

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

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

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

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

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

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

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

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

†† Computed Temperature of Dew-Point, = \_\_\_\_\_

†† Do. Elastic Force of Vapour, = \_\_\_\_\_

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

†† Relative Humidity (Saturation = 100), = \_\_\_\_\_

RAIN fell on 8 Days; Amount in Inches, = 4.05

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

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

† Embracing corrections for both capillarity and Index Errors.

†† The Diurnal Range for Scotland is as yet unknown.

††† Practically, though not absolutely a minus correction.

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

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

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

Observations made and  
Return verified by \_\_\_\_\_

(Signed) \_\_\_\_\_







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park, Dundee, County of Kincardine, in Lat. 57.9 N, Long. 2.6 W, Distance from Sea 2 miles.

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

During the MONTH of March 1904.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. _____ 9 h. A.M.	9 A.M.		P.M.		9 h. A.M.						Temperature of WELL at depth of feet, No. _____ Temperature at 1 fathom, and Density.	0-10.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		Barometer. * No. _____	Attached Thermometer	Barometer. No. _____	Attached Thermometer	Max. No. _____	Min. No. _____	Max. in Sun-rays No. _____	Min. on Grass. No. _____	Dry bulb. No. _____	Wet bulb. No. _____	Dry bulb. No. _____	Wet bulb. No. _____			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.	9 A.M.	9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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1	30.193	39	30.302	40	38.4	27.5	33.9	31.2	0.00	NB	1	W	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\frac{1}{1}$  for Temp. (Col. 2), = 961  
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{1}$  for Temp. (Col. 4), = 963  
 Mean at Station, corrected, and at 32', = 960  
 Correction for height, feet above Mean Sea-level, = 50  
 Mean, reduced to 32', and Sea-level, = 29.750  
 Highest Reading, corrected for Index error, on the th, =  
 Lowest Do. Do., on the th, =  
 Difference, or Monthly Range, =

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 20 th, = 52.0  
 Lowest in Month, corrected for Index errors, on the 6 th, = 22.7  
 Difference, or Monthly Range, = 29.3  
 "Corrected Mean" of all the Highest, (Col. 5), = 45.0  
 "Corrected Mean" of all the Lowest, (Col. 6), = 33.5  
 Difference, or Mean Daily Range, = 11.5  
 \*\* Calculated Mean Temperature of Month, = 39.3  
 S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, =  
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, =  
 Lowest at Night, Black Bulb (corrected for Index errors), on the th, =  
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, =  
 Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 40.4  
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 37.0  
 # Computed Temperature of Dew-Point, = 34.4  
 # Do. Elastic Force of Vapour, = 199  
 # Do. Weight of Vapour in a Cubic Foot of Air, =  
 # Relative Humidity (Saturation = 100), = 84  
 RAIN fell on 16 Days; Amount in Inches, = 2.55

WIND.		SUMMARY.					
Direction.	N	NE	E	SE	S	SW	W
A.M.	1	4	1	7	7	6	3
P.M.	1	1	2	7	7	5	5
Mean.	2	5	3	14	14	11	8

Observations made and  
Return verified by

(Signed) Peter Harper







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park, Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 2° 6' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of April 1904.

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.	Min.	Max.	Min.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	Amount in inches.	Direction.	Force.	Direction.	Force.	Velocity (0-10), and Species.	Amount (0-10), and Species.	Velocity (0-10), and Species.	Amount (0-10), and Species.	No. 3 inches.	No. 12 inches.					No. 22 inches.	
		* No.		No.		No.	No.	No.	No.																							
		inches.	°	inches.	°	°	°	°	°	°	°	°	°		°																	
	1	29.200	47	29.350	47	49.5	34.0			45.6	40.8			0.00	SW	0.5	SW	2			5		8						fair dull	1		
	2	29.445	47	29.545	47	47.0	34.8			45.0	41.5			0.20	S	2	S	2			10		10						fair dull showery after 4 P.M.	2		
	3	29.310	47	29.400	47	48.4	38.2			45.4	40.6			0.00	S.W	3	S.W	3			10		0						fair old day.	3		
	4	29.555	47	29.500	48	53.0	30.5			46.4	41.6			0.00	S.W	1	S.W	3			3		0						fair	4		
	5	29.440	48	29.440	47	55.4	36.5			53.4	48.0			0.09	W	4	W	3			3		5						fair drying wind	5		
	6	29.450	46	29.480	50	51.2	39.0			48.2	38.4			0.00	N.W	5	N.W	2			4		4						very wild showers.	6		
	7	29.300	47	29.560	47	49.1	38.2			48.2	39.6			0.07	W	3	N.W	3			2		0						harsh drying wind.	7		
	8	29.400	47	29.520	50	55.4	35.6			41.0	39.4			0.00	S	1	S	1			10		6						Rain then fair	8		
	9	29.550	48	29.445	47	49.0	34.5			44.4	42.5			0.00	W	2	W	4			3		3						fair and fine all day high wind.	9		
	10	29.300	47	29.600	46	52.8	35.2			48.8	41.2			0.02	W	1	W	3			3		4						Erasing wind, showers afternoon	10		
	11	29.800	46	29.920	50	54.8	38.2			47.0	41.0			0.00	N.W	3	N.W	1			4		6						Do	11		
	12	29.855	49	29.400	48	52.0	34.5			45.2	42.0			0.00	S	1	S.E	0.5			8		4						Do	12		
	13	29.400	49	29.300	47	46.2	40.2			43.8	42.0			0.32	S.E	2	S.W	1			10		0						Do	13		
	14	29.525	50	29.495	51	53.0	37.5			45.4	40.6			0.23	S	1	S.E	2			2		1						Do	14		
	15	29.415	50	29.400	50	55.2	41.5			45.4	44.2			0.00	S	0.5	S.W	0.5			4		5						Do	15		
	16	29.500	51	29.445	53	54.6	39.2			52.1	49.0			0.00	S	0.5	S	1			2		6						Do	16		
	17	29.845	51	29.890	49	54.0	39.0			49.8	45.0			0.00	S.W	1	S.E	1			2		2						Do	17		
	18	30.140	51	30.260	52	58.4	37.0			46.8	44.4			0.00	S.W	1	S.W	1			2		2						Do	18		
	19	30.300	51	30.250	52	58.0	35.0			51.0	48.8			0.00	S.W	1	S	1			2		0						Do	19		
	20	30.150	49	30.200	51	61.0	38.6			47.2	45.0			0.00	S.W	0.5	N.W	2			10		10						Do	20		
	21	30.300	47	29.850	50	54.8	38.0			44.4	40.0			0.00	N.W	1	S.E	1			10		5						Do	21		
	22	29.675	50	29.690	52	53.8	40.5			44.1	42.5			0.01	S	2	S.E	0.5			8		10						Do	22		
	23	29.935	51	29.950	51	54.1	43.0			45.7	44.8			0.20	E	0.5	S.W	1			10		10						Do	23		
	24	30.000	50	29.445	50	55.6	40.0			50.8	45.2			0.00	S.W	4	S.W	6			10		8						Do	24		
	25	29.950	48	30.000	50	47.0	34.6			45.4	38.8			0.00	N.W	4	N.W	2			10		8						Do	25		
	26	29.900	47	29.850	51	56.2	33.0			48.8	40.6			0.00	S.W	1	S.W	1			10		8						Do	26		
	27	29.895	49	29.450	51	57.6	36.0			45.0	40.1			0.13	W	2	W	2			10		8						Do	27		
	28	29.800	52	29.650	53	54.2	44.4			54.6	51.0			0.12	S.W	1	S	1			10		17						Do	28		
	29	29.700	53	29.760	55	63.6	45.5			53.8	50.4			0.08	S.W	1	S.E	1			10		10						Do	29		
	30	29.600	53	29.790	53	62.0	43.2			43.2	41.0			0.00	S	1	S.W	2			10		0						Do	30		
	31																														Do	31
Sums.		1674	15	1612	10	178	157			1412	104			167	2		1				11		9									
Means.		29.705	49.1	29.693	49.5	54.0	37.8			45.7	42.9	44.6				1.8	1.8				5.5		5.1									
+ Total Corrections for Instrumental Errors.		-0.70		-0.70																												
+ Corrections for Diurnal Range.																																
"Corrected Means."		29.685		29.673																												
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

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

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

## NOTATION USED IN GENERAL REMARKS.

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

## TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction for Temp. (Col. 2), = 29.631  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction for Temp. (Col. 4), = 29.618  
Mean at Station, corrected, and at 32°, = 29.634  
Correction for height, feet above Mean Sea-level, = 50  
Mean, reduced to 32°, and Sea-level, = 29.684  
Highest Reading, corrected for Index error, on the 19th, = 30.300  
Lowest Do. Do., on the 3rd, 13th, = 29.300  
Difference, or Monthly Range, = 1.000

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 29th, = 63.6  
Lowest in Month, corrected for Index errors, on the 4th, = 30.5  
Difference, or Monthly Range, = 33.1  
"Corrected Mean" of all the Highest, (Col. 5), = 54.0  
"Corrected Mean" of all the Lowest, (Col. 6), = 37.8  
Difference, or Mean Daily Range, = 16.2  
\*\* Calculated Mean Temperature of Month, = 45.9  
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 11th, = 63.6  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 63.6  
Lowest at Night, Black Bulb (corrected for Index errors), on the 11th, = 30.5  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 37.8  
Difference of above means or range ("exposed"), = 33.1

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 45.7  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 42.4  
# Computed Temperature of Dew-Point, = 38.6  
# Do. Elastic Force of Vapour, = 1.235  
# Do. Weight of Vapour in a Cubic Foot of Air, = 77  
# Relative Humidity (Saturation = 100), = 77  
RAIN fell on 11 Days; Amount in Inches, = 1.67

WIND.		SUMMARY.					
Direction.		N	NE	E	SE	S	SW
A.M.		-	-	1	1	8	11
P.M.		-	-	6	5	10	4
Mean.		0	0	1	7	13	21

	W	NW	Calms or Variable.	Mean Force.	Mean Velocity in miles per day
A.M.	5	4	-	3.6	
P.M.	5	5	-	3.6	
Mean.	0	0	1	7	13

Observations made and  
Return verified by

(Signed) Peter Harper







# SCOTTISH METEOROLOGICAL SOCIETY.

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

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

During the MONTH of *May* 190*4*.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.		WIND.				CLOUDS.				THERMOMETERS under Ground.				SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. _____	9 A.M.		P.M.		SUNSHINE. Hours.	9 h. A.M.						Temperature of WELL at depth of feet, No. _____	Temperature at 1 fathom, and Density.	0-10. 9 A.M. 9 P.M.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		Barometer. * No. _____	Attached Thermometer. No. _____	Barometer. No. _____	Attached Thermometer. No. _____	Max. No. _____	Min. No. _____	Max. in Sun's rays No. _____	Min. on Grass. No. _____	Dry bulb.	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. _____																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction for Temp. (Col. 2), =	814
"Corrected Mean" of Barometer at 9 P.M., minus the Correction for Temp. (Col. 4), =	818
Mean at Station, corrected, and at 32°, =	816
Correction for height, feet above Mean Sea-level, =	49
Mean, reduced to 32°, and Sea-level, =	29.865
Highest Reading, corrected for Index error, on the 30 th, =	30.250
Lowest Do. Do., on the 2 th, =	29.200
Difference, or Monthly Range, =	1.050

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 17 th, =	63.0
Lowest in Month, corrected for Index errors, on the 20 th, =	36.0
Difference, or Monthly Range, =	27.0
"Corrected Mean" of all the Highest, (Col. 5), =	55.6
"Corrected Mean" of all the Lowest, (Col. 6), =	41.2
Difference, or Mean Daily Range, =	14.4
** Calculated Mean Temperature of Month, =	48.31
S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 17 th, =	
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, =	
Lowest at Night, Black Bulb (corrected for Index errors), on the 17 th, =	
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, =	
Difference of above means or range ("exposed"), =	

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), =	49.2
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), =	46.2
Computed Temperature of Dew-Point, =	43.0
Do. Elastic Force of Vapour, =	278
Do. Weight of Vapour in a Cubic Foot of Air, =	
Relative Humidity (Saturation = 100), =	79
RAIN fell on 17 Days; Amount in Inches, =	2.75
WIND.	SUMMARY.
Direction.	N NE E SE S SW W NW
A.M.	2 8 0 6 4 7 1 3
P.M.	2 5 1 4 6 7 2 3
Mean.	4 1 4 1 10 10 14 3 6 2.8

Observations made and Return verified by

(Signed) *Peter H. H. H.*



# OBSERVATIONS,

[illegible]

Observations made at different Stations are incomparable, and it is therefore impossible to compare the Climates of places with one another as regards their most important features.

Professor Phillips, and Negretti and Zambra's Maximum Thermometers, and Rutherford's Minimum Thermometer, are recommended. It is recommended that these Thermometers be graduated on the Glass scale. The minimum Thermometer is liable to two derangements—viz, the pen of spirit breaking, and part of the spirit distilling by high pressure 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.

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 towards the object being observed, on the principle of centrifugal force; the detached portion of spirit will unite with the main column. A few throws, or swinging strokes, will generally be sufficient for the purpose; after which the Thermometer should be placed in a slanting position, to allow the rest of the spirit still adhering to the sides of the tube to drain down the column. But the method must be adopted, if the portion of spirit in the top of the tube be small. Next should the application of the instrument to the object, and the introduction of the bulb into the top end of it, into vapor by the heat, will condense on the sides of the unbroken column of spirit. Care must be taken that the instrument is not applied too quickly; for, in this case, the tube breaks and the instrument is destroyed. The best way to apply the instrument towards a minute flame from a gas-burner; or, if gas be readily down, a piece of heated metal will serve instead.

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

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

It must, however, be added, that the whole subject of the influence of Solar and Terrestrial Radiation is not yet in a sufficiently advanced state to warrant the exclusive recommendation of one of these methods. The Society, therefore, has decided to employ the Hygrograph in use at the Society's Stations consists of two thermometers usually, but not necessarily, mounted on one frame. As apparently slight deviations from the approved form of this apparatus seriously vitiate the observations, Observers are specially requested to take the greatest care in the construction of their Hygrometrical Observations. Observers are specially requested to take the greatest care in the construction of their Hygrometrical Observations.

**Clouds.**—To be estimated from the greater or less observation of the sky overhead (i.e. within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are viewed obliquely; and 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 Clouds is tested from a scale of 0 to 10; thus, when the sky overhead is free from Clouds it is entered 0, and so on. Clouds, 3, 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 Cloudy and Direction,

ing of the  
monies:

the eye exactly opposite the tip of the index or column of mercury. The reading ought to be taken to tenths of a degree, and noted in decimals. Thus, Thermometer will be read— $39^{\circ} \cdot 4$ ,  $40^{\circ} \cdot 0$ , or  $40^{\circ} \cdot 1$ ; or again,  $40^{\circ} \cdot 5$ ,  $40^{\circ} \cdot 6$ , according as it indicates a little under, an exact coincidence with, or a little over  $40^{\circ}$ , or  $40^{\circ} \cdot 3$ , respectively. So also  $44^{\circ}$ ,  $44^{\circ} \cdot 5$ , more or less must be registered  $44^{\circ} \cdot 2$ , or  $44^{\circ} \cdot 3$ , and  $40^{\circ}$ , or  $40^{\circ} \cdot 3$  respectively. In reading Barometers, Minimum thermometer the indication of that end of the index which is next to the substance of the spirit is alone noted. On opening the Thermometer Box, the Dry and Wet Bulb Thermometers are to be first, rapidly, read, inasmuch as they are readily affected by heat from the person of the Observer.

of 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- dicating the greatest and least degrees of temperature observed.

In the 24 hours preceding. It is not a matter of

force when the Self-Registering Thermometers are read, since, inferior at least, the extremes may occur at any hour; and it is necessary to refer their occurrence to their proper meteorological position in the Society's schedules, the indications registered on the cards are those of a series of phenomena commencing at 9 p.m. on the 30th, and extending till 9 p.m. on the 3d.

No instrument ought to be used for Meteorological purposes till it has been carefully tested by comparison with a standard Thermometer. When such Thermometers are not graduated on the stem, but merely on a detached 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 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 the scales, and the perfect freedom of the Barometer from air; the

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

A Wind-Vane designed to give the most accurate and satisfactory results, is the one which oscillates about the true mean direction when the Vane is stationary, and when the wind is feeble, reference may be made to the direction of smoke, etc., in well-observed situations. Careful observations are recommended to be made on the changes in the direction of the wind; and during storms, exact observations at every hour of Greenwich time. Such

in well-exposed situations. Careful observations are recommended to be made on the changes in the direction of the wind; and during storms, extra observations at every hour of Greenwich time. Such a system of simultaneous observation, pursued at different Stations, is likely to give highly valuable and important results, particularly in connection with the system of thickly-planted Stations over a limited district round Edinburgh called STORM STATIONS, in the course of being established by the Society for the systematic investigation of the relation of the force of the wind to BAROMETRIC GRADIENTS, and other points connected with storms.

The Council would recommend the Hemispherical Cup Anemometer, a self-registering instrument which shows the amount of Wind that passes it per day; from which the Velocity and also the mean Velocity of the Wind at the time of the Pressure.

Force of the Wind at any particular hour of observation, the Pressures of the Atmosphere, and the Direction and Force of the Wind. The 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 Ellabakk, 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 unobscurable 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 and sheltered ground in an open situation as the Observer can secure it from being disturbed by any wind. The position of the gauge should be so situated that surrounding objects as buildings, trees, buildings, or other obstructions, at least as many feet from their base as they are in height. The more important directions, towards which it is most desirable to have a free exposure, are, in the order of their importance, S.W., N.E., S.E., S., and W. The rim of the gauge must be perfectly level, and fixed so that it will remain level in all weathers, and be at a height of one foot above ground, over grass. In such gauges Fleming's, which is 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, being found that a stem projecting above the rim of the gauge seriously interferes with the proper measurement of the Rain-fall. When a measuring-glass is used, care should be taken to hold it quite perpendicular. The Rain Gauge ought to be read daily at 9 A.M., and the reading entered in the Returns of the previous day. If the Gauge is read once a month, the Returns to be made on the first of the month, and the amount entered for the previous month. Snow-falls may, for convenience, be registered in the rain 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

under the following conditions:—When a Snow shower occurs, it should be noted in the 'Remarks' and the letter S affixed to the depth of water received in Gauge. The depth of the snow must be measured in some open place where no drift is observed, and registered in addition to, as a check upon, the indications of the Rain Gauge. For wind, rain and snow, as indeed in every column, the Observer cannot be too careful to register observations only; and nothing that partakes of the nature of deduction or inference.

Clouds are to be estimated from the greater or less obscuration 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 thus, being made 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 gathered from a scale of 0 to 10; thus, when the sky overhead is free from Clouds it is entered 0; thus, 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* a Direction,

6, S. W. — will indicate that the upper strata of Clouds travel with  
2. W.  
extreme velocity from S.W., and those in the lower regions from  
W., with one-third the speed of the former. Again, in the second  
4, S. E.  
Cloud column, an entry of  $\frac{2}{2}$  will indicate that the higher  
regions are covered to the amount of 4-tenths with stratus Clouds ;  
and that the sky is further obscured to the extent of 2-tenths by  
lower Clouds of the cumulo stratus kind.

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

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

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

A knowledge of the Temperature of the Sea is not only in itself, but in its relations to that of our island, a most important and potent branch of Meteorology. The Council therefore recommend that the Temperature of the Sea be carefully taken by a properly constructed apparatus, from boats, or, if this be impracticable, from the ends of piers and rocks round the coast, where it is not influenced by that of river water, and as little influenced as possible by currents sweeping along the coast, and thus acquiring the temperature of the land, either greatly heated by the sun or cooled by nocturnal radiation. At or near the time of high

water, in cases where the observations cannot be taken daily, an observation may be made on the 5th, 15th, and 25th of each month. When convenient, extra Sea Observations might be taken for other days and greater depths, noting also the Temperature of the Air and the Hour of Day. It is also very desirable that observations on the daily Maxima and Minima Thermometers continuously immersed in the sea should be taken at points along the coast, by the method proposed by Mr. T. Stevenson, and already commenced at Porthchead and Liverpool. The Temperature of the water at the bottom of Wells ought, whenever practicable, to be taken, both the depth of the water, and the Well and of the water being noted. Mention what Test-Papers are used, Schönbein's or Moffet's etc. The Paper is annexed by a pin to a board in the Thermometer Box, and the indications registered as 9 A.M. and 9 P.M. It is desired that these indications be registered in connection with the observations on the barometer, and at the time of observation in the following manner:— $32^{\circ}$  is, Observed number in the subtitle will indicate that the Ozonæ 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. Two minutes cannot be attached to the electric circuit.

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

The Remarks column is unavoidably too narrow. Some of the most valuable Observations that can be taken are Remarks, those for which no rules can be given nor 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.

valent Diseases, differences in grade), colour, velocity, and direction between the Lower and Upper Strata of clouds, the Colour of the Sky, etc. Remarks ought to be made on the occurrence of Meteors, Auroræ Boreales, remarkable depressions, elevations, and fluctuations of the Barometer, Thunder-Storms, and remarkable falls of Snow, Hail, or Rain, the Hoar of Storms of Wind commencing, attaining their maximum, and ending, as well as such Notes on Storms as have been hinted at above. When lofty hills are in the vicinity of a Station, the Height of Clouds and of the Snow-line in winter should be recorded.

By the use of abbreviations, the state of the weather at 9 A.M. and 9 P.M. should be registered, either in two columns, otherwise unoccupied, or noted off for the purpose; from the column of 'Remarks.'

Observations in connection with the Periodic Return of the Observations in Sussex, possess not only great scientific value, but in connection with are of considerable importance in connection with Agriculture, Horticulture, and Natural History. The observations should therefore direct the special attention of Observers.

The Government of such phenomena, such as the published Summaries may fairly be expected to be, and should be observed ought to be confined to individual trees and shrubs, particular species of birds and to the case of crops so specified

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.

A. B.  
(By Order)

БОЛЬШУХИНА,

Examiners,  
(By Order) A. B.  
Out

[illegible][illegible]

OBSERVATIONS IN CONNECTION			
FOREST TREES.	In Flower.	Leaf Buds first Appear.	In L.
Alder,	.	.	.
Asch,	.	.	.
Beech,	.	.	.
Birch,	.	.	.
Elm,	.	.	.
Larch,	.	.	.
Lim,	.	.	.
Oak,	.	.	.
Sycamore or Plane,	.	.	.

Scottish Meteorological

BOOK POST.

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SCOTTISH METEOROLOGICAL SOCIETY  
1887

*Meteorological Society,*  
122 *George Street,*

[illegible][illegible]

FRUITS.	First in Blossom.	Fruit Ripens Generally.
Cu.		
Cun.		
Ho.		
Lap.		
Plo.		
San.		
Sta.		
Sw.		
Rat.		

	SHRUBS, ETC.	
Apple,	Barberry,	
Black	Broom-	
Cherry	Boutree or Elder,	
Cean,	Hazel,	
Gooseb-	Hawthorn,	
Pear,	Holly,	
Plum,	Lob- lunnium,	
Strawbe-	Lyac,	
	Mazeroon,	
	Mountain Ash or Rowan,	
	Red Flowering Currant,	
	Rhododendron Ponticum,	
	Whin,	

To the SECRETARY

A circular postmark from the Department of Justice. The outer ring contains the text "DEPT. OF JUSTICE" at the top and "WASHINGTON, D. C." at the bottom. The inner circle features the date "JUL 2" and the year "1904". The center of the stamp is heavily inked and illegible.



## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Duthie Park, Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 2° 6' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of June 1904.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA.	OZONE.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.					
		9 h. A.M.		9 h. P.M.		Protected in Shade 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer.  No. _____ 9 h. A.M.	9 A.M.		P.M.		9 h. A.M.					Temperature of Well at depth of feet, No. _____ Temperature at 1 fathom, and Density.	0-10.  9 A.M. 9 P.M.			
		Barometer. * No. _____ inches.	Attached Ther- mometer No. _____ °	Barometer. No. _____ inches.	Attached Ther- mometer No. _____ °	Max. No. _____ °	Min. No. _____ °	Max. in Sun's rays No. _____ °	Min. on Grass. No. _____ °	Dry bulb. No. _____ °	Wet bulb. No. _____ °	Dry bulb. No. _____ °	Wet bulb. No. _____ °				Direction.	Force.	Direction.	Force.		Velocity (0-6) 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.
1	29.775	56	29.925	58	62.0	47.6			53.2	52.4	56.0	53.0	0.00	SE	1	W	1.5		5										fair some mist clear after	1					
2	30.145	57	30.225	58	66.0	51.0			57.2	49.0	60.0	46.5	0.00	NW	2	S	2		1										fair drying wind	2					
3	30.300	58	30.350	58	71.2	42.8			62.6	56.0	52.0	49.6	0.00	S	0.5	S	0.5		0										fair warm and fine all day	3					
4	30.400	40	30.400	60	70.2	45.2			64.8	62.8	52.1	50.1	0.00	S	1	SW	1		0										fine warm	4					
5	30.390	60	30.445	59	67.2	48.8			60.0	56.2	49.8	48.2	0.00	S	1	SE	1		0										Do Do.	5					
6	30.445	55	30.445	55	57.4	49.0			53.2	49.8	49.2	46.8	0.00	NE	1	NE	1		1										Dull fog	6					
7	30.375	56	30.310	44	59.0	49.0			52.0	49.8	49.8	49.2	0.00	NE	1	NE	1		1											fair fine	7				
8	30.250	53	30.225	53	54.5	47.6			49.9	45.0	49.0	44.2	0.00	NE	2	NE	2		1											Dull dry all day	8				
9	30.215	56	30.150	55	57.8	45.2			55.6	50.0	48.8	46.0	0.00	NE	1.5	S	2		1											fair cool, dry	9				
10	30.125	53	30.210	54	56.0	45.4			45.5	43.4	48.8	46.4	0.00	NE	1.5	NE	1.5		1											Do Do.	10				
11	30.125	54	30.225	57	57.4	46.7			53.0	48.6	46.0	43.7	0.00	NE	1	NE	1		0											Do Do.	11				
12	30.200	55	30.155	56	61.6	37.0			56.3	50.6	49.2	45.0	0.00	NE	1	S	1		0											fair clear all day.	12				
13	30.000	55	29.850	57	57.0	44.4			53.2	50.5	54.6	50.0	0.00	S	1	SW	1		1											fair dull	13				
14	29.820	66	29.600	48	64.1	49.0			61.4	55.0	52.0	51.5	0.22	S	1.5	S	1.5		1											fair fine rain from W.M.	14				
15	29.420	58	29.525	59	67.8	50.0			54.2	52.4	54.0	50.4	0.03	SW	2	SW	2		1											Dull unsettled.	15				
16	29.480	59	29.500	59	64.0	50.6			58.0	50.8	54.0	49.6	0.00	SW	5	SE	4		1											fair gusty winds	16				
17	29.750	60	29.810	56	67.0	49.0			62.0	52.0	58.0	44.5	0.00	SW	3	SW	0.5		1											fair unsettled fair P.M.	17				
18	29.845	59	29.000	58	66.8	44.0			59.0	51.4	53.2	40.0	0.04	W	1.5	SW	1		1											very fine showers P.M.	18				
19	29.800	60	29.900	61	67.4	57.0			58.0	57.7	58.2	54.0	0.00	SW	1.5	W	1		1											fair fine all day	19				
20	29.850	59	29.800	58	66.0	49.6			58.0	50.0	55.0	51.7	0.03	SW	1.5	W	1		1											fair dull slight showers 2 P.M.	20				
21	30.025	60	30.130	59	65.0	45.0			58.2	51.5	55.0	48.6	0.00	SW	2	W	1		1											hard drying wind.	21				
22	30.165	59	30.240	58	69.0	63.0			56.4	51.0	54.0	53.8	0.00	W	1	SE	1		1											fair dull like rain P.M.	22				
23	30.180	60	30.110	59	60.8	50.0			59.0	54.8	54.8	41.5	0.34	W	1	W	1.5		1											fair rain from 11 A.M.	23				
24	29.900	57	29.755	57	56.2	51.0			52.9	51.0	51.2	50.2	0.09	S	1	E	1.5		1											fair Do Do.	24				
25	29.650	56	29.715	56	57.0	44.8			50.4	47.8	49.4	44.0	0.56	NE	2	NE	2		1												Dull cool all day.	25			
26	29.800	56	29.750	56	58.2	44.0			53.0	50.0	44.0	46.5	0.40	NE	1.5	NE	1.5		1												been showers	26			
27	30.009	54	30.220	57	57.2	44.0			52.8	48.0	48.0	44.0	0.50	W	2	S	1		1											fair cool	27				
28	30.230	54	30.230	56	66.0	38.6			52.0	43.0	48.4	46.3	0.00	W	0.5	S	5		1											Do Do	28				
29	30.160	57	30.015	57	57.0	44.5			52.4	50.6	50.5	41.8	0.00	S	1	S	2		1											fair dull all day	29				
30	29.995	54	29.780	58	63.0	54.8			53.5	52.0	52.5	50.8	0.00	S	0.5	S	2		1											Do Do.	30				
31																																			
Sums.		1706	14	1365	41	51	108			58	106	127	1310	3		5			6																
Means.		77.4	106	124.5	220	16.8	21.6			16.1	27.4	22.2	58.9	.81		44.0			17.0																
+ Total Corrections for Instrumental Errors.		-0.10		-0.10																															
+ Corrections for Diurnal Range.		-0.10		-0.10																															
"Corrected Means."		30.06		29.995																															
No. of Column.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				

NOTATION USED IN GENERAL REMARKS.					
a.	denotes aurora.	m.	denotes meteor.		
ci.	" cirrus.	ms.	" meteors.		
ci.-cu.	" cirro-cumulus.	n.	" nimbus.		
ci.-s.	" cirro-stratus.	r.	" rain.		
cu.	" cumulus.	h. r.	" heavy rain.		
cu.-s.	" cumulo-stratus.	c. h. r.	" continued heavy rain.		
d.	" dew.	sc.	" sleet.		
f.	" fog.	sc.	" stratus.		
fr.	" frost.	s.	" squall.		
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	Light breeze	4	Blowing hard
0.5	Very light air	2	Fresh breeze	5	Blowing a gale
1	Light air	3	Very fresh	6	Violent gale

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 2), = 29.940  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 4), = 29.954  
Mean at Station, corrected, and at 32°, = 29.940  
Correction for height, feet above Mean Sea-level, = 49  
Mean, reduced to 32°, and Sea-level, = 29.984  
Highest Reading, corrected for Index error, on the 5<sup>th</sup>, = 30.045  
Lowest Do. Do., on the 15<sup>th</sup>, = 29.420  
Difference, or Monthly Range, = 1.025

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 11<sup>th</sup>, = 71.2  
Lowest in Month, corrected for Index errors, on the 12<sup>th</sup>, = 37.0  
Difference, or Monthly Range, = 34.2  
"Corrected Mean" of all the Highest, (Col. 5), = 60.9  
"Corrected Mean" of all the Lowest, (Col. 6), = 47.2  
Difference, or Mean Daily Range, = 13.7  
\*\* Calculated Mean Temperature of Month, = 54.0  
S.-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 11<sup>th</sup>, = 71.2  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 60.9  
Lowest at Night, Black Bulb (corrected for Index errors), on the 12<sup>th</sup>, = 37.0  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 47.2  
Difference of above means or range ("exposed"), = 13.7

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 53.6  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 49.8  
Computed Temperature of Dew-Point, = 46.1  
Do. Elastic Force of Vapour, = 31.0  
Do. Weight of Vapour in a Cubic Foot of Air, = 76  
Relative Humidity (Saturation = 100), = 76  
RAIN fell on 7 Days; Amount in Inches, = 0.81

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		2	1	-	1	8	5	2	5	-	2.94
P.M.		1	6	1	1	8	6	3	4	-	3.14
Mean.		3	13	1	2	16	11	5	9	0	3.0

Observations made and  
Return verified by

(Signed)

Peter Harper







## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at *Duthie Park Aberdeen*, County of *Aberdeen*, in Lat. *57.9. N*, Long. *2.6. W*, Distance from Sea *2* miles.Height of Cistern of the Barometer above Mean Sea-Level *44* feet, above Ground *4* feet.During the MONTH of *July* 190*4*.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA. Temperature of WELL at depth of feet, No. Temperature at 1 fathom, and Density.	OZONE. 0-10. 9 A.M. 9 P.M.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.			
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.			No. of hours in which it fell.	Amount in inches.	9 h. A.M.		9 h. P.M.		Readings of the H. Cup Anemometer. No. 9 h. A.M.	9 A.M.		P.M.		9 h. A.M.							
		Barometer. * No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	Max. in Sun/rays No.	Min. on Grass. No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.				Direction.	Force	Direction.	Force		Velocity (0-10), and Species.		Amount (0-10), and Species.	Velocity (0-10), and Species.	Amount (0-10), and Species.					No. 3 inches.	No. 12 inches.	No. 22 inches.
inches.	°	inches.	°	°	°	°	°	°	°	°	°	°																					
1	29.650	59.	29.650	59.	60.0	57.0			62.0	56.2	56.0	51.6	0.00	S	2	SW	1.5		2	ci											1		
2	29.760	60.	29.800	57.	67.2	52.0			62.4	56.2	57.0	50.0	0.82	SW	2	SW	0.5		4	ci											2		
3	29.800	55.	29.850	57.	61.8	44.2			52.8	52.6	51.0	49.4	0.07	SW	1	SW	0.5		8	ci											3		
4	29.925	59.	29.825	58.	64.6	44.0			58.0	52.8	53.0	51.4	0.10	SW	0.5	S	2		5	ci											4		
5	29.790	60.	29.890	57.	63.2	47.2			59.8	55.6	54.0	52.0	0.00	W	1.5	SW	1		8	ci											5		
6	29.850	62.	29.890	61.	69.8	48.4			67.0	61.0	53.6	50.4	0.12	SW	1.5	W	1		2	ci											6		
7	30.010	60.	30.080	60.	67.6	42.0			67.0	52.5	53.0	49.5	0.00	SW	2	SW	0.5		6	ci											7		
8	30.000	60.	30.090	61.	69.4	49.4			68.0	52.0	59.8	55.0	0.00	SW	2	W	1		6	ci											8		
9	30.205	60.	30.220	60.	64.0	51.5			53.5	50.4	57.0	55.0	0.00	S	1	E	0.5		8	ci											9		
10	30.290	63.	30.290	63.	67.0	55.4			64.0	53.8	55.6	54.3	0.00	N	1	SE	0.5		6	ci											10		
11	30.250	61.	30.250	59.	61.8	49.0			58.0	50.6	54.0	52.8	0.00	NE	1	E	1		8	ci											11		
12	30.220	59.	30.165	60.	61.2	52.2			56.4	55.0	55.4	52.4	0.02	SW	1	SE	1		8	ci											12		
13	30.070	60.	30.050	61.	61.2	53.6			56.2	55.0	60.0	54.6	0.00	SE	1	SW	0.5		8	ci											13		
14	30.025	63.	29.900	60.	68.0	52.8			64.0	52.4	58.8	54.2	0.00	SW	2	S	2		2	ci											14		
15	29.775	61.	29.675	61.	63.5	54.0			57.0	55.6	59.6	58.0	0.04	S	2	S	1		10	n											15		
16	29.900	61.	30.150	62.	71.6	46.0			63.8	53.4	59.1	52.5	0.00	W	1	W	1		3	ci											16		
17	30.285	64.	30.355	62.	68.8	52.4			60.0	57.4	59.2	57.6	0.07	S	0.5	SE	0.5		4	ci											17		
18	30.400	59.	30.325	61.	67.2	48.6			58.0	55.2	54.0	52.8	0.00	E	1	SE	0.5		4	ci											18		
19	30.255	59.	30.200	53.	62.2	47.7			57.2	53.6	52.0	49.4	0.00	NE	1	NE	1		0												19		
20	30.105	58.	30.050	56.	57.0	50.0			54.4	50.5	52.2	49.8	0.14	E	0.5	SE	0.5		8	ci											20		
21	30.030	58.	30.050	58	56.4	51.0			53.0	51.0	52.0	52.5	0.00	SE	0.5	SE	0.5		8	ci											21		
22	30.050	58.	30.055	59.	65.0	53.2			58.8	57.0	53.6	54.0	0.00	SE	0.5	E	1		8	ci											22		
23	30.060	57.	30.050	57.	62.8	53.5			56.0	54.6	57.6	56.0	0.00	NE	0.5	SE	0.5		10	ci											23		
24	29.990	61.	29.965	61.	67.2	53.2			63.0	57.4	56.4	54.8	0.00	SE	1	SE	1		3	ci											24		
25	29.950	58.	29.950	61.	63.0	53.0			57.0	55.2	57.0	49.8	0.00	SE	0.5	SE	0.5		8	ci											25		
26	29.905	59.	29.905	58.	58.4	53.4			55.8	57.4	53.2	49.0	0.00	NE	1	NE	1		8	ci											26		
27	29.920	56.	30.000	57.	63.4	52.0			54.9	52.4	54.5	53.0	0.00	NE	0.5	NE	1		10	ci											27		
28	30.090	59.	30.100	58.	58.4	52.0			53.8	52.6	54.4	52.2	0.00	N	1	S	1		8	ci											28		
29	30.100	59.	29.775	59.	61.4	53.0			53.0	55.0	58.0	56.8	0.00	S	1	S	2		10	ci											29		
30	30.000	62.	29.955	61.	70.0	49.8			63.0	58.5	57.8	54.8	0.00	SW	1	SW	0.5		2	ci											30		
31	29.925	63.	29.925	61.	69.0	50.5			62.0	56.8	53.8	52.0	0.06	SW	1.5	S	0.5		4	ci											31		
Sums.	13 24	44	14 12	12	130	126.0			173.8	144.7	176.6	161.6	1.46		36.5		77.5		189		199												
Means.	30.019	56.9	30.020	59.6	66.4	50.8			58.8	54.7	55.7	52.6			1.11		0.89		6.1		6.4												
+ Total Corrections for Instrumental Errors.	-0.070		-0.010		-1.0																												
+ Corrections for Diurnal Range.																																	
"Corrected Means."	30.009		30.010		63.4																												
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  $\frac{1}{1000}$  for Temp. (Col. 2), = *29.992*  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{1000}$  for Temp. (Col. 4), = *29.925*  
Mean at Station, corrected, and at 32°, = *29.922*  
Correction for height, feet above Mean Sea-level, = *4.8*  
Mean, reduced to 32°, and Sea-level, = *29.972*  
Highest Reading, corrected for Index error, on the *18*th, = *30.390*  
Lowest Do. Do., on the *1*th, = *29.640*  
Difference, or Monthly Range, = *0.750*

S-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the *16*th, = *70.6*  
Lowest in Month, corrected for Index errors, on the *7*th, = *42.0*  
Difference, or Monthly Range, = *28.6*  
"Corrected Mean" of all the Highest, (Col. 5), = *63.4*  
"Corrected Mean" of all the Lowest, (Col. 6), = *50.8*  
Difference, or Mean Daily Range, = *12.6*  
\*\* Calculated Mean Temperature of Month, = *57.1*  
S-R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the *16*th, = *70.6*  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = *63.4*  
Lowest at Night, Black Bulb (corrected for Index errors), on the *7*th, = *42.0*  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = *50.8*  
Difference of above means or range ("exposed"), = *28.6*

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = *57.2*  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = *53.6*  
# Computed Temperature of Dew-Point, = *50.2*  
# Do. Elastic Force of Vapour, = *3.65*  
# Do. Weight of Vapour in a Cubic Foot of Air, = *7.7*  
# Relative Humidity (Saturation = 100), = *77*  
RAIN fell on *9* Days; Amount in Inches, = *1.46*

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		2	5	2	5	5	10	2	0	0	
P.M.		0	3	3	8	6	7	3	0	1	
Mean.		2	8	5	13	11	17	5	0	1	

Observations made and  
Return verified by*Peter Harper*

(Signed)







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Putnam Park, Nevada, County of Nevada, in Lat. \_\_\_\_\_, Long. \_\_\_\_\_, Distance from Sea 7 miles.

Height of Cistern of the Barometer above Mean Sea-Level 124 feet, above Ground 16 feet.

During the MONTH of August 1904.

The Hours of Observation are of Greenwich Time.

[illegible]

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\dagger\dagger$  } = 846  
for Temp. (Col. 2), = ..... 80..... }

"Corrected Mean" of Barometer at 9 P.M., *minus* the Correction  $\dagger\dagger$  } = .858  
for Temp. (Col. 4), = ..... 83.....

Mean at Station, corrected, and at 32°,..... = 852

Correction for height, feet above Mean Sea-level,..... = 48

Mean, reduced to 32°, and Sea-level, ..... = 29.900

Highest Reading, corrected for Index error, on the 8<sup>th</sup>,..... = 30.200

Lowest Do. Do., on the 15<sup>th</sup>,..... = 24.750

Difference, or Monthly Range, ..... = 0.950

S.-R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 29<sup>th</sup>,..... =

Lowest in Month, corrected for Index errors, on the 25<sup>th</sup>, ..... = 38.5

Difference, or Monthly Range, ..... = 37.5

"Corrected Mean" of all the Highest, (Col. 5), ..... = 64.0

"Corrected Mean" of all the Lowest, (Col. 6)..... = 489

Difference, or Mean Daily Range, ..... = 13.4

\*\* Calculated **Mean Temperature** of Month, ..... = 56.4

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

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

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

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

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

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

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

‡‡ Computed Temperature of Dew-Point, ..... = 51.1

‡‡ Do. Elastic Force of Vapour, ..... = 378

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

## Relative Humidity (Saturation = 100), ..... = 84

RAIN fell on 1 Days; Amount in Inches, ..... = 2.20

WIND.		SUMMARY.									
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.	Mean Velocity in miles per day
A.M.	2	-	1	-	7	9	2	9	-	2.36	
P.M.	4	3	1	1	9	5	2	6	-	1.68	
Mean.	6	3	2	1	16	14	5	13	0	2.0	

\* 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.

\* These "Hydrographical Deductions" are calculated from Glatsher's *Hydrographical Tables*. Second Edition only.

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.

must be marked as such by the observer, in each Schedule. See over.

Observations made and  
Return verified by

Peter Harper

(Signed).







(Signed)



INSTRUCTIONS

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

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich or Railway Time only), as specified in the following Remarks, or at the top of the hour of observation. 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 Barometer, roughly variations of atmospheric pressure, are not to be used 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 ivory, thus raising or depressing the surface till it just meets the level point which forms the zero point of the fixed scale.

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

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

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

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

In taking an Observation, the Attached Thermometer is first noted; the tube must then be gently tapped, and the cistern-adjustment carefully made. The eye, by raising and lowering it, must be brought into the plane of the back and front of the index—usually the 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.

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

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

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

The Council would recommend the Hemispherical Cup Anemometer, a self-registering instrument which shows the amount of Wind that passes it per day; from which also the mean Velocity of the Wind at the time of observation may be ascertained. For indicating the Force of the Wind at any particular hour of observation, the Pressure Anemometer recently brought under the notice of the Society by Mr. T. Stevenson, the Honorary Secretary, and Mr. R. Ballingall, the Society's Observer at Edinburg, 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 defective situation of obtaining a Rain Gauge, perfectly unobjectionable situation for observation, and partly from the defective nature of the instruments used. The Rain Gauge should not be placed on a slope or terrace, but on a level piece of ground, in as open a situation as the Observer can secure for it. As it is often difficult to obtain a position as free and unobstructed by surrounding objects as is desirable, care should be taken to place it at some distance from shrubs, trees, buildings, or other obstructions, at least as many feet from their base as they are in height. The more important directions, towards which it is most desirable to have a free exposure, are, in the order of their importance, S.W., N.E., S.E., S., and W. The rim of the gauge must be perfectly level, and fixed so that it will remain level in all weathers, and be at a height of one foot above ground, over grass. In such gauges as Fleming's, which are furnished with a measuring-rod attached to a float, the rod ought to be fixed down, and the float rise to its height only at the time the instrument is read, it being found that a stem projecting above the rim of the gauge seriously interferes with the proper measurement of the Rain-fall. When a measuring-glass is used, care should be taken to hold it quite perpendicular. The Rain Gauge ought to be read daily at 9 A.M., and the reading entered in the Returns of the previous day.

If the Gauge is read once a month, the reading is to be made on the first of the month, and the amount entered for the previous month. Snow-falls may, for convenience, be registered in the rain columns, under the following conditions:—When a Snow-shower occurs, it should be noted in the 'Remarks,' and the letter S affixed to the depth of water received in Gauge. No depth of the snow must be measured in some open place where the drift of the snow must be registered in addition to, and as a check upon, the indications of the Rain Gauge. For wind, rain, and snow, as indicated in every column, the Observer cannot be too careful to register observations only; and nothing that partakes of the nature of deduction or inference.

Convenient abbreviations for the nomenclature of Clouds will be found on the other side. The amount of Cloud ought to be estimated from the greater or less obscuration of the sky overhead (i.e. within 20° or 30° of the zenith). The strata of Clouds that appear near the horizon are viewed obliquely; and thus, being unable to judge of their amount, we ought not to take them into account in the Clouds' column, though their appearance and changes may be noted among the Remarks. The amount of Cloud is entered from a scale of 0 to 10; thus, when the sky overhead is free from Clouds it is entered 0, when half-covered by Clouds, 5, wholly covered, 10, and so on.

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

Remarks on peculiar Clouds, accompanied with drawings, will assist materially in the development of a more exact nomenclature of Clouds, as well as throw light on the electrical, and other of the more obscure phenomena of Meteorology. The approximate number of Hours in which objects in the sun's rays cast shadows, should be entered in the proper column.

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

A knowledge of the Temperature of the Sea is not only in itself, but in its relations to that of our island, a most important branch of Meteorology. The Council therefore recommend that the Temperature of the Sea be carefully taken by a properly constructed apparatus, from boats, or, if this be impracticable, from the ends of piers and rocks round the coast, where it is not influenced by that of river water, and as little influenced as possible by currents sweeping along the coast, and thus acquiring the temperature of the land, either greatly heated by the sun or cooled by nocturnal radiation. At or near the time of high

OBSERVATIONS,

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 in use, be instituted at points along the coast, by the method proposed by Mr. T. Stevenson, and already commenced at Pechell and Liverpool.

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

Mention what Test-Papers are used, Schönbein's or Moffat's, etc. The Paper is affixed by a pin to a board in the Thompson's meter Box, and the indications registered at 6 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 32°, 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 trial magnetism, barometrical, thermometrical, and electrical 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, but which are assigned every advantage of, and a list of such as are in general use is given at the foot of the column. Besides special and extraordinary Observations, great prominence ought to be given in this column to Precipitation Diseases, differences in character, colour, velocity, and direction between the Lower and Upper Strata of clouds, the Colour of the Sky, etc. Remarks ought to be made on the occurrence of Meteors, Auroral 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 Agriculture, Horticulture, and Natural History. The Council would direct the special attention of Observers to the registration of such phenomena, so that the published Summaries may fairly represent the whole of Scotland. Observations ought to be confined to individual trees and shrubs; to particular species of birds, and, in the case of crops, to specified sorts reared from year to year on a selected piece of ground or farm. The Annual Table, published yearly in the Society's Journal, will indicate the species of plants and animals to which special attention is more particularly directed.

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

(By Order)

EDINBURGH.

122 George Street,

To the SECRETARY,

Scottish Meteorological Society,

Edinburgh, 1901

BOOK POST.

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

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EDINBURGH.

122 George Street,

To the SECRETARY,

Scottish Meteorological Society,

Edinburgh, 1901

BOOK POST.

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES	PLANTING or above Ground	Barley, Oats, Beans, Peas, Potatoes, Turnips, Rye Grass, Clover, etc.	First In or Bar	First Out or Harvest
Alder, Birch, Elm, Beech, Ash, Oak, Larch, Sycamore or Plane, etc.				
FRUIT TREES	In Leaf	In Leaf	First In Blossom	First Out Blossom
Apple, Pear, Peach, Plum, Strawberry, etc.				
SHRUBS, ETC.	First In Blossom	First In Blossom	First In Blossom	First Out Blossom
Barberry, Broom, Hazel, Hawthorn, Holly, Pear, Larch, Mezerion, Mountain Ash or Rowan, Red Flowering Currant, Rhododendron Ponticum, Whin, etc.				



## SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Buthie Park Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 2° 6' W, Distance from Sea 2 miles.Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.During the MONTH of October 1904.

The Hours of Observation are of Greenwich Time.

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

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

## TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 2), = 915"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{10}$  for Temp. (Col. 4), = 916Mean at Station, corrected, and at 32°, = 915Correction for height, feet above Mean Sea-level, = 49Mean, reduced to 32°, and Sea-level, = 29.965Highest Reading, corrected for Index error, on the 29th, = 30.510Lowest Do. Do., on the 8th, = 29.158Difference, or Monthly Range, = 1.352S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 8th, = 60.0Lowest in Month, corrected for Index errors, on the 12th, = 33.6Difference, or Monthly Range, = 27.0"Corrected Mean" of all the Highest, (Col. 5), = 54.5"Corrected Mean" of all the Lowest, (Col. 6), = 40.9Difference, or Mean Daily Range, = 13.6\*\* Calculated Mean Temperature of Month, = 47.7S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the 8th, = 60.0"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, = 60.0Lowest at Night, Black Bulb (corrected for Index errors), on the 8th, = 33.6"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, = 33.6Difference of above means or range ("exposed"), = 26.4HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 46.7Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 44.3Computed Temperature of Dew-Point, = 54.5







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Buthie Park, Aberdeen, County of Aberdeen, in Lat. 57° 9' N, Long. 26° W, Distance from Sea 2 miles.

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

During the MONTH of November 1904.

The Hours of Observation are of Greenwich Time.

ELECTRICITY.	Days of Month.	BAROMETER.						SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				Rain.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.			SEA.	OZONE.  0-10.	GENERAL REMARKS.  As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.  Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.											
		9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.			9 h. P.M.		9 A.M.		P.M.		9 h. A.M.																				
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max. in Sun's rays.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	No. of hours in which it fell.	Amount in inches.		Direction.	Force.	Direction.	Force.	Readings of the H. Cup Anemometer.	No.	Velocity (0-10), and Species.	Amount (0-10), and Species.		Velocity (0-10), and Species.	No.	3 inches.					No.	12 inches.	No.	22 inches.	Temperature of Water, in feet.	No.	Temperature at surface and Duality.	9 A.M.	9 P.M.		
		* No.		No.		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.	No.	No.		No.	No.	No.					No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
		inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°		°	°	°	°	°	°	°	°		°	°	°					°	°	°	°	°	°	°	°	°	°	°
	1	30.350	52.	30.800	53.	49.6	36.0	43.0	42.0	42.2	41.0			0.00	N	1	SW	1																		fair & fine dull after noon	1						
	2	30.420	50.	30.080	51.	48.4	40.0			48.3	47.6	47.5	45.5	0.01	SW	0.5	SW	2																		fair dull some rain P.m.	2						
	3	29.975	53.	29.945	54.	60.0	43.0			56.8	52.0	53.0	49.8	0.00	NW	2	NW	2																		fair & fine all day	3						
	4	30.045	55.	30.000	56.	56.4	49.7			57.4	51.6	48.8	47.2	0.00	N	0.5	S	0.5																		fair dull all day	4						
	5	29.800	51.	29.800	53.	56.0	41.2			49.0	44.8	44.0	39.4	1.00	SW	6	W	1																		fair & fine all day	5						
	6	29.750	48.	29.920	50.	46.5	37.0			42.0	37.8	36.0	31.0	1.00	N	2	N	0																		fair & fine all day	6						
	7	29.680	45.	29.450	47.	40.0	29.0			32.0	31.0	32.0	31.5	0.00	SW	1	SW	0.5																		fair cool breeze all day Clear P.m.	7						
	8	29.425	46.	29.325	48.	44.5	32.5			39.2	36.6	43.0	40.0	0.08	N	2	N	2																		dull hard frost Clear P.m.	8						
	9	29.100	47.	29.530	49.	37.2	35.0			44.7	41.0	42.5	40.0	0.10	N	1	SE	1																		fair cold all day, showers P.m.	9						
	10	29.950	44.	29.915	41.	43.2	34.6			36.0	32.5	30.0	28.4	0.01	NW	1	SW	0.5																		fair some rain 3 P.m., dull	10						
	11	29.750	45.	29.750	47.	44.0	28.4			41.6	40.2	38.0	34.0	0.00	S	1	NW	1																		fair cool.	11						
	12	29.855	40.	30.195	48.	51.0	31.0			37.0	35.6	36.8	30.8	0.00	N	1	N	1																		dull, clearing fine P.m.	12						
	13	30.200	46.	30.380	54.	52.6	32.0			44.4	43.5	44.0	43.0	0.02	SW	1	S	1																		clear white frost fair	13						
	14	30.420	45.	30.450	53.	53.0	44.0			49.5	48.5	45.2	43.0	0.00	SW	5	SW	0.5																		fair & fine dull after 3 P.m.	14						
	15	30.275	48.	30.265	52.	51.4	42.5			43.4	41.8	41.5	40.0	0.00	S	2	SW	1																		fair & fine	15						
	16	30.445	48.	30.390	50.	49.2	37.0			42.2	41.2	41.0	39.0	0.00	SW	0.5	SW	1																		do do	16						
	17	30.250	47.	30.250	47.	38.4	33.4			42.8	41.5	42.4	40.0	0.00	SW	0.5	SW	1																		do do	17						
	18	30.200	48.	29.950	49.	37.0	39.2			40.8	40.0	43.0	41.0	0.00	SW	0.5	SW	1																		do do	18						
	19	29.850	45.	29.855	48.	46.0	39.0			39.5	36.0	34.0	33.0	0.00	N	1	N	1																		do do cool	19						
	20	29.750	43.	29.830	45.	37.0	26.6			30.4	28.2	35.4	40.0	0.02	SW	1	NW	2																		fair white frost, snow from 2 P.m.	20						
	21	29.725	42.	29.600	37.	35.8	26.0			31.0	30.0	29.0	28.0	0.00	N	2	N	1																		fair & frosty	21						
	22	29.625	39.	29.495	36.	36.0	24.4			32.2	31.0	33.5	32.0	0.04	NW	1	NW	1																		snow 9 A.m. frequently heavy	22						
	23	29.460	39.	29.580	37.	38.8	31.0			34.0	31.0	34.0	32.5	0.14	NW	1	NE	2																		fair, sleet after 4 P.m.	23						
	24	29.775	40.	29.850	43.	38.4	33.0			35.8	33.8	34.0	32.5	0.00	NW	1	NW	1																		fair snow lying	24						
	25	29.650	37.	29.850	36.	36.0	31.0			31.7	30.0	24.0	22.0	0.00	N	1	SW	1																		fair clear	25						
	26	30.000	36.	29.950	37.	30.0	14.4			25.6	20.6	26.0	24.5	0.00	SW	1	SW	1																		hard fair all day Cloudy P.m.	26						
	27	29.820	37.	29.720	38.	39.8	24.0			29.8	27.6	39.6	38.0	0.12	N	0.5	N	1																		fair mild	27						
	28	29.760	41.	29.850	39.	39.8	35.6			38.8	37.8	38.0	36.5	0.00	SW	1	NW	1																		dull soft all day	28						
	29	29.830	41.	29.860	42.	45.2	33.2			37.6	36.0	45.0	42.8	0.00	N	1	N	0.5																		dull all day mild P.m.	29						
	30	29.750	41.	29.640	41.	40.0	33.6			38.8	37.7	43.0	41.6	0.13	N	1	N	0.5																		fair some rain to some then fair	30						
	31																																										
	Sums.	16 11 14	14	14 13 3	12	15 9	14 7			15 10	13 5	13	10	1.17		5	3																										
	Means.	29.895	44.7	29.904	45.8	45.6	34.1			37.7	37.6	38.9	36.9			1.03																											
	+ Total Corrections for Instrumental Errors.	-0.10		-0.10																																							
	+ Corrections for Diurnal Range.																																										
	"Corrected Means."																																										
	No. of Column.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30												

BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\frac{1}{2}$  for Temp. (Col. 2), = 84.5  
 "Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\frac{1}{2}$  for Temp. (Col. 4), = 84.6  
 Mean at Station, corrected, and at 32°, = 84.6  
 Correction for height, feet above Mean Sea-level, = 5.0  
 Mean, reduced to 32°, and Sea-level, = 29.896  
 Highest Reading, corrected for Index error, on the th, =  
 Lowest Do. Do., on the th, =  
 Difference, or Monthly Range, =

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 3 th, = 60.0  
 Lowest in Month, corrected for Index errors, on the 7 th, = 19.4  
 Difference, or Monthly Range, = 40.6  
 "Corrected Mean" of all the Highest, (Col. 5), = 45.8  
 "Corrected Mean" of all the Lowest, (Col. 6), = 34.1  
 Difference, or Mean Daily Range, = 11.5  
 \*\* Calculated Mean Temperature of Month, = 39.9  
 S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, =  
 "Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, =  
 Lowest at Night, Black Bulb (corrected for Index errors), on the th, =  
 "Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, =  
 Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 39.3  
 Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 37.2  
 # Computed Temperature of Dew-Point, = 34.5  
 # Do. Elastic Force of Vapour, = 2.00  
 # Do. Weight of Vapour in a Cubic Foot of Air, =  
 # Relative Humidity (Saturation = 100), = 94  
 RAIN fell on 10 Days; Amount in Inches, = 1.17

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

Observations made and  
Return verified by

Peter & Harper

(Signed)







# SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Buthie Park Aberdeen, County of Aberdeen, in Lat 57° 4' N, Long 2° 16' W, Distance from Sea 2 miles.  
Height of Cistern of the Barometer above Mean Sea-Level 44 feet, above Ground 4 feet.

During the MONTH of December 1904.

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.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	Max. in Sun/shade.	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		No. of hours in which it fell.	No.	Direction.	Force.	Direction.	Force.	Readings of the H. Cup Anemometer.	9 h. A.M.	Velocity (0-10), and Species.	Amount (0-10), and Species.	9 h. P.M.					Velocity (0-10), and Species.	Amount (0-10), and Species.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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BAROMETER, "corrected Mean" at 9 A.M., minus the Correction  $\ddagger$  for Temp. (Col. 2), = 29.723  
"Corrected Mean" of Barometer at 9 P.M., minus the Correction  $\ddagger$  for Temp. (Col. 4), = 29.760  
Mean at Station, corrected, and at 32°, = 29.700  
Correction for height, feet above Mean Sea-level, = 570  
Mean, reduced to 32°, and Sea-level, = 29.750  
Highest Reading, corrected for Index error, on the 19th, = 30.515  
Lowest Do. " Do., on the 5th, = 28.840  
Difference, or Monthly Range, = 1.675

S.R. THERMOMETER, (in shade, etc.), Highest in Month, (corrected for Index Errors), on the 29th, = 56.0  
Lowest in Month, corrected for Index errors, on the 9th, = 22.0  
Difference, or Monthly Range, = 34.0  
"Corrected Mean" of all the Highest, (Col. 5), = 42.4  
"Corrected Mean" of all the Lowest, (Col. 6), = 33.3  
Difference, or Mean Daily Range, = 9.1  
\*\* Calculated Mean Temperature of Month, = 37.8  
S.R. THERMOMETER, Black Bulb in Sun, Highest, (corrected for Index Errors), on the th, =  
"Corrected Mean," (Col. 7), of Black Bulb, Max. in Sun, =  
Lowest at Night, Black Bulb (corrected for Index errors), on the th, =  
"Corrected Mean," (Col. 8), of Black Bulb, Min. on grass, =  
Difference of above means or range ("exposed"), =

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11), = 37.9  
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12), = 36.6  
# Computed Temperature of Dew-Point, = 34.8  
# Do. Elastic Force of Vapour, = 203  
# Do. Weight of Vapour in a Cubic Foot of Air, =  
# Relative Humidity (Saturation = 100), = 89  
RAIN fell on 4 Days; Amount in Inches, = 2.45

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force.
A.M.		0	1	0	1	2	1	7	3	0	
P.M.		1	1	2	2	1	18	3	3	0	
Mean.		1	2	2	3	3	35	10	6	0	2.1

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

Observations made and  
Return verified by

(Signed) Peter Haughey



