

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Mid Lothian, During the MONTH of January 190 7.Lat. 55°56'31" N, Long. 3°16'44" W Distance from Sea 2 1/2 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 42

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.					GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb Max. in Sun.	Min. on Grass.	9 A.M.		9 P.M.		Amount at 9 A.M.	9 A.M.		9 P.M.		Average monometer.	9 A.M.		9 P.M.			9 A.M.						
	Barometer. No.	Attached Ther. monometer.	Barometer. No.	Attached Ther. monometer.	Max. No.	Min. No.			Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Direction.	Force. Scale of 0-12.	Direction.	Force. Scale of 0-12.		Species and Direction.	Amount (0-10).	Species and Direction.	Amount (0-10).		No. 3 ins.	No. 12 ins.	No. 22 ins.	No. 36 ins.	No. 48 ins.		
1	29.142	391	28.916	397	391	301	419	272	349	358	363	357	31	W	1	E	3	ci	4	n	10		328	357	364	396	428		1	
2	28.630	384	28.636	401	443	324	628	287	370	350	368	341	13	W	2	W	4	ci	5	n	10		335	356	367	396	424		2	
3	28.950	396	28.982	382	449	318	583	283	378	345	334	311	—	W	2	W	1	ci	5	—	—		336	356	367	392	423		3	
4	28.900	383	28.998	398	372	269	454	237	298	286	368	358	03	E	1	W	1	—	—	n	10		323	352	366	388	419		4	
5	28.822	394	28.668	408	456	347	541	329	457	445	354	378	02	W	3	W	4	ci	8	—	—		375	354	367	388	418		5	
6	28.960	397	30.186	413	516	354	612	317	368	350	429	408	—	W	2	W	2	—	—	ci	5		347	353	367	387	418		6	
7	30.048	412	30.200	446	525	361	540	357	440	427	476	454	—	W	2	W	2	ci	8	—	—		376	361	368	387	417		7	
8	30.186	434	30.092	443	479	401	608	398	460	439	456	427	—	W	3	W	2	ci	8	ci	5		423	394	369	386	414		8	
9	28.992	441	28.964	441	476	423	499	384	456	430	450	423	—	W	2	W	0	ci	10	ci	10		434	399	369	387	413		9	
10	28.904	443	30.100	443	500	398	835	376	461	447	373	361	03	W	3	W	2	ci	10	—	—		436	402	376	389	413		10	
11	30.286	436	30.230	445	489	356	652	281	387	365	431	397	01	W	1	W	4	—	—	ci	5		373	396	377	390	414		11	
12	30.068	442	30.050	448	503	421	657	386	473	459	446	432	—	W	4	W	3	ci	10	—	—		378	398	376	396	413		12	
13	30.200	437	30.054	447	496	387	688	293	389	374	443	442	—	W	1	W	2	—	—	ci	10		352	396	375	391	413		13	
14	28.978	449	30.038	454	499	421	448	411	452	434	467	451	—	W	1	W	2	ci	4	ci	5		423	397	389	388	415		14	
15	30.142	458	30.164	457	478	421	663	394	465	435	456	437	—	W	2	W	1	ci	4	ci	8		436	405	401	399	417		15	
16	30.228	446	30.382	459	454	404	824	357	448	426	428	409	—	W	1	W	1	ci	8	—	—		417	411	414	403	418		16	
17	30.422	453	30.540	464	498	376	589	313	399	378	435	414	—	W	1	W	2	ci	3	ci	8		408	413	415	403	418		17	
18	30.532	463	30.418	437	426	378	551	348	389	360	317	298	—	W	1	—	—	ci	4	—	—		399	402	409	408	419		18	
19	30.380	432	30.368	435	378	254	556	237	258	246	359	341	—	W	1	W	1	—	—	—	—		342	390	401	402	417		19	
20	30.336	438	30.328	445	431	345	792	294	377	358	398	378	—	W	1	W	0	ci	8	ci	5		344	393	401	403	418		20	
21	30.368	442	30.192	476	458	376	613	319	361	348	379	357	—	W	1	W	0	—	—	ci	10		358	392	390	402	418		21	
22	30.450	456	30.820	426	388	296	607	278	380	353	329	317	—	E	1	E	2	ci	5	ci	5		358	384	389	398	418		22	
23	30.862	423	30.740	405	363	299	775	264	309	285	228	217	—	E	1	E	1	ci	8	—	—		334	342	381	398	417		23	
24	30.450	396	30.182	394	325	167	563	197	154	329	327	304	04	W	1	W	2	ci	4	n	10		315	364	378	387	416		24	
25	30.122	389	30.190	392	414	297	639	276	350	339	326	303	—	W	2	E	2	—	—	ci	5		317	359	373	383	415		25	
26	30.328	385	30.240	398	321	216	604	158	273	250	371	352	—	W	1	W	1	ci	8	ci	10		315	357	373	382	414		26	
27	28.996	401	28.620	407	453	344	532	289	371	364	416	392	14	W	1	W	3	ci	8	ci	10		318	356	374	389	413		27	
28	28.268	403	28.050	413	459	337	689	297	438	425	338	321	04	W	3	W	4	n	10	—	—		346	357	374	388	412		28	
29	28.074	401	28.150	426	406	276	818	247	318	298	338	341	04	W	3	W	3	ci	4	ci	5		328	352	361	381	407		29	
30	28.716	400	28.900	414	384	310	827	287	348	320	325	308	—	W	1	W	1	ci	5	ci	4		328	357	326	379	406		30	
31	30.072	388	30.144	398	373	248	708	218	290	264	263	250	—	W	1	W	1	ci	3	—	—		304	349	341	377	405		31	
Sums.	14511	1613	14519	1516	1416	1375	1411	1918	2015	1615	1518	1314	2	51		60		154		150			1277	1873	1715	2226	417			
Means.	29.44	42.0	29.00	42.7	43.9	33.6			37.8	35.9	38.0	36.1		1.6		1.9		5.0		4.8			36.2	37.7	37.7	39.3	41.6			
Corrections for Instrumental Errors.	+0.15		+0.15																											
Corrections for Diurnal Range.																														
Corrected Means																														

NOTATION USED IN GENERAL REMARKS.

a. denotes aurora.
d. drizzling rain.
f. fog.
fr. frost.
h. fr. hoar-frost.
h. haze.
hl. hail.
l. lightning.
lu. co. lunar corona.
lu. ha. lunar halo.
m. mist.
p. passing showers.
r. rain.
r.2 heavy rain.
sl. sleet.
sn. snow.
so. ha. solar halo.
q. squall.
q.2 violent squalls.
t. thunder.
t. s. thunder-storm.

CLOUDS.
HIGH CLOUDS.
Cirrus, cir.
Cirro-stratus, cir-str.
Cirro-cumulus, cir-cum.
MIDDLE CLOUDS.
Strato-cirrus, str-cir.
Cumulo-cirrus, cum-cir.
LOWER CLOUDS.
Strato-cumulus, str-cum.
Cumulus, cum.
Cumulo-nimbus, cum-nim.
Nimbus, nim.
Stratus, str.

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).

FORCE.	0 Calm.	5 Fresh Breeze.	FORCE.	10 Whole Gale.
1 Light Air.	6 Strong Breeze.	11 Storm.		
2 Light Breeze.	7 Moderate Gale.	12 Hurricane.		
3 Gentle Breeze.	8 Fresh Gale.			
4 Moderate Breeze.				

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.44 - 0.15 = 29.29

Corrected Mean at 9 P.M., minus Correction for Temp. = 29.00 - 0.15 = 28.85

Mean at Station, corrected, and at 32', = 29.29 - 0.15 = 29.14

Correction for height, feet above Mean Sea-level, = + 1.85

Mean, reduced to 32', and Sea-level, = 29.14 + 1.85 = 30.99

Highest Reading, corrected for Index error, on the th, = 30.82

Lowest Do. Do., on the th, = 28.62

Difference, or Monthly Range, = 12.20

S.-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 7 th, = 52.9

Lowest in Month, corrected for Index errors, on the 24 th, = 16.7

Difference, or Monthly Range, = 36.2

Mean of all the Highest, = 43.9

Mean of all the Lowest, = 34.6

Difference, or Mean Daily Range, = 9.3

Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 39.3

S.-R. THERMOMETER, Min. on Grass, Lowest in Month, = 16.7

" " Mean, = 39.3

Black Bulb, Max. in Sun, Highest in Month, = 52.9

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 37.9

Wet Bulb, Mean of A.M. and P.M. Readings, = 36.0

Computed Temperature of Dew-Point, = 33.4

Do. Elastic Force of Vapour, = 19.1

Do. Relative Humidity (Saturation = 100), = 87

RAIN fell on 10 Days; Amount in Inches, = 1.15

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
P.M.		8	3	—	—	1	19	—	—	—	
Sun.		11	7	—	—	1	39	3	1	18	

Observations made and Return verified by D. Johnston per A. Hume

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

FOR TAKING METEOROLOGICAL OBSERVATIONS.

STEVENSON SCREEN.

The Maximum, Minimum, Dry Bulb, and Wet Bulb Thermometers should be placed in a louvered Stevenson Screen standing over grass and with its door facing north. The Dry and Wet Bulb Thermometers may be conveniently attached to upright laths near the front of the Screen, and the "Maximum" and Minimum Thermometers to others farther back. The height of the Screen should be such that the bulbs of the Dry and Wet Thermometers are four feet above the ground. The Screen should be painted white inside and out.

HOURS OF OBSERVATION.

and the Maximum and Minimum Thermometers to others further back. The height of the Screen should be such that the bulbs of the Dry and Wet Thermometers are four feet above the ground. The Screen should be painted white inside and out.

In order that the MAXIMUM THERMOMETER may register the highest temperature of the day, the column of mercury is disconnected from the mercury in the bulb either by an air-bubble in the column (Phillip's pattern), or by the narrowing of the tube near the bulb (Nørgaard and Lambregts pattern). In either case the instrument is set by holding it vertically, bulb downwards, and gently shaking and tapping it so as to spread the portion of the column that remained at the highest point attached back towards the bulb.

bubble in the column (Phillip's pattern), or by the narrowing of the tube near the bulb (Negretti and Zambra's pattern). In either case the instrument is set by holding it vertically, bulb downwards, and gently shaking and tapping it so as to send the portion of the column that remained at the highest point attained back towards the bulb.

BAROMETER.

The MINIMUM THERMOMETER registers the lowest temperature by an index enclosed in the column of spirit which is drawn towards the bulb as the temperature falls, but remains stationary during any rise of temperature. The lowest reading is therefore the position of the end of the index furthest from the bulb. The instrument is set by inclining it bulb upwards till the index slides down to the end of the column of spirit. Care must be taken not to force any part of the index beyond the end of the spirit. Should this occur, blow, or, ever, should portions of the spirit get detached and lodge in the upper part of the tube, it is generally possible to set the instrument right again by grasping it near the end furthest from the bulb and giving several rapid vertical swings at arm's length, so as to drive the spirit and index towards the bulb centrifugally.

in the upper part of the tube, it is generally possible to end the instrument right again by grasping it near the end-furthest from the bulb and giving several rapid, vertical swings at arm's length, so as to drive the spirit and index towards the centrifugal force.

Both Maximum and Minimum should be read and set at 9 p.m. The readings should be written down before the Thermometers are touched; and after setting both should agree very nearly with the Dry Bulb temperature at that hour. Any difference from the Dry Bulb of more than a degree may be regarded by the Observer as an indication either that the instrument is not properly set, or that it is out of order.

either that the instrument is not properly set, or that it is out of order.

The Hygrometer in use at the Society's Stations consists of two thermometers—a Dry and a Wet Bulb—of similar form, and usually mounted on one frame. The bulbs should project at least an inch from the frame, and the Wet Bulb be covered with muslin and connected by strands of cotton with the water cistern. This cistern should be placed an inch or two below the level of the bulbs, and the side of

the Wet Bulb furthest from the Dry Bulb; it should not stand directly under the Wet Bulb. Muslings and stands are supplied to most stations from the Society's office, and should be renewed at least once a month. In using on a

fresh muslin care should be taken to touch it as little as may be with the fingers. In frosty weather the stamens do not convey water to the muslin, but an accurate observation can generally be insured by soaking the Wet Bulb in water a quarter of an hour before the observation, as from the film of ice thus formed on the muslin evaporation goes on in the same way as from the wet muslin under ordinary circumstances.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf Boats first Appear.	In Leaf.	Directed at Leaves.	GRASSES, denoting variety.	Scattered Planting.	Appearing above Ground.	In pot or Box.	Planted in Bag.
Alder.	.		.	.	Barley.	.	.	.	.
Ash.	.		.	.	Bars or Biggs.	.	.	.	.
Beech.	.		.	.	Oats.	.	.	.	.
Birch.	.		.	.	Wheat.	.	.	.	.
Elm.	.		.	.	Beans.	.	.	.	.
Fig.	.		.	.	Pease.	.	.	.	.
Larch.	.		.	.	Larch.	.	.	.	.
Line.	.		.	.	Potatoes.	.	.	.	.
Oak.	.		.	.	Turnips.	.	.	.	.
Sycamore or Plane.	.		.	.	Rye Grass.	.	.	.	.

SHRUBS, ETC.	First in Blossom.	FRUITS.	First in Blossom.	Fruit Ripens generally.	MIGRATORY BIRDS.	First Arrival.	Departure.
Barberry,		Apple,			Cuckoo,		
Boutree or Elder,		Black Currant,			Curlew,		
Broom,		Cherry,			House-Swallow,		
Hazel,		Gean,			Lapwing,		
Hawthorn,		Gooseberry,			Plover,		
Holly,		Peach,			Sand-Martin,		
Laburnum,		Pear,			Starlings,		
Lilac,		Plum,			Swan,		
Mezeron,		Strawberry,			Rail or Corn Crane,		
Mountain Ash or Rowan,							
Red Flowering Currant,							
Rhododendron Ponticum,							
Whin,							

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

OBSERVATIONS.

WIND, CLOUD, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Seleniety. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example,

Cir. W.	.	4
Cum. Str. S.W.	.	2

that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sun-shine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 p.m.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 p.m., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 a.m. To put it inside the screen during the day, and to set and release it at 9 p.m., is not necessary.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M., and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; of Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

ADDITIONAL REMARKS:

10

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Midlothian, During the MONTH of February 1907.Lat. 55° 52' 31" N, Long. 3° 16' 46" W, Distance from Sea 2 3/4 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.					GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.		
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb Max. in Sun.	Min. on Grass.	9 A.M.		9 P.M.			Amount at 9 A.M.	9 A.M.		9 P.M.		Aue- moneter. 9 A.M.	9 A.M.			9 P.M.		9 A.M.						
	Barometer. No.	Attached Thermometer.	Barometer. No.	Attached Thermometer.	Max. No.	Min. No.			Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force, Scale of 0-12.	Direction.	Force, Scale of 0-12.		Species and Direction.	Amount (0-10).		Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.			No. 36 ins.	No. 48 ins.
1	30.186	37.9	30.226	38.5	39.5	20.0	70.9	16.8	25.2	24.0	31.4	28.9	—	W	1	W	2	—	—	—	—	30.1	33.4	35.8	37.9	40.5	1				
2	30.268	37.8	30.210	40.7	39.5	29.5	45.7	24.3	35.8	33.2	38.5	36.8	—	W	1	E	1	—	—	—	—	31.2	34.0	35.7	37.5	40.3	2				
3	30.130	39.0	30.046	39.2	41.9	31.3	44.2	27.6	31.9	30.9	31.4	29.8	—	W	1	E	2	—	—	—	—	30.6	33.8	35.7	37.3	40.0	3				
4	30.014	40.7	30.288	38.4	34.1	24.7	43.9	21.3	32.0	30.5	30.9	28.7	—	W	1	W	1	—	—	—	—	30.9	33.8	35.6	37.3	40.0	4				
5	30.410	37.8	30.364	38.2	38.7	19.5	75.1	12.3	23.1	22.4	22.7	20.1	—	W	1	W	1	—	—	—	—	30.9	34.1	35.1	36.9	39.8	5				
6	30.142	35.2	29.800	37.5	37.4	23.7	45.2	10.4	22.1	20.9	31.9	30.0	—	—	—	—	—	—	—	—	—	29.8	34.1	35.0	36.8	39.7	6				
7	29.528	37.8	29.488	38.6	38.8	31.1	35.0	28.7	36.0	34.2	36.0	33.5	0.2	W	1	SW	4	—	—	—	—	31.5	33.8	34.8	36.8	39.7	7				
8	29.816	37.2	29.532	38.7	43.7	32.9	90.2	23.4	35.0	33.3	35.1	32.8	0.3	W	2	W	3	—	—	—	—	31.8	34.2	35.6	38.6	39.4	8				
9	29.250	38.4	29.284	38.5	41.4	35.4	83.9	27.8	38.0	36.2	35.9	33.2	—	W	3	W	3	—	—	—	—	31.9	34.8	35.0	36.7	39.8	9				
10	29.344	39.1	29.224	39.1	44.8	32.0	87.8	28.1	37.0	35.0	37.6	35.1	0.3	W	3	W	2	—	—	—	—	32.0	34.1	35.1	36.5	39.3	10				
11	29.226	39.7	29.274	38.5	39.7	31.8	88.8	22.9	33.2	31.8	33.5	31.2	0.7	W	2	W	2	—	—	—	—	32.5	34.3	34.9	36.3	39.3	11				
12	29.086	39.2	29.178	40.1	35.8	32.0	40.9	25.8	34.0	31.8	35.6	32.1	—	E	1	E	1	—	—	—	—	32.4	34.1	35.1	36.3	39.2	12				
13	29.516	38.4	29.958	37.9	41.6	26.8	87.7	28.7	33.2	31.4	33.1	31.0	—	W	1	W	2	—	—	—	—	32.4	34.3	35.0	36.2	39.8	13				
14	29.874	39.2	29.650	41.2	45.0	27.8	56.1	27.4	36.8	34.5	44.1	42.3	0.2	W	2	W	3	—	—	—	—	32.2	34.2	34.8	36.2	39.8	14				
15	29.528	40.7	29.486	40.7	52.3	40.7	89.8	34.9	45.6	46.1	45.1	42.5	—	W	3	W	2	—	—	—	—	32.8	34.8	35.0	36.3	39.0	15				
16	29.678	42.1	29.400	44.8	46.8	30.1	78.9	28.7	37.4	35.5	43.5	42.1	2.2	W	3	W	4	—	—	—	—	33.3	34.7	35.8	36.4	39.8	16				
17	29.426	43.7	29.790	45.3	49.8	38.4	92.4	38.7	44.2	40.5	40.1	37.6	0.1	W	5	W	1	—	—	—	—	41.1	34.6	36.1	36.4	38.8	17				
18	29.434	44.8	29.278	46.3	49.4	36.5	81.0	37.4	46.0	44.3	37.8	36.3	1.3	W	4	W	3	—	—	—	—	40.9	37.5	37.2	36.6	38.9	18				
19	29.100	43.8	28.324	41.3	46.2	30.0	38.8	32.9	42.5	39.4	35.0	33.7	4.8	W	4	W	6	—	—	—	—	37.8	38.0	37.2	36.8	38.9	19				
20	28.350	43.1	29.000	43.8	46.5	31.9	97.8	30.1	35.4	34.5	35.3	32.4	—	W	4	W	2	—	—	—	—	35.2	37.8	37.8	37.2	38.3	20				
21	29.300	42.1	29.518	42.3	38.9	28.2	88.9	22.9	33.0	31.6	32.7	30.0	—	W	2	W	2	—	—	—	—	33.2	37.0	37.2	37.2	38.4	21				
22	29.596	41.0	29.698	40.1	36.3	24.9	90.8	19.9	28.9	27.1	28.9	27.8	—	W	2	W	2	—	—	—	—	32.5	36.2	37.1	37.1	38.2	22				
23	29.850	39.7	29.928	41.5	35.7	23.8	93.9	18.5	28.4	26.9	33.4	31.9	—	W	2	W	2	—	—	—	—	32.1	35.3	36.1	37.0	38.1	23				
24	29.800	42.3	29.892	45.6	46.3	31.8	84.9	27.9	41.2	39.8	43.7	41.5	—	W	4	W	2	—	—	—	—	33.3	34.8	36.0	36.9	38.4	24				
25	30.034	41.6	30.074	44.7	50.0	40.1	84.6	32.8	43.8	42.0	44.1	42.2	—	W	1	W	2	—	—	—	—	37.2	35.5	34.7	36.2	38.6	25				
26	30.050	43.5	30.184	46.5	51.2	40.9	96.3	38.1	44.0	42.3	44.3	41.7	—	W	2	W	1	—	—	—	—	39.2	36.8	36.7	36.7	39.0	26				
27	30.252	44.9	30.344	45.8	54.3	38.7	100.1	33.1	41.2	40.0	44.9	42.5	—	W	1	W	1	—	—	—	—	37.3	37.2	37.0	36.8	39.1	27				
28	30.350	44.8	30.274	46.0	49.8	30.1	91.2	26.7	35.1	34.1	45.2	43.1	—	W	1	W	1	—	—	—	—	35.3	38.2	37.4	37.2	39.1	28				
29																											29				
30																											30				
31																											31				
Sums.	1011.9	15.13	1115.2	14.12	16.14	10.13	14.15	15.16	13.17	10.11	12.12	10.12	3									9.11	14.11	16.18	19.13	21.10					
Means.	19.368	14.0	19.756	38.8	95.62	4.7	251.6	18.4	16.29	11.22	19.11	13.20	1.43	58	57			10.5	10.5			10.6	8.3	4.9	10.7	8.6.7					
Corrections for Instrumental Errors.	+0.15		+0.15		+0.15																										
Corrected Means	29.409		29.721		31.9																										

10.7

4.7

NOTATION USED IN GENERAL REMARKS.											
a.	denotes aurora.										
d.	drizzling rain.										
f.	fog.										
fr.	frost.										
h.-fr.	hoar-frost.										
h.	haze.										
hi.	hail.										
l.	lightning.										
lu. co.	lunar corona.										
lu. ha.	lunar halo.										
m.	mist.										
p.	passing showers.										
r.	rain.										
r.2	heavy rain.										
sl.	sleet.										
sn.	snow.										
so. ha.	solar halo.										
q.	squall.										
q.2	violent squalls.										
t.	thunder.										
t. s.	thunder-storm.										
		CLOUDS.									
		HIGH CLOUDS.									
		Cirrus, cir.									
		Cirro-stratus, cir-str.									
		Cirro-cumulus, cir-cum.									
		MIDDLE CLOUDS.									
		Strato-cirrus, str-cir.									
		Cumulo-cirrus, cum-cir.									
		LOWER CLOUDS.									
		Strato-cumulus, str-cum.									
		Cumulus, cum.									
		Cumulo-nimbus, cum-nim.									
		Nimbus, nim.									
		Stratus, str.									

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).											
FORCE.		FORCE.		FORCE.							
0	Calm.	5	Fresh Breeze.	9	Strong Gale.						
1	Light Air.	6	Strong Breeze.	10	Whole Gale.						
2	Light Breeze.	7	Moderate Gale.	11	Storm.						
3	Gentle Breeze.	8	Fresh Gale.	12	Hurricane.						
4	Moderate Breeze.										

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. 29.707 = 29.674
Corrected Mean at 9 P.M., minus Correction for Temp. 29.721 = 29.685
Mean at Station, corrected, and at 32°, = 29.679
Correction for height, feet above Mean Sea-level, = + 15.6
Mean, reduced to 32°, and Sea-level, = 29.663
Highest Reading, corrected for Index error, on the 5th, = 30.415
Lowest Do. Do., on the 19th, = 28.339
Difference, or Monthly Range, = 2.076

S.-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 27th, = 54.3
Lowest in Month, corrected for Index errors, on the 5th, = 20.5
Difference, or Monthly Range, = 33.8
Mean of all the Highest, = 43.4
Mean of all the Lowest, = 34.9
Difference, or Mean Daily Range, = 14.5
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 37.7
S.-R. THERMOMETER, Min. on Grass, Lowest in Month, 6th, = 10.4
" " Mean, = 26.7
Black Bulb, Max. in Sun, Highest in Month, 27th, = 100.1

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 36.3
Wet Bulb, Mean of A.M. and P.M. Readings, = 34.3
Computed Temperature of Dew-Point, =
Do. Elastic Force of Vapour, = 1.77
Do. Relative Humidity (Saturation = 100), = 83
RAIN fell on 13 Days; Amount in Inches, = 1.43

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.		5	0	1	0	0	0	21	0	1	
P.M.		3	0	3	0	0	1	20	0	1	
Sun.		8	0	4	0	0	1	41	0	2	2.1

Observations made and Return verified by D. Johnston for J. Hume

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercurial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FOURIN BAROMETER.—In setting this instrument, the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Forin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the BOARD or TRADE pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch the column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down, to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1-1000 inch, 0-100 inch, and 0-050 inch; that is to say, instead of 29-365 one of the following is sometimes set down—viz. 30-365, 29-265, or 29-315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf buds first Appear.	In Peak.	Disputed of Leaves.	CROPS mentioning variety.	Spring or Planting.	Arriving above ground.	First Cut or Island.
Alder.					Barley.			
Ash.					Bere or Biggs.			
Beech.					Gates.			
Birch.					Wheat.			
Elm.					Beans.			
Larch.					Peas.			
Lime.					Potatoes.			
Oak.					Turnips.			
Sycamore or Plane.					Rye Grass.			

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

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

FOR TAKING METEOROLOGICAL OBSERVATIONS.

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule: thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for, say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating .50, that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixth line in the glass as .06, if up to the twenty-third line as .23, if up to the thirtieth line as .30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering .08 as simply 8, or .30 as .3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass, it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

.47
.42
.38
1.27

The total, 1.27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 12 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

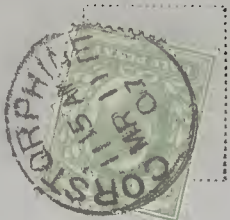
THERMOMETERS UNDER GROUND.

These should be read at 9 A.M., and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.



THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Midlothian, During the MONTH of March 1904.Lat 55° 43' N, Long 3° 16' W, Distance from Sea 2 1/2 miles. Height of Cistern of the Barometer above Mean Sea-Level 143 feet, above Ground 6 feet.Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. Dry No. Wet No.				RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.						GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.	
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb, Max. in Sun.		9 A.M.		9 P.M.			9 A.M.		9 P.M.		9 A.M.		9 P.M.			9 A.M.		9 P.M.						
	Barometer. No.	Attached Thermometer.	Barometer. No.	Attached Thermometer.	Max. No.	Min. No.	No.	No.	Dry bulb. No.	Wet bulb. No.	Dry bulb. No.	Wet bulb. No.		Amount at 9 A.M.	Direction. 0-12.	Force. Scale of 0-12.	Direction. 0-12.	Force. Scale of 0-12.	Anemometer. 9 A.M.	Species and Direction.	Amount (0-10).		Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.	No. 36 ins.			No. 48 ins.
	inches.	°	inches.	°	°	°	°	°	°	°	°	°		°	inches.											°	°	°			°
1	30.150	45.3	30.066	47.8	49.6	40.0	50.0	34.6	42.0	38.8	44.8	42.7	.02	W	2	W	2		st	10	n	10	38.7	35.5	35.0	37.4	35.2	1			
2	30.100	46.2	30.154	46.2	46.8	42.3	60.5	36.8	41.5	38.4	43.6	41.9	—	S	1	E	1		st	10	w	5	41.3	39.0	38.3	38.7	39.4	2			
3	30.150	45.2	30.078	46.1	52.1	29.2	103.8	24.6	36.8	35.9	41.8	39.0	—	S	1	W	1		—	—	w	6	40.1	39.1	38.4	37.8	38.4	3			
4	30.100	45.7	29.944	45.1	54.7	40.1	99.4	34.1	44.5	40.2	40.9	38.5	.03	SW	2	W	1		w	4	—	—	40.2	39.1	38.7	38.2	39.5	4			
5	29.582	45.1	29.764	46.9	47.8	35.3	94.9	33.7	44.9	39.9	36.8	35.1	.03	W	4	W	2		n	10	w	5	38.5	39.5	39.2	38.3	39.6	5			
6	29.940	45.1	30.028	48.3	46.4	33.8	94.9	27.3	41.0	38.5	40.3	38.0	.01	W	1	W	2		—	—	st	8	36.8	38.8	40.1	38.4	39.7	6			
7	29.632	46.7	29.450	50.3	40.8	36.4	76.9	34.8	37.6	35.0	37.6	35.9	.17	W	3	W	3		n	10	—	—	38.5	40.0	40.1	38.6	39.7	7			
8	29.600	46.8	29.540	47.1	45.6	31.3	91.9	28.8	38.5	36.7	31.7	29.1	—	W	4	W	1		—	—	—	—	37.6	39.9	40.3	38.9	39.8	8			
9	30.026	40.8	29.872	45.3	39.9	28.2	72.8	26.4	38.7	30.2	32.5	29.8	.18	W	1	E	3		w	8	n	10	34.3	39.8	39.7	38.7	39.8	9			
10	29.568	43.7	29.700	45.2	48.3	29.5	110.9	27.9	33.5	31.7	38.3	30.6	.32	W	1	W	1		st	10	st	10	33.8	39.8	39.6	38.9	39.7	10			
11	30.218	43.7	30.300	42.5	42.2	30.5	108.2	26.1	35.2	31.3	31.9	28.7	.03	W	1	W	1		—	—	—	—	31.7	38.5	39.7	39.0	40.0	11			
12	30.100	42.9	29.854	44.3	45.8	31.2	92.4	27.8	37.6	34.7	37.1	34.9	.03	W	1	W	2		st	10	st	8	36.7	37.5	39.1	38.4	40.0	12			
13	29.632	44.7	29.450	43.1	43.7	29.8	91.6	32.3	38.8	35.9	35.2	31.4	.10	W	2	W	2		—	—	—	—	36.2	37.8	39.0	38.4	40.0	13			
14	29.716	46.1	29.728	45.3	47.3	37.4	99.5	24.6	38.2	33.9	38.9	37.1	.07	W	2	W	2		—	—	st	10	34.1	37.9	39.2	38.6	40.0	14			
15	29.366	45.3	29.376	47.6	52.8	33.1	103.8	33.7	47.8	45.5	46.8	42.3	.06	W	3	W	3		st	10	—	—	40.1	38.5	39.6	38.7	40.1	15			
16	29.176	46.8	28.900	48.2	52.1	40.7	105.2	34.9	49.6	44.7	43.5	42.9	.59	W	3	E	2		—	—	st	10	41.3	39.5	39.7	38.7	39.9	16			
17	29.070	46.2	29.540	44.1	47.6	37.1	92.3	31.7	41.8	38.6	40.0	38.4	.33	W	4	W	3		—	—	—	—	40.9	41.5	39.8	39.6	39.9	17			
18	28.950	47.0	29.346	44.2	43.1	36.4	97.6	34.7	42.8	39.4	37.3	35.9	.20	W	6	W	4		st	10	—	—	40.8	40.3	39.7	38.9	40.1	18			
19	29.439	47.3	29.366	49.2	41.8	33.7	91.8	27.8	34.8	33.9	37.6	35.4	.18	W	3	W	4		st	10	st	10	36.8	40.1	39.8	39.1	40.2	19			
20	29.684	47.1	30.228	51.4	52.1	32.8	103.1	30.7	41.8	38.8	38.4	36.9	.02	W	5	W	1		—	—	—	—	38.6	39.8	39.7	39.3	40.3	20			
21	30.100	48.5	29.908	53.8	54.5	41.4	110.3	36.9	47.8	44.8	43.4	40.7	.03	W	2	W	4		—	—	st	10	40.2	40.0	39.9	39.5	40.4	21			
22	30.1096	57.3	30.232	52.8	56.1	38.7	109.8	33.7	46.8	41.8	43.3	39.1	—	W	2	W	2		—	—	—	—	40.8	40.6	40.0	39.4	41.0	22			
23	30.272	47.1	30.200	52.8	52.6	34.3	110.2	28.1	42.8	39.4	39.1	37.0	—	—	—	W	1		—	—	—	—	39.1	40.5	40.3	39.5	40.8	23			
24	30.100	49.3	30.150	54.3	54.9	37.5	112.5	37.9	45.0	42.8	46.9	43.8	—	W	1	W	2		st	10	st	8	40.3	40.9	40.5	39.7	40.8	24			
25	30.186	50.0	30.192	54.7	59.8	43.3	113.1	41.9	47.6	45.8	45.9	42.8	—	W	1	W	6		st	10	st	8	44.2	41.7	40.8	39.8	40.8	25			
26	30.232	51.3	30.272	55.1	56.8	43.2	109.3	36.8	50.3	46.4	46.1	44.3	—	W	2	W	1		—	—	—	—	43.8	42.5	42.2	40.2	40.8	26			
27	30.250	54.3	30.212	58.2	62.1	45.0	114.1	38.5	54.2	50.1	48.8	45.9	—	W	2	W	2		—	—	—	—	47.0	44.2	44.0	40.4	41.2	27			
28	30.168	53.8	30.032	58.3	62.5	36.8	109.2	31.7	48.2	45.0	46.2	44.0	—	—	—	W	1		st	10	st	8	46.8	44.3	44.1	40.6	41.2	28			
29	29.896	54.6	29.742	58.5	54.3	38.7	110.9	27.8	48.2	42.3	50.1	45.4	—	W	1	W	2		—	—	—	—	44.3	44.6	44.5	40.8	41.3	29			
30	29.882	56.2	29.784	59.1	55.9	35.7	105.6	29.8	46.4	46.1	46.4	41.3	—	W	2	W	2		st	6	—	—	46.8	41.2	41.3	41.4	41.6	30			
31	29.792	54.5	29.750	56.0	48.9	36.0	114.8	30.7	49.6	44.5	50.2	45.9	—	W	1	W	1		—	—	—	—	43.5	44.7	44.1	41.7	41.8	31			
Sums.	1249	152	1410	1810	1517	1512	1816	1619	1616	1616	1515	1415	7										134	1715	912	2216	1214				
Means.	26.074	23.6	26.112	30.17	16.0	17.16	30.05	56.9	90.1	130.4	41.5	26.97	2.70										30.48	1.17	1.18	18.37	24.92				
Corrections for Instrumental Errors.	29.841	47.7	29.842	49.7	50.5	36.5	99.0	31.8	42.9	39.7	41.3	38.7		2.00		2.09						44	3.5			39.8	40.4	40.4	39.1	40.3	
Corrections for Diurnal Range.																															
Corrected Means	29.856		29.857		36.5																										

NOTATION USED IN GENERAL REMARKS.

a. denotes aurora.

d. drizzling rain.

f. fog.

fr. frost.

h-fr. hoar-frost.

h. haze.

hl. hail.

l. lightning.

lu.co. lunar corona.

lu.ha. lunar halo.

m. mist.

p. passing showers.

r. rain.

r-2 heavy rain.

sl. sleet.

so.ha. solar halo.

sn. snow.

s. squall.

q-2 violent squalls.

t. thunder.

t.s. thunder-storm.

CLOUDS.

High Clouds.

Cirrus, cir.

Cirro-stratus, cir-str.

Circo-cumulus, cir-cum.

Middle Clouds.

Strato-cirrus, str-cir.

Cumulo-cirrus, cum-cir.

Lower Clouds.

Strato-cumulus, str-cum.

Cumulus, cum.

Cumulo-nimbus, cum-nim.

Nimbus, nim.

Stratus, str.

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).

FORCE.

0 Calm.

1 Light Air.

2 Light Breeze.

3 Gentle Breeze.

4 Moderate Breeze.

5 Fresh Breeze.

6 Strong Breeze.

7 Moderate Gale.

8 Fresh Gale.

9 Strong Gale.

10 Whole Gale.

11 Storm.

12 Hurricane.

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.856
Corrected Mean at 9 P.M., minus Correction for Temp. = 29.857
Mean at Station, corrected, and at 32', = 29.801
Correction for height, feet above Mean Sea-level, = + 1.85
Mean, reduced to 32', and Sea-level, = 48.6
Highest Reading, corrected for Index error, on the 11 th, = 30.315
Lowest Do. Do., on the 16 th, = 28.915
Difference, or Monthly Range, = 1.400

S-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 29 th, = 64.3
Lowest in Month, corrected for Index errors, on the 14 th, = 28.4
Difference, or Monthly Range, = 35.9
Mean of all the Highest, = 50.5
Mean of all the Lowest, = 36.5
Difference, or Mean Daily Range, = 14.0
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 43.5
S-R. THERMOMETER, Min. on Grass, Lowest in Month, = 24.6
" " Mean, = 31.8
Black Bulb, Max. in Sun, Highest in Month, = 119.9

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 42.1
Wet Bulb, Mean of A.M. and P.M. Readings, = 39.2
Computed Temperature of Dew-Point, =
Do. Elastic Force of Vapour, = 2.10
Do. Relative Humidity (Saturation = 100), = 78
RAIN fell on 18 Days; Amount in Inches, = 2.40

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.		4	0	0	0	2	1	22	0	2	
P.M.		7	0	3	0	1	0	19	1	0	
Sum.		11	0	3	0	3	1	41	1	2	2.0

Observations made and
Return verified by Andrew Home
J. N. Johnston

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work as they are very liable to get air into the mercury column when improperly handled. Mercuial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FOURTH BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the **BOARD OR TRADE** pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch that is, form a tangent to the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1-1000 inch, 0-100 inch, and 0-050 inch; that is to say, instead of 29-355 one of the following is sometimes set down—viz. 30-355, 29-255, or 29-315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In flower.	Leaf buds first appear.	In leaf.	Divested of leaves.	CROPS, mentioning variety.	Sowing or Planting.	Appearing above ground.	In Ear or Flower.	First Cut or Raised.
Alder,					Barley,				
Ash,					Bere or Bigg,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Pease,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

SHRUBS, ETC.	First in Blossom.	FRUITS.	Fruit ripe generally.	MIGRATORY BIRDS.	First Arrival.	Departure.
Barberry,		Apple,		Cuckoo,		
Bourches or Elder,		Black Currant,		Curlew,		
Broom,		Cherry,		House-Swallow,		
Hazel,		Gean,		Lapwing,		
Hawthorn,		Gooseberry,		Plover,		
Holly,		Peach,		Sand-Martin,		
Laburnum,		Pear,		Starling,		
Lilac,		Plum,		Swan,		
Mezezon,		Strawberry,		Rail or Corn Crake,		
Mountain Ash or Rowan,						
Red Flowering Currant,						
Rhododendron Ponticum,						
Whin,						

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

FOR TAKING METEOROLOGICAL OBSERVATIONS.

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule: thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating '50, that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixth line in the glass as '06, if up to the twenty-third line as '23, if up to the thirtieth line as '30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering '08 as simply 8, or '30 as '3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

47
42
38
1-27

The total, 1-27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 12 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 2 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M. and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; of Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.



SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Mid-Lothian, During the MONTH of April 1907.Lat. 55° 56' N., Long. 3° 16' W., Distance from Sea 2 2/3 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.						Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.		
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb, Max. in Sun.	Min. on Grass.	9 A.M.		9 P.M.			Amount at 9 A.M.	9 A.M.		9 P.M.		Ane- nometer. 9 A.M.	9 A.M.			9 P.M.		9 A.M.							
	Barometer. No.	Attached Ther- mometer.	Barometer. No.	Attached Ther- mometer.	Max. No.	Min. No.			Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force, Scale of 0-12.	Direction.	Force, Scale of 0-12.		Species and Direction.	Amount (0-10).		Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.	No. 36 ins.			No. 48 ins.	
																															inches.	°
1	29.736	53.5	29.568	56.8	54.3	38.2	112.9	32.5	49.8	45.7	40.1	38.7	—	W	1	W	2	—	—	—	6	45.0	44.8	44.2	42.8	42.0		1				
2	29.369	56.0	29.190	59.5	64.4	89.8	108.7	37.6	54.8	51.8	48.8	45.9	.03	W	2	W	3	—	—	—	—	46.8	44.5	43.8	42.2	42.3		2				
3	29.100	56.1	29.176	58.8	62.0	42.0	116.2	40.1	50.1	46.1	42.2	41.1	.05	W	2	W	2	—	—	—	10	47.1	45.2	44.0	40.8	40.4		3				
4	29.250	54.3	29.454	56.8	47.7	39.0	90.1	38.8	40.6	39.8	39.0	38.4	.08	W	2	W	1	—	—	—	—	45.3	45.3	44.0	41.7	42.5		4				
5	29.412	53.2	29.172	56.5	53.8	36.6	104.0	32.5	43.0	41.1	46.7	43.8	.09	W	2	W	4	—	—	—	10	43.2	45.1	44.0	40.5	41.6		5				
6	29.000	52.0	29.060	57.5	54.1	39.9	115.3	32.2	45.0	41.1	40.2	38.8	.02	W	3	—	—	—	—	—	10	45.0	45.1	44.1	45.8	45.7		6				
7	29.026	55.8	29.110	55.5	53.4	39.4	80.6	35.0	41.6	39.1	41.0	39.4	.04	W	2	—	—	—	—	—	10	44.0	45.0	44.4	43.0	43.0		7				
8	29.380	57.0	29.390	56.0	55.7	35.2	97.6	28.0	44.1	42.0	42.2	41.0	.14	W	1	—	—	—	—	—	10	43.0	44.1	44.2	42.3	43.1		8				
9	29.500	52.0	29.694	56.0	46.4	37.1	96.6	30.0	42.8	41.0	42.3	41.7	.09	W	1	W	2	—	—	—	10	43.1	44.2	44.2	40.6	45.8		9				
10	29.750	52.0	29.870	55.0	48.8	41.0	86.2	39.0	45.0	42.8	41.8	40.9	.18	W	2	W	4	—	—	—	10	44.0	44.8	44.3	45.8	40.8		10				
11	29.850	54.0	29.844	54.0	43.7	39.0	65.2	37.5	42.0	38.8	41.0	39.2	.02	W	6	W	6	—	—	—	8	44.1	44.6	44.2	40.7	40.7		11				
12	29.750	52.0	29.744	53.0	47.1	39.2	92.2	33.0	40.0	45.8	39.9	38.4	—	W	4	W	4	—	—	—	—	43.0	44.0	44.0	40.8	40.8		12				
13	29.686	51.0	29.728	53.0	46.3	35.1	102.9	31.5	41.0	44.8	35.8	34.6	—	W	6	W	3	—	—	—	—	43.2	43.8	44.0	40.7	40.8		13				
14	29.700	49.0	29.664	54.0	47.0	33.2	102.1	25.0	42.0	38.8	42.9	41.0	—	W	2	W	2	—	—	—	8	42.0	43.1	44.0	40.6	40.8		14				
15	29.600	57.0	29.540	54.0	50.9	34.0	102.2	36.4	44.0	39.8	38.4	33.8	—	W	1	W	2	—	—	—	—	43.1	44.0	44.0	40.7	40.8		15				
16	29.524	54.0	29.490	54.0	54.2	30.0	104.6	23.7	43.7	40.8	43.3	40.7	—	—	—	W	2	—	—	—	—	42.1	44.0	44.0	40.7	40.8		16				
17	29.600	50.0	29.906	52.8	44.5	31.1	103.1	31.0	40.8	43.4	34.4	32.2	—	W	1	—	—	—	—	—	—	43.2	44.8	44.0	40.7	40.8		17				
18	29.886	48.0	29.868	52.5	46.4	26.8	104.9	20.1	39.2	33.0	37.4	34.6	—	W	1	W	3	—	—	—	—	39.1	44.0	44.4	40.7	40.7		18				
19	29.834	57.0	29.876	53.8	54.1	29.4	107.4	28.0	45.1	40.0	43.1	38.7	—	—	—	SW	2	—	—	—	—	43.0	43.4	44.0	40.8	40.8		19				
20	29.684	52.0	29.586	54.5	57.0	37.7	98.8	36.0	48.0	43.0	48.8	46.1	.02	W	4	SW	4	—	—	—	—	45.0	44.0	44.0	40.8	40.8		20				
21	29.560	53.0	29.758	55.5	56.3	43.0	116.8	36.0	41.0	46.2	43.4	39.9	—	W	2	W	2	—	—	—	—	47.0	44.8	44.0	40.7	40.8		21				
22	29.900	52.0	29.794	56.0	55.4	38.1	111.2	30.0	46.0	42.8	51.8	49.9	.02	W	2	SW	5	—	—	—	4	44.0	45.0	44.8	40.7	40.8		22				
23	29.870	55.0	29.970	55.5	59.0	38.0	110.9	41.2	53.0	48.8	52.6	50.9	.01	W	2	W	3	—	—	—	10	43.0	48.0	44.2	40.7	40.8		23				
24	29.972	57.0	29.128	58.0	58.5	47.0	116.4	43.0	54.8	48.0	47.4	42.8	—	W	3	W	3	—	—	—	—	50.0	46.8	45.4	40.8	40.8		24				
25	30.116	56.0	29.096	55.2	56.1	36.0	123.3	27.0	49.0	42.0	43.6	39.6	—	W	1	W	2	—	—	—	5-	47.0	47.4	46.0	40.8	40.8		25				
26	29.974	55.0	29.770	57.0	54.0	37.7	112.3	22.0	47.8	42.8	38.9	37.3	—	—	—	—	—	—	—	5-	46.0	47.0	46.2	40.8	40.9		26					
27	29.786	52.0	29.804	56.0	50.0	34.1	118.9	27.4	42.4	44.0	39.7	36.4	.09	W	1	W	2	—	—	—	4	44.0	46.0	46.0	40.9	40.9		27				
28	29.678	53.0	29.822	52.5	51.5	33.5	96.6	26.5	44.8	41.2	40.3	39.1	.01	W	1	W	1	—	—	—	4	44.2	46.0	46.0	40.9	40.9		28				
29	29.570	54.4	29.576	55.5	57.0	37.2	125.7	28.4	48.8	43.2	43.0	40.6	—	W	1	W	1	—	—	—	8	45.4	46.8	45.0	40.9	40.9		29				
30	29.466	53.0	29.580	54.8	48.7	37.8	62.1	30.0	45.0	44.8	42.4	38.8	.25	—	—	W	2	—	—	—	10	46.0	46.2	46.8	41.9	40.9		30				
31																													31			
Sums.	9237	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822	1822		
Means.	29.614	52.7	29.629	55.5	57.3	36.8	102.9	31.9	45.8	42.4	42.2	40.1	1.87	1.87	2.23	3.4	5.6	44.5	45.0	44.6	40.9	41.1										
Corrections for Instrumental Errors.	+0.15		+0.15		+1.0																											
Corrections for Diurnal Range.																																
Corrected Means	29.629	52.7	29.644	55.5	58.3																											

NOTATION USED IN GENERAL REMARKS.

a. denotes aurora.

d. " drizzling rain.

f. " fog.

fr. " frost.

h-fr. " hoar-frost.

h. " haze.

hl. " hail.

l. " lightning.

lu.co. " lunar corona.

lu.ha. " lunar halo.

m. " mist.

p. " passing showers.

r. " rain.

r.s. " heavy rain.

sl. " sleet.

sn. " snow.

so.ha. " solar halo.

q. " squall.

q.s. " violent squalls.

t. " thunder.

t.s. " thunder-storm.

CLOUDS.

High Clouds.

Cirrus, cir.

Cirro-stratus, cir-str.

Cirro-cumulus, cir-cum.

MIDDLE CLOUDS.

Strato-cirrus, str-cir.

Cumulo-cirrus, cum-cir.

LOWER CLOUDS.

Strato-cumulus, str-cum.

Cumulus, cum.

Cumulo-nimbus, cum-nim.

Nimbus, nim.

Stratus, str.

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).

FORCE.

0 Calm.

1 Light Air.

2 Light Breeze.

3 Gentle Breeze.

4 Moderate Breeze.

5 Fresh Breeze.

6 Strong Breeze.

7 Moderate Gale.

8 Fresh Gale.

9 Strong Gale.

10 Whole Gale.

11 Storm.

12 Hurricane.

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.629
Corrected Mean at 9 P.M., minus Correction for Temp. = 57.2
Mean at Station, corrected, and at 32° = 56.9
Correction for height, feet above Mean Sea-level, = + 18.3
Mean, reduced to 32°, and Sea-level, = 29.752
Highest Reading, corrected for Index error, on the 24 th, = 30.116
Lowest Do. Do., on the 6 th, = 29.028
Difference, or Monthly Range, = 1.115

S-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 2nd th, = 64.4
Lowest in Month, corrected for Index errors, on the 18 th, = 27.8
Difference, or Monthly Range, = 36.6
Mean of all the Highest, = 52.3
Mean of all the Lowest, = 37.8
Difference, or Mean Daily Range, = 14.5
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 45.0
S-R. THERMOMETER, Min. on Grass, Lowest in Month, = 20.1
" " Mean, = 31.9
Black Bulb, Max. in Sun, Highest in Month, = 125.1

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 44.0
Wet Bulb, Mean of A.M. and P.M. Readings, = 41.3
Computed Temperature of Dew-Point, = 23.0
Do. Elastic Force of Vapour, = 230
Do. Relative Humidity (Saturation = 100), = 79
RAIN fell on 16 Days; Amount in Inches, = 1.07

WIND.		SUMMARY.									
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or	Mean Force	
A.M.	0	2	10	0	1	1	12	0	4		
P.M.	0	1	13	0	0	4	7	0	5		
Sum.	0	3	23	0	1	5	19	0	9	2.1	

Observations made and
Return verified by G. M. Johnston

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS FOR TAKING METEOROLOGICAL OBSERVATIONS.

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercurial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FOURTH BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the **BOARD OF TRADE** pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to, the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1·000 inch, 0·100 inch, and 0·050 inch; that is to say, instead of 29·365 one of the following is sometimes set down—viz. 30·365, 29·265, or 29·315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf Buds first Apparent.	In Leaf.	Divested of Leaves.	CROPS, mentioning variety.	Sowing or Planting.	Appearing above Ground.	In Bar or Flower.	First Cut or Raised.
Alder,					Barley,				
Ash,					Bere or Biggs,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Pease,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

SHRUBS, &c.	First in Blossom.	FRUITS.	Fruit Ripe, generally.	MIGRATORY BIRDS.	First Arrival.	Departure.
Barberry,				Chukoo,		
Bourtree or Elder,		Apple,		Cuckoo,		
Broom,		Black Currant,		House-Swallow,		
Hazel,		Cherry,		Lapwing,		
Hawthorn,		Gean,		Plover,		
Holly,		Gooseberry,		Sand-Martin,		
Laburnum,		Peach,		Starling,		
Lilac,		Pear,		Swan,		
Mezeron,		Plum,		Rail or Corn Oake,		
Mountain Ash or Rowan,		Strawberry,				
Red Flowering Currant,						
Rhododendron Ionicum,						
Whin,						

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

STEVENSON SCREEN.

The Maximum, Minimum, Dry Bulb, and Wet Bulb Thermometers should be placed in a louvered Stevenson Screen standing over grass and with its door facing north. The Dry and Wet Bulb Thermometers may be conveniently attached to upright laths near the front of the Screen, and the Maximum and Minimum Thermometers to others farther back. The height of the Screen should be such that the bulbs of the Dry and Wet Thermometers are four feet above the ground. The Screen should be painted white inside and out.

MAXIMUM AND MINIMUM THERMOMETERS.

In order that the MAXIMUM THERMOMETER may register the highest temperature of the day, the column of mercury is disconnected from the mercury in the bulb either by an air-bubble in the column (Phillips's pattern), or by the narrowing of the tube near the bulb (Negretti and Zamboni's pattern). In either case the instrument is set by holding it vertically, bulb downwards, and gently shaking and tapping it so as to send the portion of the column that remained at the highest point attained back towards the bulb.

The MINIMUM THERMOMETER registers the lowest temperature by an index enclosed in the column of spirit which is drawn towards the bulb as the temperature falls, but remains stationary during any rise of temperature. The lowest reading is therefore the position of the end of the index furthest from the bulb. The instrument is set by inclining it bulb upwards till the index slips down to the end of the column of spirit. Care must be taken not to force any part of the index beyond the end of the spirit. Should this occur, however, or should portions of the spirit get detached and lodge in the upper part of the tube, it is generally possible to set the instrument right again by grasping it near the end furthest from the bulb and giving several rapid vertical swings at arm's length, so as to drive the spirit and index towards the bulb by centrifugal force.

Both Maximum and Minimum should be read and set at 9 P.M. The readings should be written down before the Thermometers are touched; and after setting, both should agree very nearly with the Dry Bulb temperature at that hour. Any difference from the Dry Bulb of more than a degree may be regarded by the Observer as an indication either that the instrument is not properly set, or that it is out of order.

DRY AND WET BULB THERMOMETERS.

The Hygrometer in use at the Society's Stations consists of two thermometers—a Dry and a Wet Bulb—of similar form, and usually mounted on one frame. The bulbs should project at least an inch from the frame, and the Wet Bulb be covered with muslin and connected by strands of cotton with the water cistern. This cistern should be placed an inch or two below the level of the bulbs and at the side of the Wet Bulb furthest from the Dry Bulb; it should not stand directly under the Wet Bulb. Muslin and strands are supplied to most stations from the Society's office, and should be renewed at least once a month. In putting on a fresh muslin care should be taken to touch it as little as may be with the fingers. In frosty weather the strands do not convey water to the muslin, but an accurate observation can generally be insured by soaking the Wet Bulb in water a quarter of an hour before the observation, as from the film of ice thus formed on the muslin evaporation goes on in the same way as from the wet muslin under ordinary circumstances.

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule; thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating .50, that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if, up to say the sixth line in the glass as .06, if up to the twenty-third line as .23, if up to the thirtieth line as .30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering .08 as simply 8, or .30 as .3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

.47
.49
.38
1·27

The total, 1·27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

SNOW OR HAIL is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 12 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

INSTRUCTIONS FOR TAKING METEOROLOGICAL OBSERVATIONS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M., and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.



SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Gorstophine House, County of Mid-Lothian, During the MONTH of May 1907.
 Lat. 55° 44' N; Long 3° 16' W; Distance from Sea 2 2/3 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.

Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.		WIND.				CLOUDS.				SUNSHINE.		THERMOMETERS under Ground.					GENERAL REMARKS.	Days of Month.
	9 A.M.		9 P.M.		Protected in Shade, 4 feet above ground.		Black Ball Max. in Sun.		Min. on Grass.		9 A.M.		9 P.M.		Amount at 9 A.M.		9 A.M.		9 P.M.		9 A.M.		9 P.M.		9 A.M.					Occurrence of Snow, Hail, Thunder, Lightning, Fog, Calos, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc.	
	Barometer. No.	Attached Thermometer.	Barometer. No.	Attached Thermometer.	Max. No.	Min. No.	No.	No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force. Scale of 0-12.	Direction.	Force. Scale of 0-12.	Anemo- meter. 9 A.M.	Species and Direction.	Amount (0-10).	Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.	No. 36 ins.	No. 48 ins.					
																											inches.	°	inches.		
1	29.570	52.0	29.990	54.8	53.1	55.4	110.2	37.0	44.0	46.0	44.9	43.4	.026	N	2	SW	6	N	10	N	10	45.0	46.0	46.2	46.8	46.9	n ² . S.W. wind g. evening	1			
2	28.844	54.0	28.548	55.0	49.1	36.8	109.8	34.0	43.0	39.2	43.6	41.9	.22	N	4	SW	4	N	8	N	10	44.8	46.0	45.8	46.9	46.9		2			
3	28.900	54.0	28.954	55.0	51.0	39.6	104.1	34.0	47.4	43.0	42.0	38.5	.02	N	2	N	2	N	4	W	4	45.0	46.2	46.0	46.9	45.0		3			
4	29.260	53.4	29.329	54.8	51.0	39.0	105.9	33.0	50.0	44.0	45.0	42.8	.09	N	3	N	2	N	2	SE	4	45.4	46.0	45.8	46.9	45.0		4			
5	29.600	55.0	29.626	55.2	59.1	40.2	113.2	31.8	48.0	44.8	48.2	43.3	.01	—	—	—	3	N	1	N	5	46.0	45.8	45.8	46.9	45.0		5			
6	29.644	55.0	29.900	56.2	49.1	43.5	86.2	38.4	47.0	43.8	44.6	44.1	.03	E	2	E	4	N	9	Fog		47.0	47.8	46.8	46.9	45.8	E. ha. all day & evening.	6			
7	29.600	55.4	29.530	56.0	46.8	43.0	66.1	41.0	44.0	43.8	45.2	44.9	.03	E	2	E	3	N	10	Fog		47.1	47.8	46.8	45.4	45.2	E. ha. " " "	7			
8	29.588	56.0	29.520	58.5	63.9	44.5	112.1	42.0	58.0	49.8	53.1	47.9	—	W	3	SW	2	Cir.	2	Cir.	4	48.0	47.4	46.8	46.8	45.9	t. 3 p.m.	8			
9	29.486	57.0	29.528	58.8	58.0	47.0	117.2	41.8	53.2	48.2	50.1	46.0	.02	N	4	SW	4	N	3	N	3	50.4	48.8	47.0	46.0	45.8		9			
10	29.466	58.0	29.574	58.0	58.3	46.4	111.9	40.4	55.2	48.3	51.0	46.7	.06	N	3	SW	3	Cir.	2	N	10	49.8	48.8	47.8	46.4	46.2		10			
11	29.536	57.8	29.716	59.0	63.4	50.0	131.6	41.0	58.0	53.8	53.1	49.9	.05	N	1	N	1	N	10	N	5	52.0	49.8	48.0	47.0	46.8		11			
12	29.788	59.0	29.750	57.5	63.2	44.2	122.2	43.0	59.8	47.8	45.0	44.1	.02	E	2	E	4	N	10	N	10	51.8	49.8	48.4	47.2	46.4		12			
13	29.700	56.8	29.800	58.5	65.9	44.1	125.9	45.2	50.8	49.9	52.0	46.9	—	—	—	4	2	Cir.	1	Cir.	4	49.8	49.8	48.6	47.4	47.2		13			
14	29.760	58.0	29.700	57.2	61.9	41.5	117.1	36.0	54.8	50.0	50.3	46.1	—	E	1	E	4	Cir.	2	N	8	51.8	50.4	49.0	48.2	47.2		14			
15	29.676	57.4	29.764	57.5	61.1	46.5	105.7	46.0	50.2	47.2	46.8	43.0	—	N	1	N	1	N	6	Cir.	5	51.2	51.0	49.8	48.4	48.2		15			
16	29.846	55.8	30.012	55.8	52.3	38.0	83.2	30.0	48.2	44.8	45.9	42.2	—	E	1	E	2	N	10	N	10	49.4	51.2	49.8	48.5	48.4		16			
17	30.140	54.8	30.222	56.0	53.5	33.0	120.2	28.0	46.2	40.0	44.0	39.2	—	E	1	NW	2	N	8	N	8	47.2	50.0	49.8	48.5	48.3		17			
18	30.188	55.0	30.158	54.5	49.5	37.5	106.9	30.2	45.0	39.4	42.9	39.3	—	E	1	E	3	N	9	N	10	47.4	49.2	49.4	48.5	48.4		18			
19	30.060	54.0	30.012	55.5	49.1	35.6	94.2	29.0	41.2	40.0	43.4	38.2	.04	E	1	E	3	N	8	N	8	47.2	48.8	49.0	48.0	48.4		19			
20	29.974	54.0	29.972	54.5	48.2	39.4	105.7	36.4	41.8	40.0	42.9	39.8	.01	E	1	E	3	N	10	N	6	46.8	48.4	48.8	48.5	48.4		20			
21	29.860	52.4	29.574	52.5	45.0	38.4	66.1	34.0	44.0	40.2	43.9	38.1	.76	E	1	W	2	N	10	N	10	46.2	48.2	48.6	48.4	48.5	n ² all day.	21			
22	29.500	50.4	29.640	53.0	49.6	37.6	82.8	37.4	45.8	41.8	43.1	42.0	.90	N	2	—	—	N	9	N	10	45.4	47.4	48.0	48.5	48.4	n ² fair intervals.	22			
23	29.748	53.0	29.674	54.9	49.8	37.5	99.4	39.0	46.0	44.0	44.8	44.0	.16	E	1	E	3	N	10	N	10	47.0	48.0	48.4	48.4	48.5		23			
24	29.636	54.2	29.876	55.0	48.6	43.9	68.4	43.0	47.8	47.2	46.3	46.0	.07	E	2	E	3	N	10	Fog		48.8	48.0	47.8	48.4	48.5		24			
25	29.974	53.2	30.024	56.2	52.8	45.2	94.9	44.6	46.4	46.0	47.6	43.9	.02	E	1	E	2	N	10	N	10	48.0	48.4	48.0	48.4	48.6		25			
26	29.968	56.0	29.920	58.0	58.8	43.1	117.2	37.0	52.8	47.8	46.2	44.0	—	E	1	E	1	Cir.	2	—	—	50.4	49.0	48.8	48.4	48.5		26			
27	29.916	57.0	30.054	57.0	56.5	37.5	104.4	37.4	53.0	49.8	45.2	44.0	—	—	—	E	2	Cir.	1	N	10	52.0	51.4	49.8	48.5	48.4		27			
28	30.152	54.5	30.194	56.0	51.3	38.4	114.7	29.8	48.4	46.2	41.7	38.6	—	E	2	E	2	—	—	—	—	49.8	51.5	49.6	47.5	47.0		28			
29	30.160	54.0	30.110	55.8	51.1	33.5	115.0	31.4	46.8	42.0	43.5	40.0	.03	E	1	E	2	N	8	N	5	48.0	51.4	50.2	48.6	48.6		29			
30	29.974	54.2	29.726	54.2	46.8	41.6	68.5	44.8	42.2	41.0	43.3	42.5	.41	E	2	E	3	N	10	N	10	47.8	52.0	50.4	48.2	47.8	n ² fm. & evening.	30			
31	29.580	54.0	29.488	54.0	47.3	42.8	49.8	47.4	46.0	45.4	48.6	45.1	.44	E	3	E	4	N	10	N	10	48.0	50.2	49.6	48.4	47.8	n ² all day & evening.	31			
Sums.	1416.0	156.0	1714.1	191.0	19.1	16.1	1217.3	13.9	15.9	14.1	13.2	17.1	7.2									1810	181.1	2315	1514	714					
Means.	22.114	5.3	23.011	0.2	11.4	8.2	6.3	10.8	22.0	25.3	19.2	19.1	10.4	34.5	51	82						205	219	252.5	274.5	254.6	158.8	172.0			
Correc- tions for Instru- mental Errors.	+0.15		+0.15				+1.0																								
Correc- tions for Diurnal Range.																															
Cor- rected Means	29.728		29.757				41.8																								
NOTATION USED IN GENERAL REMARKS.																															
a. denotes aurora.																															
d. drizzling rain.																															
f. fog.																															
fr. frost.																															
h-fr. hoar-frost.																															
h. haze.																															
hl. hail.																															
l. lightning.																															
lu. co. lunar corona.																															
lu. ha. lunar halo.																															
m. mist.																															
p. passing showers.																															
r. rain.																															
r.2 heavy rain.																															
sl. sleet.																															
so. lu. solar halo.																															
q. squall.																															
q.2 violent squalls.																															
t. thunder.																															
t. s. thunder-storm.																															
CLOUDS.																															
High Clouds.																															
Cirrus, cir.																															
Cirro-stratus, cir.-str.																															
Cirro-cumulus, cir.-cum.																															
MIDDLE CLOUDS.																															
Strato-cirrus, str.-cir.																															
Cumulo-cirrus, cum.-cir.																															
Lower Clouds.																															
Strato-cumulus, str.-cum.																															
Cumulus, cum.																															
Cumulo-nimbus, cum.-nim.																															
Nimbus, nim.																															
Stratus, str.																															
BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).																															
FORCE.																															
0 Calm.																															
1 Light Air.																															
2 Light Breeze.																															
3 Gentle Breeze.																															
4 Moderate Breeze.																															
5 Fresh Breeze.																															
6 Strong Breeze.																															
7 Moderate Gale.																															
8 Fresh Gale.																															
9 Strong Gale.																															
10 Whole Gale.																															
11 Storm.																															
12 Hurricane.																															

BAROMETER.	Corrected Mean at 9 A.M., <i>minus</i> Correction for } =	29.688
	Temp. = 29.788 — .070 }	
	Corrected Mean at 9 P.M., <i>minus</i> Correction for } =	29.684
	Temp. = 29.707 — .073 }	
Mean at Station, corrected, and at 32°,.....	=	29.671 ✓
Correction for height, feet above Mean Sea-level,.....	= +	183
Mean, reduced to 32°, and Sea-level,	=	29.854
Highest Reading, corrected for Index error, on the 17 th,.....	=	30.234
Lowest Do. Do., on the 2nd th,.....	=	28.963
Difference, or Monthly Range,	=	1.274

S.-R. THERMOMETER,	(in shade) Highest in Month, corrected for Index Errors, on the	13 th th,	=	65.9
	Lowest in Month, corrected for Index errors, on the	17 th th,	=	34.0
	Difference, or Monthly Range,		=	31.9
	Mean of all the Highest,		=	58.7
	Mean of all the Lowest,		=	41.8
	Difference, or Mean Daily Range,		=	11.9
	Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.),		=	47.8
S.-R. THERMOMETER,	Min. on Grass, Lowest in Month,		=	28.0
	" " Mean,		=	37.4
	Black Bulb, Max. in Sun, Highest in Month,	11 th th	=	134.6

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 47.2
 Wet Bulb, Mean of A.M. and P.M. Readings, = 44.0
 Computed Temperature of Dew-Point, = 40.4
 Do. Elastic Force of Vapour, = 251
 Do. Relative Humidity (Saturation = 100), = 78
 RAIN fell on 21 Days; Amount in Inches, = 3.45

WIND.		SUMMARY.								
Direction.	N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force —12.
A.M.	0	0	17	0	1	1	9	0	3	1.6
P.M.	00		18	00		5	6	1	1	2.6
Sun.	00		35	0	1	6	15	1	4	2.1

Observations made and
Return verified by

(Signed) _____

N.B.—**Rain** to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercurial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FORTIN BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern the cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the **BOARD OF TRADE** pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1/1000 inch, 0.100 inch, and 0.050 inch; that is to say, instead of 29.365 one of the following is sometimes set down—viz. 30.365, 29.265, or 29.315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In flower.	Lead Buds first Appear.	In Leaf.	Dressed or Leaves.	CROPS, maturing variety.	Sowing or Planting.	Appearing above ground.	In Ear or Rashed.
Alder,					Barley,			
Ash,					Bere or Bigg,			
Beech,					Oats,			
Birch,					Wheat,			
Elm,					Beans,			
Larch,					Pease,			
Lime,					Potatoes,			
Oak,					Turnips,			
Sycamore or Plane,					Rye Grass,			

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

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

FOR TAKING METEOROLOGICAL OBSERVATIONS.

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule; thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for, say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating '50, that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixty line, in the glass as '06, if up to the twenty-third line as '23, if up to the thirtieth line as '30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering '08 as simply 8, or '30 as '3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

47
42
38
1 27

The total, 1 27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 12 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 2 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M. and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; of Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.



SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Mid Lothian, During the MONTH of June 1907.Lat. 55° 56' N., Long. 3° 16' W., Distance from Sea 2 2/3 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.					GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.				
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb Max. in Sun.		Min. on Grass.		9 A.M.			9 P.M.		9 A.M.		9 P.M.		9 A.M.			9 P.M.		9 A.M.								
	Barometer.	Attached Thermometer.	Barometer.	Attached Thermometer.	Max.	Min.	No.	No.	No.	No.	Dry bulb.	Wet bulb.		Dry bulb.	Wet bulb.	Amount at 9 A.M.	Direction.	Force. Scale of 0-13.	Direction.	Force. Scale of 0-12.	Amount at 9 A.M.		Species and Direction.	Amount (0-10).	Species and Direction.	Amount (0-10).	No. 3 ins.			No. 12 ins.	No. 22 ins.	No. 36 ins.	No. 48 ins.
	No.	inches.	°	No.	inches.	°	°	°	No.	°	°	°		°	°	°	°	°	°	°	°		°	°	°	°	°			°	°	°	°
1	29.400	54.8	29.382	54.2	51.0	45.0	68.8	48.0	49.0	46.4	47.0	45.8	.10	E	2	E	2		h	10	st	10			48.8	49.8	49.4	48.2	48.0		1		
2	29.332	54.0	29.386	54.0	54.8	44.7	104.8	48.0	54.0	50.8	44.7	44.2	.01	SE	1	SE	3		st	4	lir	4			51.4	49.8	50.0	48.4	48.0		2		
3	29.360	53.8	29.730	54.0	53.0	42.0	98.2	39.0	52.2	47.2	46.4	43.2	.01	SE	2	SE	1		g	8	st	8			51.0	50.8	49.8	48.2	48.2		3		
4	29.784	53.4	29.628	53.0	51.0	39.4	87.0	45.0	47.2	42.8	46.2	45.0	.27	E	1	E	1		st	5	st	9			48.4	49.4	49.0	48.2	48.3		4		
5	29.362	53.0	29.300	54.0	58.0	46.0	85.4	46.4	54.2	53.0	50.0	48.9	.21	W	1	W	1		st	10	st	5			51.4	49.4	49.0	48.4	48.2		5		
6	29.296	54.2	29.480	54.4	59.4	46.2	114.2	46.2	52.0	48.0	46.0		.01	W	2	W	2		st	6	st	8			53.0	57.4	49.4	48.4	48.3		6		
7	29.600	53.4	29.636	55.0	58.0	47.0	118.0	41.2	50.8	44.8	50.8	47.9	.09	W	2	—	—		st	5	lir	5			57.4	51.2	52.0	47.5	48.4		7		
8	29.382	54.2	29.574	56.8	62.8	48.7	122.8	48.3	51.0	54.2	54.6	51.8	.03	SE	1	SE	3		st	8	st	10			52.4	51.2	52.0	48.6	48.4		8		
9	29.350	56.2	29.356	57.0	68.0	53.0	128.0	49.0	61.0	56.0	57.2	55.0	.32	SW	4	—	—		st	10	lir	4			51.2	52.2	57.0	49.0	48.5	t. 12. 7.30 p.m.	9		
10	29.580	57.4	29.336	57.0	65.0	57.2	125.2	46.8	59.0	53.4	54.0	57.0	.08	SW	5	SE	4		st	4	st	4			56.4	54.8	52.0	49.4	48.8	t. 12. 12.30 p.m.	10		
11	29.480	58.4	29.638	59.0	62.6	50.0	112.2	44.2	57.0	54.6	51.8	48.2	.14	W	5	W	1		st	8	—	—			56.2	54.0	53.2	49.8	48.8		11		
12	29.530	58.0	29.436	57.8	62.4	48.0	118.0	42.0	51.0	50.4	51.2	49.8	.39	E	2	—	—		st	10	Fog				53.4	54.0	52.4	50.0	49.2	Fog from 6.30 p.m.	12		
13	29.572	58.0	29.676	58.2	63.0	46.8	121.5	44.0	54.2	52.4	51.0	49.0	.01	—	—	W	4		lir	4	st	8			54.4	54.0	53.0	50.5	49.4		13		
14	29.742	58.0	29.700	58.2	60.0	45.2	121.2	39.2	53.2	49.4	55.8	53.0	.08	W	1	W	2		st	5	st	6			54.5	54.0	53.0	50.7	49.6		14		
15	29.576	58.2	29.640	59.0	64.2	57.0	121.2	50.0	57.8	50.4	51.0	48.6	.07	SE	2	SE	4		st	10	st	4			56.0	54.0	53.0	50.9	49.8		15		
16	29.736	58.0	29.950	59.0	64.8	46.2	101.0	41.2	51.2	47.8	47.2	44.1	—	SW	5	SE	3		st	6	lir	4			53.4	54.2	53.2	51.0	49.8		16		
17	29.964	57.4	29.832	60.2	67.8	41.2	128.3	34.2	57.2	50.2	49.8	47.9	.01	W	3	W	2		lir	2	—	—			52.5	53.4	53.0	51.2	50.2		17		
18	29.646	59.2	29.582	59.4	59.2	48.2	111.4	45.4	53.0	50.0	49.0	44.8	.04	W	2	W	2		st	10	lir	2			55.0	54.4	53.2	51.4	50.4		18		
19	29.644	58.8	29.600	59.0	60.0	44.0	123.4	38.0	56.8	51.0	50.2	48.4	.04	W	3	SW	4		st	5	st	10			54.0	54.2	53.4	51.5	50.4		19		
20	29.488	58.5	29.376	57.0	55.2	48.0	87.2	43.2	54.0	49.2	49.0	48.0	.10	W	4	W	2		st	5	st	10			53.8	54.0	53.4	51.5	50.6		20		
21	29.522	58.0	29.600	58.0	62.5	46.5	127.0	42.0	58.8	51.0	52.0	49.9	.04	W	2	W	1		st	8	st	8			54.2	54.0	53.0	51.6	50.8		21		
22	29.530	57.5	29.484	57.0	58.0	46.2	121.5	46.2	56.0	49.8	46.0	44.4	.14	W	4	—	—		st	5	st	5			54.4	54.0	53.2	51.6	50.8	bl. p.m.	22		
23	29.568	57.0	29.600	58.0	61.8	38.0	123.0	35.3	58.0	51.2	51.0	48.0	.02	SE	3	SE	2		st	8	st	8			53.8	54.0	53.4	51.8	50.8		23		
24	29.394	57.0	29.316	56.0	55.4	40.0	113.8	45.0	55.0	51.8	40.1	39.0	.12	SE	3	—	—		st	10	—	—			54.0	54.4	53.5	51.8	50.9		24		
25	29.374	56.8	29.428	56.0	54.1	38.5	111.2	33.4	52.0	47.8	46.7	48.3	.01	W	3	W	1		st	10	lir	4			51.4	53.6	53.4	51.8	50.9		25		
26	29.346	57.1	29.318	56.2	58.4	42.7	88.8	36.2	55.4	51.5	50.2	47.4	.04	W	2	W	3		st	10	—	—			53.4	53.6	53.2	51.8	51.2		26		
27	29.400	57.4	29.540	56.5	60.8	45.0	119.7	40.0	56.2	50.2	45.8	43.3	.10	W	6	W	3		st	4	lir	3			52.5	53.0	53.0	51.8	51.2		27		
28	29.668	57.6	29.802	57.0	61.9	45.1	121.1	39.4	55.4	49.8	48.1	46.5	—	W	2	—	—		st	8	—	—			54.0	54.2	53.0	51.8	51.2		28		
29	29.838	58.0	29.888	57.8	62.3	42.6	125.8	38.2	50.0	49.0	48.5	47.0	.13	W	1	W	2		st	4	st	4			54.0	54.0	53.4	51.8	51.2		29		
30	29.944	57.4	29.882	59.0	60.1	47.6	126.3	44.2	52.4	48.0	48.9	47.3	.03	SE	2	—	—		st	3	lir	6			54.0	54.2	53.8	51.9	51.3		30		
31																																	31
Sums.	1615.9	20.8	1912.0	19.4	13.9	15.7	944.0	15.4	13.6	12.1	14.9	13.0	9													11.9	13.8	11.6	12.5	15.3			
Means.	29.552	56.8	29.571	56.9	54.7	45.5	112.5	42.6	54.4	50.3	49.4	47.3														53.1	53.1	52.1	50.4	49.7			
Corrections for Instrumental Errors.	+0.15		+0.15		+1.0																												
Corrections for Diurnal Range.																																	
Corrected Means	29.567		29.586		46.5																												

NOTATION USED IN GENERAL REMARKS.
a. denotes aurora.
d. drizzling rain.
f. fog.
fr. frost.
h. hoar-frost.
h. haze.
hl. hail.
l. lightning.
lu. co. lunar corona.
lu. ha. lunar halo.
m. mist.
p. passing showers.
r. rain.
r.3. heavy rain.
sl. sleet.
sn. snow.
so. ha. solar halo.
q. squall.
q.3. violent squalls.
t. thunder.
t. s. thunder-storm.
CLOUDS.
High Clouds.
Cirrus, cir.
Cirro-stratus, cir-str.
Circo-cumulus, cir-cum.
MIDDLE CLOUDS.
Strato-cirrus, str-cir.
Cumulo-cirrus, cum-cir.
LOWER CLOUDS.
Strato-cumulus, str-cum.
Cumulus, cum.
Cumulo-nimbus, cum-nim.
Nimbus, nim.
Stratus, str.

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND.—(0-12).
FORCE.
0 Calm.
1 Light Air.
2 Light Breeze.
3 Gentle Breeze.
4 Moderate Breeze.
5 Fresh Breeze.
6 Strong Breeze.
7 Moderate Gale.
8 Fresh Gale.
9 Strong Gale.
10 Whole Gale.
11 Storm.
12 Hurricane.

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.492
Temp. = 29.567 0.075
Corrected Mean at 9 P.M., minus Correction for Temp. = 29.571
Temp. = 29.586 0.075
Mean at Station, corrected, and at 32°, = 29.501
Correction for height, feet above Mean Sea-level, = + 181
Mean, reduced to 32°, and Sea-level, = 29.682
Highest Reading, corrected for Index error, on the 17th, = 29.974
Lowest Do. Do., on the 6th, = 29.311
Difference, or Monthly Range, = 0.663

S-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 9th, = 68.0
Lowest in Month, corrected for Index errors, on the 23th, = 39.0
Difference, or Monthly Range, = 29.0
Mean of all the Highest, = 57.7
Mean of all the Lowest, = 46.5
Difference, or Mean Daily Range, = 13.2
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 53.1
S-R. THERMOMETER, Min. on Grass, Lowest in Month, = 34.2
" " Mean, = 42.6
Black Bulb, Max. in Sun, Highest in Month, = 128.0

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 57.8
Wet Bulb, Mean of A.M. and P.M. Readings, = 48.8
Computed Temperature of Dew-Point, =
Do. Elastic Force of Vapour, = 309
Do. Relative Humidity (Saturation = 100), = 80
RAIN fell on 28 Days; Amount in Inches, = 2.64

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.		0	0	1	1	2	17	4	1		
P.M.		0	1	2	0	0	2	15	2	4	
Sum.		0	1	6	1	1	4	32	7	5	2.2

Observations made and Return verified by

J. N. Johnston

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a verified standard. Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercuial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FORTIN BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the BOARD OF TRADE pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to, the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1/1000 inch, 0.100 inch, and 0.050 inch; that is to say, instead of 29.365 one of the following is sometimes set down—viz. 30.365, 29.265, or 29.315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf Buds first Appear.	In Leaf.	Divested of Leaves.	CROPS, mentioning variety.	Sowing or Planting.	Appearing above Ground.	In Ear or Flower.	First Cut or Raised.
Alder,					Barley,				
Ash,					Bere or Bigg,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Pease,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

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

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

FOR TAKING METEOROLOGICAL

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule; thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for, say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating .50, that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixth line in the glass is .06, if up to the twenty-third line as .23, if up to the thirtieth line as .30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering .08 as simply 8, or .30 as .3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

.47
.42
.38
1.27

The total, 1.27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save venient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 15 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

OBSERVATIONS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M., and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.



THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Mid Lothian, During the MONTH of July 1907.
Lat. 55° 56' N., Long. 3° 16' W., Distance from Sea 2 2/3 miles. Height of Cistern of the Barometer above Mean Sea-Level 163 feet, above Ground 6 feet.

Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.		RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.					GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gale, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.							
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb Max. in Sun.	Min. on Grass.	9 A.M.			9 P.M.		Amount at 9 A.M.	9 A.M.		9 P.M.		Amount (0-10).		Species and Direction.	Amount (0-10).	Species and Direction.	9 A.M.										
	Barometer. No.	Attached Thermometer.	Barometer. No.	Attached Thermometer.	Max. No.	Min. No.			Dry bulb.	Wet bulb.		Dry bulb.	Wet bulb.		Direction.	Force Scale of 0-12.	Direction.	Force Scale of 0-12.						Amount 9 A.M.	Species and Direction.			Amount (0-10).	Species and Direction.	No. 3 ins.	No. 12 ins.	No. 22 ins.	No. 36 ins.	No. 48 ins.
1	29.824	58.0	29.840	57.0	60.3	46.5	128.9	44.5	51.0	48.0	58.4	47.5	1.04	8	2	—	—	h	10	Cast	6	54.4	58.2	54.0	52.0	57.4	1							
2	29.824	58.0	29.702	56.5	59.1	44.9	104.2	43.5	53.2	50.0	50.2	47.9	—	8	1	—	—	str	8	Cast	3	56.0	55.2	54.3	52.2	51.5	2							
3	29.560	57.8	29.468	58.0	59.2	43.4	109.8	39.0	56.0	50.0	51.4	44.1	—	8	1	—	—	str	6	92	10	55.0	55.0	54.5	52.4	51.5	3							
4	29.400	58.0	29.396	58.2	57.4	46.0	52.6	48.4	49.8	48.8	46.3	45.7	—	8	2	—	—	9	10	92	10	53.5	55.0	54.0	52.4	51.6	4							
5	29.412	57.2	29.574	57.2	61.0	42.8	107.5	40.0	50.4	50.4	49.8	47.2	—	8	1	—	—	Cast	3	str	8	53.2	54.0	54.2	52.5	51.8	5							
6	29.550	57.0	29.682	56.5	58.8	46.0	89.0	44.2	49.0	48.0	48.8	47.0	—	8	2	—	—	9	10	str	10	52.0	54.2	54.0	52.3	51.8	6							
7	29.740	55.5	29.660	57.0	60.3	45.2	121.5	42.2	52.5	47.2	50.5	47.5	—	8	1	—	—	str	8	str	10	53.8	54.0	54.0	52.2	51.8	7							
8	29.396	58.8	29.512	58.0	62.4	49.8	116.8	47.8	59.0	55.0	53.0	52.0	—	8	2	—	—	str	10	str	10	52.0	54.5	54.0	52.4	51.9	8							
9	29.694	57.0	29.834	57.0	54.0	47.0	83.5	47.2	52.0	48.0	48.2	47.4	—	8	1	—	—	str	10	str	10	55.0	55.4	54.2	52.4	51.9	9							
10	30.036	56.0	30.224	57.8	58.4	44.5	123.1	40.2	52.0	49.0	50.9	49.2	—	8	1	—	—	str	10	Cast	3	54.0	55.0	54.5	52.5	52.0	10							
11	30.246	54.2	30.208	57.0	61.8	44.9	118.0	42.2	52.2	50.2	52.1	50.0	—	8	2	—	—	Cast	4	str	8	55.0	55.5	54.8	52.8	52.2	11							
12	30.160	58.0	30.100	58.0	61.9	51.3	48.0	52.2	52.5	54.0	51.7	—	—	8	4	—	—	str	8	92	10	56.5	56.0	55.0	52.8	52.2	12							
13	29.968	57.2	30.020	59.5	62.2	51.8	50.0	60.0	56.8	58.8	57.1	—	—	8	2	—	—	str	10	92	10	58.0	56.2	55.2	53.0	52.3	13							
14	30.090	58.0	30.252	64.0	70.1	57.0	55.0	65.0	62.0	62.0	60.2	—	—	8	1	—	—	str	10	Cast	8	61.4	56.8	55.2	53.3	52.8	14							
15	30.346	63.0	30.422	64.2	69.1	59.0	57.0	63.6	60.5	61.0	59.1	—	—	8	1	—	—	Cast	6	—	6	65.5	60.0	57.0	53.5	52.6	15							
16	30.400	64.0	30.328	66.5	68.1	57.9	56.8	68.4	63.5	64.3	60.1	—	—	8	1	—	—	—	—	Cast	5	64.8	60.8	58.2	53.2	52.8	16							
17	30.282	66.0	30.184	66.0	76.8	57.3	48.6	69.0	62.0	57.8	52.0	—	—	8	1	—	—	—	—	Cast	10	64.2	61.8	59.2	54.8	53.2	17							
18	30.072	65.0	30.058	64.0	64.4	57.0	52.0	65.2	54.2	54.1	51.9	—	—	8	1	—	—	Cast	10	str	10	61.5	62.5	60.0	55.5	53.4	18							
19	30.016	63.0	30.046	63.2	60.8	51.4	52.8	53.8	57.8	54.0	57.9	—	—	8	1	—	—	Cast	10	str	10	59.8	61.5	60.0	55.7	53.8	19							
20	30.062	62.2	30.070	61.8	62.2	57.6	52.6	58.8	54.0	52.0	49.8	—	—	8	1	—	—	Cast	4	str	6	60.5	62.0	60.0	58.2	54.2	20							
21	30.016	62.0	29.970	62.0	59.9	58.4	48.0	58.0	52.0	52.0	49.9	—	—	8	2	—	—	str	8	str	10	59.8	61.2	59.8	56.4	54.4	21							
22	29.920	60.5	29.858	59.2	61.9	49.5	45.2	54.0	48.6	53.8	50.3	—	—	8	2	—	—	str	4	Cast	8	57.8	60.0	59.8	56.4	54.6	22							
23	29.830	62.0	29.846	60.5	60.9	44.6	49.0	53.2	52.0	53.0	48.3	—	—	8	2	—	—	str	8	str	10	58.0	60.0	59.2	56.4	54.8	23							
24	29.864	60.0	29.888	60.0	57.2	45.5	48.0	54.0	48.5	46.2	45.0	—	—	8	2	—	—	str	10	Cast	8	57.5	59.8	59.0	56.4	54.9	24							
25	29.820	54.8	29.778	62.0	64.6	45.7	45.0	54.6	49.8	53.8	52.0	—	—	8	1	—	—	str	4	str	5	57.0	59.0	58.5	56.4	55.0	25							
26	29.714	61.0	29.682	63.2	70.8	44.9	42.8	62.0	52.8	61.0	58.4	—	—	8	1	—	—	Cast	10	92	10	69.0	59.2	58.8	56.4	55.2	26							
27	29.634	61.0	29.758	62.0	68.1	50.1	43.0	59.2	55.5	57.7	55.0	—	—	8	2	—	—	str	10	str	8	60.0	59.5	59.0	56.4	55.2	27							
28	29.878	62.6	29.796	63.0	67.8	51.1	44.8	62.8	56.8	57.8	55.0	—	—	8	2	—	—	str	8	str	8	59.8	59.4	59.0	56.4	55.2	28							
29	29.616	64.8	29.580	62.0	54.1	52.6	50.5	57.2	55.2	54.1	53.2	—	—	8	—	—	—	str	10	92	10	54.2	60.0	58.8	56.4	55.2	29							
30	29.612	60.2	29.726	57.2	61.9	50.9	51.4	52.0	58.8	52.0	48.8	—	—	8	1	—	—	9	10	Cast	6	57.2	57.0	55.5	56.4	55.2	30							
31	29.694	57.0	29.744	62.0	61.8	42.8	53.8	56.0	52.2	49.0	46.2	—	—	8	4	—	—	str	8	Cast	3	55.0	58.0	58.0	56.4	55.3	31							
Sums.	1513.9	15.5	1514.2	16.5	73.14	13.14	14.8	57	14.20	12.10	16.10	2.81	48	56	243	249							23.84	24.57	21.50	4.6	1.4							
Means.	29.859	59.9	29.869	60.5	63.1	48.8	47.0	56.6	52.9	53.4	51.2	1.55	1.80	7.8	8							57.7	57.9	56.9	54.3	53.3								
Corrections for Instrumental Errors.	+0.15		+0.15		+1.0																													
Corrections for Diurnal Range.																																		
Corrected Means	29.874		29.884		49.8																													

NOTATION USED IN GENERAL REMARKS.
a. denotes aurora.
d. drizzling rain.
f. fog.
fr. frost.
h.-fr. hoar-frost.
h. haze.
hl. hail.
l. lightning.
lu. co. lunar corona.
lu. ha. lunar halo.
m. mist.
p. passing showers.
r. rain.
r.2 heavy rain.
sl. sleet.
sn. snow.
so. ha. solar halo.
q. squall.
q.2 violent squalls.
t. thunder.
t. s. thunder-storm.
CLOUDS.
Cirrus, cir.
Cirro-stratus, cir.-str.
Cirro-cumulus, cir.-cum.
MIDDLE CLOUDS.
Strato-cirrus, str.-cir.
Cumulo-cirrus, cum.-cir.
LOWER CLOUDS.
Strato-cumulus, str.-cum.
Cumulus, cum.
Cumulo-nimbus, cum.-nim.
Nimbus, nim.
Stratus, str.

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).
FORCE 0 Calm.
1 Light Air.
2 Light Breeze.
3 Gentle Breeze.
4 Moderate Breeze.
5 Fresh Breeze.
6 Strong Breeze.
7 Moderate Gale.
8 Fresh Gale.
9 Strong Gale.
10 Whole Gale.
11 Storm.
12 Hurricane.

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.874
Corrected Mean at 9 P.M., minus Correction for Temp. = 29.884
Mean at Station, corrected, and at 32°, = 29.793
Correction for height, feet above Mean Sea-level, = + 180
Mean, reduced to 32°, and Sea-level, = 97.3
Highest Reading, corrected for Index error, on the 15th, = 30.424
Lowest Do. Do., on the 4th, = 29.411
Difference, or Monthly Range, = 1.016

S.-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 16th, = 81.6
Lowest in Month, corrected for Index errors, on the 5th, = 43.8
Difference, or Monthly Range, = 37.8
Mean of all the Highest, = 63.4
Mean of all the Lowest, = 49.8
Difference, or Mean Daily Range, = 13.3
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 56.5
S.-R. THERMOMETER, Min. on Grass, Lowest in Month, =
" " Mean, =
Black Bulb, Max. in Sun, Highest in Month, =

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 55.0
Wet Bulb, Mean of A.M. and P.M. Readings, = 52.4
Computed Temperature of Dew-Point, =
Do. Elastic Force of Vapour, = 3.52
Do. Relative Humidity (Saturation = 100), = 82
RAIN fell on 16 Days; Amount in Inches, = 2.81

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.	0	1	12	1	0	3	12	1	1		1.6
P.M.	0	2	10	0	0	2	7	2	8		1.8
Sum.	0	3	22	1	0	5	19	3	9		1.7

Observations made and Return verified by J. N. Johnston

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercurial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FORTIN BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the **BOHRD or TRADE** pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to, the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1·000 inch, 0·100 inch, and 0·050 inch; that is to say, instead of 29·365 one of the following is sometimes set down, viz. 30·365, 29·265, or 29·315. Experience having shown that even the best Observers occasionally make these mistakes, the readings, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In flower.	Leaf buds first appear.	In Leaf.	Dyed out of Leaves.	CROPS, mentioning variety.	Sowing or Planting.	Appearing above ground.	In Ear or Flower.	First Cut or Raised.
Alder,					Barley,				
Ash,					Bere or Bigg,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Pease,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

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

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

FOR TAKING METEOROLOGICAL OBSERVATIONS.

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the *previous day on the Schedule*: thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for, say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating $\cdot 50$, that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixth line in the glass as $\cdot 96$, if up to the twenty-third line as $\cdot 23$, if up to the thirtieth line as $\cdot 30$, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering $\cdot 08$ as simply 8, or $\cdot 30$ as $\cdot 3$, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

$\cdot 47$
 $\cdot 42$
 $\cdot 38$
1·27

The total, 1·27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 12 inches above ground, if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 2 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb, blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M. and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; of Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Mid Lothian, During the MONTH of August 1907.Lat. 55° 56' N., Long. 3° 16' W., Distance from Sea 2 2/3 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.					GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.		
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb Max. in Sun.	Min. on Grass.	9 A.M.		9 P.M.			9 A.M.		9 P.M.		Ane- moneter. 9 A.M.	9 A.M.		9 P.M.		9 A.M.								
	Barometer. No.	Attached Thermometer.	Barometer. No.	Attached Thermometer.	Max. No.	Min. No.			Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.		Amount at 9 A.M.	Direction.	Force. Scale of 0-12.	Direction.		Force. Scale of 0-12.	Species and Direction.	Amount (0-10).		Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.			No. 36 ins.	No. 48 ins.
1	29.770	59.0	29.792	60.0	60.1	44.9			39.0	55.0	49.8	50.2	47.1	—	W	1	N.W.	2	st.	10	cast.	5	56.0	58.0	59.8	56.2	55.4		1		
2	29.900	59.2	29.764	60.2	59.6	39.7			38.2	55.0	49.0	54.8	53.5	13	N.E.	1	—	—	ci. st.	5	n.	10	54.8	57.8	57.5	56.0	55.3		2		
3	29.628	59.8	29.704	60.0	63.4	52.0	101.9	51.2	55.2	54.8	58.0	55.8	50.5	E.	1	W.	2		n	10	st.	8	56.8	57.2	57.0	56.0	55.3	Bl. bulb. Max. Ther. in sun replaced.	3		
4	29.506	60.8	29.552	60.8	68.1	53.8	125.3	57.0	59.5	57.0	54.1	50.9	50.3	N.E.	3	N.W.	4		st.	10	cast.	4	58.5	58.0	57.2	55.9	55.3		4		
5	29.586	61.2	29.572	62.0	64.6	50.4	117.1	45.5	59.0	53.0	54.6	51.3	—	W.	4	S.W.	4		st.	8	ci. st.	4	58.0	58.0	57.5	55.8	55.2		5		
6	29.452	60.2	29.436	61.5	63.4	49.5	119.3	41.2	57.5	53.5	52.2	50.0	—	S.W.	2	S.W.	4		st.	8	st.	8	57.0	58.0	57.5	55.8	55.2		6		
7	29.620	60.0	29.630	61.0	65.4	51.5	122.5	48.0	59.0	54.9	53.6	50.8	50.3	N.W.	3	S.W.	5		st.	6	n.	10	57.0	57.8	57.5	55.8	55.2		7		
8	29.546	61.0	29.584	62.5	64.1	53.0	119.2	51.0	57.5	54.2	54.3	51.7	—	N.W.	6	N.W.	5		n	10	—	—	58.5	58.0	57.5	55.8	55.2		8		
9	29.540	61.0	29.448	62.5	65.0	52.2	122.1	46.8	59.5	54.8	56.1	54.3	51.4	W.	5	S.W.	4		st.	8	n	10	57.1	58.0	57.8	55.8	55.2		9		
10	29.326	60.8	29.564	62.2	64.4	48.5	124.8	48.4	59.2	55.0	54.1	47.8	50.1	S.W.	6	S.W.	3		st.	10	—	—	57.8	58.0	57.5	55.8	55.2		10		
11	29.616	60.5	29.684	62.5	63.8	46.0	121.1	39.0	59.0	54.0	54.0	51.9	50.3	S.W.	3	S.W.	3		st.	8	st.	4	57.0	58.0	57.8	55.8	55.2		11		
12	29.516	61.5	29.500	62.0	63.1	50.6	110.2	51.0	58.0	57.0	51.1	50.1	39	—	—	E.	3		n.	10	n.	10	57.0	58.0	57.5	55.8	55.2		12		
13	29.826	60.5	29.546	63.2	61.1	46.3	102.4	43.2	54.0	53.0	59.9	55.8	50.5	W.	1	N.W.	6		n.	10	ci. st.	4	56.0	57.5	57.2	55.8	55.2		13		
14	29.562	62.5	29.546	62.8	64.7	53.1	116.2	48.3	61.2	56.2	53.7	51.9	50.2	W.	6	—	—		st.	8	cast.	8	57.8	57.8	57.5	55.9	55.3		14		
15	29.416	61.2	29.580	64.0	59.0	49.0	82.2	50.0	50.2	50.0	51.1	50.1	40	E.	3	—	—		n.	10	n	10	54.8	57.8	57.2	55.6	55.2		15		
16	29.690	59.0	29.478	57.5	59.3	47.0	116.6	48.0	54.0	48.5	49.3	47.9	51.7	S.W.	1	S.E.	4		ci. st.	5	n.	10	50.0	56.8	57.0	55.7	55.3		16		
17	29.494	59.2	29.604	61.0	64.9	46.6	126.2	49.0	54.0	52.0	53.7	51.2	50.5	W.	3	W.	2		st.	10	st.	6	55.0	56.5	56.5	55.5	55.2		17		
18	29.540	59.8	29.476	62.0	66.3	45.0	128.1	40.0	55.0	53.0	52.0	51.1	50.2	W.	1	—	—		ci. st.	8	st.	5	55.2	57.0	57.2	55.5	55.5		18		
19	29.444	60.5	29.678	59.8	59.9	46.1	122.8	46.0	57.8	53.0	46.5	43.8	50.2	W.	6	N.W.	3		st.	8	—	—	56.5	57.8	57.0	55.5	55.2		19		
20	29.788	58.8	30.026	60.5	61.8	46.4	116.3	33.0	53.8	49.0	48.8	46.6	50.9	N.W.	3	N.E.	2		st.	10	—	—	52.6	56.8	56.8	55.5	55.2		20		
21	29.992	59.5	30.102	60.8	64.1	46.7	120.8	42.0	55.2	53.0	51.5	49.0	50.2	W.	3	W.	3		st.	8	—	—	55.0	56.0	56.5	55.5	55.2		21		
22	30.018	59.5	29.806	62.0	62.1	48.2	108.2	42.0	55.0	52.6	56.0	54.1	50.2	N.W.	3	N.W.	3		st.	10	ci. st.	6	55.0	56.2	56.5	55.4	55.2		22		
23	29.860	60.0	29.976	60.2	57.1	48.6	111.4	45.0	50.0	48.5	49.3	47.4	50.2	E.	1	—	—		n	10	ci. st.	8	54.5	56.5	56.0	55.2	55.1		23		
24	29.970	58.0	29.890	60.0	59.2	45.5	102.3	42.0	52.0	48.5	52.0	49.1	50.1	W.	1	W.	2		ci.	6	st.	10	54.0	58.2	56.8	55.2	55.1		24		
25	29.640	60.5	29.808	61.0	62.3	51.0	108.7	48.0	59.0	57.0	53.1	51.7	50.6	W.	3	E.	2		n.	10	st.	8	56.8	56.0	56.0	55.2	55.1		25		
26	29.920	59.0	29.856	60.5	62.8	43.7	118.8	39.0	55.0	51.0	49.8	47.2	50.1	N.W.	1	W.	2		ci. st.	5	—	—	54.0	56.5	55.2	55.1	55.0		26		
27	29.800	60.0	29.912	61.2	62.4	46.6	120.6	41.0	54.8	50.5	47.0	45.1	50.9	W.	4	—	—		st.	10	—	—	54.0	56.0	56.4	55.0	55.0		27		
28	29.890	59.0	29.560	60.5	60.2	42.0	94.1	37.0	53.0	51.5	58.1	55.0	50.4	E.	1	S.W.	6		n.	10	ci. st.	6	53.8	55.5	55.8	55.0	54.9		28		
29	29.760	59.5	29.918	59.7	59.8	44.6	82.2	43.5	53.2	50.0	45.0	43.6	—	S.W.	2	—	—		st.	8	—	—	54.0	55.5	55.5	54.9	54.9		29		
30	29.940	58.6	29.776	60.5	62.8	33.9	118.4	33.5	56.0	51.2	49.7	46.8	50.1	W.	3	W.	2		ci. st.	6	—	—	51.0	54.8	55.0	54.8	54.9		30		
31	29.740	59.0	29.794	60.0	61.8	46.8	116.4	40.5	54.0	51.0	47.4	44.9	50.6	W.	2	N.W.	2		st.	6	ci. st.	8	52.5	54.8	55.0	54.5	54.8		31		
Sums.	20 137	44 10	20 153	67	16 12	16 12			175	137	16 10	12 14	391										169	210	212	176	169				
Means.	29.687	60.0	29.712	61.0	62.3	47.6			55.8	52.5	52.3	49.9		2.68		2.52						8.1	8.8	1.2	1.3	0.2					
Corrections for Instrumental Errors.	+0.15		+0.15		+1.0																										
Corrections for Diurnal Range.																															
Corrected Means	29.702		29.727		48.6																										

NOTATION USED IN GENERAL REMARKS.											
a.	denotes aurora.										
d.	drizzling rain.										
f.	fog.										
fr.	frost.										
h. fr.	hoar-frost.										
h.	haze.										
hl.	hail.										
l.	lightning.										
lu. co.	lunar corona.										
lu. ha.	lunar halo.										
m.	mist.										
p.	passing showers.										
r.	rain.										
r. 2	heavy rain.										
sl.	sleet.										
sn.	snow.										
so. ha.	solar halo.										
q.	squall.										
q. 2	violent squalls.										
t.	thunder.										
t. s.	thunder-storm.										
		CLOUDS.									
		High Clouds.									
	Cirrus.										cir.
	Cirro-stratus.										cir. str.
	Circo-cumulus.										cir. cum.
		MIDDLE CLOUDS.									
	Strato-cirrus.										str. cir.
	Omulo-cirrus.										cum. cir.
		LOWER CLOUDS.									
	Strato-cumulus.										str. cum.
	Cumulus.										cum.
	Cumulo-nimbus.										cum. nim.
	Nimbus.										nim.
	Stratus.										str.

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).											
FORCE.				FORCE.				FORCE.			
0	Calm.	5	Fresh Breeze.	9	Strong Gale.	13	Violent Gale.	17	Storm.	21	Hurricane.
1	Light Air.	6	Strong Breeze.	10	Whole Gale.	14	Storm.	18	Storm.	22	Hurricane.
2	Light Breeze.	7	Moderate Gale.	11	Storm.	15	Storm.	19	Storm.	23	Hurricane.
3	Gentle Breeze.	8	Fresh Gale.	12	Hurricane.	16	Storm.	20	Storm.	24	Hurricane.
4	Moderate Breeze.										

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.619
Corrected Mean at 9 P.M., minus Correction for Temp. = 29.641
Mean at Station, corrected, and at 32°, = 29.630
Correction for height, feet above Mean Sea-level, = + 180
Mean, reduced to 32°, and Sea-level, = 29.810
Highest Reading, corrected for Index error, on the 21st, = 30.102
Lowest Do. Do., on the 10th, = 29.326
Difference, or Monthly Range, = 0.776

S-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 4th, = 68.1
Lowest in Month, corrected for Index errors, on the 30th, = 39.9
Difference, or Monthly Range, = 28.2
Mean of all the Highest, = 62.3
Mean of all the Lowest, = 48.6
Difference, or Mean Daily Range, = 13.7
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 54.0
S-R. THERMOMETER, Min. on Grass, Lowest in Month, = 39.9
" " Mean, = 55.5
Black Bulb, Max. in Sun, Highest in Month, = 101.9

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 54.0
Wet Bulb, Mean of A.M. and P.M. Readings, = 51.2
Computed Temperature of Dew-Point, = 38.8
Do. Elastic Force of Vapour, = 3.38
Do. Relative Humidity (Saturation = 100), = 80
RAIN fell on 26 Days; Amount in Inches, = 3.91

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.		0	2	4	0	0	5	14	5	1	2.7
P.M.		0	1	2	1	0	7	6	7	7	2.5
Sum.		0	3	6	1	0	12	20	12	8	2.6

Observations made and
Return verified by

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercuial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FOOT-PATH BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the BOARD or TRADE pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to, the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1.000 inch, 0.100 inch, and 0.050 inch, that is to say, instead of 29.365 one of the following is sometimes set down—viz. 30.365, 29.265, or 29.315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf Beds first Appear.	In Leaf.	Divested of Leaves.	CROPS, mentioning variety.	Sowing or Planting.	Appearing above Ground.	In Ear or Flower.	First Cut or Raised.
Alder,					Barley,				
Ash,					Bere or Bigg,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Pease,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

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

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

FOR TAKING METEOROLOGICAL OBSERVATIONS.

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule: thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 6th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for, say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating .50, that is fifty hundredths or half an inch. The amounts should be entered on the Schedule thus: if up to say the sixth line in the glass as .06, if up to the twenty-third line as .23, if up to the thirtieth line as .30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering .08 as simply 8, or .30 as .3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

47
42
127

The total, 1.27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 12 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb, blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M. and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

Edinburgh
August 1907

THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.



SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Midlothian, During the MONTH of September 1907.
Lat. 55° 56' N., Long. 3° 16' W., Distance from Sea 2 2/3 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.

Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.					GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. <i>Mention the hour at which Storms, including Thunder and Lightning, began and ended.</i>	Days of Month.		
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb Max. in Sun.	Min. on Grass.	9 A.M.		9 P.M.			Amount at 9 A.M.	9 A.M.		9 P.M.		Ann. monometer. 9 A.M.	9 A.M.			9 P.M.		9 A.M.						
	Barometer. No.	Attached Thermometer.	Barometer. No.	Attached Thermometer.	Max. No.	Min. No.			Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.			Direction.	Force. Scale of 0-12.	Direction.	Force. Scale of 0-12.		Species and Direction.	Amount (0-10).		Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.			No. 36 ins.	No. 48 ins.
1	29.918	57.5	29.800	59.2	59.1	35.4	114.1	29.0	49.0	44.0	48.7	44.6	.06	W.	2	S.W.	1	cir	5	str.	8		49.0	54.8	55.0	54.5	54.3		1		
2	29.318	58.8	29.352	60.8	62.5	47.5	90.6	45.8	56.2	53.5	47.9	46.7	.44	S.W.	3	N.W.	3	sb.	8	min.	10		53.0	54.5	54.8	54.3	54.6		2		
3	29.576	56.0	29.676	58.2	55.6	34.0	104.1	31.0	46.0	40.0	37.0	36.0	.01	W.	1	—	—	—	—	—	—		48.5	54.4	54.6	54.0	54.4		3		
4	29.782	56.2	29.694	58.9	58.9	35.6	115.4	28.8	51.8	48.0	48.0	45.0	.31	W.	2	—	—	cir	5	str.	8		48.8	53.2	54.2	54.0	54.4		4		
5	29.409	58.0	29.536	60.8	66.2	46.1	120.8	46.2	58.0	56.0	54.5	52.8	.02	W.	3	—	—	str	6	—	—		52.5	53.2	53.5	53.9	54.3		5		
6	29.660	59.5	29.730	62.5	67.0	49.9	127.0	43.2	60.0	54.4	57.3	52.4	.01	S.W.	3	S.W.	5	cir-str.	5	—	—		54.5	54.8	54.0	53.8	54.2		6		
7	29.920	60.0	30.158	62.0	64.1	49.7	115.5	44.0	58.0	53.0	50.0	48.4	—	S.W.	5	—	—	str.	6	—	—		54.3	55.0	54.5	53.8	54.2		7		
8	30.334	60.0	30.382	62.0	63.1	40.9	118.3	35.0	54.5	50.0	52.9	51.1	—	S.W.	2	—	—	—	—	str.	8		51.8	54.8	54.3	53.8	54.0		8		
9	30.340	59.8	30.252	61.5	63.2	43.8	96.6	39.0	60.0	49.2	51.6	50.0	—	N.W.	1	—	—	haze	—	—	—		53.0	55.0	55.0	53.8	54.0		9		
10	30.146	60.0	30.100	64.0	78.4	41.2	122.9	39.0	60.0	58.0	55.0	52.2	—	S.W.	1	W.	1	—	—	—	—		52.5	55.0	55.0	53.9	54.0		10		
11	30.060	62.5	30.064	62.5	66.5	41.4	98.2	42.5	64.0	64.0	55.0	52.9	.12	S.W.	1	—	—	cir	4	—	—		53.2	56.0	55.0	54.0	54.2		11		
12	30.018	61.8	30.032	62.2	64.1	45.6	100.1	41.0	58.8	56.2	58.3	56.2	.01	S.W.	1	S.W.	2	cir.	6	str.	8		54.8	56.0	55.0	54.2	54.2		12		
13	29.980	60.0	29.850	61.5	58.8	51.3	80.4	48.0	54.8	52.0	52.9	50.3	—	S.W.	1	S.W.	4	str.	10	str.	10		53.5	56.0	55.5	54.2	54.2		13		
14	29.912	59.0	30.092	61.2	59.4	44.6	110.3	38.0	54.2	48.2	45.0	43.3	—	W.	5	N.	2	cir.	4	—	—		52.2	55.5	55.0	54.2	54.2		14		
15	30.174	58.8	30.200	61.5	61.7	39.5	112.6	33.0	54.8	50.2	53.9	52.0	—	S.W.	2	W.	3	cir.	4	cir-str.	4		50.0	54.2	54.5	54.0	54.2		15		
16	30.030	60.0	30.120	62.0	64.3	48.8	119.5	48.0	56.0	53.0	49.2	46.1	—	W.	4	S.W.	5	str.	8	—	—		54.0	54.5	54.5	54.0	54.2		16		
17	30.190	58.2	30.274	62.8	60.1	44.3	87.5	38.0	51.0	48.0	56.2	54.9	—	W.	2	S.W.	4	str.	8	str.	6		51.2	54.8	54.5	53.8	54.0		17		
18	30.280	60.2	30.308	62.0	62.2	49.3	112.9	48.5	54.8	52.0	49.6	48.5	—	W.	3	—	—	str.	10	—	—		55.0	54.8	54.8	53.8	54.0		18		
19	30.280	61.0	30.322	64.8	68.8	47.9	110.2	41.0	61.0	58.0	58.6	57.0	—	N.W.	2	N.W.	2	cir	6	str. cir	6		54.5	54.8	54.5	53.8	54.0		19		
20	30.316	62.2	30.286	63.8	71.9	53.4	111.2	47.5	62.8	59.2	59.4	57.6	—	W.	1	—	—	—	—	str. cum.	8		56.8	56.8	54.6	53.8	54.0		20		
21	30.282	63.0	30.432	61.5	60.1	46.6	65.1	45.8	57.0	55.0	47.0	44.4	.04	S.E.	1	E.	3	str.	10	str.	10		57.8	57.0	55.0	54.0	54.2		21		
22	30.364	59.5	30.208	60.8	55.1	44.6	70.3	45.0	47.2	45.2	53.0	51.3	.01	S.W.	1	N.W.	1	haze	—	str.	5		52.0	55.2	55.5	54.0	54.0		22		
23	30.020	60.8	29.918	63.0	64.3	49.3	102.2	41.0	58.5	56.0	55.8	52.2	—	S.W.	3	W.	2	str.	8	str. cum.	8		55.0	54.8	55.0	54.2	54.2		23		
24	29.794	61.0	29.744	63.0	63.2	50.5	107.5	44.0	57.6	54.0	50.5	48.9	—	S.W.	3	—	—	cir-str.	5	—	—		55.0	55.2	55.0	54.0	54.2		24		
25	29.670	59.2	29.610	63.0	61.7	39.5	103.1	34.0	49.0	48.0	52.9	51.6	—	—	—	S.W.	2	cir.	4	str. cum.	4		50.2	55.0	54.8	53.9	54.0		25		
26	29.580	61.0	29.616	64.0	66.8	45.3	107.7	37.8	54.8	54.0	54.4	53.2	.02	E.	1	E.	2	haze.	—	cir-str.	4		54.0	54.8	54.5	54.0	54.0		26		
27	29.722	61.5	29.842	63.2	60.2	47.8	87.9	48.8	54.0	53.5	49.0	48.5	.02	E.	1	—	—	fog.	—	fog.	—		55.5	55.2	55.0	53.8	54.0		27		
28	29.744	60.8	29.866	62.0	53.9	48.2	66.1	47.5	51.0	50.8	50.6	50.2	.01	—	—	—	—	fog.	—	fog.	—		52.2	55.0	55.0	53.8	54.0		28		
29	29.820	60.5	29.790	61.2	51.9	47.9	86.5	49.0	48.8	48.5	51.9	51.4	—	N.E.	1	—	—	fog.	—	fog.	—		53.5	56.0	54.8	53.8	54.0		29		
30	29.696	59.9	29.546	60.0	52.0	46.0	55.2	47.8	47.8	47.0	50.1	49.3	—	E	2	—	—	fog.	—	str.	10		52.8	54.8	54.8	53.8	54.0		30		
31																															
Sums.	14 15 8	12 9	13 13 10	18 9	13 12	17 14	X	X	15 9	15 3	15 12	13 11	3										12 10	14 11	14 10	11 13	12 4				
Means.	28.405	29.67	28.870	15.59	65.1	15.59			14.14	53.9	56.2	150.7	1.1										9.51	9.1	2.2	8.9	4.6				
Corrections for Instrumental Errors.	+0.15		+0.15																												
Corrections for Diurnal Range.																															
Corrected Means	29.962		29.977		46.2																										

NOTATION USED IN GENERAL REMARKS.											
a.	denotes aurora.										
d.	drizzling rain.										
f.	fog.										
fr.	frost.										
h.-fr.	hoar-frost.										
h.	haze.										
hl.	hall.										
l.	lightning.										
ln. co.	lunar corona.										
lu. ha.	lunar halo.										
m.	mist.										
p.	passing showers.										
r.	rain.										
r.3	heavy rain.										
sl.	sleet.										
sn.	snow.										
so. ha.	solar halo.										
q.	squall.										
q.2	violent squalls.										
t.	thunder.										
t. s.	thunder-storm.										
CLOUDS.											
Cirrus, cir.											
Cirro-stratus, cir-str.											
Cirro-cumulus, cir-cum.											
MIDDLE CLOUDS.											
Strato-cirrus, str.-cir.											
Cumulo-cirrus, cum.-cir.											
LOWER CLOUDS.											
Strato-cumulus, str.-cum.											
Cumulus, cum.											
Cumulo-nimbus, cum-nim.											
Nimbus, nim.											
Stratus, str.											

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).											
FORCE.				FORCE.				FORCE.			
0	Calm.	5	Fresh Breeze.	10	Strong Gale.	15	Whole Gale.	20	Strong Gale.	25	Whole Gale.
1	Light Air.	6	Strong Breeze.	11	Whole Gale.	16	Whole Gale.	21	Strong Gale.	26	Whole Gale.
2	Light Breeze.	7	Moderate Gale.	12	Strong Gale.	17	Whole Gale.	22	Strong Gale.	27	Whole Gale.
3	Gentle Breeze.	8	Fresh Gale.	13	Strong Gale.	18	Whole Gale.	23	Strong Gale.	28	Whole Gale.
4	Moderate Breeze.	9	Fresh Gale.	14	Strong Gale.	19	Whole Gale.	24	Strong Gale.	29	Whole Gale.

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. 29.962 = 29.877
Corrected Mean at 9 P.M., minus Correction for Temp. 29.977 = 29.878
Mean at Station, corrected, and at 32°, = 29.877
Correction for height, feet above Mean Sea-level, = + 180
Mean, reduced to 32°, and Sea-level, = 30.057
Highest Reading, corrected for Index error, on the 21st, = 30.447
Lowest Do. Do., on the 2nd, = 29.333
Difference, or Monthly Range, = 1.114

S-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 10th, = 78.4
Lowest in Month, corrected for Index errors, on the 3rd, = 35.0
Difference, or Monthly Range, = 43.4
Mean of all the Highest, = 62.2
Mean of all the Lowest, = 46.2
Difference, or Mean Daily Range, = 16.0
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 54.2
S-R. THERMOMETER, Min. on Grass, Lowest in Month, =
" " Mean, =
Black Bulb, Max. in Sun, Highest in Month, =

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 53.3
Wet Bulb, Mean of A.M. and P.M. Readings, = 50.9
Computed Temperature of Dew-Point, =
Do. Elastic Force of Vapour, = 34.1
Do. Relative Humidity (Saturation = 100), = 83
RAIN fell on 13 Days; Amount in Inches, = 1.11

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.		0	1	3	1	0	12	9	2	2	1.9
P.M.		1	0	2	0	0	7	3	3	14	1.4
Sum.		1	1	5	1	0	19	12	5	16	1.7

Observations made and
Return verified by

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercuial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FOOT-PATTERN. — In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the BOARD OF TRADE pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to, the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1/1000 inch, 0.100 inch, and 0.0050 inch; that is to say, instead of 29.365 one of the following is sometimes set down—viz. 30.365, 29.265, or 29.315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

FOR TAKING METEOROLOGICAL

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule; thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for say January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating 50, that is, fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixth line in the glass as '06, if up to the twenty-third line as '23, if up to the thirtieth line as '30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering '08 as simply 8, or '30 as '3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be noted down on the leaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

47
42
38
127

The total, 127, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvings of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

DRY AND WET BULB THERMOMETERS.

The Hygrometer in use at the Society's Stations consists of two thermometers—a Dry and a Wet Bulb—of similar form, and usually mounted on one frame. The bulbs should project at least an inch from the frame, and the Wet Bulb be covered with muslin and connected by strands of cotton with the water cistern. This cistern should be placed on a inch or two below the level of the bulbs and at the side of the Wet Bulb furthest from the Dry Bulb; it should not stand directly under the Wet Bulb. Muslins and strands are supplied to most stations from the Society's office, and should be renewed at least once a month. In putting on a fresh muslin care should be taken to touch it as little as may be with the fingers. In frosty weather the strands do not convey water to the muslin, but an accurate observation can generally be insured by soaking the Wet Bulb in water a quarter of an hour before the observation, as from the film of ice thus formed on the muslin evaporation goes on in the same way as from the wet muslin under ordinary circumstances.

Both Maximum and Minimum should be read and set at 9 P.M. The readings should be written down before the thermometers are touched, and after setting, both should agree very nearly with the Dry Bulb temperature at that hour. Any difference from the Dry Bulb of more than a degree may be regarded by the Observer as an indication either that the instrument is not properly set, or that it is out of order.

Both Maximum and Minimum should be read and set at 9 P.M. The readings should be written down before the thermometers are touched, and after setting, both should agree very nearly with the Dry Bulb temperature at that hour. Any difference from the Dry Bulb of more than a degree may be regarded by the Observer as an indication either that the instrument is not properly set, or that it is out of order.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf buds first appear.	In Leaf.	Divested of Leaves.	CROPS, mentioning variety.	Sowing or Planting.	Appearing above ground.	In Ear or Flower.	First Cut or Rased.
Alder,					Barley,				
Ash,					Bere or Bigg,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Pease,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

SHRUBS, ETC.	First in Blossom.	FRUITS.	Fruit ripe generally.	MIGRATORY BIRDS.	First Arrival.	Departure.
Barberry,		Apple,		Chukoo,		
Bourtree or Elder,		Black Currant,		Culw,		
Broom,		Cherry,		House Swallow,		
Hazel,		Gean,		Lapwing,		
Hawthorn,		Gooseberry,		Plover,		
Holly,		Peach,		Saud Martin,		
Laburnum,		Pear,		Starling,		
Lilac,		Plum,		Swan,		
Mezereon,		Strawberry,		Rail or Corn Crake,		
Mountain Ash or Rowan,						
Red Flowering Currant,						
Rhododendron Ponticum,						
Whin,						

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

OBSERVATIONS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M., and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

ADDITIONAL REMARKS.



THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Forstorphine House, County of Mid-Lothian, During the MONTH of October 1907.Lat. 55°56' N, Long. 3°16' W, Distance from Sea 2 2/3 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.				HYGROMETER.		RAIN.	WIND.				CLOUDS.				SUNSHINE.	THERMOMETERS under Ground.					GENERAL REMARKS.	Days of Month.		
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb Max. in Sun.	Min. on Grass.	9 A.M.			9 P.M.		9 A.M.		9 P.M.		9 A.M.											
	Barometer. No.	Attached Ther- mometer.	Barometer. No.	Attached Ther- mometer.	Max. No.	Min. No.			Dry bulb.	Wet bulb.		Dry bulb.	Wet bulb.	Direction.	Force, Scale of 0-12.	Direction.	Force, Scale of 0-12.	Species and Direction.	Amount (0-10).		Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.			No. 36 ins.	No. 48 ins.
1	29.440	58.5	29.208	61.5	54.6	49.1	84.1	49.0	53.0	51.0	57.0	54.8	—	E.	2	E	3	str.	8	str.	10	54.0	54.5	54.5	53.8	53.9	1		
2	29.474	59.2	29.210	61.2	61.1	46.5	111.9	46.0	55.8	50.2	46.9	45.0	—	S.W.	2	E	2	cir.	4	—	—	53.0	54.2	54.2	53.6	53.8	2		
3	29.300	58.8	29.592	60.0	60.1	44.9	102.0	36.5	50.8	47.2	47.9	46.8	—	E.	1	—	—	str.	8	str. cum.	5	51.0	53.8	54.0	53.5	53.8	3		
4	29.804	58.0	29.888	60.5	57.1	37.2	83.0	34.0	46.8	45.8	47.0	46.1	03	N.W.	1	—	—	cir.	4	—	—	52.5	53.0	53.8	53.3	53.8	4		
5	29.712	60.0	29.666	63.5	63.4	45.2	108.9	36.0	55.0	53.0	56.1	54.5	07	S.W.	2	W.	2	str.	8	str. cum.	6	50.8	52.3	53.0	53.2	53.7	5		
6	29.564	59.8	29.748	62.5	59.2	46.0	97.5	49.0	56.0	53.8	46.5	45.9	1.31	S.W.	2	—	—	str.	10	nim.	10.	51.5	53.2	53.0	53.0	53.6	6		
7	29.776	56.0	29.380	58.8	51.9	36.5	89.8	35.0	45.5	43.0	37.2	36.6	02	W.	1	—	—	cir.	4	—	—	49.2	53.5	53.5	52.8	53.5	7		
8	29.462	54.9	29.610	58.9	50.1	30.6	81.4	28.5	38.0	37.0	47.8	45.9	1.17	—	—	N.E.	5	fog	—	nim.	10	43.5	51.2	52.8	52.6	53.4	8		
9	29.622	56.8	29.714	59.0	51.1	46.2	61.5	44.8	48.2	47.8	50.1	49.7	1.11	N.E.	5	N.E.	4	nim.	10	nim.	10	48.0	51.0	52.0	52.5	53.3	9		
10	29.498	57.8	29.620	60.8	61.8	49.5	105.9	49.0	53.2	52.8	52.8	50.3	04	E.	3	N.E.	4	str.	10	str.	8	53.0	51.0	51.2	52.2	53.3	10		
11	29.532	58.8	29.506	61.2	58.3	49.1	104.4	44.0	54.0	50.0	50.3	48.1	04	S.W.	1	S.W.	3	cir.	4	str.	6	51.2	52.0	52.0	50.9	53.0	11		
12	29.558	58.0	29.594	60.5	56.1	46.5	94.3	44.0	50.2	47.2	47.8	45.6	05	S.W.	3	S.W.	1	str.	10	str.	8	50.5	51.8	52.0	51.8	52.8	12		
13	29.494	58.0	29.368	59.5	56.2	44.3	98.4	39.5	49.8	47.8	46.2	44.8	46	S.W.	1	W.	2	str.	10	—	—	49.0	51.8	52.0	51.8	52.6	13		
14	29.118	58.0	29.104	61.0	57.8	40.1	103.2	36.5	45.0	44.5	40.1	39.8	01	N.W.	1	—	—	cir. str.	6	—	—	48.5	51.2	51.8	51.6	52.6	14		
15	29.080	55.0	28.984	57.5	43.8	32.4	54.3	30.0	34.0	33.8	38.4	37.9	2.95	—	—	W.	2	str.	8	nim.	10	43.8	50.5	51.0	51.5	52.4	15		
16	29.282	54.6	29.406	57.6	47.2	36.0	81.2	35.0	40.0	39.8	42.8	39.7	03	S.W.	1	N.E.	3	nim.	10	str.	10	42.8	48.0	50.0	51.2	52.3	16		
17	29.372	54.9	29.116	57.0	45.1	39.8	46.8	37.0	43.0	40.8	44.8	43.5	65	N.E.	3	N.W.	3	nim.	10	nim.	10	43.8	47.8	50.2	50.8	52.2	17		
18	28.970	52.8	28.916	56.0	52.9	38.8	82.2	32.5	47.0	45.0	52.9	50.4	04	E.	1	S.W.	3	—	—	str.	10	44.0	47.2	48.2	50.2	51.9	18		
19	29.040	56.0	29.394	58.2	57.9	43.6	101.1	45.5	53.8	50.0	53.1	47.5	05	S.	3	S.W.	4	nim.	10	str.	8	48.5	47.8	48.8	50.0	51.8	19		
20	29.520	56.0	29.378	58.5	53.3	46.4	82.6	39.5	49.8	47.0	49.2	48.8	11	E.	1	—	—	str.	8	fog	10	47.0	48.8	48.0	49.8	51.5	20		
21	29.512	57.0	29.686	58.5	53.5	46.7	61.3	47.0	51.2	49.5	47.0	46.0	22	S.W.	3	—	—	nim.	10	—	—	49.5	49.2	49.8	49.8	51.3	21		
22	29.614	56.2	29.690	58.8	54.6	46.0	92.3	40.0	44.0	48.2	48.5	47.0	04	—	—	—	—	fog	10	str. cum.	8	48.5	49.5	49.5	49.8	51.2	22		
23	29.710	54.0	29.722	58.5	45.1	43.1	60.7	40.0	47.0	45.0	45.0	44.3	32	S.E.	1	S.W.	2	nim.	10	nim.	10	47.5	49.0	49.2	49.8	51.1	23		
24	29.680	55.2	29.678	56.0	48.9	42.0	62.2	46.0	43.0	41.5	43.5	42.9	02	S.W.	2	N.W.	2	nim.	10	str. cum.	6	45.5	48.8	49.2	49.6	51.0	24		
25	29.616	55.0	29.670	56.8	54.2	39.8	90.8	46.5	46.0	45.0	39.8	39.0	16	—	—	—	—	str.	8	str. cum.	5	45.2	48.0	48.8	49.5	50.8	25		
26	29.716	55.0	29.766	57.2	49.1	39.2	64.8	46.0	44.2	43.9	42.7	42.0	03	W.	1	W.	1	fog	10	str. cum.	5	45.8	47.8	48.8	49.4	50.8	26		
27	29.700	54.0	29.638	57.8	51.9	31.8	84.8	30.0	33.8	33.5	46.0	44.0	03	W.	1	—	—	—	—	str.	5	41.2	47.2	48.0	49.2	50.6	27		
28	29.536	52.5	29.464	55.5	47.2	36.5	64.8	31.5	38.0	37.2	45.0	43.9	03	—	—	N.W.	1	cir.	5	str.	5	42.0	46.2	47.8	48.9	50.4	28		
29	29.368	53.0	29.336	56.5	48.9	39.9	68.3	36.0	43.0	42.5	46.2	44.6	14	N.W.	1	E.	3	fog	10	str.	10	44.2	46.2	47.5	48.7	50.4	29		
30	29.360	53.5	29.494	56.0	50.2	43.9	54.6	47.0	45.9	43.0	50.3	49.5	17	N.E.	3	E.	5	str.	10	nim.	10	45.8	46.8	47.5	48.4	50.2	30		
31	29.780	55.0	29.998	55.8	50.8	45.6	54.8	39.0	47.8	45.0	46.2	43.9	01	N.E.	4	E.	4	str.	10	str.	10	47.5	47.8	47.8	47.3	50.0	31		
Sums.	1549	189	1614	1713	1612	1812	1715	158	1410	1612	1716	49										1511	1612	1510	1616	615			
Means.	29.465	56.2	29.488	58.7	53.4	41.9	81.8	40.0	47.0	45.2	46.9	45.4		1.61		1.90		2.45		2.05		47.8	50.0	50.6	51.3	51.8			
Corrections for Instrumental Errors.	+0.15		+0.15		+1.0																								
Corrections for Diurnal Range.																													
Corrected Means	29.480		29.498		62.9																								

NOTATION USED IN GENERAL REMARKS.

a. denotes aurora.
d. " drizzling rain.
f. " fog.
fr. " frost.
h.-fr. " hoar-frost.
h. " haze.
hl. " hail.
l. " lightning.
lu. co. " lunar corona.
lu. ha. " lunar halo.
m. " mist.
p. " passing showers.
r. " rain.
r.2 " heavy rain.
sl. " sleet.
sn. " snow.
so. ha. " solar halo.
q. " squall.
q.2 " violent squalls.
t. " thunder.
t. s. " thunder-storm.

CLOUDS.
Cirrus, " " cir.
Cirro-stratus, " " cir.-str.
Cirro-cumulus, " " cir.-cum.

MIDDLE CLOUDS.
Strato-cirrus, " " str.-cir.
Cumulo-cirrus, " " cum.-cir.

LOWER CLOUDS.
Strato-cumulus, " " str.-cum.
Cumulus, " " cum.
Cumulo-nimbus, " " cum.-nim.
Nimbus, " " nim.
Stratus, " " str.

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).

FORCE.	0	1	2	3	4	5	6	7	8	9	10	11	12
	Calm.	Light Air.	Breeze.	Gentle Breeze.	Moderate Breeze.	Fresh Breeze.	Strong Breeze.	Moderate Gale.	Fresh Gale.	Whole Gale.	Strong Gale.	Storm.	Hurricane.

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.407
Corrected Mean at 9 P.M., minus Correction for Temp. = 29.418
Mean at Station, corrected, and at 32°, = 29.412
Correction for height, feet above Mean Sea-level, = + 1.82
Mean, reduced to 32°, and Sea-level, = 29.594
Highest Reading, corrected for Index error, on the 31th, = 30.013
Lowest Do. Do., on the 18th, = 28.931
Difference, or Monthly Range, = 1.082

S.-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 5th, = 63.4
Lowest in Month, corrected for Index errors, on the 8th, = 31.6
Difference, or Monthly Range, = 31.8
Mean of all the Highest, = 53.4
Mean of all the Lowest, = 42.9
Difference, or Mean Daily Range, = 10.5
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 48.2
S.-R. THERMOMETER, Min. on Grass, Lowest in Month, = 28.5
" " Mean, = 40.0
Black Bulb, Max. in Sun, Highest in Month, = 111.9

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 47.0
Wet Bulb, Mean of A.M. and P.M. Readings, = 45.4
Computed Temperature of Dew-Point, = 38.4
Do. Elastic Force of Vapour, = 28.4
Do. Relative Humidity (Saturation = 100), = 89 ✓
RAIN fell on 27 Days; Amount in Inches, = 9.28

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.		0	4	5	1	1	9	3	3	5	1.6
P.M.		0	4	5	0	0	5	4	3	10	1.9
Sum.		0	8	10	1	1	14	7	6	15	1.8

Observations made and Return verified by

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work as they are very liable to get air into the mercury column when improperly handled. Mercuial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FORTIN BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the BOARD or TRADE pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1/1000 inch, 0/100 inch, and 0/050 inch; that is to say, instead of 29/355 one of the following is sometimes set down—viz 30/365, 29/265, or 29/315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In flower.	Leaf buds first appear.	In leaf.	Divested of Leaves.	CROPS, mentioning variety.	Sowing or Planting.	Appearing above ground.	In Ear or Flower.	First Cut or Raised.
Alder,					Barley,				
Asch,					Bere or Bigg,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Pease,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

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

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

FOR TAKING METEOROLOGICAL OBSERVATIONS.

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule; thus the quantity measured at 9 A.M. on the 5th, should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for, say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating '50,' that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixth line in the glass as '06,' if up to the twenty-third line as '23,' if up to the thirtieth line as '30,' and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering '08 as simply 8, or '30 as '3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

47
42
38
1 27

The total, 1-27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 12 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 2 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

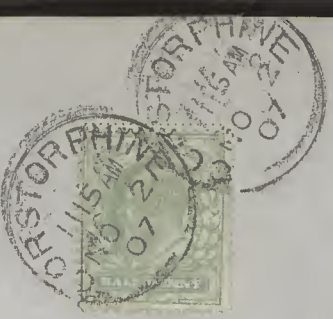
THERMOMETERS UNDER GROUND.

These should be read at 9 A.M. and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.



THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.

Edinburgh
October 1907

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Midlothian, During the MONTH of November 1907.Lat. 55° 56' N., Long. 3° 16' W., Distance from Sea 2 1/2 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches.

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER.				RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.					GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.				
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above Ground.		Black Bulb Max. in Sun.		Min. on Grass.		9 A.M.			9 P.M.		Amount at 9 A.M.	9 A.M.		9 P.M.		Anemo- meter. 9 A.M.		9 A.M.		9 P.M.		9 A.M.						
	Barometer. No.	Attached Thermometer.	Barometer. No.	Attached Thermometer.	No.	No.	No.	No.	No.	No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.		Force. Scale of 0-12.	Direction.	Force. Scale of 0-12.	Species and Direction.		Amount (0-10).	Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.	No. 36 ins.		No. 48 ins.			
	inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	inches.																		
1	30.042	54.9	29.904	58.0	49.8	43.9	81.0	38.4	46.2	44.0	45.9	44.5	0.9	8	1	8	3	Str.	10	Nim.	10	45.8	47.5	47.8	48.2	49.8						1	
2	29.688	53.5	29.676	58.0	52.0	45.0	89.2	46.0	50.0	48.0	50.0	49.0	0.1	8	5	8	3	Str.	10	Str.	9	47.0	47.5	48.0	48.2	49.8						2	
3	29.700	56.8	29.646	58.5	52.0	48.5	71.0	44.0	50.2	46.8	49.8	47.6	—	8	4	8	2	Str.	10	Str.	10	47.8	48.0	48.0	48.2	49.7						3	
4	29.760	56.0	29.886	60.2	59.5	47.8	99.0	41.0	51.2	48.5	48.2	47.0	—	—	—	—	—	Cir-str.	5	Str.	6	47.8	48.0	48.0	48.2	49.7						4	
5	29.948	57.0	30.120	59.0	53.2	46.0	69.8	43.0	49.0	48.0	48.2	45.8	—	8	1	8	1	Str.	8	Nim.	10	47.8	48.2	48.0	48.2	49.6						5	
6	30.216	54.5	30.192	58.0	49.0	46.2	73.0	38.0	41.2	41.0	38.0	37.5	—	—	—	—	—	Cir.	5	—	—	46.0	48.0	48.5	48.2	49.5						6	
7	30.090	54.0	29.920	57.8	44.0	36.0	57.0	36.0	40.0	39.8	42.8	41.0	0.1	W	1	8	1	Fog	—	Str.	8	44.0	47.2	48.0	48.2	49.4						7	
8	29.740	54.0	29.620	57.0	44.0	38.0	65.8	47.2	43.8	42.0	46.8	45.0	0.18	8	8	8	2	Str.	10	Nim.	10	44.0	47.5	47.8	48.1	49.4						8	
9	29.536	58.0	29.722	58.5	50.0	43.0	58.0	48.0	47.9	47.1	43.0	42.5	0.07	—	—	W	1	Nim.	10	—	—	46.6	46.8	47.0	48.0	49.8						9	
10	29.888	56.0	29.850	57.5	48.0	36.5	88.0	31.0	38.0	37.8	43.0	41.0	0.03	W	1	W	2	—	—	Str.	8	42.5	46.0	47.0	47.7	49.2						10	
11	29.600	56.0	29.578	57.2	51.0	42.8	38.0	48.0	49.2	47.0	44.0	42.0	0.01	W	5	W	1	Str.	10	Str.	6	45.2	45.5	47.0	47.6	49.2						11	
12	29.590	53.0	29.136	56.5	49.8	40.0	82.0	38.0	43.0	41.2	41.0	39.2	0.26	W	2	W	6	Cir-str.	4	Str.	8	43.0	46.0	46.8	47.4	48.9						12	
13	29.412	54.8	29.820	57.0	60.0	41.0	83.0	47.0	45.0	42.0	41.0	39.2	0.01	W	3	W	1	Cir-str.	4	Str.	6	43.0	45.2	46.0	47.2	48.8						13	
14	29.732	56.0	29.890	58.0	55.0	40.8	74.2	48.0	52.2	50.2	43.0	41.0	—	W	1	W	2	Str.	10	Cir-str.	6	46.0	45.0	46.0	47.0	48.7						14	
15	30.168	53.8	30.140	56.0	49.7	33.9	74.9	31.0	35.2	34.8	39.1	37.6	—	—	—	W	2	—	—	Cir-cum.	5	39.8	45.0	46.0	46.8	48.6						15	
16	29.928	54.8	29.816	57.0	50.2	38.5	54.9	43.2	46.0	43.0	49.1	48.2	0.02	W	3	W	2	Str.	10	Nim.	10	42.8	44.0	45.5	46.6	48.4						16	
17	29.888	55.5	29.946	56.8	58.5	38.4	74.5	43.0	41.5	40.8	41.0	39.2	—	—	—	—	—	Cir-str.	5	Cir-str.	5	43.0	44.5	46.0	46.8	48.2						17	
18	30.200	53.0	30.228	54.0	46.1	27.5	66.4	29.0	33.0	32.1	27.5	27.0	—	—	—	—	—	—	—	—	—	42.5	43.8	44.0	46.0	48.0						18	
19	30.048	50.0	29.866	54.2	46.3	29.0	48.8	29.5	33.0	31.0	46.3	44.2	0.04	W	1	W	3	Str.	6	Nim.	10	35.0	43.0	44.0	45.6	47.8						19	
20	29.992	51.0	29.976	55.0	49.0	48.0	73.0	30.0	39.8	38.2	38.8	37.2	—	W	1	W	1	Cir.	4	Cir.	4	39.0	43.0	43.8	45.4	47.6						20	
21	30.100	51.0	29.968	53.5	46.2	37.8	56.1	29.8	41.8	40.0	44.8	41.9	—	W	1	W	3	Str.	10	Cir-cum.	8	39.5	42.8	43.8	45.0	47.5						21	
22	29.678	52.8	29.556	53.5	47.0	36.1	54.9	38.5	45.2	42.0	37.1	36.3	0.07	W	5	W	3	Str.	10	Cir-cum.	6	42.0	43.0	44.0	44.8	46.2						22	
23	29.440	49.8	29.456	53.2	39.8	32.0	48.7	27.0	34.8	34.0	32.0	31.2	0.03	W	1	W	2	Str.	8	—	—	38.2	42.2	43.0	44.5	46.9						23	
24	29.420	51.0	29.370	51.5	34.1	29.4	57.9	19.0	30.8	30.2	33.5	32.6	—	W	1	—	—	Cir.	4	—	—	35.0	41.8	42.8	44.3	46.7						24	
25	29.326	49.0	29.346	52.0	34.5	25.8	58.0	18.5	30.2	28.0	32.0	31.0	—	W	1	W	1	—	—	Str.	8	33.8	40.0	42.0	44.0	46.5						25	
26	29.444	46.8	28.774	51.0	40.4	26.0	41.2	26.8	39.2	37.0	38.6	37.1	0.35	8	2	8	4	Str.	10	Nim.	10	35.2	39.0	41.0	43.6	46.4						26	
27	28.968	49.8	29.256	52.0	42.6	32.2	45.5	27.0	39.0	37.2	35.2	35.0	0.03	W	1	W	2	Cir-str.	8	Fog	—	35.5	39.0	41.0	43.2	46.0						27	
28	29.500	51.0	29.956	57.5	41.8	31.2	45.1	29.0	39.0	38.6	34.9	32.6	0.09	8	1	W	2	Str.	10	Cir-cum.	8	36.0	38.5	41.0	42.8	45.6						28	
29	30.176	46.8	30.264	57.8	38.9	28.5	64.6	26.0	31.8	31.0	34.1	31.7	—	—	—	W	2	Str.	6	—	—	35.0	38.8	40.2	42.4	45.4						29	
30	30.328	47.0	30.316	57.0	43.1	27.9	68.1	21.0	32.0	31.5	28.9	28.4	—	W	1	—	—	—	—	—	—	33.5	38.2	40.0	42.2	45.3						30	
31																																31	
Sums.	1573.4	159	1714.2	154	158	1610	169	183	128	136	159	159	7										169	77	156	189	245						
Means.	23.746	91.6	23.284	162.2	217.6	197.7	197.0	161.9	39.2	292.8	195.2	274.2	1.30										4.2	3.12	2.7	2.1	3.9	0.2					
Corrections for Instrumental Errors.	+0.15		+0.15																														
Corrections for Diurnal Range.																																	
Corrected Means	29.806		29.791																														

NOTATION USED IN GENERAL REMARKS.											
a.	denotes aurora.										
d.	drizzling rain.										
f.	fog.										
fr.	frost.										
h-fr.	hoar-frost.										
h.	haze.										
hl.	hail.										
l.	lightning.										
lu. co.	lunar corona.										
lu. ha.	lunar halo.										
m.	mist.										
p.	passing showers.										
r.	rain.										
r.s.	heavy rain.										
sl.	sleet.										
sn.	snow.										
so. ha.	solar halo.										
q.	squall.										
q.s.	violent squalls.										
t.	thunder.										
t. s.	thunder-storm.										
CLOUDS.											
High Clouds.											
Cirrus,											
Cirro-stratus,											
Cirro-cumulus,											
Middle Clouds.											
Strato-cirrus,											
Cumulo-cirrus,											
Lower Clouds.											
Strato-cumulus,											
Alto-cumulus,											
Alto-stratus,											
Nimbo-stratus,											
Nimbus,											
Stratus,											

BEAUFORT SCALE FOR ESTIMATING FORCE OF WIND—(0-12).											
FORCE.		FORCE.		FORCE.		FORCE.		FORCE.		FORCE.	
0	Calm.	5	Fresh Breeze.	9	Strong Gale.						
1	Light Air.	6	Strong Breeze.	10	Whole Gale.						
2	Light Breeze.	7	Moderate Gale.	11	Storm.						
3	Gentle Breeze.	8	Fresh Gale.	12	Hurricane.						
4	Moderate Breeze.										

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.806Corrected Mean at 9 P.M., minus Correction for Temp. = 29.791Mean at Station, corrected, and at 32° = 29.739Correction for height, feet above Mean Sea-level, = + 183Mean, reduced to 32°, and Sea-level, = 29.912Highest Reading, corrected for Index error, on the 30th, = 30.343Lowest Do. Do., on the 26th, = 28.789Difference, or Monthly Range, = 1.554

S-R. THERMOMETER, (in shade) Highest in Month, corrected for Index

Errors, on the 4th, = 59.5Lowest in Month, corrected for Index errors, on the 25th, = 35.8Difference, or Monthly Range, = 23.7Mean of all the Highest, = 47.2Mean of all the Lowest, = 37.6Difference, or Mean Daily Range, = 9.6Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 42.4S-R. THERMOMETER, Min. on Grass, Lowest in Month, = 18.5Mean, = 35.4Black Bulb, Max. in Sun, Highest in Month, = 99.0HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 40.9Wet Bulb, Mean of A.M. and P.M. Readings, = 39.6Computed Temperature of Dew-Point, = 39.5Do. Elastic Force of Vapour, = 22.5Do. Relative Humidity (Saturation = 100), = 88RAIN fell on 16 Days; Amount in Inches, = 1.30

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.		0	0	5	2	0	6	6	4	7	14
P.M.		2	2	5	1	0	8	9	1	6	17
Sum.		2	2	10	3	0	14	15	5	13	31

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.Observations made and
Return verified by

(Signed)

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercuial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FORN BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the BOARD OF TRADE pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to, the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The cross most frequently made in reading the barometer are mistakes of 1·000 inch, 0·100 inch, and 0·060 inch; that is to say, instead of 29·365 one of the following is sometimes set down—viz. 30·365, 29·265, or 29·315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf Buds first Appear.	In Leaf.	Divetted of Leaves.	CROPS, mentioning variety.	Sowing or Planting.	Appearing above Ground.	In Ear or Flower.	First Cut or Raised.
Alder,					Barley,				
Ash,					Bere or Bigg,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Peas,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

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

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

METEOROLOGICAL

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule: thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for, say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating ·50, that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixth line in the glass as ·06, if up to the twenty-third line as ·23, if up to the thirtieth line as ·30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering ·08 as simply 8, or ·30 as ·3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

47
42
38
1·27

The total, 1·27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges such as Fleming's, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 12 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

OBSERVATIONS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M., and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Corstorphine House, County of Mid-Lothian, During the MONTH of December 1907.
Lat. 55° 56' N, Long. 3° 16' W, Distance from Sea 2 2/3 miles. Height of Cistern of the Barometer above Mean Sea-Level 165 feet, above Ground 6 feet.

Diameter of Rain Gauge 5 inches. Height of Rim of Gauge above Ground 12 inches

The Hours of Observation are of Greenwich Time.

Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS. Read Daily, at 9 P.M.				HYGROMETER. Dry No. Wet No.				RAIN.	WIND.				CLOUDS.				SUNSHINE. Hours.	THERMOMETERS under Ground.						GENERAL REMARKS. Occurrence of Snow, Hail, Thunder, Lightning, Fog, Gales, Meteors, Auroras, Remarkable Depression or Elevation of Barometer, etc. Mention the hour at which Storms, including Thunder and Lightning, began and ended.	Days of Month.				
	9 A.M.		9 P.M.		Protected in Screen, 4 feet above ground.		Black Bulb Max. in Sun.		Min. on Grass.		9 A.M.			9 P.M.		Amount at 9 A.M.		9 A.M.		9 P.M.			Amount at 9 A.M.		9 A.M.		9 P.M.				9 A.M.			
	Barometer. No.	Attached Thermometer	Barometer. No.	Attached Thermometer	Max. No.	Min. No.	No.	No.	No.	No.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Amount at 9 A.M.	Direction.	Force. Scale of 0-12	Direction.	Force. Scale of 0-12.	Anemo- meter. 9 A.M.	Species and Direction.	Amount (0-10).	Species and Direction.	Amount (0-10).	No. 3 ins.	No. 12 ins.	No. 22 ins.	No. 36 ins.			No. 48 ins.			
	inches.	°	inches.	°	°	°	°	°	°	°	°	°	°	°	inches.												°	°			°	°	°	
1	30.124	49.0	29.760	51.5	43.4	23.8	43.9	19.5	26.0	22.8	41.1	38.1			NW	1	SW	4			Fog.	Str	10		32.8	37.0	39.0	41.8	44.9	fog a.m.	1			
2	29.548	49.8	29.106	52.0	46.8	36.5	64.6	32.0	38.0	37.8	45.0	42.8	.02								Str	10	Str	8		36.0	37.8	40.0	41.5	44.6		2		
3	29.014	49.8	29.074	50.5	48.1	32.2	68.8	33.8	38.8	36.8	34.1	32.0	.01	SW	2	W	2				Str	8				38.2	38.5	39.0	41.2	44.4		3		
4	28.930	50.0	28.576	52.2	43.7	32.1	50.3	27.0	38.2	36.0	39.6	37.5	.28	SW	2	SW	5				li. str	6	W	10		35.0	38.0	39.2	41.0	44.2		4		
5	28.688	50.0	28.894	51.8	42.9	35.5	70.2	31.5	37.2	36.0	38.8	37.2	.03	SW	2	SW	4				Str	6				36.0	38.0	39.0	40.9	44.0		5		
6	29.260	50.0	29.308	51.0	42.6	34.5	66.0	26.0	36.0	38.0	37.2	36.0	.09	SW	1	SW	4				li. str	4	Str	8		35.0	38.0	39.0	40.6	43.8		6		
7	29.348	48.0	29.204	52.0	40.0	34.0	62.0	28.0	34.0	33.0	37.0	35.0	.20	SW	1	SE	3				C	4	W	10		35.0	37.8	39.0	40.5	43.6		7		
8	28.670	50.0	28.562	53.0	46.8	34.1	61.9	34.8	37.0	36.8	45.9	43.5	.14			SW	3				W	10				36.5	37.8	39.0	40.4	43.5		8		
9	28.800	50.2	28.900	52.8	46.2	39.4	63.2	39.0	44.2	41.8	40.0	37.1	.13	W	3	SW	3				W	10				40.0	38.8	39.0	40.3	43.3		9		
10	28.786	49.8	28.894	52.5	47.8	38.6	60.9	34.0	43.2	41.2	44.0	42.8	.11	SW	3	SW	3				Str	8	W	10		39.0	39.0	39.8	40.2	43.2		10		
11	28.946	51.0	29.210	53.0	44.9	39.0	50.1	38.0	43.1	41.2	40.2	39.1	.01	SW	3	W	2				Str	10				40.2	38.8	39.8	40.2	43.2		11		
12	29.250	52.2	29.280	54.0	42.0	32.0	59.8	34.0	39.0	38.0	33.8	33.2		SW	1	W	1				W	10				38.0	39.5	40.0	40.2	42.9		12		
13	28.998	49.0	28.512	53.0	43.0	30.5	72.0	22.0	37.6	38.2	36.5	35.8	.86	SW	2	W	1				Str	10	W	10		35.2	38.8	39.5	40.2	42.8	n ² all day	13		
14	28.846	52.0	29.430	53.0	40.0	34.5	39.5	33.0	36.8	36.0	35.0	34.2	.09	NW	1						W	10	Str	6		36.8	38.5	40.0	40.2	42.5		14		
15	29.734	49.5	29.888	51.0	31.6	28.0	57.2	22.0	28.0	29.2	33.8	31.8	.01	W	1								li. str	5		34.2	38.0	39.6	40.1	42.8		15		
16	29.884	47.0	29.892	51.8	41.2	33.8	47.0	29.0	40.0	37.2	46.8	44.8		SE	1						Str	10	Str	10		36.5	37.5	39.8	40.0	42.6		16		
17	29.920	50.5	29.934	53.0	49.0	44.6	52.2	41.0	48.2	46.5	47.8	43.0	.01	SW	4	SW	1				Str	10	Str	10		42.5	38.0	39.5	39.9	42.6		17		
18	29.686	51.5	29.710	54.8	48.0	41.5	71.5	38.8	46.8	44.0	44.2	42.0	.02	SW	3	W	1				Str	10	Str	8		41.8	39.8	35.9	39.8	42.4		18		
19	29.612	53.0	29.710	55.8	49.2	42.8	57.2	35.2	48.0	46.8	42.8	41.0	.45	W	1	SE	4				Str	10	Str	10		42.0	40.2	40.0	40.0	42.4		19		
20	29.666	53.5	29.472	55.5	44.0	39.8	43.2	38.2	40.1	39.6	44.0	43.8	.75	SE	5	SE	2				W	10	W	10		41.8	41.0	40.5	40.2	42.4	n ² all day	20		
21	29.336	54.0	29.534	57.5	45.0	41.8	44.5	41.6	42.0	41.9	43.8	43.0	.04	NW	1	W	1				Haze	Str	8		42.0	41.8	41.0	40.5	42.8		21			
22	29.488	53.0	29.766	55.5	39.0	41.0	60.0	38.0	47.8	46.2	41.0	40.0	.02	SW	2	SW	1				W	10	li. str	4		44.0	41.5	41.0	40.7	40.8		22		
23	29.932	53.0	30.090	54.0	44.2	36.0	63.2	29.5	38.8	37.8	37.0	36.4		SW	1	W	1				Str	6	Str	6		38.8	41.2	41.2	40.8	42.5		23		
24	30.192	51.5	30.170	53.0	39.0	31.0	44.0	24.0	31.0	30.8	37.0	36.0									Fog.	Str	4		36.0	40.0	41.0	40.8	42.6	Fog a.m.	24			
25	30.118	49.8	30.076	52.0	42.0	35.0	51.0	28.5	39.0	37.0	39.0	35.2		SE	1	SE	2				Str	8	Str	6		37.0	39.0	40.2	40.8	42.6		25		
26	29.970	52.0	29.880	52.0	39.2	36.0	54.0	31.8	37.0	35.0	37.0	33.8		SE	1	SE	4				W	10	Str	8		36.8	36.8	39.8	40.5	42.6		26		
27	29.738	49.0	29.690	50.8	37.0	34.0	30.5	35.2	33.2	34.9	33.0	33.0	.03	SE	3	SE	5				Str	10	Str	6		36.0	38.5	39.5	40.2	42.4	pa. showers.	27		
28	29.742	49.9	29.864	51.2	36.0	34.0	39.0	31.0	35.2	32.0	34.9	32.8	.01	SE	3	SE	3				Str	10	Str	10		35.0	38.0	39.5	40.0	42.4	sn. & li. showers	28		
29	29.976	49.8	30.018	51.0	36.0	32.8	38.5	31.0	34.0	33.0	33.0	32.2	.10	SW	1	W	1				W	10	Str	10		35.0	37.0	38.5	39.9	42.2	sn. & li. showers.	29		
30	30.070	50.0	30.036	50.0	35.5	29.0	33.0	31.0	30.0	29.8	35.0	34.0	.05								Fog.	W	10			34.0	37.8	38.5	39.6	42.1	Fog a.m. & li. showers	30		
31	29.974	49.8	29.968	51.0	37.0	30.0	35.5	22.5	31.0	30.8	35.2	34.0	.02	NW	1	SE	1				Str	8	Str	6		38.8	37.8	38.0	39.4	41.9	Fog	31		
Sums.	916.2	158	869.8	158	139	129	147	175	151	150	139	7													157	212	198	63	915					
Means.	29.492	50.7	29.500	52.8	42.9	35.1	55.0	31.2	38.1	36.8	39.2	37.5													37.6	38.8	39.5	40.4	42.9					
Corrections for Instrumental Errors.	+0.15		+0.15																															
Corrections for Diurnal Range.																																		
Corrected Means	29.507		29.515		36.1																													

BAROMETER. Corrected Mean at 9 A.M., minus Correction for Temp. = 29.507
Corrected Mean at 9 P.M., minus Correction for Temp. = 29.515
Mean at Station, corrected, and at 32° = 29.449
Correction for height, feet above Mean Sea-Level, = + .185
Mean, reduced to 32°, and Sea-level, = 29.634
Highest Reading, corrected for Index error, on the 24 th, = 30.207
Lowest Do. Do., on the 13 th, = 28.527
Difference, or Monthly Range, = 1.680

S.-R. THERMOMETER, (in shade) Highest in Month, corrected for Index Errors, on the 19 th, = 49.2
Lowest in Month, corrected for Index errors, on the 1 st, = 24.8
Difference, or Monthly Range, = 24.4
Mean of all the Highest, = 42.9
Mean of all the Lowest, = 36.1
Difference, or Mean Daily Range, = 6.8
Mean Temperature of Month, $\frac{1}{2}$ (Mean Max. + Mean Min.), = 39.5
S.-R. THERMOMETER, Min. on Grass, Lowest in Month, = 19.5
" " Mean, = 31.6
Black Bulb, Max. in Sun, Highest in Month, = 72.0

HYGROMETER, Dry Bulb, Mean of A.M. and P.M. Readings, = 38.7
Wet Bulb, Mean of A.M. and P.M. Readings, = 37.7
Computed Temperature of Dew-Point, =
Do. Elastic Force of Vapour, = .206
Do. Relative Humidity (Saturation = 100), = 88
RAIN fell on 24 Days; Amount in Inches, = 3.48

WIND.		SUMMARY.									
Direction.		N	NE	E	SE	S	SW	W	NW	Calm or Variable.	Mean Force 0-12.
A.M.		0	1	1	4	0	14	4	3	4	1.6
P.M.		1	0	8	3	0	9	7	0	3	2.2
Sum.		1	1	9	7	0	23	11	3	7	1.9

Observations made and
Return verified by

(Signed)

N.B.—Rain to be measured at 9 A.M. and the amount entered to the previous day.
See instructions on back of Schedule.

INSTRUCTIONS

In order to insure uniformity in the observations made at the Observing Stations of the Scottish Meteorological Society, the Council request the Observers to adopt the methods described below.

HOURS OF OBSERVATION.

The Council recommend that Observations be made precisely at 9 A.M. and 9 P.M. (Greenwich Time). At both hours the Barometer and Dry and Wet Bulb Thermometers should be read, and notes made of the Wind, Cloud, and general weather. The Rain Gauge should be read at 9 A.M. only, and the Maximum and Minimum Self-registering Thermometers at 9 P.M. only.

It is hoped that every effort will be made to insure punctuality. When, however, an observation is taken not at the usual hours, it is requested that this be stated in a note on the Schedule.

All instruments used should be compared with a certified standard; Observers are requested to communicate with the Secretary before purchasing new or repairing old instruments.

BAROMETER.

The Barometer should be hung in a good light and in a room not exposed to sudden changes of temperature. The upper part of the scale must not be higher than the level of the observer's eye, and the instrument must hang vertically. Barometers should not be moved from their places except by persons accustomed to the work, as they are very liable to get air into the mercury column when improperly handled. Mercurial barometers mounted in metal cases are the only sort suitable for the accurate measurement of atmospheric pressure.

FORTIN BAROMETER.—In setting this instrument the level of the mercury in the glass cistern has first to be adjusted by turning the screw below the cistern till the surface of the mercury just touches the ivory point which projects downwards from the cover of the cistern. A modification of the Fortin pattern is used at several of the Society's Stations, in which the adjustment is made by turning the screw until the zero line on an ivory rod which projects through the cover of the cistern is brought to coincide with the lines on the uprights beside it. In either pattern this cistern adjustment must be made before the Vernier at the top of the mercury column is set.

In the BOARD OF TRADE pattern of barometer no adjustment of the cistern is required, and the Observer can at once proceed to set the Vernier, which in all three classes of instrument is done as follows:—

First see that the Vernier is raised above the mercury, then lower it till its front and back edge both just touch, that is, form a tangent to, the highest part of the mercury column. The top of the mercury is usually slightly convex, and care must be taken not to bring the Vernier down to where the front of the mercury touches the glass, which is below the real top of the column.

The attached thermometer should be read and noted before setting the barometer, as its readings may be affected by heat from the Observer's body while handling the instrument.

The errors most frequently made in reading the barometer are mistakes of 1·000 inch, 0·100 inch, and 0·050 inch; that is to say, instead of 29·365 one of the following is sometimes set down—viz. 30·365, 29·265, or 29·315. Experience having shown that even the best Observers occasionally make these mistakes, the reading, after it is written down, should be compared again with the scale.

DATES IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

FOREST TREES.	In Flower.	Leaf Buds first Appear.	In Leaf.	Dried of Leaves.	CROPS, maintaining variety.	Sowing or Planting.	Appearing above Ground.	In Ear or Flower.	First Cut or Raised.
Alder,					Barley,				
Ash,					Bere or Bigg,				
Beech,					Oats,				
Birch,					Wheat,				
Elm,					Beans,				
Larch,					Pease,				
Lime,					Potatoes,				
Oak,					Turnips,				
Sycamore or Plane,					Rye Grass,				

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

The Society will be glad to receive any portions of the information indicated in this table that may come under the Observer's notice.

FOR TAKING METEOROLOGICAL OBSERVATIONS.

RAIN GAUGE.

The Rain Gauge should be read at 9 A.M. each day, and the amount entered to the previous day on the Schedule; thus the quantity measured at 9 A.M. on the 5th should be put down on the line containing the observations of the 4th of the month, since out of the twenty-four hours ending at 9 A.M. on 5th, fifteen belong to the 4th and only nine to the 5th, so that the amount may more properly be credited to the former day. The monthly total for, say, January is thus what falls between 9 A.M. on 1st January and 9 A.M. on 1st February.

The measuring glass is divided to hundredths of an inch—the highest line indicating ·50, that is fifty hundredths or half an inch. The amount should be entered on the Schedule thus: if up to say the sixth line in the glass as ·06, if up to the twenty-third line as ·23, if up to the thirtieth line as ·30, and so on, there being always two figures put down to the right of the decimal point. Care should be taken to avoid entering ·08 as simply 8, or ·30 as ·3, as this may cause confusion when adding the figures to get the total for the month.

When the fall exceeds one fill of the measuring glass it is necessary to measure it in portions, and each successive reading should be jotted down on the flyleaf of the notebook or other convenient place before the glass is emptied. Thus after heavy rain the amounts measured might be:—

·47
·45
·38
1·27

The total, 1·27, would be entered on the Schedule.

The glass must be held vertically or placed on a level surface when reading. A little uncertainty is sometimes caused by the upward curvature of the water where it touches the side of the glass, but the true reading is half way between the two apparent edges of the water surface. When there is nothing in the gauge a stroke (—) should be entered on the Schedule rather than the figure 0.

Snow or Hail is counted as Rainfall, and should be melted and measured as such. The upper part of the gauge may be taken indoors, and what is lying in it thawed. To save time, especially if snow or rain be then falling, it is convenient to add a measured quantity of warm water to the snow in the gauge, this quantity being afterwards deducted from the total to get the amount that has fallen. The depth of snow lying on the ground should be noted in the Remarks column.

In gauges, such as Flemings, in which a float and measuring rod is used, the rod should be removed or tied down below the level of the rim, except when a measurement is being taken, because if allowed to project above the gauge, it would prevent it catching the true amount of fall.

If a gauge is only read once a month this should be done on the morning of the 1st, and the amount entered to the previous month.

The Rain Gauge should be placed in an open situation, if possible with no elevated objects close to it, in any case trees, walls, etc., should never be nearer to the gauge in horizontal distance than their own height. The gauge should be firmly fixed with its rim 18 inches above ground; if surrounded by grass, care must be taken that it is never allowed to grow as high as the rim. The gauges at most Stations are five inches in diameter, though a few of larger or smaller size are also in use. A convenient way of fixing a gauge in position is to drive four stout wooden pegs from 12 to 18 inches long into the ground, one at each side of the gauge.

ADDITIONAL REMARKS.

OBSERVATIONS.

WIND, CLOUD, SUNSHINE, ETC.

WIND.

The direction and force of the Wind should be noted at 9 A.M. and 9 P.M. In confined situations where the true direction cannot be easily observed, it is best to ascertain this by watching the movement of smoke from chimneys, or even of the lower clouds. The force of the wind should be noted according to the scale given on the other side of the Schedule.

At Stations where an Anemometer is in use, the readings at 9 A.M. each day should be put down in the column provided, the values being entered to the previous day, as in the case of the Rainfall.

CLOUDS.

The amount of Cloud should be estimated on the scale, 0 to 10, 0 indicating a clear and 10 an overcast sky. Only the part of the sky over 30° above the horizon should be taken into account, as it is impossible to estimate the space covered by Clouds nearer the horizon. A convenient table for noting briefly the species of Cloud will be found on the other side of the Schedule. It is desirable to note, if possible, the direction from which the Clouds are moving. If there is more than one layer of clouds on the sky, they should be noted.

Thus, for example, Cir. W. 4 would indicate that four-tenths of the sky was covered with cirrus moving from the West, and two-tenths with cumulus moving from the S.W.

SUNSHINE.

This column is primarily for those Stations where a Sunshine Recorder is kept; at other Stations, however, the Observer may note in it the number of hours each day that the sun shines with sufficient clearness to cast a distinct shadow.

RADIATION THERMOMETERS.

A MAXIMUM THERMOMETER, with its bulb blackened and enclosed in an outer glass bulb exhausted of air, is used at many stations to register the highest temperature in the sun. It should be mounted horizontally about four feet above ground with its bulb pointing south, and should be read and set at 9 P.M.

A MINIMUM THERMOMETER on grass is used to register the lowest radiation temperature at night. It should be placed on wooden supports a few inches above the surface of the grass. It may be read and set at 9 P.M., but in warm weather, as the spirit in this instrument is liable to evaporate when exposed to bright sunshine and to condense again in the upper part of the tube, it is better to read it at 9 A.M., to put it inside the screen during the day, and to set and replace it at 9 P.M.

THERMOMETERS UNDER GROUND.

These should be read at 9 A.M., and the readings entered on the day on which they are made.

REMARKS.

In the Remarks column should be noted all occurrences of Snow, Hail, or Heavy Rain; of Thunder, or Lightning, or both together; of all Auroras, Meteors, or Halos round the sun or moon; Fogs, Gales or Storms, and generally of all noteworthy Weather phenomena.

The table and additional lines on the back of the Schedule are for the use of those Observers who wish to record Notes connected with the changes of the Seasons, such as the growth of Crops, Fruit, etc., and the migrations of Birds; also the prevalence of Diseases in man, in the lower animals, and in plants. Such observations are often of great interest and utility when taken in conjunction with the ordinary Meteorological records.

THE SECRETARY,

Scottish Meteorological Society,

122 George Street,

EDINBURGH.

BOOK POST.

