

INSTRUCTIONS FOR TAKING METEOROLOGICAL OBSERVATIONS.

THE USE OF INSTRUMENTS

To
Mr ALEXANDER BUCHAN,

Secretary of the Meteorological Society of Scotland,

EDINBURGH.

BOOK-POST.

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

SCOTTISH METEOROLOGICAL SOCIETY.

During the MONTH of

Telmar 1870

The Hours of Observation are of Greenwich Time (^{not} Mountain)

GENERAL REMARKS.

As to occurrence of Thunder, Lightning, Storms, Hail
Remarkable Depression or Elevation of Barome

of Month,

GENERAL REMARKS.

As to occurrence of Thunder, Lightning, Storms, Hail, Meteors,
Remarkable Depression or Elevation of Barometer,
Prevalent Diseases, etc.

NOTATION USED IN GENERAL REMARKS.

TABLE FOR ESTIMATING FORCE OF WIND.

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

BAROMETER , "corrected Mean" at 9 A.M., <i>minus</i> the Correction + + } =	<u>29,859</u>
for Temp. (Col. 2), = -	
"Corrected Mean" of Barometer at 9 P.M., <i>minus</i> the Correction + + } =	<u>29,865</u>
for Temp. (Col. 4), = -	
Mean at Station, corrected, and at 32° , =	<u>29,862</u>
Correction for height, 12 feet, above Mean Sea-level, =	<u>0,013</u>
Mean, reduced to 32°, and Sea-level , =	<u>29,875</u>
Highest Reading, corrected for Index error, on the 13 th, =	<u>30,822</u>
Lowest Do., Do., on the 28 th, =	<u>29,160</u>
Difference, or Monthly Range, =	<u>1,662</u>

S.-R. THERMOMETER , (in shade, etc.), Highest in Month , (corrected for Index Errors), on the 7 th,.....	=	46.5
Lowest in Month , corrected for Index errors, on the 27 th,	=	12.5
Difference, or Monthly Range ,	=	34.0
" Corrected Mean " of all the Highest , (Col. 5),	=	38.7
" Corrected Mean " of all the Lowest , (Col. 6),	=	30.6
Diference, or Mean Daily Range ,.....	=	8.1
** Calculated Mean Temperature of Month,	=	34.1

HYGROMETER, Mean (corrected) A.M. and P.M. Reading of Dry Bulb, (Cols. 9 and 11),	=	34.7
Mean (corrected) A.M. and P.M. Reading of Wet Bulb, (Cols. 10 and 12),	=	33.1
†† Computed Temperature of Dew-Point,	=	30.8
†† Do. Elastic Force of Vapour,	=	0.172
†† Do. Weight of Vapour in a Cubic Foot of Air,	=	2.0
†† Relative Humidity, (Saturation = 100),	=	84.7
RAIN full 19 Days: Amount in Inches	=	9.96

WIND.	SUMMARY.								Mean Velocity in miles per day.
	N	NE	E	SE	S	SW	W	NW	
A.M.	6	3	1	4	6	2	2	2	1.3
P.M.	4	4	1	6	5	2	1	2	1.4
Mean.	5	3.5	1	5	5.5	2	4.5	2	1.85

Observations made and
Return verified by { Wm. H. Williams

INSTRUCTIONS FOR TAKING METEOROLOGICAL OBSERVATIONS.

WITH REMARKS ON THE USE OF INSTRUMENTS.

Mr ALEXANDER BUCHAN

LERWICK
SHIP LETTER

Secretary of the Meteorological Society of Scotland,

EDINBURGH.

BOOK-POST.

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

SHRUBS, ETC.	First in Blossom.	Blossom.	Blute Pipe.	gerewelljy.	MIGRATORY BIRDS.	First	Attrival.	Departure.
Baberry,					Cuckoo,	Citlewe,	Cherry,	Hause-Swallow,
Bourtree or Elder,					Black Currant,	Gean,	Lapwing,	Goosbeerry,
Broom,					House-Swallow,	Plover,	House-Swallow,	Hawthorn,
Hazel,					Citlewe,	Dreach,	Deach,	Hawthorn,
Bronn,					Black Currant,	Pear,	Plum,	Laburnum,
Burrree or Elder,					House-Swallow,	Starling,	Swan,	Jilac,
Berry,					Citlewe,	Deach,	Strawberry,	Mezereon,
					Black Currant,	Fear,	Plum,	Mountian Ash or Rowan,
					House-Swallow,	Starling,	Swan,	Red Thowering Currant,
					Citlewe,	Deach,	Strawberry,	Rhododendron Donigium,
					Black Currant,	Fear,	Plum,	Whin,

FOREST TREES.	In Flower.	Leaf Buds	In Leaf.	Diversified or CHOPS.	Sowing or Leaves.	Appertaining mentholing variety.	In Bar	above Ground or Flower.	First Cut	of Rashed.
Alder,	Barely,
Ash,	Bere or Bigg,
Beech,	Oats,
Birch,	Wheat,
Elm,	Beans,
Larch,	Pease,
Lime,	Potatoes,
Oak,	Turwips,
Sycamore or Plane,	Rye Grass,

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Thornton Fair, County of _____, in Lat. 62° 2' N., Long. 6° 49' E., Distance from Sea 120 miles.

Height of Cistern of the Barometer above Mean Sea-level 12 feet, above Ground 5 feet.

During the MONTH of March 1870.

The Hours of Observation are of Greenwich Time.

ELECTRICITY. Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.				HYGROMETER. No. 31-71				WIND.				RAIN.		CLOUDS.				THERMOMETERS. under Ground.				GENERAL REMARKS. As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Incidents or Elevations of Barometer, Prevalent Diseases, etc.	Days of Month.
	9 h. A.M.		9 h. P.M.		Projected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	No. of inches.	Amount in inches.	9 A.M.	P.M.	SUNSHINE Hours.	No. 3 inches.	No. 13 inches.	No. 22 inches.	Temperature of Well at Depth of 0-10.	SEA.	OZONE.
	Barometer No. 91	Attached Thermometer	Barometer No. 91	Attached Thermometer	Max. No. 321	Min. No. 321	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	No. 96	No. 96	Velocity, (0-4), Amount, (0-10), Species.	Velocity, (0-4), Amount, (0-10), Species.	9 h. A.M.	9 h. P.M.	No. 3 inches.	No. 13 inches.	No. 22 inches.	Temperature of Well at Depth of 0-10.	Temperature at 9 A.M. 9 P.M.	Temperature at 9 A.M. 9 P.M.
1	28.936	49	28.968	44	41	32	○	○	39	39	39	33	E	1	N	3	110	~ tr ~	○	○	○	○	○	○	107.8	107.8	107.8	1
2	29.580	37	29.744	50	35	76	○	○	28	27	30	30	N	1	N	0.5	0.10	4	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	241	241	241	2
3	29.404	38	30.200	50	30	20	○	○	25	24	31	30	N	0.5	SW	1	~ tr ~	3	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	3	
4	30.200	45	30.140	54	43	31	○	○	40	39	42	40.5	W	1	W	2	125	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	4	
5	30.350	49	30.466	53	45	42	○	○	44	42	42	42	SW	1	SW	1	0.28	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	5	
6	30.492	48	30.518	54	45	42	○	○	43	43	42	42	W	1	W	1	0.10	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	6	
7	30.564	52	30.602	55	48	39	○	○	46	45	38	38	NW	Q	W	0.5	~ tr ~	1.8	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	7	
8	30.526	50	30.440	53	47	38	○	○	42	40	46	41.5	N	0.5	N	1.5	~ tr ~	6	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	8	
9	30.590	47	30.196	48	44	40	○	○	44	40	40	40	N	0.5	N	4	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	9		
10	30.040	36	29.930	40	45	32	○	○	32	30	10	2	N	3	~ tr ~	0.10	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	10		
11	30.022	31	29.898	35	32	15	○	○	23	21	15	14	N	2	N	3	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	11		
12	29.804	31	29.860	36	25	10.5	○	○	23	21	23	23	N	3	N	3	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	12		
13	29.930	33	29.918	40	25	19	○	○	23	22	20	19	N	1.5	N	0.5	~ tr ~	9	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	13	
14	29.744	37	29.500	52	40	20	○	○	28	27	39	39	NW	1.5	SW	1.5	1.8	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	14	
15	29.522	50	29.612	47	40	32	○	○	37	36	32	32	NW	2	NW	3	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	15		
16	29.640	41	29.710	50	40	34	○	○	36	33	39	35	NW	4.5	NW	1.5	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	16		
17	29.716	48	29.888	52	44	40	○	○	41	40	41	40	E	1.5	E	0.5	0.28	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	17	
18	30.030	51	30.000	52	49.5	40	○	○	44	46	47	47	W	0.5	3	1.5	0.24	~ tr ~	2	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	18
19	30.016	52	29.766	51	50	43	○	○	48	48	43	42	SW	1	SW	3	0.48	~ tr ~	1	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	19
20	30.060	46	30.150	53	42	35	○	○	36	35	40	39	SW	1.5	SW	0.5	0.16	~ tr ~	1.5	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	20
21	29.900	49	29.912	45	43	31.5	○	○	40	38.5	31.5	30.5	W	1.5	N	3	0.10	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	21	
22	30.112	31	30.200	37	31.5	20	○	○	22	21	25	23	N	3	N	2	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	22		
23	30.110	33	30.168	45	35	24	○	○	21	28	32	30	N	1.5	N	0.5	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	23		
24	30.084	41	30.094	51	38	32	○	○	36	32	34	32	E	1	SW	0.5	0.08	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41	41	24	
25	30.110	46	30.240	53	43	33	○	○	47	39	34	32	SW	1	SW	0.5	0.12	2.5	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	~ tr ~	41	41		

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Fernie, County of Perthshire, in Lat. $61^{\circ} 2' 1''$, Long. $6^{\circ} 43' 8''$, Distance from Sea 120 feet miles.

Height of Cistern of the Barometer above Mean Sea-level 12 feet, above Ground 5 feet.

During the MONTH of April 1870.

The Hours of Observation are of Greenwich Time (British Standard Time)

ELECTRICITY Days of Month.	BAROMETER.			SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.		HYGROMETER. No. 891-92		WIND.		RAIN.		CLOUDS.		THERMOMETERS under Ground.		SEA.	OZONE.	GENERAL REMARKS.			Days of Month.				
	9 h. A.M.		9 h. P.M.		Predicted in Shade, 4 feet above Ground.		Exposed Black Bulb.		9 h. A.M.		9 h. P.M.		Readings of the H-Cup Anemometer No.		No. of hours in which it fell.	No. 78	9 h. A.M.	P.M.	SUNSHINE	9 h. A.M.					
	Barometer No. 91	Attached Ther- mometer No. 91	Barometer, Attached Ther- mometer No. 91	Barometer, Attached Ther- mometer No. 91	Max. No. 91	Min. No. 91	Max. in Sun's rays No. 91	Min. on Grass No. 91	Direc- tion.	Force	Direc- tion.	Force	No. of hours in which it fell.	No. 78	Velocity, (0-10), Amount, (0-10), and Species.	Velocity, (0-10), Amount, (0-10), and Species.	Hours,	No. 8 inches	No. 12 inches	No. 22 inches	Temperature at 9 A.M. in Fahrenheit, and Density.	Temperature at 9 P.M. in Fahrenheit, and Density.			
1	29.644	53	29.680	52	50.1	40	o	o	50	o	47	40	38	SW	4	SW	3	0.42	—	—	0	0	0	0	1
2	29.666	45	30.176	51	49.9	36	o	o	39	36	44	40.4	W	1	W	1	0.20	—	2	3.1	3.1	3.1	3.1	2	
3	30.280	49.8	30.254	55	50	42	o	o	47.1	44.3	45.3	41.8	SW	4	SW	2	0.12	—	4	2.6	2.6	2.6	2.6	3	
4	30.070	51	29.954	55	50	41	o	o	49	47	41.4	40	SW	3	SW	4	0.88	—	10	3.1	3.1	3.1	3.1	4	
5	29.916	48	30.150	50	45	29.8	o	o	41	35.8	29	W	1	W	0.1	—	—	5	3.1	3.1	3.1	3.1	5		
6	30.112	43	24.870	51	40	24	o	o	37.8	33.8	33.5	32	E	0.1	E	1.1	—	—	6	2.6	2.6	2.6	2.6	6	
7	29.768	45	29.684	49	41	33	o	o	39	36	39	36	E	1.1	E	1.1	0.21	—	7	2.6	2.6	2.6	2.6	7	
8	29.430	46.8	29.36	52	41	33.5	o	o	40.7	38.5	36.7	30	E	2	SW	0.1	0.68	—	8	2.6	2.6	2.6	2.6	8	
9	29.392	49	29.550	55	49	33.5	o	o	46	43	35	33	E	0.1	Calm	0	—	12	2.6	2.6	2.6	2.6	9		
10	29.544	49	24.588	49	44	33.5	o	o	43.4	40.8	33.5	32	Calm	0	NW	1.1	0.20	14	2.6	2.6	2.6	2.6	10		
11	29.778	42	29.726	52	42.1	31	o	o	39.2	36.7	42	40	NW	0.1	S	3	0.12	6	2.6	2.6	2.6	2.6	11		
12	29.474	50.8	29.380	55	50	38	o	o	48.4	44.8	43.5	41.7	SW	3	SW	3	0.40	—	12	2.6	2.6	2.6	2.6	12	
13	29.424	48.5	29.766	50	45	32	o	o	41	39	31	31	W	2	W	1	0.50	—	13	2.6	2.6	2.6	2.6	13	
14	29.920	45	29.988	55	48	30	o	o	45.6	44	46	45	W	1	W	1	0.15	1	2.6	2.6	2.6	2.6	14		
15	29.946	52	30.068	55	51	46	o	o	47.8	46	47	45.4	SW	1	SW	1	0.10	2	2.6	2.6	2.6	2.6	15		
16	30.144	53	30.188	58	50.5	45	o	o	48	47.5	48	45.5	W	1	W	3	0.29	—	16	2.6	2.6	2.6	2.6	16	
17	30.100	53	30.088	60	53	47	o	o	52.6	48.5	50.8	46.8	SW	1	S	2	—	—	17	2.6	2.6	2.6	2.6	17	
18	30.058	56	29.438	60	58.1	49.5	o	o	55.5	53	49.5	44	S	1.0	S	1.1	—	9	2.6	2.6	2.6	2.6	18		
19	29.844	56	29.946	60	54	45.5	o	o	52.4	49	45.5	44	S	2	S	3	—	10	2.6	2.6	2.6	2.6	19		
20	29.916	56	29.770	59	49	45.5	o	o	49.8	46.5	48	47	E	0.1	E	0.1	—	—	20	2.6	2.6	2.6	2.6	20	
21	29.940	56	29.920	59	51	44	o	o	49	44	45.5	42	SW	1	SW	1	0.23	7	2.6	2.6	2.6	2.6	21		
22	29.656	52	29.730	55	49	38	o	o	46.5	42	39.5	38	SW	2	SW	0.1	0.48	—	22	2.6	2.6	2.6	2.6	22	
23	29.588	51	29.750	54	49	34	o	o	46.1	42	43.3	39	NW	2	NW	1	0.15	3	2.6	2.6	2.6	2.6	23		
24	29.804	50	29.848	56	49	38	o	o	43	39	43	42	W	1	SW	0.1	0.08	2	2.6	2.6	2.6	2.6	24		
25	29.642	53.8	29.586	54	51	41	o	o	49.8	47.5	42.9	39.8	W	2	W	3	0.38	—	25	2.6	2.6	2.6	2.6	25	
26	29.534	46	30.016	49	43	33.5	o	o	41.8	40	34	32	NW	3	N	4	0.31	—	26	2.6	2.6	2.6	2.6	26	
27	30.186	38	30.280	45	39	30.5	o	o	32.3	31	35.5	32	NE	1	NE	1	0.14	3	2.6	2.6	2.6	2.6	27		
28	30.164	44	30.070	54	44	34	o	o	43.7	40	39.5	38	N	0.1	SW	0.1	—	11	2.6	2.6	2.6	2.6	28		
29	29.748	51	29.550	54	50	38	o	o	48.6	45	45	42.5	N	0.1	SW	0.1	0.32	2	2.6	2.6	2.6	2.6	29		

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

REVIEW OF THE USE OF INSTRUMENTS WITH REMARKS ON THE USE OF INSTRUMENTS

ONE of the Meteorological Observatories, perfect upon the spot, is now in operation at the Observatory. Returns will be rendered to the public in the following manner:—

Thompson 1870
Official

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Mr ALEXANDER BUCHAN,

Secretary of the Meteorological Society of Scotland,

EDINBURGH.

BOOK-POST.

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Glenburn, Tain, County of Nairn, in Lat. 60° 22', Long. 6° 43' 8", Distance from Sea 120 feet miles.

Height of Cistern of the Barometer above Mean Sea-level 12 feet, above Ground 5 feet.

During the MONTH of May 1870.

The Hours of Observation are of Greenwich Time (mean time)

No. of Month	BAROMETER.			SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.				HYGROMETER, No. 871-32				WIND.			RAIN.			CLOUDS.			THERMOMETERS, under Ground.			SEA.	OZONE.	GENERAL REMARKS.	Days of Month						
	9 h. A.M.		9 h. P.M.		Protected in Shade, 4 feet above Ground.		Exposed Black Bulb.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		9 h. A.M.		P.M.		9 h. A.M.			9 h. A.M.	9 P.M.	As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevailing Diseases, etc.							
	No. 91	Barometer.	Attach- ed Ther- mometer	No. 91	Max. No. 716	Min. No. 715	Sun's rays	Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Direction.	Force.	No. 716	No. 715	Velocity, (0-10), and Direction.	Amount, (0-10), and Species.	Velocity, (0-10), and Direction.	Amount, (0-10), and Species.	Hours.	No. 3 inches.	No. 12 inches.	No. 22 inches.	Total Amount of Wet Bulb at Height of No. 91	Temperature at 9 A.M. & 9 P.M.	Mention the hour at which Storms began and ended.				
1	29.940	41	30.050	46	36.532	2	33.5	30.5	32.8	30.5	N	3	N	1.5		0.34																	
2	29.988	41	30.088	48	47	30	40.3	38	33.1	31	NW	0.5	NW	1																			
3	30.138	40	30.149	49	44.5	33	37	34	41.4	39	N	0.5	NW	1																			
4	30.150	45	30.268	56	48	36.5	36.5	32.5	32.5	42	39	N	0.5	W	0.5		0.08																
5	30.222	51	30.210	56	50	40	47	42	42.7	41	W	1	NW	0.5																			
6	30.250	52	30.130	57	51.5	37	50	46	47.5	44.5	W	0.5	W	0.5		0.08																	
7	30.166	52	30.182	57	50.5	46	48.5	46	47.8	46	W	1.5	W	1.5		0.08																	
8	30.246	53	30.198	57	51	46	49.7	44	47.5	43	W	1	W	0.5																			
9	30.174	54	30.116	59	52	45.5	48	44	46	44	W	1	W	0.5		0.06																	
10	29.984	55	29.906	59	53	42	47.8	46	42	40	38	1	SE	0.5																			
11	29.828	54	29.688	58	50	40.5	47.5	46	45.5	43.5	SE	0.5	N	1.5																			
12	29.424	50.5	29.336	54	49	44	43.6	43	46.5	45	E	5	E	4		0.66																	
13	29.270	51	29.312	55	47	45	46	45	46.5	45.5	E	2	E	0.5		0.13																	
14	29.346	54	29.334	59	51.5	45.5	51	48	49.5	47.5	E	0.5	E	0.5																			
15	29.412	54	29.450	59	50.5	44	48.6	47	47.5	46	J	1	J	1		0.04																	
16	29.534	55	29.584	58	52	44.5	49	45.5	46	44.5	SW	0.5	J	0.5		0.09																	
17	29.594	55	29.682	59	51	44.5	47.5	46	46	44.5	J	1	SE	1		0.31																	
18	29.536	55	29.616	58	52	46	52.5	49.5	46	44.5	SW	3	SW	1		0.41																	
19	29.520	54	29.096	56	52	40.5	49.5	47.5	46	40.5	SW	1.5	SW	4		0.78																	
20	29.440	52	29.530	56	51	40	50	48	45	44	SW	1.5	SW	1.5		0.42																	
21	29.850	52	29.912	58	50	44	44	43	45	43.5	E	1	calm	0		0.06																	
22	29.950	54	29.996	58	52	38	47	44.5	46	43	W	0.5	W	0.5		0.04																	
23	29.486	54	29.914	59	52.5	42.5	46.3	48.5	46.5	43.5	J	1.5	W	1		0.11																	
24	29.790	55	29.970	57	50	42	44	42.5	42.5	39	W	1.5	SW	1.5		0.30																	
25	30.312	51	30.308	56	51.5	38.5	49.5	45.5	44.5	43	W	1	SW	0.5		0.09																	
26	30.326	55	30.338	58	53.5	39	49	44.5	45.5	47.5	calm	0	W	0.5		0.10																	
27	30.286	54	30.318	59	54.5	44.5	51.5	48	47.5	46	W	0.5	J	0.5		0.02																	
28	30.258	55	30.158																														

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

WITH REMARKS ON THE USE OF INSTRUMENTS.

Hornbeam May 1870

T

Mr ALEXANDER BUCHAN

Secretary of the Meteorological Society of Scotland

SHIP LETTER
of Scotland.

EDINBURGH.

BOOK-POST.

OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

INSTRUCTIONS FOR TAKING METEOROLOGICAL OBSERVATIONS.

WITH REMARKS ON THE USE OF INSTRUMENTS

EDINBURGH, 27th December 1865.

Te

Mr ALEXANDER BUCHAN,

Secretary of the Meteorological Society of Scotland,

EDINBURGH.

BOOK-POST.



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OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS

column, an entry of $\frac{2}{2}$, cr-st. will indicate that the higher regions are covered to the "amount" of 4-tenths with *stratus* clouds; and that the sky is further obscured to the extent of *tenths* by lower clouds of the *cumulo-stratus* kind.

Sunshine.—The number of hours in which objects in the sun's rays cast shadows should be entered in the proper column.

Underground Thermometers.—As the germination and health of crops and plants greatly depend on the temperature of the soil,—its amount and constancy,—the Council recommend that observations in this interesting department be made at 9 A.M., by thermometers placed in the earth, their bulbs being sunk to 2, 12, and 22 inches, and the stems above ground protected from the sun's rays, and fitted with sloping tin collars, to prevent rain-water being conveyed to the bulbs by the stems or wooden frames. Attention must be made of the geological formation and agricultural condition of the soil in which these Thermometers are placed.

Temperature of the Sea.—A knowledge of the temperature of the sea is not only in itself, but in its relations to that of our land, a very important branch of Meteorology. The Council, therefore recommend that the temperature of the sea be carefully taken by a properly constructed apparatus, from the ends of pipes and rocks round the coast, where it is not influenced by the state of river water. At or near the time of high water, on the 11th, 15th, and 25th of each month, the thermometer ought to be sunk exactly six feet (one fathom), and after ten minutes have elapsed, drawn up and read. When convenient, extra sea observations might be taken for other and greater depths, noting always the temperature of the air, and the hour of observation; and continuing to observe for particular depths.

Temperature of Wells.—The temperature of the water at the bottoms of wells ought, when practicable, to be taken, and the depth of the well and of the water noted.

Ozone.—Mention whether Schönbein's or Moffat's papers are used. The paper is affixed by a pin to a board in the thermometer box, and the indication registered at 9 A.M. and 9 P.M. It is desired that these indications be registered in connection with the force and direction of the wind at the time of observation, in the following manner:—thus $3\frac{1}{4}^{\text{NW}}$, as an ozone entry in the schedule, will indicate that the ozone paper is tinted as “3” on the scale, that the wind is from the N.W., and that its force on the scale 0—6 is “4”: i.e., that it is *blowing fresh*.

Electricity.—Too much importance cannot be attached to the electric condition of the atmosphere in connection with terrestrial magnetism, and as a meteorological phenomenon. A proper electrometer is necessary to every complete meteorological

Remarks.—The “*Remarks*” column is too narrow, but unavoidably so. Some of the most valuable observations that can be taken are those for which no rules can be given nor hours assigned. The use of contractions ought, therefore, to be taken every advantage of, and a list of such as are recognised and in use at Greenwich and Southampton, are given at the foot of the column. Besides special and extraordinary observations, great prominence ought to be given in this column to prevalent diseases, differences in character, colour, velocity, and direction between the lower and upper strata of clouds, the colour of the sky, etc. Remarks ought to be made on the occurrence of meteors, aurora borealis, remarkable depressions and elevations of the barometer, thunder storms, and remarkable falls of snow, hail, or rain, the hour of

forms of wind attaining their maximum, as well as such notes as have been hinted at above. When lofty hills are in the vicinity of an Observatory, the height of clouds and of the snow-line in winter ought to be recorded.

By the use of abbreviations, the state of the weather at 9 A.M. and 9 P.M. ought to be registered, either in two columns, otherwise unoccupied, or in two ruled off for the purpose, from that headed "Remarks." It is intended that observations by the anerometer should be entered in this manner or on the side-margin. Additional remarks may be made on the margin.

Observations in connection with the periodic return of the seasons, possess not only great scientific value, but are of considerable interest to the Agriculturist. The Council would direct

The Council recommend that *term day* observations be taken; viz., on the 21st days of March, June, September, and December.

Full directions for the use of the instruments mentioned above have been printed, and may be had along with them from the makers.

The Council have agreed to recommend that observers, before purchasing new instruments, should communicate with the

(Bx Order) A B
Cetological Secretary; and they consider it desirable that he should have full power to reject any instrument which, on being presented for comparison, does not afford him satisfaction.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Thorsham, Fife, County of, in Lat. $62^{\circ}2'K'$, Long. $6^{\circ}43'8''$, Distance from Sea 120 miles.

Height of Cistern of the Barometer above Mean Sea-level 12 feet, above Ground 5 feet.

During the MONTH of August 1870.

The Hours of Observation are of Greenwich Time (*uncertain*)

ELECTRICITY. Days of Month.	BAROMETER.		SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.						HYGROMETER. No. 891-92				WIND.		RAIN.		CLOUDS.		THERMOMETERS, under Ground.		SEA.		OZONE.		GENERAL REMARKS.			
	9 h. A.M.		9 h. P.M.		Projected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		Readings of the H-Cup Anemometer No. 78		No. of No. 78	Amount in inches,	Velocity, (0-6), and Direction.	Amount (0-10), and Species.	Velocity, (0-6), and Direction.	Amount (0-10), and Species.	SUNSHINE.	9 h. A.M.		Temperature of WELL at Depth at 11 a.m., and D. natty.		As to occurrence of Thunder, Lightning, Storms, Hail, Mists, etc.		
	* No. 91	Barometer	Attached Thermometer	No. 91	Max. Sun rays	Min. Sun rays	No. 3237	No. 3237	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force	No. 9 h. A.M.	No. 9 h. P.M.	No. 9 h. A.M.	No. 9 h. P.M.	Hours	No. 3 inches.	No. 12 inches.	No. 22 inches.	9 a.m.	9 p.m.	Temperature at 9 a.m.	at 9 p.m.	Remarkable Depression or Elevation of Barometer, Prevailing Diseases, etc.	
1	30.122	60	30.068	62	58	48	55	53	52	Calm	0	Calm	0	-	-	-	-	-	0	0	0	0	6.6	5.6	Fog		1	
2	30.012	60	29.992	62	56	49	50.5	49.5	51.6	Calm	0	Calm	0	-	-	-	-	-	0	0	0	0	6.6	7.6	Fog		2	
3	29.964	58	29.904	61	56	52	54.2	52.5	52.4	Calm	0	Calm	0	0.08	-	-	-	-	0	0	0	0	5.6	9.6	Fog		3	
4	29.899	58.5	29.920	60	57	51	53.4	53.4	52.3	N.E. 0.5	N.E. 0.5	N.E. 0.5	N.E. 0.5	0.05	-	-	-	-	0	0	0	0	9.6	9.5	Fog		4	
5	29.818	56.5	29.712	60.5	54	52	53.5	53.2	53	N.E. 0.5	N.E. 0.5	N.E. 0.5	N.E. 0.5	0.39	-	-	-	-	0	0	0	0	10.6	10.6	Fog		5	
6	29.822	58.5	30.004	64	58	48.5	53	52.8	48.5	N.E. 0.5	N.E. 0.5	N.E. 0.5	N.E. 0.5	0.08	-	-	-	-	0	0	0	0	10.5	8.0	A.M. Fog		6	
7	30.112	59	30.200	61	57	47.5	53	52.2	53.6	Calm	0	Calm	0	0.03	-	-	-	-	0	0	0	0	7.6	8.0	Fog		7	
8	30.216	59	30.298	62.5	57.5	52.5	55.6	55.3	55	Calm	0	Calm	0	0.06	-	-	-	-	0	0	0	0	9.6	8.0	A.M. Fog		8	
9	30.298	61.5	30.322	65	64	49.5	61	59	52	Calm	0	Calm	0	-	-	-	-	-	0	0	0	0	6.6	5.6			9	
10	30.304	61	30.296	65	63	52	61.8	57.8	53	51.5	Calm	0	Calm	0	-	-	-	-	0	0	0	0	3.6	4.0			10	
11	30.276	60	30.348	60	61	52.5	54.3	52.5	53.5	Calm	0	Calm	0	-	-	-	-	-	0	0	0	0	5.2	4.0	A.M. Fog		11	
12	30.354	58	30.488	65	63	51	60	54	51	N.W. 0.5	N.W. 0.5	N.W. 0.5	N.W. 0.5	-	-	-	-	-	0	0	0	0	3.6	6.0			12	
13	30.496	60	30.566	65	64.5	44.5	58.5	53.5	51.5	N.W. 0.5	N.W. 0.5	N.W. 0.5	N.W. 0.5	-	-	-	-	-	0	0	0	0	5.6	4.0			13	
14	30.540	61	30.474	63	60.5	52	58.5	55	53.5	52.5	W 0.5	W 0.5	W 0.5	W 0.5	-	-	-	-	-	0	0	0	0	7.6	7.0			14
15	30.312	60	30.266	62.5	62.5	52.5	60	56	54.8	52.8	W 1	W 0.5	W 0.5	W 0.5	-	-	-	-	-	0	0	0	0	8.6	5.0			15
16	30.244	59.5	30.216	61	60	52	55	53	53	52	Calm	0	S.W. 0.5	0.02	-	-	-	-	-	0	0	0	0	7.6	8.0			16
17	30.176	57	30.178	58	54.5	46.5	52	49.5	46.5	45.6	E 0.5	Calm	0	0.25	-	-	-	-	0	0	0	0	5.6	7.0			17	
18	30.158	53	30.188	55	57	42.5	52	49.5	47.5	N.E. 1	N.E. 0.5	N.E. 0.5	N.E. 0.5	-	-	-	-	-	0	0	0	0	6.6	5.0			18	
19	30.228	53	30.264	56	56.5	44	50.4	48.4	48.5	N.E. 0.5	N.E. 0.5	N.E. 0.5	N.E. 0.5	-	-	-	-	-	0	0	0	0	5.6	5.0			19	
20	30.288	52	30.300	58	54	45	51.3	46.3	46	N.E. 0.5	Calm	0	-	-	-	-	-	0	0	0	0	6.6	10.0			20		
21	30.168	56	29.978	59.5	55	46	53	50	51.5	S.W. 1	Calm	0	0.26	-	-	-	-	-	0	0	0	0	6.6	10.0			21	
22	29.948	57	29.950	59	56	46	53.5	52	51.5	48.5	E 0.5	S.E. 0.5	S.E. 0.5	-	-	-	-	-	0	0	0	0	6.6	6.0			22	
23	29.748	56	29.752	62	57	49.5	52	51	51.5	S. 1	Calm	0	0.06	-	-	-	-	-	0	0	0	0	9.6	8.0			23	
24	29.776	56	29.826	60	60.5	42	56	51	48.5	47	S.W. 0.5	S.W. 0.5	S.W. 0.5	S.W. 0.5	-	-	-	-	-	0	0	0	0	5.6	6.0			24
25	29.816	56	30.000	58.5	58.5	45.5	57.5	52	45.5	Calm	0	N.E. 0.5	N.E. 0.5	-	-	-	-	-	0	0	0	0	6.6	5.0			25	
26	30.114	54.5	30.118	60	55	45	53	51.5	46.5	V.S. 1	E 0.5	N.E. 0.5	N.E. 0.5	0.26	-	-	-	-	0	0	0	0	7.6	8.0			26	
27	30.030	56	29.966	57	55	44	52	44	48.5	45.5	E 0.5	E 0.																

INSTRUCTIONS FOR TAKING METEOROLOGICAL OBSERVATIONS.

WITH REMARKS ON THE USE OF INSTRUMENTS.

ONE of the objects of immediate importance that the "Scottish Meteorological Society" has proposed to itself, is to secure a from radiation during night. Their bulbs have a black coating, and the least permanent in the system of observation pursued by all, which may easily be made, or mended, by the application of a greater or less obscuration of the sky *overhead* (*i.e.*, within 20° or 30° of the zenith). The strata of clouds that appear near the horizon are viewed obliquely; and thus, being unable to judge observations; and it is found that differences between the winds. The "Maximum" should be freely exposed to the sun, of theirs; we ought not to take them into account in the returns from any two stations, so very considerable as to and the "Minimum" should rest on wooden supports a few clouds column, though their appearances and changes ought to be compared with the dry bulb of the Hygrometer.

Termination of Thermometers.—No instrument ought to be used for Meteorological purposes till it has been carefully tested by comparison with a Standard Thermometer. When such are made precisely at 9 o'clock Greenwich or Railway time only twice a-day for some, and once (morning or evening) for other instruments, as specified in the following remarks. For comparison of Thermometers, a properly tested Thermometer must move from their position on the Sealeys and ought never afterwards to be used, without being re-tested. The self-registering, and especially the "Maximum" Thermometers, ought frequently and those in the lower regions from "W.", with one-third the (extreme) speed of the former. Again, in the second "Cloud" (4. st.

Sunshine.—The number of hours in which objects in the sun's rays cast shadows, should be entered in the proper column. *Underground Thermometers.*—As the germination and health of crops and plants greatly depend on the temperature of the soil—its amount and constancy,—the Council recommend that the thermometer placed in this interesting department be made at 9 A.M. by 2-tenths by lower clouds of the *cannula-stemose* kind.

Temperature of the Sea.—A knowledge of the temperature of the sea is not only in itself, but in its relations to that of our island, a very important branch of Meteorology. The Council therefore recommend that the temperature of the sea be carefully taken by a properly constructed apparatus, from the ends of piers and rocks round the coast, where it is not influenced by that of river water. At or near the time of high water, on the 5th, 15th, and 25th of each month, the thermometer ought to be sunk exactly six feet (one fathom); and after ten minutes have elapsed, drawn up and read. When convenient, extra sea observations might be taken for other and the hour of observation; and continuing to the temperature of the air, and the hour of observation; and continuing to the temperature of the sea.

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

Rainmarks.—Mention whether Stofford's or Moffat's papers are used. The paper is affixed by a pin to a board in the thermometer box, and the indication registered at 9 A.M. and 9 P.M. respectively. So also 40°, and 40°, more or less must be registered 40°.2 or 40°.3 and 40°.7 or 40°.8 respectively. In is desired that these indications be registered in connection with the force and direction of the wind at the time of observation.

Electricity.—Too much importance cannot be attached to the electric condition of the atmosphere in connection with terrestrial magnetism, and as a meteorological phenomenon. A proper Electrometer is necessary to every complete meteorological Observatory.

Barometers.—The thermometer is read at 9 A.M. and 9 P.M. The readings of the thermometer, and the height of the mercury or alcohol is alone noted. Readings of the mercury, and the height of the liquid, and the least degrees of the instrument, so that the mercury strikes the top of the glass, are to form one straight line with those on its ivory frame. The surface of the mercury is then at the exact height from which the scale is graduated. In taking an observation, this *provisionary* setting must be made with some pains accuracy; as a slight error otherwise arise from the fluctuations of the surface of mercury in the cistern. This form of instrument has been adopted by the Board of Trade, and has received the approval of the Meteorological Committee of the British Association. In another form of the Barometer, the sides of the cistern are of leather, and thus by aid of a screw acting on the bottom, the surface of the contained mercury can be adjusted to the zero-point of the fixed scale; their concidence being indicated by a little ivory float, which passes freely through the lid, and case of the cistern. When the tube is a complete vacuum; this is the case when, on inclining the tube, the mercury strikes the top of the glass, and the instrument is perfectly balanced.

In taking an Observation.—The thermometer is first noted: the tube must then be gently tapped, and the cistern adjustment carefully made. By raising and lowering the eye, it must be brought into the plane of the back and front of the instrument, so as to prevent heat from the observer's hands and person from affecting the mercury. The use of a lens will greatly facilitate an accurate adjustment and reading of the Barometer.

Protection of Thermometers.—The Council of the Society recommends that Self-registering Thermometers and Hygrometers be suspended on cross-laths in the centre of the room, and face the door opening to the north. To accommodate a duplicate set of instruments, which is most desirable, doors are also made to open to the south. These Boxes may be had at the Society's Office.

Self-Registering Thermometers.—Professor Phillips's, and Negretti and Zambra's Patent "Maximum" Thermometers are recommended; printed directions for their use may be obtained with each instrument. The "Maximum" Thermometer of Ruthenford is recommended when graduated on the glass stem of the thermometer is liable to two derangements, both of which must be grinded against, and may be easily remedied by an observer. When the *valve* of spirit breaks, it may be re-tinned by an observer, the instrument, especially against the pain of the hand; when the part of the spirit distilled by high temperature, will be found in the upper hole, and must be dislodged from thence by heating the upper hole, and must be dislodged from thence by heating the part over a lamp; the alcohol will evaporate and again condense in contact with the body of the liquid. These instruments should hold horizontally.

The above remarks apply equally to the Thermometers for

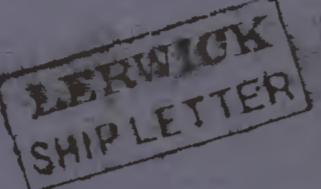
Clouds.—Convenient abbreviations for the



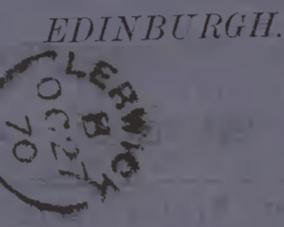
To

Mr ALEXANDER BUCHAN,

Secretary of the Meteorological Society of Scotland,



BOOK-POST.



EDINBURGH.

These tables also serve to slate any information you may be able to collect relative to the Corps of Engineers, etc. Whether Post-office, Turnips, Peas, etc., whether posted or in preference; whether any have been sent by telegraph, and so on. These tables also serve to slate any information you may be able to collect relative to the Corps of Engineers, etc. Whether Post-office, Turnips, Peas, etc., whether posted or in preference; whether any have been sent by telegraph, and so on.

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SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Glencairn, County of Perthshire, in Lat. $62^{\circ} 2' \frac{1}{2}$, Long. $6^{\circ} 43' 8''$, Distance from Sea 120 fathoms.

Height of Cistern of the Barometer above Mean Sea-level 12 feet, above Ground 5 feet.

During the MONTH of October 1870.

The Hours of Observation are of Greenwich Time (mean time)

EQUINOXIAL OBSERVATION	BAROMETER.		SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.				HYGROMETER, No. 831-32		WIND.		RAIN.		CLOUDS.		THERMOMETERS under Ground.		SEA.		OZONE.		GENERAL REMARKS.		Days of Month	
	9 h. A.M.	9 h. P.M.	Projected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	No. of hours in which it fell.	9 h. A.M.	9 h. P.M.	No. 3 inches.	No. 12 inches.	No. 22 inches.	Temperature of WELL at Depth of 0-10.	Temperature at 1 fathom 0-10.	Temperature at 1 fathom 0-10.	Mention the hour at which Storms began and ended.		
	Barometer. Kg. 91	Atmospheric Thermometer. No. 91	Max. No. 7165	Min. No. 3297	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	No. —	Velocity, (0-10), and Direction.	Amount, (0-10), and Species.	Velocity, (0-10), and Direction.	Amount, (0-10), and Species.	Hours.	Temperature at 1 fathom 0-10.	Temperature at 1 fathom 0-10.	Temperature at 1 fathom 0-10.	As to occurrence of Thunder, Lightning, Snows, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.		
1	30.588	58.5	30.464	60.5	57.45	56.54	56.54	55.53	SW	3	SW	4	0.11	—	—	—	—	—	4pm	83 9w	50.5	0-10.	Thunder	1
2	30.524	57	30.516	59	55.43	52.6	51.2	49.42	W	1	Calm	0	—	—	—	—	—	—	8w	8w	8w	0-10.	—	2
3	30.536	55.5	30.548	57	49.8	42.8	48	47.4	8w	2	E	0.5	—	—	—	—	—	—	10w	10w	10w	0-10.	—	3
4	30.538	56.5	30.540	57.5	52.49	50	47.5	44.5	W	0.5	NW	0.5	0.05	—	—	—	—	6	8w	8w	8w	0-10.	—	4
5	30.540	53	30.494	58	50.842	43.6	42.8	46	45	Calm	0	Calm	0	—	—	—	—	3	5pm	6w	50	0-10.	—	5
6	30.524	48	30.152	50	47.32	27.3	35	36	34.6	N	N	N	—	—	—	—	11	6w	6w	6w	0-10.	—	6	
7	30.044	45	29.952	50	46.33	96	35	35	34	N	N	N	—	—	—	—	7	6w	6w	6w	0-10.	—	7	
8	29.700	43.5	29.602	47.5	41.31	35.6	34	41	38	N	NE	1.5	0.10	—	—	—	3	4pm	6w	49	0-10.	—	8	
9	29.536	45	29.572	49	45.35	70	39	35.8	34.8	N	N	N	0.11	—	—	—	7	6w	6w	6w	0-10.	—	9	
10	29.578	47	29.644	51	45.32	41	37	36.6	35.2	N	N	N	—	—	—	—	3	4pm	6w	48	0-10.	—	10	
11	29.750	45	29.832	48	43.30.5	39	36.8	30.5	29.5	NW	NW	NW	—	—	—	—	4	5pm	5w	45	0-10.	—	11	
12	29.730	42.5	29.684	48	43.25.5	31	30	39.5	38	N	N	E	0.12	—	—	—	4	4pm	6w	45	0-10.	—	12	
13	29.760	43.5	29.818	49	44.32	36	34.8	34.8	39.8	N	N	SW	0.08	—	—	—	—	5pm	6w	45	0-10.	—	13	
14	29.874	47.5	29.774	54	48.42	46.8	42.8	45.8	43.8	N	N	SW	0.13	0.08	—	—	—	5pm	6w	48	0-10.	—	14	
15	29.586	53	29.284	57	50.42	48.3	46	50	48	SW	1.5	SW	0.5	0.25	—	—	—	5pm	9w	48	0-10.	Stones	15	
16	29.108	54	28.898	56	50.47	49.3	47.8	49.3	48.8	SE	4	SE	3	0.48	—	—	—	4pm	9w	48	0-10.	—	16	
17	28.836	54	28.992	55	50.49.5	49.3	47.9	47.2	47.2	W	0.5	W	3	0.27	—	—	—	4pm	9w	48	0-10.	—	17	
18	29.368	49.5	29.444	55	49.40	45.2	42	49	47.5	SW	1.5	SE	1	0.18	—	—	4	5pm	7.5	48	0-10.	—	18	
19	29.060	53	29.110	56.5	50.46	48.3	47.5	47.6	46.8	SE	5	Calm	0	0.77	—	—	—	4pm	7.5	49	0-10.	—	19	
20	29.414	54	29.744	55	50.41	49	48.3	46	45.5	NW	0.5	SE	0.5	—	—	—	—	4pm	7.5	49	0-10.	Fog	20	
21	29.732	50.5	29.576	56	51.42	48.2	46.6	49.8	49.9	S	1	S	3	0.20	—	—	—	4pm	7.5	49	0-10.	—	21	
22	29.362	52.5	29.274	55	49.36	44.8	41.8	46.8	46.8	SW	0.5	SW	0.5	0.58	—	—	2	4pm	9w	49	0-10.	—	22	
23	28.854	52	28.620	57	50.48	49	47.8	48	47.8	E	4.5	SW	4.5	0.20	—	—	—	4pm	6w	49	0-10.	—	23	
24	28.770	54	28.900	57	50.47.5	49.6	48.8	48.8	47.8	E	1	E	1	0.11	—	—	—	4pm	9w	49	0-10.	—	24	
25	28.934	53	28.938	55	50.46	48.8	48	46	44.8	E	1	NW	1.5	0.27	—	—	—	4pm	8w	49	0-10.	—	25	
26	29.064	52	29.246	57	49.43	44.3	41.8	46.6	44.8	S	0.5	SE	0.5	0.19	—	—	4	4pm	7.5	49	0-10.	—	26	
27	29.364	51.5	29.462	54	47.38.5	44.3	39	38.2	38.2	N	0.5	N	0.5	0.10	—	—	—	4pm	7.5	48	0-10.	Auror. bor.	27	
28	29.634	46	29.832	50	45.36.5	42.8	41	36.8	35.8	N	1	N	0.5	0.05	—	—	7	4pm	6w	48	0-10.	Auror. bor.	28	
29	29.612	48.5	29.286	51.5	46.34	44.4	40.2	42	40.2	SE	1.5	W	3	0.48	—	—								

INSTRUCTIONS FOR TAKING METEOROLOGICAL OBSERVATIONS.

WITH REMARKS ON THE USE OF INSTRUMENTS

SHIP LETTER

Secretary of the Meteorological Society of Scotland,

EDINBURGH.

BOOK-POST.

A circular library stamp with the text "EDINBURGH" at the top, "DE 12" in the center, and "70" at the bottom.

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OBSERVATIONS IN CONNECTION WITH THE PERIODICAL RETURN OF THE SEASONS.

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Thurnham ^{Town}, County of in Lat. $62^{\circ}24'$, Long. $6^{\circ}43'8''$, Distance from Sea 120 feet miles.

Height of Cistern of the Barometer above Mean Sea-level 12 feet, above Ground 5 feet.

During the MONTH of November 1870.

The Hours of Observation are of Greenwich Time.

ELECTRICITY. Days of Month.	BAROMETER.				SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.				HYGROMETER. No. 831-82				WIND.				RAIN.		CLOUDS.				THERMOMETERS. under Ground.		SEA.		OZONE.		GENERAL REMARKS.					
	9 h. A.M.		9 h. P.M.		Projected in Shade, 4 feet above Ground.		Exposed Black Bulbs.		9 h. A.M.		9 h. P.M.		9 h. A.M.		9 h. P.M.		No. of hours in which it fell.	Amount in inches.	Readings of the H-Cup Anemometer No. 78	Velocity, (0-6), and Direction.	Amount, (0-10), and Species.	Velocity, (0-6), and Direction.	Amount, (0-10), and Species.	Hours.	SUNSHINE.		9 h. A.M.		Temperature of Wind at Depth of Sea, and Density.		Johnsbury 0-10.		As to occurrences of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.	
	Barometer. No. 91	Atmosph. Barometer. No. 91	Atmosph. Barometer. No. 3237	Max. N. 762	Min. N. 3237	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force	Direc-	Force	No. 0 h. A.M.	No. 9 h. P.M.	No. 0 h. A.M.	No. 9 h. P.M.	No. 0 h. A.M.	No. 9 h. P.M.	No. 0 h. A.M.	No. 9 h. P.M.	No. 0 h. A.M.	No. 9 h. P.M.	No. 0 h. A.M.	No. 9 h. P.M.	No. 0 h. A.M.	No. 9 h. P.M.	Mention the hour at which Storms began and ended.	Days of Month.			
1	30.396	48	30.248	55	49.3	36	41.3	40	48.5	48.5	S	0.1	S	1.1	0.04	-	-	-	-	-	-	0	0	0	0	0	0	0	0	1				
2	29.970	53.5	29.946	57.5	53	48	52.5	51.5	49.2	48	SW	3	N	2	0.98	-	-	-	-	-	-	3	4	5	6	7	8	9	10	2				
3	30.118	52	30.404	54	49.3	38	46.7	44.7	38	36.8	W	2	W	0.5	0.28	-	-	-	-	-	-	3	4	5	6	7	8	9	10	3				
4	30.474	48	30.360	56	45	34.1	39	38	43.5	42	IW	0.1	SW	1	0.12	-	-	-	-	-	-	3	4	5	6	7	8	9	10	4				
5	30.246	52	30.210	53	49	38.5	47.4	45.5	39.5	38	W	1	NW	1.5	0.30	-	-	-	-	-	-	3	4	5	6	7	8	9	10	5				
6	30.134	46	30.124	56	42	35.5	37.6	36.2	36.5	33	NW	1	NW	0.5	0.04	-	-	-	-	-	-	3	4	5	6	7	8	9	10	6				
7	30.260	44	30.222	52	40	33	37.8	34	37	34	NE	0.1	N	0.1	-	-	-	-	-	-	3	4	5	6	7	8	9	10	7					
8	30.172	44	30.226	50	40	33.5	39.3	36.3	34.5	32.5	N	1	N	1	0.08	-	-	-	-	-	-	3	4	5	6	7	8	9	10	8				
9	30.228	39	30.144	43	40	30	34	31	30	29	NE	3	NE	3	0.28	-	-	-	-	-	-	3	4	5	6	7	8	9	10	9				
10	30.150	38.5	30.220	43	38.5	29.5	36	33.5	35	34.2	N	2	N	1.5	0.35	-	-	-	-	-	-	3	4	5	6	7	8	9	10	10				
11	30.188	39.5	29.950	42.5	40	33.5	36.5	34.5	31.5	31	N	1	N	1.5	0.11	-	-	-	-	-	-	3	4	5	6	7	8	9	10	11				
12	29.762	40.5	29.650	47	39	33	35.6	33.6	36	35	NE	1	NE	0.1	0.10	-	-	-	-	-	-	3	4	5	6	7	8	9	10	12				
13	29.326	43	29.216	46	39.5	32	33.3	32.6	38	37	NE	1	NE	1	0.08	-	-	-	-	-	-	3	4	5	6	7	8	9	10	13				
14	29.202	44	29.396	45	42.5	33.5	42.3	41	38	36	NE	1	N	4	0.81	-	-	-	-	-	-	3	4	5	6	7	8	9	10	14				
15	29.472	42	29.570	43.5	39	35	35.5	34.6	35.2	34	NE	3	NE	2	0.47	-	-	-	-	-	-	3	4	5	6	7	8	9	10	15				
16	29.494	37.5	29.600	45	39	34	35	33.5	37.2	35	NE	4	NE	4	0.52	-	-	-	-	-	-	3	4	5	6	7	8	9	10	16				
17	29.716	39.5	29.806	44	38	34	36.6	33.2	34.5	30.5	NE	4	NE	0.1	0.13	-	-	-	-	-	-	3	4	5	6	7	8	9	10	17				
18	29.542	38.5	29.270	49	40	23	23.5	22	40	38	Calm	0	S	1.5	0.15	-	-	-	-	-	-	3	4	5	6	7	8	9	10	18				
19	29.038	48	28.772	56	46.5	36.5	44	40.5	45	44	NE	2	SW	2	0.14	-	-	-	-	-	-	3	4	5	6	7	8	9	10	19				
20	29.000	48.5	29.064	53	46.5	39.5	43	41	45	43	S	1	S	1	0.29	-	-	-	-	-	-	3	4	5	6	7	8	9	10	20				
21	29.200	50.5	29.166	55.5	47	38	38.5	38	43	41.5	S	0.5	S	2	0.12	-	-	-	-	-	-	3	4	5	6	7	8	9	10	21				
22	29.004	51	29.176	55	47.5	36	46	44	41	41	NE	2	NE	0.5	0.18	-	-	-	-	-	-	3	4	5	6	7	8	9	10	22				
23	29.112	50	29.124	53	44	37	39.6	38.7	38	36	NE	0.5	NE	0.5	0.14	-	-	-	-	-	-	3	4	5	6	7	8	9	10	23				
2																																		

SCOTTISH METEOROLOGICAL SOCIETY.

Observations taken at Glenrathen, Teeside, County of _____, in Lat. $62^{\circ} 2' \frac{1}{2}'$, Long. $6^{\circ} 43' 18''$, Distance from Sea 120 feet miles.

Height of Cistern of the Barometer above Mean Sea-level 12 feet, above Ground 5 feet.

During the MONTH of December 1870.

The Hours of Observation are of Greenwich Time (mean time).

ELECTRICITY. Days of Month.	BAROMETER.		SELF-REGISTERING THERMOMETERS, Read Daily, at 9 P.M.				HYGROMETER, No. 871-32		WIND.		RAIN.		CLOUDS.		THERMOMETERS, under Ground.		SEA.		OZONE.		GENERAL REMARKS.		Days of Month.				
	9 h. A.M.	9 h. P.M.	Barometer, No. 91	Attached Ther- mometer No. 91	Max. Sun's rays No. 7465	Min. Sun's rays No. 3237	Exposed Black Bulbs.	Shade, 4 feet above Ground.	9 h. A.M.	9 h. P.M.	9 h. A.M.	9 h. P.M.	9 A.M.	P.M.	9 h. A.M.	9 h. P.M.	No. 78	9 h. A.M.	9 h. P.M.	No. 78	9 A.M.	9 P.M.	Temperature of WELL at Depth of feet, No. 6	Temperature at Latitude, and Density,	0-10.	Sabhalan	
			inches.	inches.	Max.	Min.	Max. in Sun's rays	Min. on Grass.	Dry bulb.	Wet bulb.	Dry bulb.	Wet bulb.	Direction.	Force.	Amount in inches.	No. of hours in which it fell.	Velocity (0-6), and Direction.	Amount (0-10), and Direction.	Velocity (0-6), and Direction.	Amount (0-10), and Species.	Hours.	No. 3 inches.	No. 12 inches.	No. 22 inches.	Temperature at 9 A.M., 0 P.M.	Temperature at 9 A.M., 0 P.M.	As to occurrence of Thunder, Lightning, Storms, Hail, Meteors, Remarkable Depression or Elevation of Barometer, Prevalent Diseases, etc.
1	30.572	53	30.586	58	47	41	45.8	43	47	44	5	0.5	SW	1							0	0	0	0	1		
2	30.588	54	30.588	58	47	45	45	43	45	42	W	0.5	W	0.5							-	10.5	6.5			2	
3	30.608	54	30.644	58	46.5	44	45	42	44	41	Calm	0	Calm	0							-	7.5	6.5			3	
4	30.606	51	30.530	56	45.5	41	42.5	40	44.5	40.5	W	0.5	W	0.5							-	6.5	6.5			4	
5	30.218	52	30.244	59	45	38	40	38.5	38	36	W	1	NE	3	0.41						-	8.5	9.5			5	
6	30.396	40	30.388	45	38	32	35	31.5	32.5	30	N	2	NE	1							-	6.5	6.5			6	
7	30.340	42	30.322	42	33.5	30	31	30	31.5	30	NE	1	NE	3							-	7.5	7.5			7	
8	30.312	39	30.338	46	39	30.5	35.5	33	39	36	NE	1.5	NE	1	0.72						-	6.5	6.5			8	
9	30.496	44	30.546	52	42	36	40.5	37.5	38	36	E	0.5	E	0.5	0.12						-	7.5	8.5			9	
10	30.370	44	30.180	44	39	30.5	33	32	31.5	30	NE	0.5	N	0.5							-	7.5	7.5			10	
11	29.880	40	29.620	44	32.5	28	30.5	28.5	29.5	28	N	0.5	NE	0.5							-	8.5	8.5			11	
12	29.506	40	29.540	43	29.5	22	24	23	24	22	NE	0.5	NE	0.5							-	6.5	6.5			12	
13	29.472	36	29.610	44	32	22	31	29	23	22	W	0.5	W	0.5							-	6.5	6.5			13	
14	29.550	40	29.312	47	36	20	33.5	32	35	33.5	E	1	NE	1							-	7.5	8.5			14	
15	28.936	41	29.120	42	35	32	35	34	32	31	N	5	N	5	0.33						-	8.5	9.5			15	
16	29.460	37	29.588	39	35	29	30.5	29	31.5	30	NW	3	NW	2							-	6.5	6.5			16	
17	29.684	37	29.732	42	34	25	33	32	32	31.5	NW	1.5	NW	0.5							-	7.5	7.5			17	
18	29.588	40	29.502	43	34	30	33.5	32.5	32.5	28.5	NE	1	N	2							-	8.5	8.5			18	
19	29.398	40	29.436	52	39	30	36.5	35	34	31	N	5	N	5							-	8.5	8.5			19	
20	29.720	47	30.150	50	41	33	40	38.5	36.5	33.5	8	4	E	4	1.38						-	6.5	6.5			20	
21	30.300	43	30.324	48.5	37	28	34.5	30	28	26	E	0.5	E	0.5	0.52						-	7.5	7.5			21	
22	30.170	42	29.910	45.5	37	25	32	30	36.5	34.5	NW	0.5	W	1	0.15						-	6.5	6.5			22	
23	29.760	40	29.764	48	36.5	19.5	30.5	29	19.5	18	N	0.5	N	0.5							-	8.5	8.5			23	
24	29.714	36	29.860	43	27.5	19	27	25.5	23.5	22	N	0.5	NE	1							-	6.5	6.5			24	
25	29.988	39	30.080	47	32	22	31	30	31.5	30.5	NE	0.5	NE	0.5							-	6.5	6.5			25	
26	30.020	38	29.950	44	38.5	29.5	34	32	36.5	34	SW	0.5	S	0.5	0.21						-	6.5	6.5			26	
27	29.892	43	30.024	46	42	33.5	41	37.5	34	37	S	1	S	0.5	0.30					-	7.5	7.5			27		
28	30.102	44	30.240	46	41.5	31.5	37	35	33	31	SW	0.5	SW	0.5						-	6.5	6.5			28		
29	30.262	43	30.268	46	37	32	34	32	36	33.5	SW	0.5	SW	0.5						-	6.5	6.5			29		
30	30.132	44	29.900	53	43	36	4																				

