



# SYMONS'S MONTHLY METEOROLOGICAL MAGAZINE.

XIII.

FEBRUARY, 1867.

[PRICE FOURPENCE,  
or 5s. per ann. post free]

## INTRODUCTORY.

IN the forefront of our first number we asked that it should not be taken as a specimen of succeeding numbers. We have the same reason for urging the same plea on the present occasion. We there also expressed the hope that we should be judged not by our promises but by our deeds, and we renew the request. We proposed, it is true, to give some articles which, after all, we did not give, and why not? Because matters of current interest crowded them out, in spite of occasional enlargements. Last month we announced our intention to give some rather elaborate details of low winter temperatures, yet this number appears without them. Why? Because we have received so large a collection of returns, of the most heterogeneous nature, that it has been impossible to prepare them as they deserve; they, therefore, must stand over till next month. Besides, the silver thaw of January 22nd claims special and early notice, and the Aneroid question requires settling at once.

### A SILVER THAW.

THIS phenomenon is so rare in England—we only remember one previous instance (in 1855?)—that we make no apology for briefly describing it. On the 22nd of January, at 7.10 p.m., the ground being then frozen, and the temperature of the air below freezing point, some rather sleety hail began to fall on the pavement; it crackled under foot, and flattened out into diminutive lozenges; about 8 p.m. it turned to rain, although the temperature of the air was still several degrees below freezing point, and the ground was about 24°. The necessary result was the coating of everything with a layer of ice. At 9 p.m. the temperature at 4 ft. above the ground was 26°.2, and it was still raining, and the rain still freezing on pavement, walls, gravel walks, umbrellas, in fact on everything. We never recollect being (meteorologically) more mortified than we were at the failure of all our efforts to reach the thermometers 20 ft. above the ground; but climbing an iced pole was a feat beyond us, and we know not what was the temperature at that small elevation. It was especially vexing, because the opportunity once lost we shall probably have many years to wait for another. Of course the streets were in a frightful state. Cabmen refused fares of even £1 per mile, and the number of accidents

was unprecedented. We do not know the limits of this phenomenon, but have heard of it from Surrey, Berks, Kent, Middlesex, Nottingham, and even Glasgow. Throughout this large tract of country there was for some hours (till 3 a.m. in London) no safe mode of traversing the roads or pavements but the very novel one of skating.

## THE FROST OF JANUARY, 1867.

*To the Editor of the Meteorological Magazine.*

DEAR SIR,—In a recent letter to the "*Times*," you ask for notes on the frost of last week. Though not a scientific observer, I can give you some particulars which may be of interest, especially as the nucleus of the tract of cold air seems to have been in this neighbourhood.

There had been no indications (except, perhaps, the migration of birds) of any approaching cold, up to the 30th of December; on that day the weather was fine, with fresh W. wind, which shifted to N.W. in the evening, but as yet no frost. December 31st, sharp white frost;  $25^{\circ}$  at 9 a.m.; maximum of the day  $32^{\circ}$ . Driving to Hounslow, I observed large flocks of field-fares, but the red-wings which had been swarming westerly on Saturday, were not to be seen. Also the golden plovers (which had appeared in unusual numbers during the previous fortnight) had betaken themselves elsewhere. What little wind there was, came from the N., and the rime lay in patches, and both ground and air had a peculiar sulky appearance. Towards evening the sky cleared partially, the wind backed to W. and S.W., and at 11 p.m. of new year's eve, the thermometer stood at  $24^{\circ}$ , and barometer was low and steady.

January 1st, 1867,  $24^{\circ}$  at 9 a.m.; sharp frost all day; a sprinkle of snow on the ground; very little rime, and the frost turned to black, with brisk N.W. wind; clear in evening,  $23^{\circ}$  at 10 p.m.; a peculiar haze in the north, but clear sky at 11 p.m.

January 2nd, very deep snow, 8 inches on the average at 7 a.m., and coming down in clouds with a gusty N.E. wind. Temperature rising from  $24^{\circ}$  to  $30^{\circ}$ ; snow ceased at noon, and was then a foot deep on the average, and drifted in places to 4 feet; all this had fallen in ten hours, having commenced at 2 a.m. Sky cleared, the sun came out, and the snow, as dry and as light as dust, rose in petty whirls, and flitted as if along the edge of a knife; the effect in the bright sunshine was very strange and beautiful. The temperature fell rapidly, and at 11 p.m., seven thermometers, on N. aspect, 6 feet from the ground, told very different tales, but all agreed that it was cold. They marked from  $5^{\circ}$  to  $14^{\circ}$ ,  $12^{\circ}$  being probably the truth. My self-registering double column instrument works from  $6^{\circ}$  to  $8^{\circ}$  too low, and has another slight defect; the minimum needle follows the column, and therefore registers nothing.

January 3rd, minimum unknown, from the cause last mentioned, but a 3 feet 6 inches registerer (kept at my garden) marked  $+4$  as the result of the night; the scale being iron, this mark would probably be too low; probably  $+8^{\circ}$  was about the mark. I often wonder at the reliance of newspaper correspondents upon any unproven self-registerer; my impression is that scarcely any can be trusted in either extreme of temperature, though they work true enough for some part of the scale. In the forenoon a thick white haze arose, and the maximum was  $28^{\circ}$ ; light E. wind, barometer slightly rising. Hazy at night;  $20^{\circ}$  at 11 p.m.

January 4th,  $12^{\circ}$  at 9 a.m.; minimum about  $10^{\circ}$ ; sky grows brighter, and of a lovely violet colour; thermometer stationary all the forenoon at  $12^{\circ}$ ; white haze round the horizon; trees and bushes clad with the deepest rime I ever saw, as if all the earth were "twelfth caked"; a scene of wonderful beauty. I walked to Kingston to see the Thames, and found it frozen here and there for a few yards from the bank, full of thin floating ice, and covered with a white rolling steam. The frost was so intense that the feet of my dogs became lumps of ice, which I was obliged from time to time to cut out with a pruning-knife. The maximum of the day was  $18^{\circ}$  in the shade, and  $25^{\circ}$  in the sun; the evening was very remarkable. If the sky would only continue clear, there was every prospect of the hardest frost

ever registered. The temperature fell steadily up to 8 p.m., when a blanket of haze came over the sky, and fog upon the earth, and the radiation was checked. That was the acme of the frost; from that hour (although the intense cold could not quickly be shaken off) an increasing change began. At this remarkable moment my seven thermometers scored from  $-2$  to  $+4$ ; Negretti and Zambra's would have gone lower, but the needle stuck in the turn of the tube, and the spirit could no further go; the true minimum was, I believe, from zero to  $+2$ . On the famous Christmas Eve, 1860,  $+12^{\circ}$  was the mark at 10 p.m., by some of the same instruments, at a distance of a mile hence.

The mercury was on the rise at 10, 11, and 12 p.m., and in the morning stood at  $12^{\circ}$ ; then the signs of change grew more and more decided. The sun shone very faintly under a white corona, and muddy tails of cloud came out, and the sky was tiled with heavy blots. The maximum was  $32^{\circ}$ , with a S.E. breeze creeping up, and the night was dark and dirty. At 11 p.m. a storm of thick snow, with a temperature of  $30^{\circ}$ , and a blustering S.E. gale; at 1 a.m. of the 6th the snow turned to sleet and rain, and it was all up with the frost.

I fear I have wearied you already, and will only add two observations. First, I have not given range of barometer, being under a disability. Mine strikes work at 29.50, probably because the bag is too small for the quicksilver; this is not as it ought to be. Secondly, I would state that the snow of January 2nd, was peculiarly light, and wanting in specific density. Six inches of the famous snow of January 11th, 1866, would, I think, outweigh a foot of our recent visitor. I forget what the proper formula is, but from 13 inches I only procured 1.15 of water.

In conclusion allow me to ask how any man who goes to bed can even approximate to the measure of fall on such a night as that of the 5th. The snow turned to rain, and of course was half gone or more in the morning, while the rain could not get into the receiver, the funnel being choked with snow? An answer in your next will oblige.—Your's faithfully,

Teddington, Jan. 9th, 1867.

R. D. BLACKMORE.

[It is not so easy to answer as to ask this question. Clearly the capacity of the funnel was too small—as rain gauge funnels often are. On the other hand, if the capacity is great, small showers are unable to do more than wet the large surface, and thus *they* do not get registered.—Ed.]

*To the Editor of the Meteorological Magazine.*

SIR,—Your tables of extreme cold at different places will, I am sure, have been read with the greatest interest by all. A table such as you propose, showing the lowest temperature registered at 4 feet in each year, at a number of different stations, will of course be interesting; but do you not think it might help on science more, if the conditions under which the extreme occurred were also given? Some necessary conditions it would be unnecessary to specify—*e.g.*, that the air was calm and the sky clear from clouds, and there must of course have been, and be, a very cold and undiluted "polar current" of air over the place. But there are other conditions which may, or may not, be necessary, and doubtless others again which are not yet discovered. That snow, by arresting the conduction of heat from the earth, and by spreading over all surfaces a good uniform surface for radiation, is very favourable to the production of great cold, is evident: and I have seen it laid down as a rule, that the cold will always be greatest where most snow has fallen.

Perhaps, however, 4 or 5 inches may do as well as a yard for this purpose. Then I fancy that light snow recently fallen is better both as a non-conductor and as a radiator, than compact and hard snow. All the instances of great cold that I have noticed—not very many, though—have occurred very soon after a thick fall of light snow.

Then, again, it is generally agreed that plains and valleys are the most likely for great cold, but there may be exceptions. I hope, if no destructive tourists have got at the instrument, to be able to tell you the lowest temperature this winter on the top of Scawfell, 3200 feet above the sea. But this is by the way. Again, what influence have the soil, and the humidity and pressure of the air on the production of cold? I would suggest, therefore, that the following particulars should be noticed by those who send you these reports:—

1. The state of barometer the day before, and that day.
2. The humidity on both days.
3. Whether any visible vapour or mist in the morning?
4. The direction and force of the wind the day before.
5. Whether any snow on the ground; and if so, the nature and depth of it, and the date of its falling.
6. The nature of the soil.
7. The configuration of the ground, and its elevation above the sea.

I may add a remarkable fact, that on Christmas Day, 1860, I observed a remarkable solar halo, and this year on January 1st, I observed parhelia at noon. Has the state of air which produced them, anything to do with the intense cold of both those days?—I am, Sir, your obedient Servant,

F. W. STOW, F.M.S.

## THE FROST—DERIVATION OF “ANEROID.”

*To the Editor of the Meteorological Magazine.*

DEAR SIR,—The article upon cold winters in your Magazine for this month is extremely interesting; but you seem to me to have done small justice to the claims of the long frost of January and February, 1855, lasting from the 15th of the former month to the 24th of the latter, and producing far more ice in the Thames than any other winter since 1838. The winter of 60-61 was not to be compared to it for continuous severity, although upon one particular day the cold was certainly more intense. In 1855 some gentlemen skated down the Thames, from Oxford to Barnes Bridge. In 60-61, the river was not closed even at Kingston. Again in 1855, the floating ice was so thickly packed, even as far as London Bridge, that the arches of all the other bridges were quite closed at low water, and it was stated in the papers that an active man with a pole had crossed above Blackfriars Bridge. Whether this was true I cannot say; but I know that some of the ships in the Pool were frozen in, and on the 19th of February, I walked on the ice off Billingsgate, and saw skittles played upon it. The ice in the Regent's Park was ten inches thick.

You state the probable minimum of that year as 11°. At 7 a.m. of February 18th, in Camden Town, (where I then lived), I saw the thermometer at 11°, no doubt it had been lower, but I had no self-registering then. Newspaper correspondents sent readings (I know) below zero; of course their thermometers may have been wrong, but they can scarcely have all been wrong to the extent of the error which you attribute (no doubt *justly*) to the Chiswick readings.

Excuse my random jottings. One of your correspondents asks for the etymon of the word “aneroïd.” I believe the derivation generally assigned ( $\alpha$  and  $\nu\eta\rho\acute{o}s$ ) is wrong. In the first place, the form of the word would in that case be aneric; for the addition of the termination  $\epsilon\iota\delta\eta s$  (as indicating similitude) is not only uncalled for, but absurd, where the composite word is a privative. In the next place,  $\nu\eta\rho\acute{o}s$  or  $\nu\alpha\rho\acute{o}s$ , is not a substantive but an adjective, and a very rare one. Had the object of the word coiner been to indicate absence of *moisture* (about the last thing which would occur to him as contradistinctive to quicksilver), he would doubtless have taken some form of  $\psi\gamma\rho\acute{o}s$  for his basis.

Next, to suggest a more probable etymon: is not the true word  $\alpha\nu\epsilon\rho\omega\iota\delta\eta s$  or  $\alpha\nu\delta\rho\omega\iota\delta\eta s$ ? “aneroïd” or “android” (both forms exist) signifies an automaton, (see “Ogilvie's Comprehensive Dictionary”), something which, by internal springs, works as might a man. And the broader sense of the word automaton, is of anything self-acting, as if it contained its own motive power.

If I am right in this, “aneroïd barometer” means simply a barometer of an automatic character.

Yet Ogilvie, on the heels of the right track, runs into error, and makes two distinct words, aneroïd and aneroïd, both of the same pronunciation, (in laying down which he is wrong, for aneroïd=android *must* have the penultima short), and yet in no way connected!—With many apologies, I am, Sir, yours truly,

Teddington, Jan. 19, 1867.

R. D. BLACKMORE.

*To the Editor of the Meteorological Magazine.*

SIR,—The derivation you quote of the word aneroid from *a* without, *νηρος* moist, and *ειδος* form, has astonished me a little. What on earth has a barometer to do with moisture in its principle of action, as signified by its name? The *Encyclopædia Britannica* with its *ἀνεροειδής I enquire*, is equally absurd.

If you consult any of the French encyclopædias or scientific dictionaries (De Boulay's for instance), you will find that the inventor of the aneroid compounded the word precisely in accordance with the nature of the instrument, thus :—*a* no, *ἀνρ* air, *ειδος* form or shape, that is “in the shape of no air, or a vacuum,” the *ν* or *η* being put in, as usual in such Greek compounds, for the sake of euphony, as in the word *ἀνεπαρτος* unamiable, from *a* non, and *ἐπαίω* amo. I need not state that the principle of the instrument is a cavity exhausted of air to the utmost, although, practically, not to a greater extent than that represented by about half-an-inch height of the mercurial column, under the action of the air-pump.

In Chambers's Cyclopædia, the derivation from *νηρός* (translated “wet”) is said to be “anomalous”; but the writer goes on to say that the aneroid is a barometer in which the pressure is measured without the use of a liquid, as in ordinary instruments. Now by “ordinary instruments” must be meant the mercurial,—and, assuredly, mercury is no liquid, but only a fluid. Oddly enough, the second meaning of *νηρός* in the old lexicon of Schrevelius (which we tugged at in our young days) is *cavus* “hollow,” which would make a much better derivation for aneroid, if we make the *a* intensive instead of privative, as occasionally done by the Greeks—*i.e.*, “very hollow.”—Your obedient servant,

A. STEINMETZ.

*To the Editor of the Meteorological Magazine.*

DEAR SIR,—In reply to Mr. Taylor's query in your last, I beg to say, that the word *aneroid* appears to me one of a very base coinage; that the question about its etymology is hopeless. They only who invented it, can say what they meant by it. The word *νηρός*, *humid*, is mere lexicon Greek, though it seems still to be represented in the modern term *γέρο*, *water*. The only practicable derivation for *aneroid* would be from *ἀνέρος*, the old genitive of *ἀνρ*, but that of course would not do here.

T. F. BARHAM.

## THE WEATHER AT CANNES.

*To the Editor of the Times.*

SIR,—I have passed some months here, not for my health, but solely for the purpose of cheating the English winter, and after the accounts I have had of the weather not only in England, but in almost every part of France, I cannot resist troubling you with a short statement, which I shall confine to the month of January, merely premising that during October, November, and December we had a bright sun, a cloudless sky, and an ultramarine sea, with only three rainy days.

The first five days of January were windy, with at times a severe mistral. On the 6th, heavy rain all day; the 7th cloudy, with a cold wind; the 8th and 9th fair, but rather cold. From the 9th to the 13th fine and very warm. On the 13th and 14th very heavy rain, nearly two inches having fallen in 40 hours. The 15th and 16th fine; on the night of the 16th the thermometer in a north aspect marked 32°. The 17th, bright sun, but at night the thermometer registered 29°—that is, 3° of frost; and this was the coldest night we have had. From the 18th to the 24th very fine, with a bright sun, and the greatest cold 39°. 24th to 25th, heavy rain; in six hours on the 25th one inch and a half of rain fell! From the 26th to the 31st most beautiful. In February, to the 7th, uninterruptedly fine.

Compare the above with the rain, cold, snow, frost, and thaw you have had in England, and even in France, where at Lyons there was 26° of frost, and at Marseilles and Pau nearly as much.

With the exception of the 16th and 17th, the night thermometer here has registered from 39° to 48°. It has only twice been as low as 39°.—I am, Sir, your most obedient servant,

Cannes, Feb. 7th.

AN ENGLISH WINTERER AT CANNES.

POSITIONS OF GAUGES,  
WHENCE MONTHLY RETURNS ARE PUBLISHED.

Div.	STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs,]	RAIN GAUGE.			Latitude.	Longitude.
		Diameter.	Above Ground.	Above Sea Level.		
		in.	ft. in.	feet.		
I.	Camden Town .....	8	0 6	100	51°33'N	0° 8'W
II.	Staplehurst (Linton Park) .....	8	0 6	296	51 13 N	0 31 E
"	Selborne (The Wakes) .....	...	4 0	500 ?	51 6 N	0 56 W
III.	Hitchen .....	9	2 0	240	51 57 N	0 17 W
"	Banbury .....	6	7 0	345	52 4 N	1 20 W
"	Wisbech .....	8	0 6	10	52 40 N	0 10 E
IV.	Bury St. Edmunds (Culford) ...	5	1 2	...	52 17 N	0 42 E
V.	Calne .....	5	0 11	250	51 27 N	1 59 W
"	Plymouth (Goodamoor) .....	5	0 2	580	50 25 N	4 0 W
"	Barnstaple .....	8	0 6	31	51 4 N	4 4 W
"	Taunton (Fulland's School) .....	5	1 4	...	51 1 N	3 6 W
VI.	Shrewsbury (Highfield) .....	5	5 6	200	52 42 N	2 46 W
"	Tenbury (Orleton) .....	5	0 9	200	52 18 N	2 27 W
VII.	Leicester (Wigston) .....	8	0 6	220	52 35 N	1 6 W
"	Derby .....	5	5 0	180	52 55 N	1 28 W
VIII.	Manchester .....	8	2 7	106	53 28 N	2 17 W
IX.	York .....	5	0 6	50	53 58 N	1 5 W
"	Skipton (Arncliffe) .....	8	3 0	750	54 9 N	2 6 W
X.	North Shields .....	8	1 0	124	55 0 N	1 26 W
"	Borrowdale (Seathwaite) .....	5	1 0	422	54 30 N	3 12 W
XI.	Abercarn .....	...	1 3	450	51 39 N	3 6 W
"	Haverfordwest .....	5	2 0	60	51 48 N	4 55 W
"	Rhayader (Cefnfaes) .....	5	2 0	880	52 18 N	3 32 W
"	Llanberis (R. Victoria Hotel) ...	5	1 0	370	53 6 N	4 7 W
XII.	Dumfries .....	5	0 5	70	55 5 N	3 36 W
"	Hawick (Silverbut Hall) .....	...	4 0	512	55 26 N	2 46 W
XIV.	Ayr (Auchendrane House) .....	...	2 3	94	55 27 N	4 37 W
XV.	Otter House .....	...	0 6	130	56 1 N	5 20 W
XVI.	Leven (Nookton) .....	5	0 6	80	56 47 N	5 7 W
"	Stirling (Deanston) .....	6	0 0	130	56 12 N	3 0 W
"	Logierait .....	5	1 0	250	56 11 N	4 4 W
XVII.	Ballater .....	5	0 10	656	56 38 N	3 41 W
"	Aberdeen .....	5	4 8	115	57 4 N	3 5 W
XVIII.	Inverness (Culloden) .....	...	3 0	104	57 9 N	2 6 W
"	Fort William .....	5	0 8	20	57 30 N	4 7 W
"	Portree .....	3	0 4	60	57 24 N	6 13 W
"	Loch Broom .....	5	0 8	48	57 47 N	5 5 W
XIX.	Helmsdale .....	5	1 0	34	58 7 N	3 38 W
"	Sandwick .....	11	2 0	78	59 3 N	3 17 W
XX.	Cork .....	10	6 0	65	51 54 N	8 30 W
"	Waterford .....	...	4 0	60	52 16 N	7 6 W
"	Killaloe .....	10	5 0	128	52 48 N	8 26 W
XXI.	Portarlinton .....	5	1 2	236	53 10 N	7 10 W
"	Monkstown .....	10	0 6	100	53 17 N	6 8 W
XXII.	Galway .....	10	6 0	25	53 17 N	9 3 W
"	Bunninadden (Doo Castle) .....	5	1 0	...	54 3 N	8 38 W
XXIII.	Bawnboy (Owendoon) .....	5	1 3	218 ?	54 6 N	7 44 W
"	Waringstown .....	8	0 4	191	54 26 N	6 18 W
"	Strabane (Leckpatrick) .....	8	0 5	260	54 53 N	7 26 W

JANUARY, 1867.

Div.	STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL.				Days on which .01 or more fell.	TEMPERATURE.				No. of nights below 32°.
		Total Fall.	Difference from average 1860-5	Greatest Fall in 24 hours.			Max.		Min.		
				Dpth	Date.		Deg.	Date.	Deg.	Date.	
		inches	inches.	in.							
I.	Camden Town .....	2·81	+·85	·51	30	16	56	27	6·7	4	19
II.	Staplehurst (Linton Park) ..	3·05	+·99	·57	2	18	57	28	10	5	21
III.	Selborne (The Wakes) .....	4·11	+·84	·63	5	17	50	27	—2	3	20
IV.	Hitchen .....	3·01	+·87	·62	30	19	53	27	9	§3	18
V.	Banbury .....	3·03	+·94	·53	30	17	53·7	27	12	4	19
VI.	Wisbech .....	3·03	...	·87	30	18	56	+27	12·3	4	20
VII.	Bury St. Edmunds (Culford) ..	2·73	+·86	·87	30	12	56	27	0	1	19
VIII.	Calne .....	3·34	...	1·12	6	11	55	24	1·5	5	19
IX.	Plymouth (Goodamoor) .....	7·74	+1·72	1·46	6	19	52	26	8	2	16
X.	Barnstaple .....	5·89	+2·37	·92	26	17	...	...	...	...	...
XI.	Taunton (Fulland's School) ..	4·85	...	·90	6	16	...	...	9	5	17
XII.	Shrewsbury (Highfield) .....	2·33	+·61	·38	11	13	...	...	6	5	...
XIII.	Tenbury (Orleton) .....	3·83	+1·30	·60	7	19	56·5	27	1·6	4	19
XIV.	Leicester (Wigston) .....	3·24	+1·26	·73	8	9	55	+24	9	3	...
XV.	West Retford .....	...	...	...	...	...	...	...	...	...	...
XVI.	Derby .....	2·91	+1·12	·37	5	16	55	27	13	¶4	20
XVII.	Manchester .....	3·27	+·76	·50	7	15	56	27	9	15	21
XVIII.	York .....	2·23	+·64	·97	24	11	52	27	10	5	19
XIX.	Skipton (Arncliffe) .....	7·35	+1·71	1·00	7	18	46	27	8	4	20
XX.	North Shields .....	3·61	+1·49	·57	10	18	52	28	14	2	17
XXI.	Borrowdale (Seathwaite) .....	15·66	—·70	3·28	7	17	...	...	...	...	...
XXII.	Abercarn .....	7·95	...	1·79	6	12	53	7	20	3	16
XXIII.	Haverfordwest .....	7·11	+2·06	1·33	23	13	...	...	8	15	8
XXIV.	Rhayader (Cefnfaes) .....	4·96	+·44	1·29	6	12	55	...	7	3	14
XXV.	Llanberis (R. Victoria Hotel) ..	11·46	...	2·07	7	17	...	...	...	...	...
XXVI.	Dumfries .....	3·11	—1·49	·97	23	12	55	27	14·5	4	19
XXVII.	Hawick (Silverbut Hall) .....	2·94	...	·44	8	25	...	...	...	...	22
XXVIII.	Ayr (Auchendrane House) ...	4·55	+·03	·88	26	15	57	29	7	15	21
XXIX.	Otter House .....	5·03	—1·67	1·28	27	13	50	29	21	12	21
XXX.	Leven (Nookton) .....	4·11	...	·40	26	23	...	...	...	...	...
XXXI.	Stirling (Deanston) .....	4·01	—1·71	·65	26	18	48·8	25	10	15	25
XXXII.	Logierait .....	4·02	...	·65	29	12	...	...	...	...	...
XXXIII.	Ballater .....	5·88	...	1·10	8	27	47·5	28	—5	5	23
XXXIV.	Aberdeen .....	6·21	...	·65	12	27	47·3	26	10·2	5	18
XXXV.	Inverness (Culloden) .....	5·07	...	1·36	18	...	47	31	14·6	5	17
XXXVI.	Fort William .....	5·84	...	1·23	26	14	51·2	28	7·2	15	21
XXXVII.	Portree .....	7·82	—5·27	1·55	23	16	51·5	27	12	5	20
XXXVIII.	Loch Broom .....	4·27	...	1·25	8	16	...	...	...	...	...
XXXIX.	Helmsdale .....	4·62	...	·63	24	26	...	...	...	...	...
XL.	Sandwick .....	4·06	+·77	·78	7	27	...	...	...	...	...
XLI.	Cork .....	5·12	...	1·95	5	13	...	...	...	...	...
XLII.	Waterford .....	3·55	—1·31	1·10	6	17	52	7	16	4	18
XLIII.	Killaloe .....	3·82	—1·04	·50	*8	14	54	27	14	18	17
XLIV.	Portarlington .....	2·32	—1·69	·29	7	21	51	28	8	18	19
XLV.	Monkstown .....	3·90	+·51	1·70	5	21	57	27	12	4	17
XLVI.	Galway .....	4·77	...	·75	6	17	53	31	15	3	17
XLVII.	Bunninadden (Doo Castle) ...	09·9	...	...	...	...	...	...	...	...	...
XLVIII.	Bawnboy (Owendoon) .....	5·58	...	·97	5	15	...	...	...	...	...
XLIX.	Waringstown .....	4·50	...	·81	5	18	54	27	2	2	20
L.	Strabane (Leckpatrick) .....	5·56	...	·84	13	24	53	27	4	4	20

\* And 22nd. † And 28th. ‡ And 27th. § And 4th. || And 15th. ¶ And 14th & 15th.  
 + Shows that the fall was above the average ; — that it was below it.

## METEOROLOGICAL NOTES ON THE MONTH.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Max. for Maximum; Min. for Minimum; T for Thunder; L for Lightning; TS for Thunderstorm; R for Rain; H for Hail.

## ENGLAND.

CAMDEN ROAD.—Frosty at intervals throughout the month.

LINTON PARK.—The intense frosts of the 3rd, 4th, and 5th, were followed by a few mild days, commencing with the 7th; another severe frost followed on the 14th, being only 2° higher than on the coldest day in the former period; the last week very mild. The frost appears to have been very capricious in its action, as a difference of 10° lower than mine was registered at a place a very short distance from hence. High wind on 8th, doing much damage and of course a very low bar. accompanying it. The snow drifted on 2nd and 16th, rendering the roads impassable in places. A high flood followed the breaking up of the first fall of snow, which, however, was not so high as a similar one in January, 1866.

SELBORNE.—First snow this winter on 1st. Ther.—2° on 3rd (at Chawton House —5°), lower than it has been for 6 years; the evergreens very much injured, especially the laurustinas, ilex-catyolia, darwinia, laurels, and deodar.

BANBURY.—Snow on 1st, 5th, 6th, 12th, and 16th; at 7.30 p.m. on 22nd sleet and frozen R. Fog on 4th, 6th, and 25th.

WISBECH.—Snow on 1st, 3rd, 11th, 12th, 14th, to 19th. The 2nd, 4th, 5th, and 14th the coldest days in the month. Temp. not below freezing after the 23rd. Max. in sun 89°·7 on 27th. On 30th, at 4 a.m., gale pressure 10lbs. per square foot.

CULFORD.—Snow on 2nd, 5th, 10th, 12th, to 17th. The coldest January we have had for many years. Min. (5 ft. above ground against house) 9°, on a stake in open space) 1ft. 6in. + ground) zero, and on the snow close by—7°; the instruments were all tested instruments and have been found always to work well together and indicate alike; pray settle what height they ought to be placed. [Thoroughly protected from the sun and rain, on a post 4 ft. high.]

CALNE.—Hard frost from 1st to 6th, and from 11th to 22nd. Snowdrops and winter aconite in bloom on 25th, and hepatica on 31st.

GOODAMOOD.—Gale from S.W. on 8th. A very thick fog came on just before the thaw on the 22nd.

TAUNTON.—Four inches of snow on the 2nd. Severe frost on 5th and 15th. Rapid thaw with Southerly wind, on 23rd.

ORLETON.—Severe frost set in on the 1st and continued till the 5th. Ther. on 4th 1°·6 in shade and—1°·7 (below zero) 5 in. above grass. Snow on the night of the 5th, followed by rapid thaw, much R, and great floods; on the 7th, much R with T and L. Bar. on 8th, uncorrected, 28·38 at 9 a.m. Frost set in again on the 11th and continued with severity till the 22nd. Great wind and cloudy sky on 20th and 21st. On the night of 22nd snow, changing to sleet and rain, fell and froze upon the snow; at 9 a.m. thaw commenced with frequent showers. Warm stormy weather to the end of the month; very warm on the 27th and 28th; the temperature of the month in extremes, but upon the whole about 1°·4 below the average. L at night, on 26th.

MANCHESTER.—Heavy snow on 12th.

ARNcliffe.—Snow fell on the 1st and remained on the ground, with severe weather, till the 23rd.

SEATHWAITE.—Very severe frost from 10th to 23rd; Bassenthwaite and Derwentwater Lakes frozen from end to end affording splendid skating. R on Sty 21·82; Taylor's Gill, a new station, 18·10.

## WALES.

ABERCARN.—Snow on 1st, 2nd, 5th, and 14th, with R on 22nd. Bar. was 28·4 on 7th, the lowest since February 11th, 1866. A very severe month; several sudden changes of temp. being very trying to the weak and the aged; mortality above the average.

HAVERFORDWEST.—First five days severe. Month commenced with snow and frost, which terminated in a fearful gale, on the 5th, of violence such as few can



remember ; a few days of wet and storm ushered in a second much more severe frost with heavy snow, averaging from 7 to 8 inches on the level ; I have no record of so severe a frost as the present, except the frosty period included between the 10th and 20th of February, 1855, when the mercury sunk to 8° ; this second frost broke up on the 22nd, accompanied by a severe gale from the S.E. and immense quantities of rain ; the month very wet and mild towards the end.

CEFNFAES.—Snow fell on the night of the 1st, 10 in. deep on the level. Ther. on 3rd under shelter, but exposed to the east, stood at 7°. Shrubs and all ever-greens except rhododendrons very much injured, common laurels more especially so. Many instances of persons suffering from exposure, hands and feet being frost-bitten.

## SCOTLAND.

DUMFRIES.—The first five days frosty ; snow on the 6th, and thence to the 9th wet ; 10th to 22nd frosty ; from 23rd to the end of the month wet. Temp. 14°·5 on morning of 4th. Bar. on morning of 8th, only 28·39 in. Beautiful sunrise on morning of 26th. Snowdrops in flower on 29th.

SILVERBUT HALL, HAWICK.—The severest snowstorm experienced here for many years ; the frost has been the keenest felt here since 1860 ; roses, deodars, and aurocarias have suffered terribly, and many favorite pine trees are injured beyond recovery. T and L on night of 29th.

AUCHENDRANE.—11th snow fell between 11 and 12, and was measured at 9 a.m. on 12th 4 in. deep ; this was the great snowfall of the month, and extended over a large district ; here it was not severe, but the snow continued on the ground till the thaw of the 23rd.

OTTER HOUSE.—The month began with a severe frost, which lasted several days. On the 13th a snowstorm with intense frost ; the ground covered with snow to the depth of 2 in. till the 22nd when a thaw set in ; afterwards every day but one was wet. The month was remarkable for snow, frost, and towards the end R.

DEANSTON HOUSE.—As the first fall of snow had melted, the want of it was severely felt by garden vegetables during the second frost, but there is not yet any appearance of damage to plants or trees.

LOGIERAIT.—Very severe frost from 31st of December to 6th January, on which day a heavy fall of snow ; from that date till the 27th, with one brief interval of uncertain thaw, very intense frost and repeated falls of snow, forming the most severe storm we have experienced for many years ; a very rapid thaw and heavy falls of R since the 27th have considerably swollen the Tay.

BALLATER.—Remarkably stormy month with occasional intense frosts. 5° below zero on the 5th ; depth of snow from 2 to 3 feet. Railway communication with lower districts suspended for a time from the accumulation of snow in the cuttings. Thaw commenced on the 23rd, and by the end of the month most of the snow on the lowlands was gone. Vivid flashes of L in N. from 7 to 9 p.m. on 29th ; aurora at midnight of 30th. With reference to Mr. Bewley's communication in last month's magazine : the meteor he mentions, and the peculiar forms it assumed was noted here, although not minutely, the time being occupied in an attempt to count the shooting stars ; it remained for 10 minutes or more, and could readily be picked up again, although the eye had for some time been directed away from it.

ABERDEEN.—A month of terrible weather ; there has been no such storm here since 1838 ; ground round Aberdeen white with snow on 24 days. Temp. of month 4°·2 below the mean of the month for 10 years, and lower than the mean of any January for that period. On the morning of the 22nd about 27 or 30 in. of snow was lying all round town, but it disappeared very rapidly. In the country there were many places where the snow had drifted to the depth of 15 or 20 feet. L on 29th in evening.

FORT WILLIAM.—The first 3 weeks were for the most part, clear and frosty, with a little R now and then, and a good deal of snow ; on the 11th and 13th the fall of snow, however, was not as heavy as in most other parts of the kingdom, and postal communication with the S. was never delayed for an hour ; thaw set in on the 23rd. A gale from S. on 29th, with a good deal of L and some T.

PORTREE.—This has been a very severe month for all sorts of stock that were exposed to the late severe storm, which has not been equalled for 30 or 40 years.

The first snow fell as the old year went out and the new one came in, and continued till the evening of the 5th, when thaw set in, and we had it mild till 4 a.m. of 10th, when it again fell and continued, more or less, till the 20th, when there was 2 feet of snow all over; thaw set in on 23rd, and since then the weather has been wet and squally. T and L at noon 28th.

LOCHBROOM.—The frost which commenced at the end of December continued with almost unabated intensity till the 23rd, when a mild and much required thaw set in and continued till the end. Seldom has the county been more thoroughly locked from stock by frost and snow, the latter being, most unusually, as deep on the sea islands as on the elevated mainland, showing the want of drift and the severity of the frost both at the time of snowing and during its continuance; a month equally severe has not been experienced here for the last 20 years, though it appears to have been far worse in other localities.

HELMSDALE.—From the 9th to the 21st Helmsdale was visited by the severest snow storm experienced in this district for very many years.

SANDWICK.—The coldest January for 40 years. On the morning of the 6th we had again the snow-rollers, which were seen forming in front of the house at 9 a.m.; there were about 100 of them on the lawn at the lee end and in the shrubbery, the wind being apparently too strong for them in the open fields, the largest was 2 feet long and 20 in. in diameter, which is far from the size we have formerly seen; the circumstances attending their formation this time were just the same as I formerly mentioned, viz., 1st a fall of snow flakes on the top of a previous fall which yields a smooth surface for it to be rolled on; 2nd a temp. about 32°, which gives adhesion to the snow without thawing it; 3rd, a strong breeze of wind.

## I R E L A N D.

KILLALOE.—Not much snow here, but what there was continued to lie between 2 and 3 in. deep; all snow disappeared before the 21st.

MONKSTOWN.—On 5th the heaviest fall of R I ever measured, 1.70. The month commenced with sharp frost and snow; the weather throughout was unusually severe; except from the 6th to the 10th, and from the 24th to the end; the night of the 5th will long be remembered as the most severe here for many years; it was blowing wildly from the S.E. up to 2 p.m., after that it increased to a perfect hurricane accompanied by blinding showers of sleet which partly thawed, covering the ground to a considerable depth. After the thaw commencing on the 6th, the frost returned on the 11th, and a good deal of snow fell up to the 19th, when it was 10 or 12 in. deep; on the morning of the 23rd a rapid thaw commenced. *Latest Intelligence*.—The mild weather continued to the evening of the 6th February, and on the morning of the 7th the mountains were again coated with snow.

WARINGTOWN.—The frost which set in on the 1st has been here the most intense in the memory of anyone now alive, and the injury to evergreens, &c., greater than on any previous occasion; it was followed by a rapid thaw, the temp. of the 6th being unusually high; the frost, however, set in again, accompanied as before with snow, and though not quite so intense as the first, was more severe than any of late years, as well as more lasting. The min. was 5° lower than in 1859-60.

LECKPATRICK.—On 2nd grass min. was covered with 6 in. snow, and read 30°, while exposed one registered 12°, so that the cover of 6 in. snow = a protection of 18°. On night of 4th-5th a gale from S.E., blowing the snow into drifts; on that night two men lost their lives near this house: one was stopped by storm in driving, took out his horse, wandered from the road, and was found dead in a field, the horse took shelter under a ditch-hedge and survived. On the morning of 5th the garden-gate was so blocked by snow that we had to get over the wall by a ladder to get to the instruments. Thaw set in on 20th with S. E. wind; many shrubs much damaged, some killed. The severest month ever remembered. *Query*—With reference to the above mentioned reading of the thermometers, should all snow be swept away from about the instruments, and should the grass min. be laid on grass, or on the top of the snow? [So far as we are aware no instructions have been issued on this point; our own practice (perhaps improper) is to place the thermometer on the top of the snow.—Ed.]