

SYMONS'S MONTHLY METEOROLOGICAL MAGAZINE.

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THE FROST OF JANUARY, 1867.

Owing to the somewhat excessive length of the tables which we have compiled upon the above subject, our remarks must be rather brief. In the first place, we must thank our numerous correspondents for having enabled us to make the tables so complete, and remind our readers that while we take all practicable measures for the exclusion of all but thoroughly reliable observations, we cannot be responsible for the absolute accuracy of every one.

Before proceeding any further we should state, once for all, that every reading is to be understood as plus unless marked minus. Great and most troublesome confusion has been introduced by some persons speaking of so many degrees of frost, until they themselves hardly know whether 10° represents 10° below freezing, *i.e.* 22° , or 10° below zero, *i.e.* -10° ; or 10° above zero, *i.e.* 10° . If Fahrenheit's scale is bad, let us combine and choose a better one if we can—but if not, then for our own sake, and for mutual advantage, let us eschew *in toto* degrees of frost, and speak of temperatures solely as they stand on the scale.

It is especially necessary that this point be clearly understood, because many of our readers will doubtless be surprised to see temperatures of $-10^{\circ}\cdot0$, or even less, recorded at a score of English stations. Strange it may be to find that our temperature is occasionally 40° or 50° below the freezing point of water, but it is undoubtedly true. (We thus express it for the benefit of those who cannot all at once abandon their false notation.)

Table I. is compiled from returns received in reply to the suggestion on page 104 of our last volume. The principal remarks it needs are explanatory. Under each station is stated in the first column the lowest temperature, in the second the day or days on which it occurred—the months are indicated by the Roman numerals, and the day of the month by ordinary figures. Thus, by way of example, we may explain that at Haverfordwest in 1858 the lowest temperature was $22\cdot5$ on the 18th of November, and in the same year at Red Hall, Leeds, the lowest temperature was 19° , and it occurred twice, on the 1st of March, and again on the 24th of November.

TABLE I.—MINIMUM TEMPERATURES, 1846—1867.

Year.	Haverfordwest.		Kilgobee.		Pen-y-maes, Brecon.		Dumfries.		Red Hall, Leeds.		Wolverhampton St. John's Sq.		Camden Town.		Sheering, Harlow.		Bristol, Frenchay.	
	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.
1846	16.0	XII. 16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	19.0	II. 19	18.0	II. 13	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	14.0	I. 27	20.0	I. 31	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	29.0	I. 2	20.0	XII. 30	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1850	...	...	15.0	I. 17	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	22.0	XII. 1	25.0	{ XI. 29 XII. 20 }	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	24.0	III. 27	22.0	I. 10	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	17.0	{ II. 19 XII. 28 }	21.0	{ II. 8, 13 XII. 17 }	22.0	XII. 29	...	...	...	...	...	...	...	...	...	...	...	...
4	22.0	XI. 26	21.0	I. 16	22.0	I. 3	14.5	I. 3	...	XII. 22	...	...	...	...	...	...	...	...
5	8.0	II. 10	14.0?	II. 15?	12.0	II. 15	9.0	II. 16	18.0	XII. 28	...	...	...	...	...	...	...	...
6	16.0	XII. 27	18.0	I. 13	15.0	XII. 8	9.0	XII. 28	17.5	XII. 28	13.0	XII. 28	...	...	...	...	...	...
7	20.0	II. 3	22.0	I. 29	30.0	XI. 24	14.0	II. 4	11.5	I. 30	13.0	I. 29	...	...	...	...	...	...
8	22.5	XI. 18	21.0	I. 22	27.0	I. 5	18.0	II. 1	19.0	{ III. 1 XI. 24 }	22.0	I. 5	20.1	XI. 24	...	...	...	...
9	8.0	XIII. 17, 19	14.0	XII. 18	17.0	XII. 18	11.0	XII. 17	15.0	XII. 19	9.0	XII. 19	14.4	XII. 17	1.0	XII. 17	...	...
1860	10.0	XII. 23	13.0	XII. 24	9.0	XII. 24	-1.5	XII. 24	11.0	XII. 25	6.0	XII. 25	6.7	XII. 25	-2.0	XII. 25	...	...
1	9.0	I. 6	23.0	I. 3	13.0	I. 7	6.5	I. 7	12.0	II. 13	17.0	I. 7	14.3	I. 9	6.0	I. 8	6.0	I. 7
2	20.9	II. 9	24.0	XI. 25	29.0	XII. 20	17.0	XI. 25	19.0	I. 19	22.0	I. 19	18.1	I. 19	19.0	I. 19	18.5	XI. 23
3	24.0	I. 16	...	...	30.0	XII. 11	23.5	II. 15	...	...	28.0	XII. 28	24.5	II. 17	24.0	II. 17	...	...
4	10.0	I. 5	20.0	XII. 26	22.0	XII. 5	17.0	I. 6	14.0	I. 8	15.0	I. 7	15.1	I. 6	20.0	II. 9, 20, 24	19.5	XII. 18
5	14.0	I. 24	18.0	I. 28	12.5	XII. 29	9.5	II. 15	...	...	18.0	I. 29	15.4	II. 15	14.0	I. 29	10.0	I. 29
6	18.5	II. 28	23.0	II. 18	26.0	III. 1	19.0	III. 5	...	...	24.0	III. 2	22.5	III. 1	17.0	I. 13	19.7	III. 1
1867	8.0	I. 15	14.0	I. 18	6.0	I. 15	14.5	I. 4	...	...	16.0	I. 15	6.7	I. 4	7.0	I. 4	9.0	I. 4

This table is not so complete as we could wish, but seems just sufficient to indicate that if it were thrice as large some interesting results as to the progress of cold tracts of air might be deduced.

Table II. contains the whole of the returns hitherto received (about 170), arranged according to the counties in which the observations were made. It would, in some respects, have been desirable to arrange them according to the intensity of the frost, but the opportunity of discussing the observations would have been thereby impeded. Moreover, a glance at either Table II., III., or IV. will show that it was, as previously stated, most severe in the Home Counties. Low temperatures will be noticed in other parts, but *they* mostly occurred about 14th, 10 days after the first frost. A column gives (where known) the elevation of the station above the sea, the effect of which is, we believe, popularly considered just the reverse of the truth. Take, for instance, the returns from Kent: the two highest stations, Goudhurst and Wrotham, had a min. of 21° ; the stations of medium height, say 250 ft., had a mean of $5^{\circ}0$; and those under 100 ft. a mean of $-5^{\circ}0$. In Westmoreland, at 300 ft., the min. was $5^{\circ}5$, and at 1,550 ft., it was $14^{\circ}0$.

Table III. compares the intensity of the frosts of 1860 and 1867 at stations where observations were made in both years, and Table IV. effects the same object, by showing the very large number of excessively low temperatures recorded in 1860.

TABLE II.—*General Table of Low Temperatures in January, 1867.*

STATION.	Above Sea.	Degree.	Date.	REMARKS.
MIDDLESEX. — Pinner Hill	410	$8^{\circ}0$	4th	$12^{\circ}0$ on 3rd and 12th.
Staines	52	$-7^{\circ}0$	4th	$-4^{\circ}0$ on 2nd.
Winchmore Hill.....	...	$-4^{\circ}0$	4th	$1^{\circ}0$ on 5th. $3^{\circ}0$ on 3rd.
Hackney (Town Hall)	40	$6^{\circ}8$		
„ (London Fields).....	30	$5^{\circ}0$		
Hammersmith Royal Vineyard .....	...		
Nursery .....	...	$-3^{\circ}0$		
Hornsey .....	...	$-3^{\circ}0$	4th	
Camden Town.....	100	$6^{\circ}7$	4th	
SURREY. — Walton-on-Thames } (Oaklands) .....	...	$0^{\circ}0$	5th	
East Sheen .....	...	$-3^{\circ}0$	4th	(Ther. only 1 ft. above snow.)
Cobham Lodge	100	$-3^{\circ}0$	5th	
„ (Pyports) .....	...	$-6^{\circ}8$	5th	$-4^{\circ}9$ 3rd.
Epsom	135	$-12^{\circ}0$	4th	$3^{\circ}0$ on 2nd; $10^{\circ}0$ on 3rd.
Bagshot Park	230	$3^{\circ}0$		
„ grass .....	...	$-2^{\circ}0$		
Wimbledon	170	$5^{\circ}0$	3rd	$8^{\circ}0$ on 4th.
KENT—Greenwich Observatory..	160	$6^{\circ}6$		
East Peckham.....	76	$-10^{\circ}0$	5th	$-6^{\circ}0$ 4th; zero 3rd.
Bromley Common	250	$-3^{\circ}0$	4th	$2^{\circ}0$ 5th.

STATION.	Above Sea.	Degree.	Date.	REMARKS.
KENT (<i>con.</i>)—Beckenham	157	0·0	5th	4·0 4th.
Maidstone	60	0·0	5th	
Goudhurst	375	20·5	3rd	21·5 on 4th
Cranbrook (Hartley) ..	...	10·0	4th	12°·0 on 3rd and 5th.
Wrotham (Fairseat)	650	21·0	4th	
Tunbridge	71	— 5·0	4th	2°·0 on 3rd ; 4°·0 on 5th.
Linton Park	296	10·0	5th	
SUSSEX—Uckfield	149	4·0	4th	
„ <i>grass</i> .....	...	— 2·6	4th	
„ (Framfield)	200 ?	6·5	4th	
Hastings (Ore) ..	380	13·0	3rd	14°·0 on 14th.
Chichester (Chilgrove)	284	12·0	4th	14°·0 on 14th.
HAMPSHIRE—Isle of Wight (Ryde) ..	15	21·0	14th	23°·0 on 4th.
„ (St. Lawrence) ..	200	17·0	13th	21°·0 on 3rd.
„ (Newport) ...	...	14·8	14th	
Southampton (Woolston) .....	...	7·0	4th	
„ (Shirley Warren) ..	110	4·0	4th	
„ „ „ <i>grass</i> ..	106	2·0	4th	
„ (Ord. Sur. Office) ..	75	4·2	4th	9°·1 on 14th.
Selborne	500 ?	— 2·0	3rd	
„ (Chawton House) ...	...	— 5·0		
Strathfield Turgiss, <i>grass</i>	269	— 3·0	3rd	
BERKSHIRE—Maidenhead .....	...	— 3·0		
„ (Cookham) ...	...	0·0	4th	1°·0 on 3rd ; 1°·5 on 5th.
„ (Ray Lodge) ...	...	— 3·0	5th	— 2°·0 on 4th.
Wantage	185	3·0	5th	6°·0 on 4th.
Wallingford .....	...	— 5·0		
Long Wittenham	170	6·0	4th	
Old Windsor, (Woodside).....	...	4·0	5th	
HERTS—Berkhampstead	370	0·5	5th	{ 2°·2 on 4th ; 4°·5 on 3rd ; 1855, II., 18, 0°·8.
Harpenden ...	...	— 6·0	5th	
Kensworth	902	10·0	4th	
Berkhampstead, Hawridge ...	600	— 8·0	13th ?	
Ware (Braughing) .....	...	— 6·5	3rd	— 3°·0 on 4th.
Hitchin	240	9·0	3 & 4	
BUCKS—Datchet (Riding Court) ..	...	— 8·0	5th	
OXFORD—Dorchester .....	...	— 2·0	4th	
Banbury	345	12·0	4th	
NORTHAMPTON—Ashby St. Ledger ..	...	14·5	4th	
CAMBRIDGE—Wisbech	14	12·3	4th	
ESSEX—Dunmow (High Roding) ..	250 ?	11·0	4th	
Saffron Walden .....	...	5·0	4th	
„ „ (Audley End) ..	...	5·4	4th	7·1 on 2nd ; 9°·4 on 5th.
Harlow (Sheering).....	100 ?	7·0	4th	
SUFFOLK—Bury St. Edmunds } (Culford)..... }	...	4·0	1st	
„ <i>grass</i> .....	...	— 7·0	1st	
NORFOLK—Lynn (Hillington)...	...	3·0	4th	
Norwich (Cossey) .....	...	4·5	5th	
WILTS—Calne	255	1·5	5th	
DORSET—Bridport.....	85	11·0	...	
Upwey.....	70	15·3	3rd	
„ <i>grass</i> .....	...	12·2	3rd	
DEVON—Bideford (Pillhead) ...	25	8·0	15th	
Sidmouth (Belgrave) ...	26	16·6	14th	19°·7 on 3rd, 21°·6 on 4th.
„ Town .....	...	20·2	14th	

STATION.	Above Sea.	Degree.	Date.	REMARKS.
DEVON (<i>con.</i>)—Exeter	140	9.0	4th	
Torquay (Sandhurst).....	..	15.0	13th	
„ (Woodfield).....	150	22.0	12th	
Goodamoor	580	8.0	2nd	
CORNWALL—Launceston (Tre- bartham Hall) .....	...	5.0	4th	
„ (Altarnum)	570	4.0	15th	
„ „ <i>grass</i>	325	2.0	15th	
Bodmin	325	11.0	17th	lowest in 17 years, 1855 II, 12°.
Truro	56	8.0	15th	1855 I. 19 10°; 1859 I. 23 9°.
SOMERSET—Street .....	...	3.5	...	
Taunton (Fulland's School) ...	...	9.0	5 & 15	
„ (College School) .....	...	10.0		
Bath	54	8.5	4th	14° on 15th.
GLOUCESTER—Cheltenham .....	...	5.0	4th	
Boyce Court .....	...	7.0	4 & 5	
Bristol (Frenchay) .....	...	9.0	4th	
„ „ <i>grass</i> .....	...	— 4.5	4th	
Witcombe Court	225	— 3.0	5th	
Clifton	192	14.1		
HEREF'D—Leominster W. Lodge	229	3.0	4th	4°·0 on 5th
Ross.....	200	9.0	4th	10°·0 on 5th.
SALOP—Bridgnorth .....	...	1.0	5th	4°·0 on 4th.
Weston-under-Lyzziard .....	...	8.5	4th	
Shrewsbury	200	6.0	5th	
STAFFORD—Sugnall Hall .....	...	— 5.0	4th	
Wolverhampton, St. John's Sq.	513	16.0	15th	18°·2 on 3rd ; 18°·3 on 4th.
WORCESTER—Tenbury (Orleton)	200	1.6	4th	1865, I., 29, zero.
„ <i>grass</i> .....	...	— 1.7	4th	1865, I., 29, —2.0.
Bromsgrove	273	2.3	4th	
Evesham (Lansdowne) .....	...	10.0	4th	
WARWICK—Leamington	195	12.5	4th	13°·4 on 5th.
Birmingham	340	12.7		
LEICESTER—Wigston	220	9.0	3rd	
Leicester	230	11.0		
LINCOLN—Brigg (Appleby)	60	4.9	2nd	8°·6 on 4th, 5°·0 on 5th.
„ <i>grass</i> .....	...	2.8	2nd	5.2 on 4th ; 3.5 on 5th.
NOTTS—Nuthall .....	...	5.0		
Highfield House	166	9.0	14th	
„ „ <i>grass</i>.....	...	2.7	14th	
DERBY—Derby	180	13.0	4, 14, 15	
LANCASHIRE—Liverpool	22	16.3		
Manchester (Eccles)	145	9.0		
„ (Old Trafford) ..	106	8.7	15th	
Stonyhurst	381	10.0		
YORK—Beadlam Grange	192	10.0	15th	
Skipton (Woodlands)	430	3.6	3rd	
„ (Arnccliffe).....	76	8.0	4th	
Middlesboro'	21	10.0	3rd	
Ripon .....	...	1.0	1st	
„	116	2.0	2nd	
„ <i>grass</i>.....	...	— 9.5	2nd	
Sheffield	337	15.5		
Wakefield	115	5.0		
Malton	73	6.0		
York	50	10.0	5th	
Hull	14	8.0	1st	10°·0 on 4th.

STATIONS.	Above Sea	Degree.	Date.	REMARKS.
NORTHUMBERLAND—N. Shields	124	14·0	2nd	
Newcastle	150	12·0		
Chathill .....	...	24·0	4th	
WESTMORELAND — Kirkby }	267	5·5	3rd	
Lonsdale (Casterton)..... }				
Ullswater (Greenside)	1550	14·0	14th	

MONMOUTH, WALES, AND THE ISLANDS.

MONMOUTH—Abercarn	450	20·0	3rd	
Chepstow (Winwood Green) ..	200	17·0	5th	
PEMBROKE—Haverfordwest ...	85	8·0	15th	
GLAMORGAN—Cardiff (Routh)...	...	14·0	4th	15°·0 on 14th.
BRECON—Pen-y-maes	400	12·0	4th	
RADNOR—Rhayader	880	7·0	3rd	
DENBIGH—Llandudno	99	20·7	5th	
CARNARVON—Port Madoc	20	12·0	3rd	
CHANNEL ISLES—				
Guernsey (Grange Road)	150	20·0	14th	} lowest for 20 years.
„ „ „ grass. ..	..	15·0	14th	

SCOTLAND.

DUMFRIES—Dumfries	70	14·5	4th	
Carlsgill	370	— 0·3	4th	
ROXBRO—Galashiels (Wooplaw)	890	5·0	1st	
EDINBURGH—March Hall ...	270	16·0		
Leith	50	24·0		
LANARK—Lanark	505	5·0		
Glasgow (Cessnock Park).....	30	5·0	14th	
„ (Observatory)	200	13·0		
AYR—Auchendrane	94	7·0	15th	
RENFREW—Greenock	50	22·0		
Paisley	88	12·0		
ARGYLL—Otter House	130	21·0	12th	
Mull (Bunessan)	30	24·0	4th	
PERTH—Deanston	130	10·0	15th	
FORFAR—Dundee (Westfield) ..	...	21·0	5th	
„ (Cemetery) ..	...	19·0		
ABERDEEN—Ballater	656	— 5·0	5th	
Aberdeen	115	10·2	5th	
INVERNESS—Culloden	104	14·6	5th	
Fort William	20	7·2	15th	
Portree	60	12·0	5th	

IRELAND.

WATERF'D—Waterf'd (Newtown)	60	16·0	4th	
CLARE—Killaloe	123	14·0	18th	
KILKENNY—Stoneyford (Inisnag)	196	11·0	18th	
QUEEN'S Co.—Portarlinton ...	236	8·0	18th	
DUBLIN—Monkstown	104	12·0	4th	
Dublin.....	35	14·0	4th	
GALWAY—Galway.. ..	25	15·0	3rd	
WEST MEATH—Mullingar .....	...	11·0	3rd	12·0 on 4th.
„ grass. ....	...	— 4·0	4th	1°·0 on 3rd.
DOWN—Waringstown	190	2·0	2nd	
ANTRIM—Ballymoney .....	...	1·0	4th	
TYRONE—Leckpatrick	260	4·0	4th	

TABLE III.—Returns from the same Stations in the two (or three) frosts.

STATIONS.	Lowest temperature in the Years.			STATIONS.	Lowest temperature in the Years.		
	1838	1860	1867		1838	1860	1867
Hammersmith	0·0	— 2·0	— 3·0	Bath .....	...	8·5	8·5
Hackney	5·6	6·8	Clifton .....	...	7·1	14·1
Camden Town	6·7	6·7	Boyce Court .....	...	— 5·0	7·0
Walton-on-Thames	11·0	0·0	Witcombe Court .....	...	2·0	— 3·0
" " " "	—14·0	...	...	Orleton .....	...	3·0	1·6
Cobham Lodge	6·0	3·0	Bromsgrove .....	...	0·3	2·3
Greenwich Observ.	— 4·0	8·0	6·6	Birmingham .....	...	— 1·0	12·7
Maidstone	10·0	0·0	Appleby (Lincoln) .....	...	—11·0	4·9
Uckfield	6·6	4·0	Nottingham .....	...	— 6·0	9·0
Selborne	— 1·5	— 2·0	Derby .....	...	2·0	13·0
Maidenhead	5·0	— 3·0	Eccles .....	...	— 3·0	9·0
Wallingford	— 5·0	0·0	5·0	Old Trafford .....	...	— 3·0	8·7
Berkhempstead	4·0	0·5	Wakefield .....	...	— 4·5	5·0
Ware	— 4·0	— 6·5	York .....	...	— 4·0	10·0
Dunmow	2·0	4·0	Malton .....	...	— 6·0	6·0
Calne	2·0	1·5	Chepstow .....	...	11·0	17·0
Upwey	11·5	15·3	Carlesgill .....	...	—12·0	— 0·3
Exeter	13·7	9·0	Paisley .....	...	— 5·0	12·0
Bodmin	14·0	11·0	Aberdeen .....	...	7·0	10·2
Truro	11·0	8·0	Mean .....	...	2·3	5·4

TABLE IV.—List of Temperatures below —5·0 Fahrenheit.

1838.		1860.		1867.	
Walton-on-Thames	—14·0	Chatsworth	—12·0	Staines	— 7·0
Claremont	—12·0	Willersley	— 6·0	Epsom	—12·0
Beckenham	—13·5	Tarporley	— 8·0	Cobham (Pyports)	— 6·8
Newbury	— 6·0	Sale	— 9·8	East Peckham	—10·0
Moulsford	— 6·4	Thelwall	— 6·0	Berkhempstead (Hawridge) ... ?	— 8·0
Ball's Park, Hertford	—10·0	Thorpe Perrow	—12·0	Ware	— 6·5
Tyttenhanger	— 6·0	Bedale	—11·0	Datchet	— 8·0
St. Neot's	—12·5	Doncaster	— 8·0		
Saffron Walden	—12·0	Malton	— 6·0		
Fakenham	—10·0	Milne Graden	— 5·6		
Long Stratton	—10·0	Smeaton	— 6·0		
Cheadle	—15·0	Thirlestane	— 8·7		
Rolleston	—10·0	Braemar	—11·0		
Tamworth	— 7·0	Castle Newe	—12·0		
Lichfield	— 6·0				
Appleby (Lincoln)	—11·0				
Carlton	—12·0				
Highfield House	— 6·0				
Beeston	— 8·3				
Beesthorpe	— 6·0				
Worksop	— 6·0				

NOTE.—In Number XII., page 104, the temp. at Stratford, in 1816, should have been —5·0, instead of 5·0, and on page 102, Stonyhurst should have been 6·7.

NOTES MADE DURING THE LONG FROST OF 1813-14.

To the Editor of the Meteorological Magazine.

SIR,—The frost commenced the 26th December, 1813; the thermometer (placed against a house in Cirencester and taken at half-past 8 a.m.) fluctuated between 12° and 22° for the first three weeks; during this period there were two falls of snow of about 2 inches deep. The sky was clear and there was little wind, always from the N. or E. At the beginning of the fourth week there was a great disturbance in the atmosphere, high winds, and a fall of 15 inches of snow with deep drifts, stopping the traffic of the roads; hard frosts followed, the thermometer falling to 10° on the 25th January; the wind then shifted to the S. and day thaws succeeded by frosty nights followed. The wind then went to the N. with clear frosty weather.

On the 3rd February two dense concentric circles appeared round the moon, and on the 5th we had snow, and then a rapid thaw, leaving only drifts of snow. The frost then resumed and continued with keen winds to the end of February; a slight tendency to thaw in the beginning of March was followed by a week of steady, clear, frosty weather until the 12th, about which time crystals of snow fell, then a week of cold, easterly winds with severe frosts until the 20th March, when a S. wind brought mild weather and rain.—Yours,

Further Barton, Cirencester.

THOMAS C. BROWN.

GALE ON FEBRUARY 6TH.

SIR,—We had a severe hurricane here on Wednesday morning, February 6th, from the S.W. The wind blew strongly from the early morning, and at 3.16 a.m. attained such force as to knock down the semaphores at the railway station, at the same time doing other severe damage; extreme force 21 lbs.; the wind then calmed down a little, but at 10.45 a.m. it again blew with fearful violence, tearing down a large elm, 45 feet high, on my glebe, and blowing down two barns not very far distant from us. One erected two years ago, a large barn, brick and timber built and 25 feet high, was literally annihilated, the roof blown entirely off, and portions hurled nearly 60 feet away, to the no small astonishment of a laborer who was threshing inside the barn, and who, although much cut with the shower of slates, was providentially saved; extreme force 26.04lb. We have not had such wind since the date of the wreck of the "Royal Charter."

I am, very truly yours,

Turgis Rectory, Strathfield Saye, Winchfield. CHARLES H. GRIFFITH.
February 9th, 1867.

LOW TEMPERATURES.

To the Editor of the Meteorological Magazine.

MY DEAR SIR,—I send you a list of the lowest temperatures in each year from the end of 1855 to 1862 at Red Hall, near Leeds, and a single one in 1864 at High Harrowgate, a very similar situation. Up to December, 1860, the thermometers were placed in our back yard, on the north side of a wall, which caused the range to be less, and I afterwards found that when placed on a stand on a large lawn they read not unfrequently 3° , and sometimes 5° , lower on a still night. Yet the yard itself was open enough, being some 50 yards across. I have given a sort of sketch of the weather that just preceded the minimum, to show you what I meant by the letter I wrote a short time ago. If you think the investigation not unnecessary, a few similar extracts from registers might enable you to make some generalisations which would be afterwards verified and confirmed, or rejected. One cannot see much from one register, but a dozen might throw a little light on some points which can hardly be said to be yet settled. At Red Hall it never fell below 18° without a good covering of snow, although some of the "S. E. frosts," (as I call them, being a distinct genus which never indulge in snow till they go away,) have been marked by the lowest day maxima and the clearest possible sky. If you thought it worth while to get some such registers as I have suggested, I should have no objection to give any assistance that might be in my power towards classifying them, &c.—Believe me to remain, yours truly,

60, Hall Gate, Doncaster, Feb. 4th, 1867.

FENWICK W. STOW.

Lowest Temperature registered at Red Hall, near Leeds (4 ft. from ground), in each year from December, 1855, to 1862. Soil clay; ground generally level; elevation 450 ft.

Year.	Day.	Min. at 4 ft.	Max. previous day	Rise or fall of day 9 a.m. to 1 p.m.	On previous day.				Strength of Wind.	SNOW.			REMARKS.
					Dry and wet bulbs at 9 a.m.	Cloud 0-10.	Direction of Wind.	Depth on ground, inches, about		Date of falling.	Character.		
1855	Dec. 22	18°	24°	in.	0	0	S. E.	V. stng. breeze	0	{ Wind blew strongly from S. E. throughout the frost.	
1856	Dec. 4	18°0*	26°	+0°14		0	N.	Light.	6 at least.	Nov 26&30 & Dec 2	?	{ Minimum occurred again at noon.	
"	Dec. 28	17°5*	25°	+0°20		0	N. W.	Sharp breeze	6	25 & 26	Firm.	{ The min. occurred on a "very stormy night."	
1857	Jan. 30	11°5*	26°	-0°06		2	N.		4	27 & 28	Light.		
1858	Mar. 8	19°	37°	+0°01	{ 29·5	3 or 4	N. W.	Gale.	7	same night	?		
"	Nov. 24	19°0*	35°	-0°19	{ 29·5	0?	W & NW		1	20	?	A "S. E. frost." { Frost began with S. E. wind.	
1859	Dec. 19	15°0*	24°	+0°02	{ 28·0	10	S.	Light.	5	15 & 18	Light.		
1860	Dec. 25	11°0*	22°	-0°30	{ 21·5	0	W. N. W.	Sharp breeze	5	21 & 23	Light.		
1861	Feb. 13	12°	37°?	0°00	{ 16·0	5	N. N. W.	Strong.	3	12	'Hail'		
1862	Jan. 19	19°	30·2	-0°06	{ 14·5	3	S. E.	V. stng. breeze	0	...	...
+1864	Jan. 8	14°	24°	-0°18		1	N. E.	Light.	v. slight snow.	...	...

Lowest Temperature at 4 ft. at the Knoll, Ripon; 110 ft. above sea; gravel soil. Situation on first rise from valley of river.

1865	Jan. 3	14·8	36°	-0°24	{ 32·4	9		S. S. W.	Strong.	2	2	Light.	{ Violent gusts and snow storm day before.
"	Feb. 15	14·6	37·5	-0°30	{ 28·4	4		N. E.		?	13	Sleety.	
1866	Mar. 1	16°	38·5	+0°24	{ 33·0	6		N. E.	Strong.	2 or 3	Feb. 28		
1867	Jan. 2	2°	21·8	-0°17	{ 32·8	2		N.	Light breeze	3	Dec. 31	Light.	
					{ 29·0	2							

* Readings in calm nights marked * would have been lower in a more exposed situation.

† This taken at Harrowgate; clay soil; 420 ft.

THE SILVER THAW.

To the Editor of the Meteorological Magazine.

MY DEAR SIR,—I must tell you of a strange occurrence here yesterday evening. As I was sitting in my study about 8 p.m., I heard what seemed like the pattering of rain against the window, which faces the S.E. I felt surprised at this, knowing that the temperature outside had been for several days below freezing point, and often considerably so. On careful observance I found that though there was some hail, yet the fall was principally *rain*. The thermometer outside was then about 27° or 28°, and I felt fairly puzzled to think how rain could fall under such circumstances. I fancied that the thermometer must have burst, and so not told a true tale; but on putting out a common boxwood one, it soon fell to 29°. On putting my foot on the ground I heard the newly-frozen rain crunch under it. The rain continued till about 10.30, the thermometer still keeping to about 28°, and after I went to bed at 11.30 I heard the rain again falling on the window, which has the same aspect as that of the study. I had previously remarked that as the rain fell on the windows and ran down the glass it froze there. To see hail in summer is a common occurrence, but I certainly never saw or heard of rain falling when the temperature was 4° or 5° below freezing. To-day there is a decided thaw, as was to be expected after the strange freak of nature last night. I measured .12 in. of rain at 9 this morning.—Yours truly,

High Roding Rectory, Dunmow, Essex,

EDWARD MAXWELL.

23rd January, 1866.

DEAR SIR,—Happening to turn to an old journal of mine, I find the following entry:—"1855. Reedings, Newick, Sussex, February 3rd. Rained heavily from 1.30 to 7 a.m. this morning, each drop freezing where it fell, so that every leaf was covered this morning with a thick coating of ice. Thawed much to day." I also find that frost began on the 16th January, and that it went on again after the thaw on the 3rd February, and that there was 6 inches of snow on the 11th of March. I do not seem to have noticed the weather afterwards.—Yours very faithfully,

THOMAS E. CRALLAN.

Framfield Lodge, Hurst Green,

February 23rd, 1867.

SIR,—I note in the February number, your remarks on the silver thaw of January 22nd. In this neighbourhood it began later in the evening, as at half-past 10 p.m. it was snowing a little, but at 6 o'clock the following morning the roads were one mass of ice; the thermometer fell to 19° during the night, at 9 o'clock the following morning it was 31°. The above were registered by Hick's thermometer, on a stand 5 feet above the ground.—I am, Sir, yours respectfully,

Rastrick, March 9th, 1867.

ALFRED CLAY.

PERIODIC (?) HAIL-BALLS.

To the Editor of the Meteorological Magazine.

SIR,—There fell here to-day, March 6th, a shower from the N.W. of soft hail about 3.45 p.m.; it lasted for a very short time, and was followed by a little snow. I was on the look out for this soft hail, as it was mentioned as periodic (?) in your Magazine for March last year. It was not like ordinary hail: your description of it as miniature snowballs seems to be very close; I could observe no crystallization, the shapes appeared very irregular, but chiefly of a rough cubic form; I saw none that appeared larger than swan shot: this I should put down as the average size of the "hail-balls."

The snow that fell after it was not in a thick shower. If the snow in falling through layers of atmosphere became semi-melted, and then partially frozen again, it would, I fancy, present the above appearance of balls. But these balls were composed of more than one snow-flake bound together, and to effect that, I should imagine a dense shower would be requisite.

It is certainly a very curious fact, that this occurrence should so frequently have happened on or about this date, or that of the 8th of March. We have had no snow this month up to to-day. Should any more "soft hail" fall here in the next two or three days, I will acquaint you.—Yours sincerely,

Staff College, Farnboro' Station,

ROWLAND HILL FAWCETT.

March 6th, 1867.

DERIVATION OF THE WORD "ANEROID."

To the Editor of the Meteorological Magazine.

SIR,—Questions of philology are generally troublesome, especially when they concern words concocted in modern times from Greek roots, not always in the most regular way. A modern Greek compound is as puzzling to me as a queer-looking mutton bone, which a dog has just gnawed and buried, is sometimes to an amateur geologist. It is not, therefore, without diffidence that I venture to stand up for the much-derided derivation which you gave.

Whether an aneroid be of an "*inquiring*" disposition or *unamiable*, whether its inside be *very hollow* or *very dry*, or its "shape" be that of a "*vacuum*" and its action that of a *manly automaton*, far be it from me to decide. But without insisting on the inventor's scholarship, I certainly do attach a definite meaning to the name he invented.

It is true that *νῆψ* is somewhat rare, but *vapōs*, which is only another form, was good enough for Sophocles and Æschylus and even the sea-god Nereus did not disclaim the connection; *νῆψ* then, or *vapōs*, comes from *ῥέω* to flow, and means therefore, not *moist*, but *fluid* or *liquid*. The distinction is important, for the inventor doubtless meant to express by the name "aneroid" the fact that *no fluid* (as water or mercury) was used in its construction, as they are in other barometers. In short, he meant that it belonged to a *class* or *species* (*εἶδος*) of instruments, which might be called *ἀνρηά*, because destitute of fluid.—Your obedient servant,

F. W. S.

EARTHQUAKE IN WESTMORELAND.

To the Editor of the Meteorological Magazine.

SIR,—On Saturday morning last, February 23rd, about 1 a.m., the shock of an earthquake was felt here; the wind at the time was westerly and boisterous. The local papers report that it was felt at Ambleside, and other places.—Yours,

Greenside Mines, Ullswater, *March 1st.*

J. BARNINGHAM.

A correspondent at Ambleside writes to the *Express* as follows:—

"The inhabitants of the group of valleys extending from the foot of Windermere to the head of Langdale have been looking in vain for some notice in the newspapers of the earthquake which startled them out of their sleep at about a quarter-past one on Saturday morning last; and, rather than let such an event pass altogether without public notice, I now send you an account of as much as is known about it in the neighbourhood from which I write. Friday night was fine—a brilliant starlight night, and perfectly calm. At the time I have mentioned, a sound like a prolonged clap of thunder—only too loud and too long-continued for thunder in this country—seemed to fill the valley of the Rothay, while the houses—even those built into the rock—shook as in a hurricane. A dead stillness followed for a considerable time; and then the wind rose. In the morning it appeared that the inhabitants of Ambleside had undergone the usual alarms occasioned by earthquake. Children's cots had been shaken, and the babies awakened; crockery and window sashes had rattled, aged people and invalids had risen from their beds; one lady believed there had been an explosion within her house; the people at the bobbin-mill in the ghyll had dressed and come down the hill; and so forth. The first conjecture was that the powder-mills at Elterwater had blown up; but it was presently known that the inhabitants there, were as wonder-stricken as ourselves. Everybody at Grassmere got up, and the alarm was very great throughout Langdale, and not less at Windermere. How much further it was felt we hope to hear some day. Persons who have experienced earthquakes in volcanic countries declare that there can be no question of the character of this phenomenon, though nobody seems to have heard of any preceding visitation of the sort in this district."

FEBRUARY, 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.		Dpth		Date.	Max.		Min.		
				inches.	in.				Deg.	Date.	Deg.	Date.	
I.	Camden Town	1.44	+ .22	.36	16	11	56.2	15	30	3	1		
II.	Staplehurst (Linton Park) ...	1.53	+ .02	.28	17	17	56	17	29	3	5		
	Selborne (The Wakes)	2.54	+ .83	.48	5	13	50	*16	22	28	5		
III.	Hitchen	1.45	+ .19	.46	6	10	52	+16	25	28	1		
"	Banbury	1.31	— .12	.33	5	15	53.7	20	31	3	3		
"	Wisbech	1.09	...	.28	8	10	58.1	20	28.2	...	2
IV.	Bury St. Edmunds (Culford).	1.82	+ .41	.42	5	10	56	16	22	27	5		
V.	Calne	1.95	...	.50	7	13	55	‡18	31.8	3	1
"	Plymouth (Goodamoor)	4.86	+1.50	.86	6	17	55	...	25	...	...
"	Barnstaple	3.57	+1.49	.80	27	22	...	...	...	...	...
VI.	Taunton (Fulland's School)	1.89	+ .51	.47	6	21	...	...	30	3	1
	Shrewsbury (Highfield)	1.53	+ .39	.48	8	12	...	...	...	...	...
VII.	Tenbury (Orleton)	2.13	+ .56	.39	5	19	59	20	28.2	28	2		
"	Leicester (Wigston)	1.28	— .06	.20	8, 11	11	56	12	24	28	4		
"	West Retford .....	...	...	...	...	...	...	...	...	...	...
VIII.	Derby	1.95	+ .47	.53	7	10	59	19	29	27	3		
IX.	Manchester	2.93	+ .98	...	...	12.	...	...	...	...	...
X.	York	1.17	— .21	.35	10	11	53	§10	24	28	2		
XI.	Skipton (Arneliffe) ...	7.56	+3.89	1.28	7	18	48	2	22	28	3		
II.	North Shields .....	.82	— .71	.26	7	12	53	21	26	28	3	
III.	Borrowdale (Seathwaite).....	17.05	+5.67	2.32	4	21	...	...	...	...	...
IV.	Abercarn	4.28	...	.88	7	14	52	16	30	28	1
V.	Haverfordwest	5.97	+3.11	1.00	11	18	55	23	27.5	28	...		
VI.	Rhayader (Cefnfaes).....	3.53	+ .55	.85	8	20	55	...	23	...	...
VII.	Llanberis (R. Victoria Hotel)	5.45	...	.87	3	16	...	...	...	...	...
VIII.	Dumfries	2.10	— .45	.31	7	19	55	21	23.5	27	3		
IX.	Hawick (Silverbut Hall) ...	1.73	...	.40	3	19	...	...	22	25	11
X.	Ayr (Auchendrane House) ...	3.67	+ .32	.65	3	20	58	1	23	27	3		
XI.	Otter House	5.50	+1.58	.70	4, 10	16	51	21	22	27	4		
XII.	Leven (Nookton)	1.62	— .08	.29	7, 10	14	54	21	25	27	4		
XIII.	Stirling (Deanston)	4.27	+1.27	.65	4	21	52.4	21	21	27	8		
XIV.	Logierait	2.92	...	.58	3	14	...	...	...	...	...
XV.	Ballater	1.30	...	.21	9	14	55	22	20	28	9
XVI.	Aberdeen	1.44	...	.47	9	17	54.4	21	28.7	**27	3
XVII.	Inverness (Culloden)	1.81	...	.43	8	10	51.6	22	29.3	28	4
XVIII.	Fort William	9.08	...	.90	1	21	54.5	18	25.5	27	6
XIX.	Portree	8.78	—1.45	1.26	10	17	51.8	15	26	27	4		
XX.	Loch Broom	4.74	...	.46	9	21	...	...	...	...	...
XXI.	Helmsdale	3.09	...	.35	25	19	...	...	...	...	...
XXII.	Sandwick	4.03	+1.55	.41	9	21	...	...	...	...	...
XXIII.	Cork	2.59	...	.43	5	19	...	...	...	...	...
XXIV.	Waterford	2.93	+ .90	.47	27	20	...	...	...	...	...
XXV.	Killaloe	5.21	+2.31	1.03	7	18	55	20	29	3	1		
XXVI.	Portarlington	2.97	+ .94	.49	28	23	...	...	...	...	...
XXVII.	Monkstown	2.14	+ .50	.39	25	19	58.4	1	33	6	0		
XXVIII.	Galway	4.98	...	.64	10	23	...	...	...	...	...
XXIX.	Bunninadden (Doo Castle) ...	4.42	...	...	...	...	52	‡1	29	17	1
XXX.	Bawnboy (Owendoon)	4.08	...	.70	5	24	...	...	...	...	...
XXXI.	Waringstown	2.02	...	.40	5	17	55.5	21	25	26	6
XXXII.	Strabane (Leckpatrick)	3.27	...	.61	7	17	53	‡19	27	27	8

* And 20th. † And 20th. ‡ And 20th. § And 21st. || And 9th & 13th. ¶ To 22nd. ** And 28th.

+ 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.

LINTON PARK.—A very mild month; only five slight frosty mornings; often dull and foggy, with hazy R, no heavy downpour. Bar. fluctuated much in the first week, afterwards it was generally high. Winds mostly S.S.W. and W., but opposite changes from these did not always affect either the bar. or the weather. L faintly seen on the 17th. The continuance of mild weather is pushing on vegetation, and the birds are singing as in early spring.

SELBORNE.—Aurora on 8th and 13th. Fog on 1st, 17th, 18th, and 19th. Boisterous winds from 5th to 8th. Prevailing winds S.W. Thrush first heard on 1st. Little S on 26th.

BANBURY.—High winds on 6th, 7th, and 8th. Bar. at 7.30 a.m. on 6th 28.390 at 32°. Hazel blooming in the middle of the month; whitethorn beginning to bud about the 17th. Fog on 18th, 19th, and 20th.

WISBECH.—Bar. 28.728 in. on 6th; gale 15lbs. on square foot. Lunar halo on 14th. Solar halo on 27th. White frosts on 27th and 28th, the coldest days in the month, which, for February, was unusually mild, the mean temp. being 44°.6. Fog on 18th and 19th.

CULFORD.—Altogether a very favourable month, mean temp. being 44°.2. Windy from 5th to 8th. Bar. very low on 6th.

CALNE.—Violent gale on 5th, with R and L in evening. Gale with L on the evening of 8th, after raining all day. Snow all night of 27th, melting as it fell. Daffodil in bloom on 25th, and leaves showing on quickset hedge.

HIGHFIELD, SHREWSBURY.—Bar. on 6th 28.68 in.

ORLETON.—The month generally damp, cloudy, and warm, with frequent falls of R, but not in large quantities. The mean temp. about 5° above the average. On the 26th the wind changed northward, and the following two days were cold, with a slight fall of S on the 28th. Distant T on 5th after 1 p.m., and frequent L on the night of the 8th, in S.W. The Teme and Severn flooded on the 9th and 10th from heavy R in Wales. Gale on 6th, with very low bar. Fog on 18th and 19th.

WIGFON GRANGE.—The temp. of this month has been unusually high, the mean being 5° higher than the mean of this month for the last 12 years, the mean max. being 50° and the mean min. 37°.

DERBY.—A warm agreeable month, unusually so for February. Vegetation active, but with a N. wind, and bar. at 30.41, a return of frost must be looked for.

ARNcliffe.—The early part of the month exceedingly wet. On the 8th the highest flood in the river for many years. The latter part of the month dry and fine.

NORTH SHIELDS.—Aurora on the 8th and 17th. Lunar halo on 13th and 16th. S on 6th. H on 27th. Fog on 9th, 14th, and 15th.

SEATHWAITE.—A month of high temp. and great humidity.

WALES.

ABERCARN.—The early part of the month was rainy and stormy. After the 11th the temp. became milder, and it was generally calm and fine until the 26th, when it became much colder. TS on night of the 8th. Fog on 17th and 18th.

HAVERFORDWEST.—A generally damp and mild month. No high winds, the prevailing characteristics being fog and mist. No frost till the last night.

CEFNFAES.—The weather during the month has been generally open and damp.

SCOTLAND.

DUMFRIES.—The first 11 days were wet and stormy, with S on 6th, 7th, and 11th. From 12th to 25th mild and calm, with little R. On 26th frost set in very severe. Near the close of the month whins were in bloom, the honeysuckle in leaf, and buds bursting on hedgerows and fruit trees.

SILVERBUT HALL, HAWICK.—February, 1867, will long be remembered for its mildness. Heavy S showers on the 10th, but no frost of any consequence till the 23rd, when the ther. registered 24°, and 22° on the 24th. Gardening and husbandry operations are in a pretty forward state, but the buds of many of the trees are suffering for their incautiousness in expanding so freely at the beginning of the month.

AUCHENDRANE.—February has been a month of fine weather for all seasonable out-door work and rural sports.

OTTER HOUSE.—A comparatively mild month. Rainy till the 13th, then seven days of dry weather, afterwards light rain to the end of the month. T and L on 2nd, aurora on 9th.

NOOKTON.—S showers on the 8th. Gales on 1st and 25th, and frequent high winds during the month. 26th, 27th, and 28th fine, but cold.

DEANSTON.—2 in. of S on 6th. S. W. gale on 2nd.

LOGIERAIT.—The finest February on record. No S throughout the month. Keen frost on the last three nights. Spring work advancing rapidly.

BALLATER.—A fine month throughout, particularly from the 11th to the close. Vegetation was advancing very rapidly, but received a severe check in the last three days, the temp. falling to 29°, 22°, and 20°. The lark and other birds were singing on the 20th. The R fall is 1·07 below the average of the last 5 years, although in 1863 only 0·51 was measured. It also was a remarkably fine month, and gardening operations were commenced on the 18th, the same day as this season. Lunar halo on 21st. L in E. on 2nd.

ABERDEEN.—Aurora on 4th, 5th, 8th, 12th, and 13th. L H on 9th and 21st. S on 8 days, but would not amount to 2 in. altogether. Bar. on 6th 28·34 in. but no gale here; the month was remarkable for high mean temp. dryness, great range of bar., and rather light winds from S., S. W., and W., more frequently than usual.

CULLODEN.—L on 2nd and 3rd. S or sleet on 10 days; high wind on 10th and 24th; frequent night showers.

ROSSE PARSONAGE, FORT WILLIAM.—With the exception of two mild days (the 9th and 15th) February was wet and boisterous up to the 25th; after then it was clear and frosty. No snow except a very little on the 6th. Strong wind from S. W. on 1st, 2nd, 3rd, 9th, and 24th.

LOCHBROOM.—This month has certainly commenced with an adder's head, and I may say has ended with a scorpion's tail, for its extremes were as rough, stormy, and disagreeable as can well be conceived, while its centre, from the 13th to the 21st, was as beautiful for the season as could well be imagined. It has one peculiarity—while many of its days were passable, the nights broke out in the most terrific manner, but its last day being very fine, it is to be hoped that the seed-time will be favorable. T S on 10th.

SANDWICK.—February has been wetter and milder than the average. L on the 1st, T S on 2nd, T on 22nd and 24th, gales on 2nd and 3rd, blowing 966 miles in 24 hours; from 6th to 7th blowing 50 miles per hour; and one on 24th and 25th, blowing 60 miles per hour. Aurora on three nights.

IRELAND.

MONKSTOWN.—At noon on the 6th, a severe T S with the exception of one or two days, the temp. was pretty uniform, until the 26th, when it became colder, and the mountains were again covered with snow, some of the higher ones appearing to be thickly coated. Bar. varied considerably during the month; max. 30·466 in. on 23rd, while on the 6th it was only 28·738 in.; a fall of 0·834 took place on the 3rd, but was not (at least here) attended by such severe consequences as might have been anticipated from so rapid a fall.

DOO CASTLE.—Very wet month; ground completely saturated, and little progress has been made in farming operations. A fierce storm on the night of the 9th.

OWENDON.—Wet for the first 11 days, then fine to the 25th.

WARINGSTOWN.—The early part of the month wet and unfavorable for labor, but the last fortnight was fine, dry, and seasonable. The spring is more forward than the late severe weather would have led one to expect.

LECKPATRICK.—Warmest February since 1863, in which the mean temp. was nearly the same. Vegetation very forward, and prospect of good early seed-time.

RAINFALL AT CASTLETON MOOR, MANCHESTER.

Lat. 53° 35' 20" N. Long. 2° 10' 31" W. 475 ft. above Mean Sea Level.
FOR THE YEAR 1866.

Height above ground	1 foot.		5 feet.		10 feet.*		20 feet.	
	5 in.	8 in.	5 in.	8 in.	5 in.	8 in.	5 in.	8 in.
Diameter	in.	in.	in.	in.	in.	in.	in.	in.
January.....	5·017	5·154	4·765	4·937	5·032	4·607	4·323	4·452
February	4·839	4·847	4·643	4·731	4·820	4·448	4·349	4·400
March	2·103	2·064	1·791	1·785	1·770	1·688	1·570	1·615
April	1·077	1·047	1·023	·954	1·008	·956	·929	·955
May	1·973	1·926	1·875	1·855	1·907	1·824	1·778	1·782
June	5·938	5·815	5·702	5·570	5·715	5·579	5·424	5·561
July	3·961	3·890	3·919	3·872	3·874	3·839	3·810	3·840
August	5·242	5·109	4·949	4·898	4·954	4·865	4·648	4·767
September.....	8·598	8·575	8·193	8·406	8·421	8·076	7·723	7·854
October	3·128	3·061	2·892	2·960	2·992	2·903	2·666	2·777
November	6·832	6·781	6·384	6·554	6·553	6·395	6·014	5·990
December	5·592	5·521	5·240	5·351	5·539	5·103	4·813	4·842
Totals	54·300	53·790	51·376	51·873	52·585	50·283	48·047	48·835

J. CHADWICK BATES.

We are sure our readers will learn with regret that the non-arrival of the tables epitomized above was caused by serious and fatal illness in Mr. Bates's family. The returns for the last year harmonize perfectly with the results of previous years, as shown in the following abstract from *British Rainfall*, 1866, page 26, the values for 1866 being now added.

Relative Rainfall at different heights, as deduced from Castleton Observations.

Gauges 8 inches diameter.				Gauges 5 inches diameter.			
Height.	1864.	1865.	1866.	Height.	1864.	1865.	1866.
1 foot.....	1·00	1·00	1·00	1 foot.....	1·00	1·00	1·00
5 feet	·97	·95	·96	5 feet	·95	·93	·95
20 feet	·90	·90	·91	20 feet	·90	·87	·89

These observations also enable us further to examine the relative indications of gauges 5 inches and 8 inches in diameter. Completing the table on page 29 of *British Rainfall*, 1866, we have the following results :—

Year.	1 ft. above ground.		5 ft. above ground.		20 ft. above ground.	
	5 inch.	8 inch.	5 inch.	8 inch.	5 inch	8 inch.
1864.	1·00	1·01	1·00	1·03	1·00	1·01
1865.	1·00	1·00	1·00	1·02	1·00	1·03
1866.	1·00	·99	1·00	1·01	1·00	1·02
Mean..	1·00	1·00	1·00	1·02	1·00	1·02

It is almost needless to point out that the observations during 1866 confirm in almost every respect the inferences and deductions from those of the preceding years, thus proving at once the accuracy of the observations, and the reliability of the deductions.

* From some cause (at present unknown) this gauge has evidently collected about 5 per cent. too much.

SUPPLEMENTARY LIST OF RETURNS OF RAINFALL IN 1866.

Division.	COUNTY.	STATION.	OBSERVER.	Rain Gauge.			Depth of Rain 1866.	Days on which >1 or more fell.
				Diameter.	Height above grnd.	Height above sea l.		
II.	Surrey	Kingston (Fairfield)	Mr. T. Chalk	in.	ft.	in.	feet.	inches
				5	0	6	...	23·87
		Cobham Lodge	Miss Molesworth ..	5	0	6	100	26·80
	Kent	Staplehurst (East Sutton) ..	Mr. T. Skinner ...	8	0	8	...	32·93
	Sussex	Lynch [Midhurst]	J. Eames, Esq. ...	5	0	6	160	43·85
IV.	Norfolk ...	Yarmouth, Filby	Mr. Crisp	5	2	4	18	27·69
		East Dereham	G. H. Cooper, Esq.	8	3	0	...	30·39
V.	Devon	Exeter (Brampford Speke) ..	W. H. Gamlen, Esq.	8	...	...	...	37·22
VI.	Gloucester..	Bristol (Brislington)	G. Thomas, Esq. ...	18	5	3	...	38·13
		Stroud	J. Bateman, Esq. ...	...	1	0	240	35·43
	Stafford ...	Wolverham't'n (Patshull) ..	Rev. B. S. Malden ..	8	1	6	400	23·94
		Stoke-on-Trent (Stanley) ..	J. S. Forbes, Esq. ...	5	3	1	550	34·10
		" " " (Etruria) ..	" " "	5	4	2	440	36·17
		Leek (Rudyard)	" " "	5	12	7	500	37·86
		Knypersley [Congleton] ..	" " "	5	14	0	500	32·01
		Wincle [Macclesfield]	" " "	5	5	0	500	39·18
	Worcester..	Worcester (Gas Works) ..	N. Gosling, Esq. ...	10	4	1	...	25·87
VII.	Leicester ..	Thornton Reservoir	J. Bevins, Esq. ...	...	2	8	420	27·65
		Loughboro' (Cedar Cot.) ..	J. Gills, Esq.	5	0	9	400	32·22
	Lincoln ...	Brigg (Ferriby Sluice) ...	Rev. J. E. Cross ...	...	0	9	20	25·53
	Derby	Morley	Rev. S. Fox	5	3	0	406	33·25
VIII.	Lancashire.	Cartmel (Allithwaite) ...	W. R. Nash, Esq. ...	...	1	0	88	46·95
IX.	Yorkshire..	Outershaw	<i>Preston Guardian</i> ..	...	...	...	...	91·73
		Mirfield (Calder Farm) ..	Mr. J. Johnson ...	8	0	5	320	34·07
		Redcar (Upleatham)	M. Gray, Esq.	3	0	4	330	28·00
XI.	Monmouth.	Abergavenny	Dr. McCullough ...	5	1	3	...	38·61

NOTES ON BRITISH RAINFALL, 1866.

DIAGRAM.—It has been suggested that Bideford is placed too high in the list, where it stands as 56, the depth returned from Buckish. Northam is said to be the true representative of Bideford, and it only returned 41 inches—less than any station on the west of Devon or Cornwall.

On page 85 Clapham is entered as having 177 days with rain; it should have been 187.

On page 104, for "Festiniog (Blaenyddob)," read "Blaenyddol."

On page 116, for "Howard, N. T., Esq.," read "Howard, W. D., Esq."