

SYMONS'S
MONTHLY
METEOROLOGICAL MAGAZINE.

CCXXVIII.]

JANUARY, 1885.

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

THE NEW TIME.

THE English always were a rather peculiar people, and just at present we think that they are affording a striking proof of it.

In accordance with a decision arrived at by the International Geodetic Association at Rome in 1883, and with a resolution of Congress, the President of the United States issued invitations to the governments of all nations in diplomatic relation with his own, to send delegates to a conference to be held at Washington in October last, for the purpose of discussing, and if possible fixing upon, a meridian proper to be employed as a common zero of longitude, and standard of time-reckoning throughout the world. The conference was held; twenty-five nations (including Great Britain) were represented. It was resolved by an overwhelming majority that the meridian passing through the Observatory of Greenwich should be adopted as the zero of longitude. Subsequently it was resolved, without a dissentient vote, "that a universal day be adopted for all purposes, for which it may be found convenient, and which shall not interfere with local or other standard time where desirable. Finally it was resolved, by 15 votes in favour, 2 negatives, and 7 not voting, that this universal day be a mean solar day, beginning for all the world at the moment of mean midnight of the initial meridian, coinciding with the civil day and date of that meridian, and be counted from 0 up to 24 hours.

Put into popular language, these resolutions amount to this:—

The introduction into the maps published in every country of the world, of lines of longitude reckoned from Greenwich instead of, as hitherto, lines reckoned from the capital of each country.

The adoption of Greenwich time (modified for local purposes) throughout the world. (This is especially needed when, as now, telegrams arrive before the time at which they are sent off—that absurdity would vanish.)

The abolition of the a.m. and p.m., which, though defended by many, are often sadly misused; for instance, not long since we had a record of thunder at "12.15 a.m.," if the writer

meant what he wrote, the thunder must have been shortly after midday, and should have been 0.15 p.m., but what the observer really did mean was 15 minutes after midnight, *i.e.*, 0.15 a.m. A very amusing illustration of some of the inconveniences of the reckoning twice up to 12, occurred recently. There was an earthquake at 5.15 p.m., a telegram was sent (very much condensed) to a far distant newspaper, the magic letters p.m. were omitted; the editor jumped at the conclusion that it happened in the early morning, and printed a highly coloured description of the citizens rushing about in *déshabille*, &c. If the telegram had said 17.15 the editor's subsequent feelings would have been more pleasant than they were when it was found that the earthquake occurred in the afternoon, and that his graphic description was entirely untrue.

This, however, is by no means the strongest argument for the change. The representatives of the American railways felt so strongly the importance of the whole subject, that they obtained permission to lay their views before the conference. Those who have to plan long cross journeys in accordance with *Bradshaw*, know how difficult it is to distinguish night trains from day ones.

Looking at the question from a meteorological point of view, we are certain that the carrying out of the proposal of the Conference, and the reckoning throughout the British Isles in Greenwich time, and in a single series from 0 h. at midnight, through 12 at noon to 23 h. 59 m. at midnight would (though troublesome for a week or two) be a saving of time, and of trouble, and a great help towards accuracy.

It may be asked what all this has to do with our opening assertion that the English are a rather peculiar people. We think that it is peculiar that *when the representatives of the whole world, in conference assembled, have decided upon adopting the Greenwich meridian, and Greenwich time, Englishmen forthwith act as if they took no interest in the matter.*

The movement for adopting the 24 hour notation was going forward rapidly, the press teemed with articles on the new time, a good deal of ingenuity and of banter was bestowed on designs for altering the dials of watches and clocks, and the striking of large ones. Twenty-four hour watches and clocks by the dozen, if not by the hundred, were made and exposed in the shop windows of London and of Provincial towns, about a score of patents were taken out for new forms of 24 hour clocks, and January 1st, 1885, was looked forward to as the date of the inauguration of the new system. But all of a sudden, the subject is dropped. The Astronomer Royal shifts the clock at the Observatory gates, one London clergyman announces a service for 19 h., the Isle of Wight Railway Company (all honour to it) prints its time tables on "the only rational plan," and *Voilà tout!*—*Bradshaw* comes out as puzzling as ever, and even takes the trouble to snub the Isle of Wight people by converting their

figures back to "a.m." and "p.m.," except that *Bradshaw* does not condescend to put either "a.m." or "p.m.," but leaves us to guess, according to the position of the figures on the page, which ought to be there.

The addition of 12 to the ordinary name of every afternoon and evening hour, is so simple an operation that everybody would have learned it in a fortnight, but the "cold water," which some persons have thrown upon the scheme seems to have been wonderfully effective.

We await with considerable interest a statement of the reasons for checking the movement.

ROYAL METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday evening, the 17th instant, at the Institution of Civil Engineers, Mr. R. H. Scott, F.R.S., president, in the chair.

Mr. C. H. Cotton, Mr. S. A. Jolly, L.R.C.P., and Rev. C. J. Taylor, M.A., were elected Fellows of the Society.

The following papers were read :—

(1). "On the reduction of Temperature Means from short series of observations to the equivalents of longer periods," by Dr. Julius Hann, Hon. Mem.R.Met.Soc. The author has recently carried out an investigation into the climate of the Alpine districts of Austria, and in doing so he has endeavoured to reduce the monthly and annual means of all the temperature observations from the districts in question during the interval from 1848 to 1880 (and in some places to 1884) to the mean for the thirty years' period 1851 to 1880. In this paper, Dr. Hann described the methods he adopted to reduce observations at mountain stations for short periods to the equivalents of longer periods.

(2). "The diversity of Scales for registering the force of Wind," by Charles Harding, F.R.Met.Soc. The object of this paper is to call attention to the confusion that exists in the systems in use by various countries for registering wind force, whether instrumentally or otherwise, and to show the need of action for improvement. (See *Met. Mag.*, Vol. I., No. iii., April, 1866, page 19.)

(3). "Report on the Phenological Observations for the year 1884," by the Rev. T. A. Preston, M.A., F.R.Met.Soc. The salient features of the weather during the period embraced in this report, viz., October 1883 to September 1884, were :—The mild winter ; the cold April ; the hot August, and the long period of drought, which at the end of September began to be seriously felt. The general effects on vegetation have been the prolonged existence of many of the autumn species ; the great loss of wall fruit ; the failure of bush fruits ; the plentiful supply of strawberries as long as they lasted, but the time was short ; the good hay harvest, although it was light in quantity ; the good corn crop ; the unusually plentiful potato crop ; and the great abundance of wild fruits.

THE AMERICAN METEOROLOGICAL JOURNAL.*

IN our April number we announced the probable commencement of the above-named journal. Now that eight numbers, amounting in the aggregate to 340 pages, have appeared, we may appropriately offer a few remarks upon its contents. Quantity and price are very secondary considerations; they may, therefore, as well be disposed of at once. Each number is about three times the bulk of one of ours, and nearly three times the price.

In No. 1 the formation of an American Meteorological Society is suggested, on a later page we have, in the efforts of the American Ornithologists' Union, a partial equivalent to the phenological work of the Royal Meteorological Society. Tornadoes being so much more violent and frequent in the States than in Europe, much attention is devoted to them. A full account is given of the organization of the Ohio Meteorological Bureau by its president, Prof. T. C. Mendenhall (who if we mistake not was formerly in charge of the meteorological observations in Japan) and of the commencement of distributing weather forecasts by attaching large symbols to the luggage trains. The extremely good paper by M. Radau in the *Bulletin Astronomique* for January 1884, is translated, and in five pages of small type gives the best summary of the twilight phenomena of 1883-4 which we have seen in English.

In No. 2 there is a well founded complaint of the application of the word cyclone, which is the proper term for a gyrating body of air hundreds of miles in diameter, to small circular storms of little more than as many yards; these it is urged should be designated tornadoes. There is also a careful paper on, with original maps of, the Winds and Currents of the Equatorial Atlantic, by Prof. W. M. Davis. The paper on the rainfall of Nebraska is interesting and valuable, but would have been far more so had a page of tabular values been added. If the returns are all correct, the fluctuation of rainfall is excessive, as may be judged by the following:—"For example, Bellevue had 59.92 (should be 50.92) inches in 1858, and but 18.57 in. in 1859." The one is about 78 per cent. above, and the other about 43 per cent. below the mean, a fluctuation of 121 per cent. in two consecutive years. In the British Isles it is very rare for one of two consecutive years to have twice the fall of the other, but these records would make that in 1858 two and three quarter times that in 1859. Many useful translations are given, *e.g.*, those of the paper by Dr. Schwirkus, on the construction of Aneroid Barometers, originally published in the *Zeitschrift für Instrumentenkunde*, and by Dr. Assmann, on the Sling Thermometer (from the *Zeitschrift d. Oesterr. Gesell. f. Met.*) but as altogether the numbers before us must contain nearly 100 articles, besides three or four times that number of short notes, it is obviously inexpedient for us

* W. H. Burr & Co., Detroit, Michigan.

to attempt to enumerate them. The *American Meteorological Journal* has an important future before it, and we are glad to note that it has already appointed as European publishers the great firm of Brockhaus, of Leipsic, Berlin and Vienna. Englishmen would probably prefer getting it through the post, by remitting direct to the publishers at Detroit.

POPULAR PROGNOSTICS.

To the Editor of the Meteorological Magazine.

SIR,—I cannot resist giving a “random reading,” which I fell in with in an old “Description of England and Wales,” by “Herman Moll, Geographer.” Folio : MDCCXXIV.

Of course I do not claim to have made any mighty discovery, or to throw any light on a mysterious subject, but under “Staffordshire,” p. 222, occurs the following :—

“The Dove . . . runs through a Lime-Stone Soil, and sucks in such Fertility from it, that the Meadows on every Side appear fresh and green in the dead of Winter ; and when it happens to overflow them in April, it fructifies them so much, that the Inhabitants hereabouts joyfully apply the following Rhime to it :—

“ In April, Dove's Flood,
Is worth a King's Good.”

In Dr. Clouston's “Popular Weather Prognostics,” p. 50 :—

(22) “ In April a dove's flood
“ Is worth a King's good.

“(22). I never met with this saying before, and I know not in what district it prevails. As a dove is not fond of water, and a real flood would be no blessing in April, I am inclined to interpret the ‘flood’ negatively as dry weather, and in this sense, it is of great value for sowing the seed that has not been got into the soil in March.”

I confess I felt highly tickled as I pictured the worthy doctor puzzling his brain as to the literal interpretation of the enigma, and in his despair ignoring the literal and affirmative side, and rushing to a negative solution, and pointing out its great value in this sense. It must have been a great puzzle. Doves certainly are not aquatic birds—as a rule—if so, nature would have made them web-footed. Noah's dove had considerable experience of the water, but didn't take kindly to it. I don't know any other flood that could be more appropriately termed “dove's flood.” Unfortunately the big “D” had dropped in transition from Staffordshire to the Orkneys, without being at all aware of the perplexity it was causing by so doing, and so recently as 1867 big “D” had never been replaced out there. This is a very harmless joke of mine, and probably no one would have enjoyed it more than the worthy doctor himself. By your “In

Memoriam" I learn that his observations are for ever ended, and he seems to have been a most worthy, intelligent, and useful man, and to have justly merited the esteem of his countrymen.

What would you call this joke, a Clerical error, or a Capital blunder?

G. W. ATKINSON.

Culgaith Vicarage, Penrith.

[This letter is so interesting, that we are afraid that in adding a few lines we shall spoil it. Still, to be accurate is our first duty, and we have to add a little to the history of the Dove, which Mr. Atkinson has so happily corrected. Dr. Arthur Mitchell was, as far as we can trace, the original source of this droll muddle, for he gives the proverb in his *Popular Weather Prognostics of Scotland*, and spells it "a dove's." What authority Dr. Mitchell had for taking the bird to Scotland, and for entering it in a Scotch collection, remains to be seen; but Dr. Clouston might well say as he did, "I never met with this saying before, and I know not in what district it prevails.—ED.]

THE THUNDERSTORMS OF 1884.

To the Editor of the Meteorological Magazine.

SIR,—I was not aware you had intended to prolong your account of the July thunderstorms to August, or I would have reported that on August 9th there was here perhaps the most awfully grand one I ever witnessed. There were 14 flashes per minute about 9 p.m.; many were multiple, and an unusually large proportion forked. No. 65, Coronation-street, and No. 4, Herrington-street were struck; but the damage was small. A young woman in a house in Ward-street was struck, though the house was not; she was dangerously ill for a week or two, but ultimately recovered.—Yours truly,

T. W. BACKHOUSE.

West Hendon House, Sunderland, Dec. 19, 1884.

[It appeared to us so remarkable for any one in a house to be struck while the house was not, that we asked Mr. Backhouse if it was not a nervous derangement caused by fright. He has favoured us with the reply which we append.—ED.]

SIR,—On enquiry, the illness of the young woman reported does not appear to be at all attributable to fright. She was near the window, which at the time was shut; and felt a sudden pain in her head, but the unconsciousness and severe effects were not at once produced, for she was able to walk to a neighbouring house. She saw the flash, but did not hear the thunder, which seems strange if she really was struck; I understand, however, that her medical attendant considered she had been.

Yours truly,

T. W. BACKHOUSE.

SCRAPS.

THE NEW MOUNTAIN STATION IN SOUTH AUSTRALIA.—Encouraged by the tentative results of the past month, Mr. Clement L. Wragge has now extended his plan of operations on Mount Lofty (2,350 ft. above sea), and has established, as a further experiment, a substantially equipped meteorological observatory there. The barometer is a fine instrument on the Kew pattern, with an extended scale for special use at high level stations, made to Mr. Wragge's order by Adie & Wedderburn, of Edinburgh. It is protected by a stout, double-sided box, screwed to an angle-post of the Government fence. The aneroid-barograph is set by this instrument, and works admirably, and being checked at intervals, there is a continuous and faithful record of every variation of pressure. The hygrometer and self-registering thermometers are now exposed in an improved and enlarged pattern of Stevenson's double-louved screen, fixed in position on October 31st, and specially constructed to suit the conditions of the Australian climate. Earth thermometers, and another rain-gauge, have also been added. The instruments of the Torrens Observatory are similarly exposed; and readings are taken there in direct connection with the observations on the Mount.—*Adelaide Evening Journal*, Nov. 3rd, 1884.

CURIOUS CASE OF CAUSE AND EFFECT.—During the storm at Greenville, Rhode Island, May 9th, the lightning ran by the telephone wire to the Windsor Mill, where there is no telephone, but the wire is disconnected just outside the building. The lightning was led by the wire to the corner of the mule and weaving-rooms, and entered the building under the jet. It followed the water pipe, and set the sprinklers going, and at the same time fired the stock in the mules. By this singular provision of an active extinguishing agent at the moment the fire started, serious loss was prevented, as the fire was soon drowned out. Many of the spindles in the mules lost their temper, and some of the belts were burned, but the mill was saved.

[We remember a parallel case in which the lightning followed a telegraph wire into a post-office, jumped across to a composition gas-pipe, ignited the gas, and by the heat of the gas, a water-pipe above it was fused, and the water escaping saturated everything, and prevented further damage.—ED.]

JAPANESE WEATHER MAPS.—Mr. E. Knipping, meteorologist of the Imperial Meteorological Observatory at Tokio, describes in the September number of the *Mittheilungen der deutschen gesellschaft für natur-und völkerkunde Ostasiens*, the rapid development of weather telegraphy in Japan. There are now twenty-four stations in the empire connected by telegraph; and on the basis of their observations, supplemented by despatches from China, three daily synoptical maps are published in Japanese and English characters. Observations are taken at six a.m., and two and nine p.m. "Japan" time, which is about that of the Kyoto meridian; so that the evening observation corresponds to eight o'clock, "China coast" time, six o'clock "Bengal" time, four o'clock "Persian" time, one o'clock "German" time, and noon in "English" (Greenwich) time. The director of the service is Mr. J. Arai; and the observers, telegraphers, draughtsmen, and printers, are all Japanese. The first weather-map was printed on March 1st, 1883, and the tri-daily issue began a month later. The chief need of the service at present, is the addition of the fifty-six lighthouses to the other stations, and the construction of a sub-marine cable to the Linkin (Loo Choo) Islands.—*Science*, Cambridge, Mass. Dec. 5th).

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, MAY, 1884.

STATIONS. <i>(Those in italics are South of the Equator.)</i>	Absolute.				Average.				Absolute.		Total Rain.		Aver.	
	Maximum.		Minimum.		Max.	Min.	Dew Point.	Humidity.	Max. in Sun.	Min. on Grass.	Depth.	Days.		Cloud.
	Temp.	Date.	Temp.	Date.										
England, London	81·3	24	35·0	1	66·3	44·7	44·2	67	102·2	40·9	·78	11	5·2	
Malta.....	78·8	5	53·0	5	72·4	59·4	58·7	80	142·5	46·5	·64	5	3·0	
<i>Mauritius</i>	79·9	6	58·6	13	77·6	66·9	64·0	77	127·7	48·3	12·81	14	5·2	
Calcutta.....	96·3	19	68·3	6	92·0	76·3	76·2	78	156·4	62·9	5·86	14	4·4	
Bombay.....	91·3	29	76·2	2	89·4	79·2	75·3	74	143·8	67·4	0·00	0	2·2	
Ceylon, Colombo	87·0	9	73·3	12	86·1	77·8	73·8	77	143·0	66·0	10·31	25	7·0	
<i>Melbourne</i>	77·0	9	38·0	21	62·0	45·8	46·1	79	124·3	30·3	2·15	10	6·6	
<i>Adelaide</i>	78·2	2	40·3	25	64·1	50·1	47·3	70	136·3	31·9	2·39	16	6·0	
<i>Wellington</i>	62·0	18*	39·3	9	57·9	48·4	...	...	119·0	35·0	8·02	17	...
<i>Auckland</i>	65·5	7	37·5	31	60·3	48·6	45·2	70	123·0	30·0	4·19	16	5·6	
Jamaica, Kingston.....	87·2	21	67·3	3	85·5	71·5	72·5	82	...	...	3·09	...	5·2
Barbados	84·0	var.	70·0	var.	81·0	72·0	73·2	81	143·0	69·0	4·70	17	6·0	
Toronto	75·7	23	28·0	3	59·9	41·9	42·8	71	131·8	19·8	2·26	17	6·4	
New Brunswick, Fredericton	79·6	26	28·5	6	58·4	37·1	37·3	71	...	...	4·99	18	6·3
Manitoba, Winnipeg	85·4	17	24·7	13	66·6	38·5	40·7	63	...	...	·34	4	2·8
British Columbia, Spence's Bridge ...	...	...	...	...	...	...	...	...	...	...	...	...	...

* And 27, 28.

REMARKS, MAY, 1884.

MALTA.—Mean temp., 64°·9; mean hourly velocity of wind, 9·3 miles; sea temp. rose from 65° to 71°. TS on the 22nd. J. SCOLES.

Mauritius.—Rainfall 7·87 in. above, and mean temp. 1°·2 below average; max. velocity of wind 26·2 miles on 27th, min. 1·6 miles on 19th, prevailing direction S.E. by S., to E. Heavy floods on night of 6th, with T and L. Coloured skies before sunrise and after sunset throughout, but not so intense as in 1883. C. MELDRUM, F.R.S.

CEYLON.—Thunderstorms occurred on eight days. J. H. SYMONDS.

Melbourne.—Mean temp. of air 0°·3 below average. Temp. of dew-point, humidity, amount of cloud, pressure, and rainfall all remarkably near their respective averages. Prevailing winds N. and W., strong breezes on five days. Heavy dew on nine days, dense fog on three days, T and L on 10th. R. L. J. ELLERY, F.R.S.

Adelaide.—Mean pressure ·069 in. above, and mean temp. slightly below average; max. temp. the highest in May since 1868; total range unusually large. Rainfall 0·80 in. below average; amount of cloud average. The weather was fine and warm during the first week, then showery until the 23rd, then again fine and pleasant to the end of the month. The "red glow" increased in intensity, presenting a beautiful spectacle on each clear evening during the latter half of the month. C. TODD.

Wellington.—Generally showery, unpleasant weather till 13th, 1·95 in. of R being recorded on that date; from the 14th to the 21st fine with N. wind; from the 22nd to the 28th showery, with at times heavy R and very unpleasant weather; the remainder of the month was fine. Strong S.E. gale on 12th and 13th; fog on 3 days. Mean pressure and temp. very near their respective averages. R. B. GORE.

Auckland.—Rather wet and showery, with heavy rain on 16th and 21st. Bar. fluctuating greatly. T. F. CHEESEMAN.

BARBADOS.—Mean temp., 75°·6, 1°·4 below the average. N.E. winds prevailed on 29 days, and E. on 2 days; mean hourly velocity 11 miles, the same as the average; extremes 16·4 miles and 5 miles. Rainfall 5 per cent. above the average; six days were overcast. R. BOWIE WALCOTT.

SUPPLEMENTARY TABLE OF RAINFALL,
DECEMBER, 1884.

[For the Counties, Latitudes, and Longitudes of most of these Stations,
see *Met. Mag.*, Vol. XIV., pp. 10 & 11.]

Div.	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
II.	Dorking, Abinger	2·80	XI.	Carno, Tybrith	8·25
„	Margate, Birchington...	2·85	„	Corwen, Rhug	5·04
„	Littlehampton	4·34	„	Port Madoc	6·06
„	Hailsham	4·37	„	I. of Man, Douglas	5·26
„	I. of W., St. Lawrence.	4·84	XII.	Stoneykirk, Ardwell Ho.	4·05
„	Alton, Ashdell.....	4·13	„	Melrose, Abbey Gate...	2·92
III.	Winslow, Addington ...	2·65	XIII.	N. Esk Res. [Penicuik]	5·15
„	Oxford, Magdalen Col...	2·07	XIV.	Ayr, Cassillis House ...	5·77
„	Northampton	1·80	„	Glasgow, Queen's Park.	6·12
„	Cambridge, Beech Ho...	1·75	XV.	Islay, Gruinart School..	6·67
IV.	Southend	1·90	XVI.	St. Andrews, Newton Bk.	2·60
„	Harlow, Sheering ...	2·09	„	Balquhider, Stronvar...	12·29
„	Diss	2·64	„	Dunkeld, Inver Braan..	4·51
„	Swaffham	2·19	„	Dalnaspidal H.R.S. ...	9·32
„	Hindringham .....	...	XVII.	Keith H.R.S.	1·67
V.	Salisbury, Alderbury ...	2·81	„	Forres H.R.S.	1·59
„	Warminster	3·84	XVIII.	Strome Ferry H.R.S....	6·39
„	Calne, Compton Bassett	2·89	„	Lochbroom	7·22
„	Ashburton, Holne Vic..	10·14	„	Tain, Springfield.....	2·07
„	Holsworthy, Clawton...	4·84	„	Loch Shiel, Glenaladale	15·93
„	Lynmouth, Glenthorne.	7·69	„	Invergarry	10·14
„	Probus, Lamellyn ...	3·95	XIX.	Lairg H.R.S.	3·09
„	Wincanton, Stowell Rec.	3·33	„	Forsinard H.R.S.	3·19
„	Taunton, Fullands .....	...	„	Watten H.R.S.	2·03
VI.	Bristol, Clifton	5·29	XX.	Dunmanway, Coolkelure	9·65
„	Ross	2·59	„	Fermoy, Gas Works ...	2·80
„	Wem, Sansaw Hall.....	1·60	„	Tralee, Castlemorris ...	4·09
„	Cheadle, The Heath Ho.	2·92	„	Tipperary, Henry Street	4·65
„	Worcester, Diglis Lock	1·72	„	Newcastle West	6·75
„	Coventry, Coundon	2·04	„	Milton Malbay.....	5·48
VII.	Melton, Coston	2·06	„	Corofin	3·10
„	Ketton Hall [Stamford]	1·96	XXI.	Carlow, Browne's Hill..	3·77
„	Horncastle, Bucknall ...	2·10	„	Navan, Balrath	3·03
„	Mansfield, St. John's St.	2·24	„	Mullingar, Belvedere...	4·76
VIII.	Macclesfield, The Park.	3·57	„	Athlone, Twyford	5·72
„	Walton-on-the-Hill.....	...	XXII.	Galway, Queen's Col....	5·92
„	Lancaster, South Road.	4·44	„	Clifden, Kylemore	10·34
„	Broughton-in-Furness ..	...	„	Crossmolina, Enniscoe..	6·56
IX.	Wakefield, Stanley Vic.	1·49	„	Carrick-on-Shannon ...	4·21
„	Ripon, Mickley	4·38	XXIII.	Dowra	2·73
„	Scarborough.....	2·05	„	Rockcorry.....	3·67
„	East Layton [Darlington]	2·66	„	Warrenpoint	4·81
„	Middleton, Mickleton ...	6·36	„	Newtownards	2·73
X.	Haltwhistle, Unthank..	5·08	„	Belfast, New Barnsley .	4·71
„	Shap, Copy Hill	9·92	„	Cushendun	5·54
XI.	Llanfrechfa Grange	6·14	„	Bushmills	4·79
„	Llandoverly	8·45	„	Stewartstown	3·63
„	Lower Solva	5·03	„	Donegal, Revelin Ho....	...
„	Castle Malgwyn	4·62	„	Buncrana	4·87
„	Rhayader, Nantgwilt..	9·23	„	Carndonagh .....	...

DECEMBER, 1884.

Div.	STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL.					TEMPERATURE.				No. of Nights below 32°	
		Total Fall.	Difference from average 1870-9	Greatest Fall in 24 hours.		Days on which .01 or more fell.	Max.		Min.		In shade.	On grass.
				Dpth	Date.		Deg.	Date	Deg.	Date.		
I.	London (Camden Square) ...	2.57	+ .40	.41	5	17	55.7	8	28.5	31	5	11
II.	Maidstone (Hunton Court)...	2.65	+ .25	.37	11	20	...	...	...	...	...	...
III.	Strathfield Turgiss	2.27	+ .25	.32	11	18	54.8	13	20.8	31	10	16
III.	Hitchin	2.26	+ .21	.49	7	18	59.0	6	24.0	30b	19	...
IV.	Banbury	2.10	- .05	.27	2, 3	19	53.5	13	25.0	31	16	...
IV.	Bury St. Edmunds (Culford)	2.64	+ .49	.50	7	18	54.0	6, 7	23.0	30	10	...
V.	Norwich (Cossey)	2.45	+ .13	.35	19	19	55.0	6, 7	23.0	31	5	8
V.	Weymouth (Langton Herring)	4.29	...	.68	16	17	...	...	...	...	...	...
V.	Barnstaple	4.97	+ 1.21	.74	5	20	56.0	8	32.0	25	1	...
V.	Bodmin	5.34	- .11	.80	5	21	54.0	7	27.0	29	10	14
VI.	Cirencester	3.74	+ 1.13	...	...	...	...	...	...	...	...	...
VI.	Church Stretton (Woolstaston)	3.65	+ .86	.53	16	17	53.5	13	26.0	24b	16	18
VI.	Tenbury (Orleton)	2.24	- .27	.37	14	17	56.5	6	25.5	31	7	16
VII.	Leicester	2.40	...	.31	3	19	54.0	6	23.2	1	8	27
VII.	Boston	1.91	- .16	.46	3	13	55.0	13	26.0	1	8	...
VII.	Grimsby (Killingholme)	2.63	+ .20	.39	19	19	54.0	13	30.0	1b	3	...
VII.	Hesley Hall [Tickhill]	1.35	...	.26	4	17	57.0	13	24.0	31	8	...
VIII.	Manchester (Ardwick)	3.64	+ 1.11	.54	14	16	56.0	13	27.0	27	15	...
IX.	Wetherby (Ribston Hall) ...	2.46	+ .25	.42	20	10	...	...	...	...	...	...
IX.	Skipton (Arncliffe)	10.11	+ 4.83	1.30	7	19	...	...	...	...	...	...
X.	North Shields	1.68	- 1.41	.32	4	21	57.5	3	27.5	24	12	14
X.	Borrowdale (Seathwaite)	19.22	+ 5.49	2.76	12	21	52.0	13	21.5	29	5	...
XI.	Cardiff (Ely)	6.53	+ 2.62	.83	5	20	...	...	...	...	...	...
XI.	Haverfordwest	4.65	+ .48	.99	5	17	54.0	13	24.5	28	11	14
XI.	Plinlimmon (Cwmsymlog) ...	7.15	...	1.02	5	19	...	...	...	...	...	...
XI.	Llandudno	2.92	+ .07	.65	14	17	55.0	14	27.0	29	...	...
XII.	Cargen [Dumfries]	4.40	- .13	.67	10	18	51.8	13	20.8	23	13	...
XII.	Hawick (Wilton Hill)	1.99	...	.40	9	17	...	...	...	...	...	...
XIV.	Douglas Castle (Newmains) ..	7.29	+ 3.20	1.12	18	19	...	...	22.0	21	12	...
XV.	Lochgilphead (Kilmory)	9.14	+ 2.96	.92	12	23	...	...	...	...	...	...
XV.	Oban (Craigvarren)	6.59	...	.80	9	21	57.0	14	31.5	29	1	...
XV.	Mull (Quinish)	8.03	...	.99	1	24	...	...	...	...	...	...
XVI.	Loch Leven Sluices	6.20	+ 2.54	.80	16	18	...	...	...	...	...	...
XVI.	Arbroath	2.64	- .26	.51	7	14	51.0	14	22.0	23	18	...
XVII.	Braemar	2.44	- .99	.59	9	15	45.8	12	15.3	22	23	26
XVII.	Aberdeen	1.84	...	.50	2	17	53.0	14	25.0	23	14	...
XVIII.	Skye (Sligachan)	18.81	...	2.68	14	23	...	...	...	...	...	...
XVIII.	Culloden	2.66	+ .82	.86	8	8	53.0	14	21.0	1	11	29
XIX.	Dunrobin	2.03	...	.40	13	17	52.0	14	24.2	23	13	...
XIX.	Orkney (Sandwick)	4.31	- .08	.51	13	20	49.0	14	25.6	1	2	16
XX.	Cork (Blackrock)	3.64	- 1.12	.44	3	20	57.0	13	26.0	21d	9	...
XX.	Dromore Castle	7.58	...	1.50	5	21	...	...	...	...	...	...
XX.	Waterford (Brook Lodge) ...	2.96	...	.45	1	20	53.0	2, 13	25.5	22	10	18
XX.	Killaloe	7.50	...	.85	18	23	51.0	1	24.0	24	8	...
XXI.	Portarlington	3.54	+ .68	.32	18a	23	55.0	13	26.0	22	13	...
XXI.	Dublin (Fitz William Square)	2.01	- .57	.37	7	20	56.4	13	27.3	22	5	15
XXII.	Ballinasloe	5.44	+ 1.96	.56	8	24	49.0	2, 12	22.0	24	15	...
XXIII.	Waringstown	3.31	+ .35	.44	19	21	57.0	25	22.0	21	...	...
XXIII.	Londonderry (Creggan Res.) ..	4.71	...	.52	18	25	...	...	...	...	...	...
XXIII.	Omagh (Edenfel)	4.40	+ 1.00	.55	7	23	52.0	13	26.0	21c	6	12

a And 29. b And 31. c And 23. d And 23, 25, 26.

+ Shows that the fall was above the average; - that it was below it.

METEOROLOGICAL NOTES ON DECEMBER.

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

ENGLAND.

STRATHFIELD TURGISS.—The weather of the first part of the month was very mild; but it became colder later. As late as the 14th over 30 varieties of wild flowers in their second or autumn blossoms could be gathered.

BANBURY.—A windy month, with very little fog. Temp. about the average, and varying but little between night and day during the last week; mean, 39°·8. High wind on 11 days; S six days; L and H on 18th.

LANGTON HERRING.—The wet weather which set in on November 30th, continued without intermission until December 11th, and heavy R fell at intervals till 19th, making it the wettest month of the year; on only one of the 17 days on which R fell was less than ·08 in. recorded. Mean temp. about 1° above the average; from 21st to 30th the wind kept steadily in the N.E., the days were very cold, and the range of temp. remarkably small. Gale on 4th.

BODMIN.—A very genial month.

WOOLSTASTON.—The first part of the month was very wet, R falling almost daily till the 19th; the latter part was cold and dry, with sharp frost at night. A severe gale blew on the 4th, and high winds and sharp squalls prevailed between the 10th and 19th; T and L, with a violent storm of H, on 18th; mean temp. 37°·7.

ORLETON.—The temp. of the first 15 days was much above, and that of the remainder of the month was below the average; the mean for the month being about 2° above the average. The sky was generally covered with cloud, and R was registered on almost every day till the 20th, but it fell mostly in small quantities, so that the total fall in the month was less than the average. On the night of the 18th frequent L was seen from S.W. to N.W., but very distant. This was followed on the night of the 19th by a great gale of wind, and heavy R on the morning of the 20th. The weather was afterwards very cloudy and cold, with N. and E. winds, but no severe frosts.

BOSTON.—A very severe gale, accompanied by T, occurred on 18th, and in a garden in the outskirts of the town a whirlwind did very considerable damage by destroying the glasshouses, uprooting fruit trees, and tearing the stems of the vines in the vinery off near the ground.

KILLINGHOLME.—A seasonable month, cold but not severe; dark mornings.

MANCHESTER.—The early part of the month was wet, the R being most welcome, as fears of a water famine prevailed in Lancashire and some parts of Yorkshire. The latter half of the month was generally fine, with frosty mornings, with a fair amount of ice during the last week, to the great delight of skaters.

ARNCLIFFE.—R fell daily from 1st to 19th inclusive, and none afterwards, and there were four days on which the fall exceeded 1·00 in.

SEATHWAITE.—During the first 19 days of the month more than 19 inches of R fell; nine days had falls exceeding 1·00 inch, and two days falls exceeding 2·50 inches. H on 5 days. T and L on 3 days.

WALES.

HAVERFORDWEST.—The commencement of the month was gloomy, with much cold R, and at times stormy with H. The period from the 18th to the 26th was very stormy, with L and H. The wind on the 19th increased to a gale, exceeding, in violence and in amount of damage done, any gale which has of late years visited this place. Houses were unroofed, scores of trees blown down, and farm-yards much torn by its violence. From the 21st to the 31st, there was a hard frost, with E. wind steadily prevailing. No S fell during the month, which was,

on the whole, a very seasonable December. Scarlatina prevailed rather extensively.

LLANDUDNO.—December was very near the average, both in regard to mean temp. and range, diurnal and monthly.

SCOTLAND.

CARGEN.—Very stormy and wet from 1st to 19th; subsequently generally very fine and frosty; mean temp. 1° below average; L on 4th and 6th. Remarkable and beautiful phenomena occurred at sunrise on the 8th and 11th. The sky was generally covered with an even layer of darkish cloud, with several openings in it. Towards the S.E. these openings were edged with three distinct narrow bands of the prismatic colours, the remainder of the space being filled in with gorgeous colouring, exactly resembling a sheet of fine mother-of-pearl shell. The phenomenon lasted about an hour on each occasion, the colours fading and getting brighter at times. Small nimbus clouds at a low level were moving rapidly from the W. The higher strata of cloud, in which the phenomenon appeared, had little apparent motion. The openings, in which the colouring appeared, changed their shape and size very slowly.

HAWICK.—Heavy falls of snow occurred on 4th, 14th, and 15th. Much L of a curious blue colour was seen on nights of 13th and 14th. From the 20th to the end of the month the weather was dry and frosty.

OBAN.—The first part of the month was stormy with daily R and some gales, especially on 14th and 19th. Thereafter the weather cleared up and remained very fair to the end of the month, with occasional frost and mists resembling October. The sunsets, when seen, were very fine, with the usual high refraction. T and L on the 3rd, 7th, and 8th; H on seven days; S on the 15th.

QUINISH.—Cold, wet, and stormy until the 19th, thereafter fine and dry with occasional slight frost.

ABERDEEN.—Altogether the month was fine and open, with a rainfall greatly below the average. Aurora was observed only once, L twice, but hoar frost was very frequent. Lunar halos on 3rd and 30th, and brilliant "after glow" on the 21st. Not much S. On the morning of the 7th transparent cloudlets to southeastward (about 30° above the horizon) became prismatic at 8 a.m., and continued so until sunrise.

CULLODEN.—Weather open with frequent R till 15th. The latter part of the month frosty and fair.

IRELAND.

WATERFORD.—Rainfall rather more than half-an-inch below the average of ten years.

KILLALOE.—Very wet and wintry for the first three weeks, but the closing portion of the month was fine and dry, with slight frosts. Brilliant aurora appeared in the N.W. on the night of the 22nd.

DUBLIN.—Wet, stormy, and open during the first three weeks, the weather changed about the 20th, from which day to the close, it was quiet, cold, and often foggy. The mean temp. ($40^{\circ}8$) was $0^{\circ}3$ above the average. Mean humidity 85; mean amount of cloud, 6.0; prevailing winds, W. and S.W. Lunar halo on 5th; a little S on 17th; H on two days; and more or less fog on four days. Strong winds occurred on 16 of the first 20 days.

EDENFEL.—Up to the 20th the weather was extremely wet and unsettled with S on 15th, 16th, and 17th; the last ten days were calm and damp, but almost without R, and with but little frost, a thick canopy of cloud rendering them preternaturally murky and dark even for December.