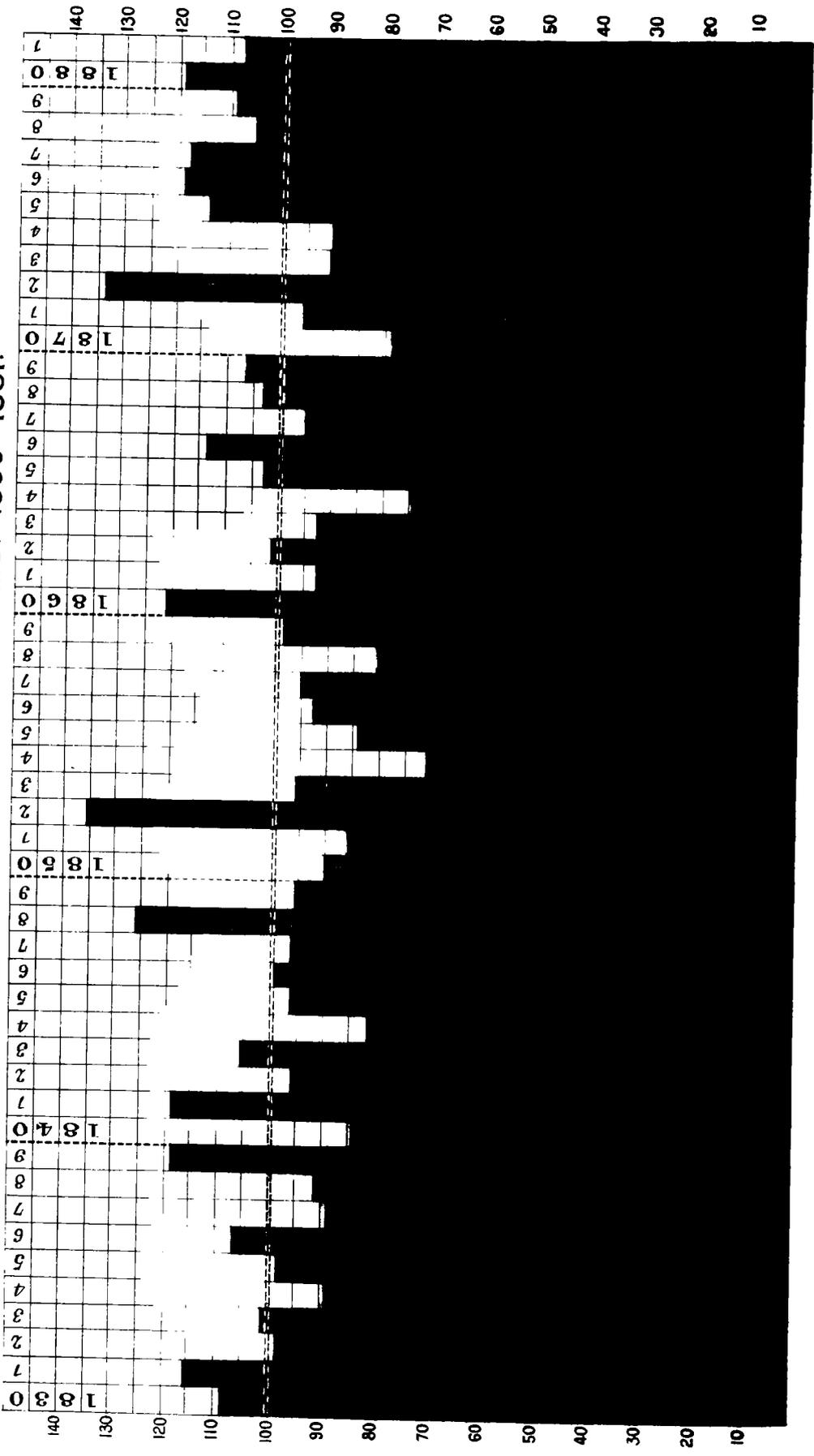


BRITISH RAINFALL,

1881.

FLUCTUATION OF RAINFALL OVER ENGLAND, 1830-1881.



BRITISH RAINFALL, 1881.

ON

THE DISTRIBUTION OF RAIN

OVER THE

BRITISH ISLES,

DURING THE YEAR

1881;

AS OBSERVED AT MORE THAN 2000 STATIONS IN
GREAT BRITAIN AND IRELAND,

WITH ARTICLES UPON VARIOUS BRANCHES OF RAINFALL WORK.

COMPILED BY

G. J. SYMONS, F.R.S.,

Secretary of the Meteorological Society; Membre du Conseil de la Société Météorologique de France; Member of the Scottish Meteorological Society; Member of Council of the Royal Botanic Society; Member of Council of the Social Science Association; Registrar and Member of Council of the Sanitary Institute; Fellow of the Royal Colonial Institute; Hon. Mem. Watford Nat. Hist. Soc., &c.

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1882.

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CONTENTS.

	Page.
PREFACE	8
REPORT—Snow of January 18th—Monthly Rainfall Tables—Instruments— Neglect of Rules—Inspection of Rain Gauge Stations—Old Observations —Finance—List of Subscribers	10
ON THE FLUCTUATION OF THE FALL OF RAIN IN ENGLAND, 1830 to 1881	18
THE SNOW STORMS OF JANUARY 17TH TO 21ST, 1881	35
ON THE RAINFALL OBSERVATIONS MADE UPON YORK MINSTER by PRO- FESSOR J. PHILLIPS, F.R.S.	41
EVAPORATION	46
ROTHERHAM EXPERIMENTAL GAUGES	47
RAINFALL AT THE ROYAL OBSERVATORY, GREENWICH	49
ON THE AMOUNT OF RAIN COLLECTED AT VERY CONSIDERABLE HEIGHTS ABOVE THE GROUND	50
THE STAFF OF OBSERVERS... ..	53
OBITUARY	68

RAINFALL AND METEOROLOGY OF 1881.

ON THE METEOROLOGY OF 1881, WITH NOTES ON SOME OF THE PRINCIPAL PHENOMENA	[3]
OBSERVERS' NOTES ON THE MONTHS OF 1881	[30]
OBSERVERS' NOTES ON THE YEAR 1881... ..	[77]
HEAVY RAINS IN SHORT PERIODS	[96]
HEAVY FALLS IN 24 HOURS DURING 1881. Part I., Chronicle	[98]
” ” ” ” ” Part II., Abstract	[104]
MONTHLY FALL OF RAIN IN 1881	[109]
ON THE RELATION OF THE RAINFALL OF 1881 TO THE AVERAGE 1870-79... ..	[119]
EXTREMES OF RAINFALL IN 1881	[127]

GENERAL TABLES OF TOTAL RAINFALL.

EXPLANATION OF THE ARRANGEMENT OF GENERAL TABLES... ..	[130]
COUNTY INDEX TO GENERAL TABLES	[131]
England	[132]
Wales... ..	[167]
Scotland	[171]
Ireland	[180]
SUPPLEMENTAL TABLE OF IMPERFECT RETURNS	[185]
SUGGESTIONS FOR SECURING UNIFORMITY OF PRACTICE AMONG RAINFALL OBSERVERS	[186]

ILLUSTRATIONS.

FLUCTUATION OF RAINFALL OVER ENGLAND, 1830-1881	<i>Frontispiece.</i>
DECENNIAL FLUCTUATION OF RAINFALL, 1730-1869	<i>page</i> 18
MAP SHOWING POSITION OF CERTAIN STATIONS	<i>page</i> 20
FREQUENCY OF CERTAIN EXTENTS OF DEPARTURE OF YEARLY TOTAL RAINFALL FROM MEAN ANNUAL FALL	<i>face page</i> 28
FLUCTUATION OF RAINFALL IN DECENNIAL PERIODS	<i>face page</i> 32
DECENNIAL FLUCTUATION OF RAINFALL, 1830-79	<i>page</i> 34
DEPTH OF SNOW, JANUARY 17TH TO 21ST, 1881	<i>face page</i> 36
MAPS SHOWING RELATION OF RAINFALL IN EACH MONTH OF 1881 TO THE AVERAGE	<i>between pages</i> [110] <i>and</i> [111]
MAP SHOWING RELATION OF TOTAL RAINFALL IN 1881 TO THE AVERAGE 1870-79	<i>face page</i> [120]

Details of the steps taken in order to render the values printed in this volume as near the truth as is possible, will be found on a subsequent page. But I desire here to draw especial attention to the article on Snow Measurement, by Mr. E. Mawley, F.M.S., in the last volume, and by reprinting the concluding paragraph, to urge upon all observers the necessity of exceptional care in snowy weather. Fortunately there were many who were on the alert, and thereby, not only rendered their own records perfect, but also enabled us to complete those of their neighbours. I am sure, however, that I am within the mark if I say that the examination and correction of observations made or omitted during those snow storms, has given us from five to six weeks' continuous work, and hence it is not unnatural that I strongly commend to the attention of all observers the following paragraph from Mr. Mawley's article :—

“The principal object with which the foregoing directions have been written has been to impress on rainfall observers in general, and more particularly on those about to take observations for the first time, the necessity there is for giving their rain gauges some extra attention in snowy weather, as without this no entirely satisfactory record of the rainfall of their district can be kept. For it will, I trust, have been seen that whatever form of gauge may be used, it cannot always be left altogether to itself while snow is falling. Moreover, it should never be forgotten that every inaccurate measurement will more or less seriously affect, not only the monthly total and with it that for the whole year, but even, indirectly, the entire series of observations that have been previously or that may be hereafter made. Considering how slight are the demands which a rain gauge makes upon an observer's time during the greater part of the year, I do not think he should begrudge the little additional care and attention which these snow measurements occasionally require. Let him on the contrary, when he sees the snow-flakes falling, recognize in them messengers come to remind him that the gauge which is to receive and measure these flakes, may ere long require some little assistance at his hands.”

Monthly Rainfall Tables.—I mentioned last year that I had undertaken to supply the Meteorological Council with about 400 tables, each containing the total rainfall of each month for the fifteen years 1866-80, and certain averages worked therefrom. The work was completed in MS., and delivered on the day originally specified; it has subsequently had some additions made to it, and more than two-thirds of it is now printed. I have tried hard to ensure its being perfect, but as it will contain more than a quarter of a million

figures, there is very little hope of absolute success. However, on pages [117] to [123] of our last volume there are more than 9000 figures, and not one has been found to be wrong, so we may expect at least equal accuracy with the work done for the Government.

Instruments.—I am not aware that any new patterns have been brought out during the past year,—nor do I see much need for any except, if it could be made, a low-priced self-recording rain-gauge. I do not wish for, or expect to see, anything better than Casella's for first-class stations ; my own continues to work perfectly, but its price prevents its general adoption.

With respect to ordinary gauges, now that perfectly accurate ones, with certificate of correctness, can be bought for from 13s. upwards, I have little sympathy for those observers who allow their records to be interrupted for want of a duplicate gauge.

Neglect of Rules.—No one is more sensible than I am of the kindly way in which an overwhelming majority of the observers rigorously follow the *Arrangements** drawn up for the mutual help and guidance of the whole body. A few, however, seem as if they never read the rules, at any rate they break them, and thereby exclude their records from the general tables. I should be very sorry to criticise any one publicly, and therefore I omit all names and places, and only give the offences.

- (1) Observer says—"New gauge started on July 1st, and old one discontinued."—[This is a breach of Rule II., and renders it not only impossible to accept the record for 1881, but to determine whether or not the old and the new gauge gave similar indications.]

II.—OLD GAUGES.—Old established gauges should not be moved, nor their registration discontinued until, at least, two years after a new one has been in operation, otherwise the continuity of the register will be irreparably destroyed. Both the old and the new ones must be registered at the same time, and the results recorded for comparison.

- (2) "Record incomplete in three months because I was absent."—
[Breach of Rule XIII., which is easily observed.]

XIII.—ABSENCE.—Every observer should train some one as an assistant; but where this is not possible, instructions should be given that the gauge should be emptied at 9 a.m. on the 1st of the month, and the water bottled, labelled, and tightly corked, to await the observers' return.

- (3) The same error as No. 1.

* See page [186].

(4) Gauge blown over.—[Breach of Rule III.]

III.—LEVEL AND FIXING.—The funnel of a rain gauge must be set quite level, and so firmly fixed that it will remain so in spite of any gale of wind or ordinary circumstance. Its correctness in this respect should be tested from time to time.

(5) The same as No. 1.

(6) Gauge raised in April from 1ft. to 4ft. 6in. above ground.—
[This is a breach of the first clause of Rule II. Any such change if made at all should be made on January 1st, but all changes are bad.]

(7) Gauge blown over.—[See No. 4.]

(8) Gauge moved three times in one year.—[!]

(9) Old gauge till April ; new one since.—[Breach of Rule II.]

(10) No rainfall in January, and I kept no account of snow.—[Gross neglect of Rule XV.]

(11) Gauge blown out of ground by a hurricane.—[Breach of Rule III.]

Inspection of Rain Gauge Stations.—I very much regret that little has been done in this matter during the past year. It is work of very high importance, for nothing tends more to raise the quality of observations than regular and efficient inspection. But on the other hand the correspondence and general work which I have to keep under in London is such as to leave me little leisure for tours of inspection. Years ago I urged (and the late Rainfall Committee of the British Association agreed with me) that for the efficient supervision of the whole rainfall system it was necessary that some one should be appointed, whose *sole duty* should be inspection. That may at first sound excessive, but a few figures will show that it would not permit any station to be visited more than once in three years—and probably even less often. There are now about 2500 stations ; allowing for Sundays and holidays and time spent in reporting to head quarters, the Inspector would not have more than 250 days available for inspection in each year. Judging from my own experience he would not be able, on the average to inspect more than three stations in each day—then 250 days with 3 inspections on each, give 750 per annum, which would involve one inspection of each station in $(\frac{2500}{750} = 3\cdot3)$ three years and four months.

I need, however, scarcely point out that at present the expense of such an officer renders the consideration of the question quite need-

less. That he ought to be appointed is just as certain as it is that there are no funds to pay for him.

Old Observations.—This branch of rainfall work has scarcely been touched during the past year, and, unless additional assistance is obtained, there appears little prospect of its resumption. This is, in my opinion, greatly to be regretted, for thorough examination of the records of the past is the surest, if not the only, guide as to the extent and duration of the floods and droughts to which this country is liable. A good illustration of the need for work of this class is afforded by the uncertainty still hanging over the extent of the drought of 1737-1762.

Finance.—I am glad to find that there is a slight increase in the list of subscribers, not, perhaps, quite equal to the increase in the number of observers, but very nearly so, and sufficient to meet all *ordinary* expenditure. It is, however, utterly inadequate to justify me in either arranging for the systematic inspection of the stations or for engaging another assistant for continuous work upon old observations, so those two matters must stand over for another year.

LIST OF ALL SUMS OF £1 AND UPWARDS RECEIVED IN PAYMENT
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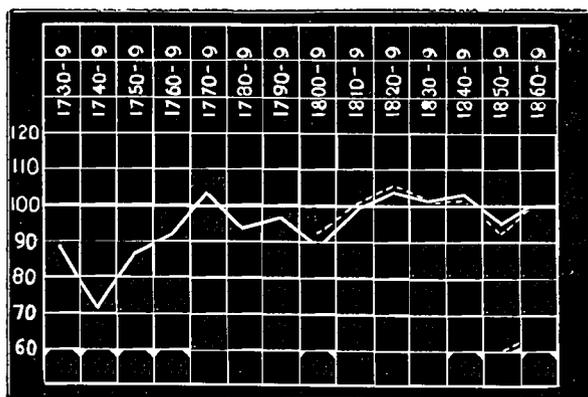
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Williams, Rev. W. W.	1	0	0	Woollett, G. C., Esq.	1	0	0
Wilson, Frank, Esq.....	1	0	0	Wortham, H., Esq.	1	10	0
„ G. S., Esq.	1	0	0	Wragge, C. L., Esq.....	1	1	0
„ J., Esq., C.E.....	1	0	0	Wright, P. Esq.	1	10	0
„ Thomas, Esq.....	1	7	0	Yool, H., Esq.	2	2	0
Wingfield, Rev. C. L.	1	0	0	Young, W. B., Esq.	1	5	0
Woodhouse, A. J., Esq.	2	0	0				

[Subsequent receipts will be acknowledged monthly in the *Meteorological Magazine*. Cheques should be crossed National Bank, and Post Office Orders drawn on Camden Road, London, N.W.]

ON THE FLUCTUATION OF THE FALL OF RAIN IN ENGLAND, 1830 TO 1881.

It is rather more than fifteen years since I computed, and prepared for insertion in the Report of the British Association for 1866, a table bearing the following title:—"First Approximation to Fluctuation of Rainfall, 1726 to 1865." In the volumes of *British Rainfall* for 1870, 1871, and 1872, the calculations given in the British Association Report and others upon the same subject were continued down to 1869, and fully worked up in a series of articles upon "The Secular Variation of Rainfall in England since 1725." In the original investigation I gave the ratio of the fall of rain in each individual year of the whole period of 140 years to the mean of the last fifty years; but a better mental grasp of the result is afforded by reducing the values to ten-year means. This was done in *British Rainfall* 1870, page 53, and on page 57 of that volume will be found the following diagram, in which the continuous white line shows the fluctuation according to the values in the British Association Report, and the dotted curve shows values obtained by another series of calculations explained on pages 55—56 of *British Rainfall*, 1870.



I wish every one thoroughly to understand this diagram before proceeding any further, and therefore add a few remarks which to many will be superfluous. The vertical lines divide the diagram into spaces representing successive periods of ten years each from 1730-39 on to 1860-69. The horizontal lines represent differences

from the mean of 10 per cent. Thus, for example, the diagram shows that in the first ten years, 1730 to 1739 inclusive, the rainfall was about 90 per cent. of the average ; that is to say, it was 10 per cent. below the mean. In the next ten years it was far less ; the rainfall was only 71 per cent. of the mean. Roughly speaking, the fall was less than three-quarters of the average, an intensity of drought of which there is no subsequent parallel, and which, should it recur, with our enormously increased urban populations, would lead to very painful results. Of course, our knowledge of the rainfall of that early period, more than a century and a half since, is not great, and up to the present time I have not been able thoroughly to utilise all that exists, but as far as my investigations have gone, they confirm the results indicated by the diagram.

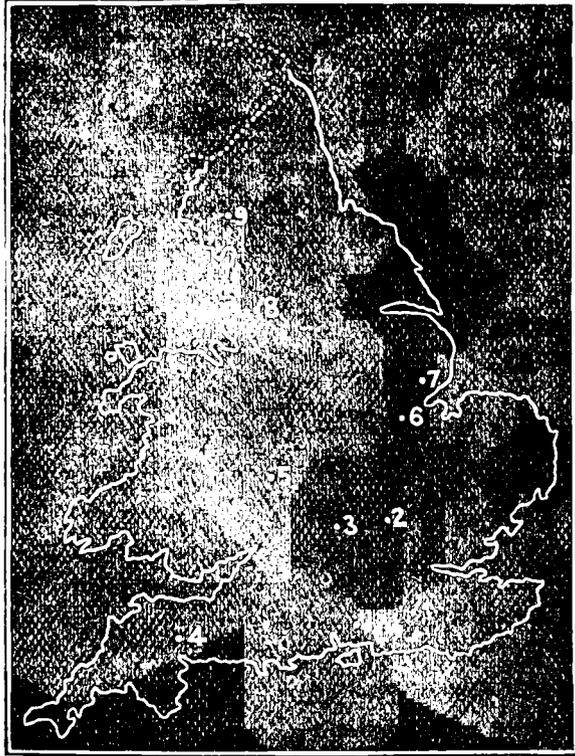
The present article is not, however, devoted to that subject, but to the prolongation of the curve from 1869 to 1879, and of the enquiry itself down to the end of 1881.

This might be accomplished in two ways—(1), by taking the values already given down to 1869, and computing from, as nearly as possible, the same stations the values for the subsequent twelve years ; or (2) by beginning *de novo* and making an entirely independent calculation of the fluctuation from 1830 to 1881. This latter course, although involving rather more work, is evidently far the better of the two ; because, just as in the diagram already given, the trustworthiness of the original continuous curve is supported by the close parallelism of the dotted one ; so I hope we shall find that the present (third) independent series of calculations will further support it.

In any investigation of this class one always has, at the outset, to face the difficulty of deciding upon the length of period to be adopted ; because obviously the longer the period the smaller the number of continuous and perfect records which are available, and therefore the more imperfect their geographical distribution ; and short periods, on the other hand, involve complex calculations, for which some authorities express great contempt.

Looking at all the facts of the case, I have decided on taking 52 years, so as to go back through four decades included in the previous investigations, and I find that there are nine records which either embrace the whole of that period, or which can be safely completed for a few missing years by adopting values computed from adjacent stations. These few computed values are printed in different type

from the rest of the table ; but my own opinion is that these computed values are quite as trustworthy as the others. The annexed little map serves to show the relative position of each of the stations :—



The following particulars respecting the stations will be useful :—

- No 1. *Chilgrove, near Chichester*, in the county of Sussex, was started in 1833, but the first perfect year is 1834, and from thence to the present time the record is absolutely unbroken, thanks, in the first place, to the late Mr. W. Leyland Woods, and subsequently to his son Mr. John W. Woods.
- No 2. *Nash Mills, near Hemel Hempstead*, Hertfordshire, started by Messrs. Dickenson & Co., in 1833, but the first perfect year is 1834. The only subsequent interruption of the record of which I am aware was in 1879, when, in a storm on August 2nd, the gauge was allowed to fill and run over. The value given on page 24 is that adopted in *British Rainfall 1879*, p. [182], and is, I believe, correct.
- No. 3. *Oxford*.—This is the record of the gauge at the Radcliffe Observatory, whose receiving surface is 22ft. above the ground.

It was first observed in 1815, and with the exception of 1868, it was uninterruptedly observed until 1879, *i.e.*, for 65 years. During 1880 and 1881 the records have not been complete. With reference to this register I regret to state that I am by no means certain of the perfect accuracy of all the figures. I am not aware of, and do not think that there is, any error of importance ; but either bad penmanship or bad arithmetic has at various periods prevailed at the Radcliffe Observatory, and the rainfall, as published by different Radcliffe observers, does not agree. I wish that either the new Radcliffe observer or some Oxford meteorologist would examine all the original MS. and give us a thoroughly trustworthy tabular statement. The long continuance of the record is such as to render the record of high interest, and well worthy of the proposed labour.

- No. 4. Exeter Institution.*—This gauge is on a low wall at the back of the Devon and Exeter Literary Institution in the Cathedral-yard, Exeter. The record was commenced in 1817, and has been continued by successive librarians down to the present time. I visited the station in September, 1863, found that the record was being rendered incorrect by the growth of a holly bush, and requested that it might be cut down at once, which was, I believe, done. A glance at the ratio table on page 25 will show that there is a marked change in the ratio at about that date, and I was at first inclined to strike the station out of the table as liable to mislead. The maximum error appears to be nearly 20 per cent., the fall being that much too small in 1854, and the mean deficiency from 1850 to 1863 about 8 per cent. As, however, there are nine stations quoted, it is evident that on the average the Exeter error cannot affect the *mean* quite one per cent., or in the worst year more than two per cent. ; and as, moreover, if it were suppressed we should have no station in the S.W. of England, I have decided upon leaving it in the table.
- No. 5. Orleton.*—This station is on the bank of the river Teme, about six miles E. of Tenbury, Worcestershire. The record begins with 1831, and is absolutely perfect from that date to the present time.
- No. 6. Pode Hole, Spalding.*—This is at a drainage station, a little to the S.W. of Spalding in Lincolnshire, about ten miles inland from the Wash. I have not seen the gauge, but believe that

the same one has been used ever since observations were commenced in 1829.

- No. 7. Boston.*—This is a combination of two records, an arrangement to which, as a rule, I strongly object. There are, however, several conditions which render it less objectionable than usual. In the first place, the whole of Boston and the surrounding country is so flat that the fall of rain is very equable, and not different in one part of the town from what it is in another; and secondly, Boston is only about fourteen miles from the station, No. 6, at Spalding, and hence it has been possible to compare the fluctuation at the two stations, and to see whether the substitution, in and from 1854, of the observations at the Grand Sluice for those made in another part of Boston by Mr. Veal, produced any sensible effect. Finding that it did not, the two series have been amalgamated.
- No. 8. The Folds, Bolton-le-Moors, Lancashire.*—The observations were commenced by Mr. H. H. Watson at this station in 1831, and have been uninterruptedly continued to the present time.
- No. 9. Kendal, Westmoreland.*—Here we have a very slight alteration, but not, I believe, appreciably affecting the continuity or comparability of the record. Observations were commenced by the late Mr. S. Marshall in 1822 and continued until 1868. At his death the record was taken up by Mr. R. J. Nelson with Mr. Marshall's gauge, removed only a few hundred feet, and with no change of altitude. I have no record of the fact, but am under the impression that during Mr. Marshall's lifetime the position of the gauge was changed, but he always treated the record as an unbroken one.

Table I. gives the total fall of rain in inches at nine stations during 52 years, or 468 yearly totals, of which 455 are the values actually observed, and 13 have been computed with great care from the nearest available stations, upwards of a dozen other records having been used for this purpose. As an indication of the closeness with which these calculations will agree, it may be mentioned that (by mistake) the value for Nash Mills was computed for 1834; the computed value was 21·82; after working it out, it was found that the record was perfect for 1834, and that the actual fall was 21·70. The computed and observed values, therefore, differ by only 0·12, which in the mean of all the stations for that year would affect it only by

0·01 in., and in the 50 year mean for Nash Mills would amount to only 0·002 in., an absolutely inappreciable quantity.

It will be convenient to give here, before dismissing Table I., an abstract of it, viz., the mean rainfall at each station for each decade, and also for the half century.

TABLE III.—*Decennial Mean Rainfall.*

	Chilgrove	Nash Mills.	Oxford.	Exeter.	Orleton.	PodeHole	Boston.	Bolton.	Kendal.
1830-9	34·163	26·760	23·561	28·920	28·595	26·803	22·556	50·263	56·202
40-9	33·412	25·863	23·549	29·347	28·411	27·522	24·581	46·463	51·176
50-9	32·234	26·432	22·241	26·912	28·818	23·383	20·653	44·006	44·912
60-9	33·224	26·388	22·358	31·757	30·900	25·341	22·094	48·981	53·322
1870-9	35·027	28·662	25·303	34·690	33·255	24·821	23·529	47·233	51·780
1830-79	33·612	26·821	23·402	30·325	29·996	25·574	22·683	47·389	51·478

Table II. is one of the most important rainfall tables yet prepared. Therefore, although its mode of construction will be obvious to many of my readers, I purpose, for the benefit of those who are not familiar with it, entering at length into the mode of its construction and the information which it affords.

To make it perfectly clear, I will not only explain it, but work out two examples.

First of all let us realise thoroughly the object we have in view. This is to determine whether during the last half-century the rainfall has been increasing, decreasing, or constant, and to what extent it varies both in individual years, in groups of years, in various parts of England, and over the country considered as a whole. If the rainfall in all parts of the country were identical, or nearly so, the conversion of the actual rainfall into ratios would not be indispensable, though even then I think that the first of the two following columns is much more easily grasped than the second :—

Ratio.	Rainfall.	
75	... 25·21	= year in which rainfall is $\frac{1}{4}$ less than
100	... 33·61	= ,, ,, ,, is equal to
125	... 42·01	= ,, ,, ,, is $\frac{1}{4}$ greater than

} the average.

Where, however, as in Table I., we have some stations with more than twice as much rain as others, it requires a clear head to run across, say the year 1865, without falling into the error of considering that it was a wet year at all stations ; and if one tries to grasp the characteristics of several years at several stations from such a table as Table I., confusion almost inevitably results.

TABLE I.—RAINFALL IN EACH YEAR,
DURING THE 52 YEARS 1830-1881.

	Chilgrove	Nash Mills.	Oxford.	Exeter.	Orleton.	Pode Hole.	Boston.	Bolton.	Kendal.
1830	35·80	27·90	25·31	27·42	29·10	34·29	25·90	55·30	58·03
1	40·00	31·40	27·48	30·78	27·58	34·32	25·57	62·30	61·42
2	28·90	25·20	24·32	26·76	26·50	28·87	22·55	53·77	49·69
3	34·00	27·30	21·50	30·62	29·44	24·95	22·62	51·70	55·42
4	32·85	21·70	19·91	22·34	28·84	18·10	14·66	43·98	65·14
5	30·97	27·59	23·80	28·20	27·27	24·20	21·87	46·44	55·89
6	41·00	31·00	22·13	30·50	28·16	26·65	21·38	53·78	64·33
7	27·01	21·10	19·35	23·70	28·55	23·90	23·58	42·25	48·39
8	30·60	23·13	21·18	33·04	26·36	21·10	18·95	47·85	45·74
1839	40·50	31·28	30·63	35·84	34·15	31·65	28·48	45·26	57·97
1840	28·90	21·44	18·42	22·76	25·80	21·30	18·61	45·03	48·21
1	43·35	32·10	31·26	36·46	32·77	29·45	27·26	53·87	53·85
2	29·80	26·43	21·64	27·70	25·48	32·10	24·73	38·63	48·08
3	34·61	26·47	24·20	33·24	29·94	29·45	24·29	49·40	56·31
4	28·26	23·57	17·80	23·79	21·73	22·20	21·64	34·63	43·01
5	30·68	24·53	21·41	25·34	27·41	27·25	25·29	48·11	53·35
6	34·55	26·55	25·86	30·80	27·02	26·10	23·40	40·82	52·37
7	26·03	23·20	22·15	30·96	27·99	25·62	23·92	52·32	52·20
8	45·04	29·69	30·91	36·80	39·02	34·30	32·64	54·05	56·31
1849	32·90	24·65	21·84	25·62	26·95	27·45	24·03	47·77	48·07
1850	32·26	20·50	21·87	27·32	24·62	20·94	20·11	47·99	49·58
1	25·99	22·18	20·32	25·34	23·91	22·25	22·45	41·89	47·56
2	50·87	41·14	35·55	42·67	45·43	31·00	25·30	55·19	65·35
3	38·12	28·46	23·35	28·36	30·16	26·63	21·40	36·88	39·46
4	21·81	18·27	14·88	18·12	20·73	17·75	13·81	45·46	46·13
5	28·96	25·89	19·89	18·92	28·38	22·00	20·84	36·19	34·54
6	32·97	26·63	22·33	27·30	31·43	22·63	19·49	49·23	39·48
7	31·24	28·13	23·51	25·75	29·18	27·88	23·17	40·19	38·50
8	25·86	20·50	18·36	24·80	27·71	17·50	19·00	41·02	40·23
1859	34·26	32·62	22·35	30·54	26·63	25·25	20·96	46·02	48·29
1860	42·00	34·22	26·88	36·08	36·89	30·38	30·69	57·66	57·00
1	28·67.	21·20	20·29	25·80	29·81	25·75	20·38	44·91	60·70
2	32·35	27·44	23·39	29·58	34·31	24·88	19·93	53·43	54·41
3	30·45	22·76	18·25	31·44	27·67	22·88	18·29	53·75	54·92
4	24·67	16·96	14·85	22·62	21·79	17·63	15·23	42·74	47·57
5	38·45	30·25	23·90	35·47	29·88	29·13	24·14	37·51	42·67
6	36·66	30·21	24·56	36·94	34·62	26·75	23·71	59·20	60·39
7	29·48	25·84	21·52	32·70	29·27	23·38	21·94	45·27	47·31
8	36·13	27·33	25·10	34·29	30·95	24·75	21·85	46·34	52·75
1869	33·38	27·67	24·84	32·65	33·81	27·88	24·78	49·00	55·50
1870	27·57	21·64	16·60	21·74	24·17	16·88	16·40	43·47	43·09
1	33·19	23·49	20·41	32·50	30·99	25·50	21·42	40·93	50·25
2	43·21	36·28	28·31	46·00	44·16	32·50	29·20	57·59	69·18
3	31·17	23·99	21·27	33·72	25·58	19·63	19·18	42·69	49·37
4	29·01	21·63	20·19	34·74	26·74	16·22	18·09	48·67	55·11
5	35·38	29·35	31·00	38·32	37·42	32·25	25·50	43·94	46·22
6	35·31	33·15	30·86	40·30	36·15	31·00	29·51	46·10	51·86
7	45·11	32·49	28·36	33·78	33·34	24·25	24·51	60·33	65·78
8	33·34	30·37	25·90	31·48	39·54	25·63	25·58	45·79	43·76
1879	36·98	34·23	30·13	34·32	34·46	24·35	25·90	42·82	43·18
1880	37·52	34·05	28·80	33·26	35·69	37·12	34·40	43·36	45·06
1881	34·02	31·72	24·40	32·98	27·17	26·13	26·36	51·56	59·77

TABLE II.—RATIO OF RAINFALL IN EACH YEAR,
TO MEAN OF 50 YEARS, 1830-1879.

	Chil- grove.	Nash Mills.	Oxford.	Exeter.	Orleton.	Pode Hole.	Boston.	Bolton.	Kendal.	Mean.
1830	107	104	108	90	97	134	114	116	113	109
1	119	117	118	102	92	134	113	131	119	116
2	86	94	104	88	88	113	99	114	97	98
3	101	102	92	101	98	98	100	109	108	101
4	98	81	85	74	96	71	65	93	126	88
5	92	103	102	93	91	95	96	98	109	98
6	122	116	95	101	94	104	94	114	125	107
7	80	79	83	78	95	93	104	89	94	88
8	91	86	90	109	88	82	84	101	89	91
1839	120	117	131	118	114	124	126	95	112	118
1840	86	80	79	75	86	83	82	95	94	84
1	129	120	134	120	109	115	120	114	105	118
2	89	99	93	91	85	126	109	82	93	96
3	103	99	103	110	100	115	107	104	109	106
4	87	88	76	78	73	87	95	73	84	82
5	91	91	91	84	91	107	111	102	103	97
6	103	99	110	102	90	102	103	86	101	100
7	78	86	95	102	93	100	106	110	101	97
8	134	111	132	121	130	134	144	114	109	126
1849	98	92	93	84	90	107	106	101	93	96
1850	96	76	94	90	82	82	89	101	96	90
1	77	83	87	84	80	87	99	88	92	86
2	151	153	152	141	151	122	112	116	127	136
3	113	106	100	93	101	104	94	78	77	96
4	65	68	64	60	69	69	61	96	90	71
5	86	97	85	62	95	86	92	76	67	83
6	98	99	95	90	105	88	86	104	77	93
7	93	105	100	85	97	109	102	85	75	95
8	77	76	78	82	92	68	84	87	78	80
1859	102	122	95	101	89	99	92	97	94	99
1860	125	127	115	119	123	119	135	122	111	122
1	85	79	87	85	99	101	90	95	118	93
2	96	102	100	97	114	97	88	113	106	102
3	91	85	78	103	92	89	81	114	107	93
4	73	63	63	75	73	69	67	90	92	74
5	114	113	102	117	100	114	106	79	83	103
6	109	112	105	122	115	105	105	125	117	113
7	88	96	92	108	98	91	97	95	92	95
8	107	102	107	113	103	97	96	98	102	103
1869	99	103	106	108	113	109	109	103	108	106
1870	82	81	71	72	81	66	72	92	84	78
1	99	88	87	107	103	100	94	86	98	96
2	128	135	121	152	147	127	129	122	134	133
3	93	89	91	111	85	77	85	90	96	91
4	86	81	86	115	89	64	80	103	107	90
5	105	110	132	126	125	126	112	93	90	113
6	105	124	132	133	121	121	130	97	101	118
7	134	121	121	111	111	95	108	127	128	117
8	99	113	111	104	132	100	113	97	85	106
1879	110	127	129	113	115	95	114	90	84	109
1880	112	127	123	110	119	145	152	91	88	119
1881	101	118	104	109	91	102	116	109	116	107

These are the reasons which led me, sixteen years ago, to adopt the then, I believe, novel plan of expressing rainfall in ratios or percentages of its mean fall. Now for the illustration of the process, a very simple one, but not familiar to everybody.

Take first the arithmetical mean of the actual rainfall for whatever period you adopt—in the present case for the 50 years 1830–79—this for Chilgrove will be seen (Table III.) to be 33·612. This value all down the column under Chilgrove (in Table II.) would be represented by 100 if the rainfall in every year were exactly the average; but on looking down the Chilgrove column of Table I. there will not be found any entry of 33·61, and consequently, as there was no year in which the rainfall was exactly the average, it follows that there ought not to be a single entry of 100 in the Chilgrove column of Table II., and there is not. In order to find the ratio which the fall in any year bears to the mean, it is only necessary to divide the fall in that individual year by the mean fall, and the quotient will be the ratio. For instance, in 1831 the Chilgrove fall was 40·00; the average, as we have seen, is 33·61; then

$$\begin{array}{r}
 33\cdot61 \) \ 40\cdot00 \ (\ 1\cdot19 \\
 \underline{33\cdot61} \\
 6\cdot390 \\
 \underline{3\cdot361} \\
 3\cdot0290 \\
 \underline{3\cdot0249} \\
 41
 \end{array}$$

and then throwing out the decimal point, we see that the fall was 19 per cent. above the average, and if the mean be represented by 100, the fall in 1831 should be represented by 119.

Similarly, in 1832 the fall was 28·90, then

$$\begin{array}{r}
 33\cdot61 \) \ 28\cdot900 \ (\ \cdot86 \\
 \underline{26\cdot888} \\
 2\cdot0120 \\
 \underline{2\cdot0166} \\
 -46
 \end{array}$$

and therefore the fall was 86 per cent. of the average, or as it might be expressed, 14 per cent. below the average. But the former is much the handier form of expression, as the latter involves the use

of + and — signs, the summation of columns of which is a pitfall for many computers.

I trust that these remarks have made it clear to every one that in Table II. all numbers greater than 100 show years in which the rainfall was above the average, and the larger those numbers the greater the excess. On the contrary, numbers less than 100 show dry years, and the smaller the numbers the more marked the deficiency of rainfall.

Table II. affords considerable information respecting the fluctuation of rainfall, and must be considered in several separate aspects :—

- (1) As indicating the ordinary and extreme limits within which the rainfall varies from year to year (*a*) at individual stations and (*b*) over England.

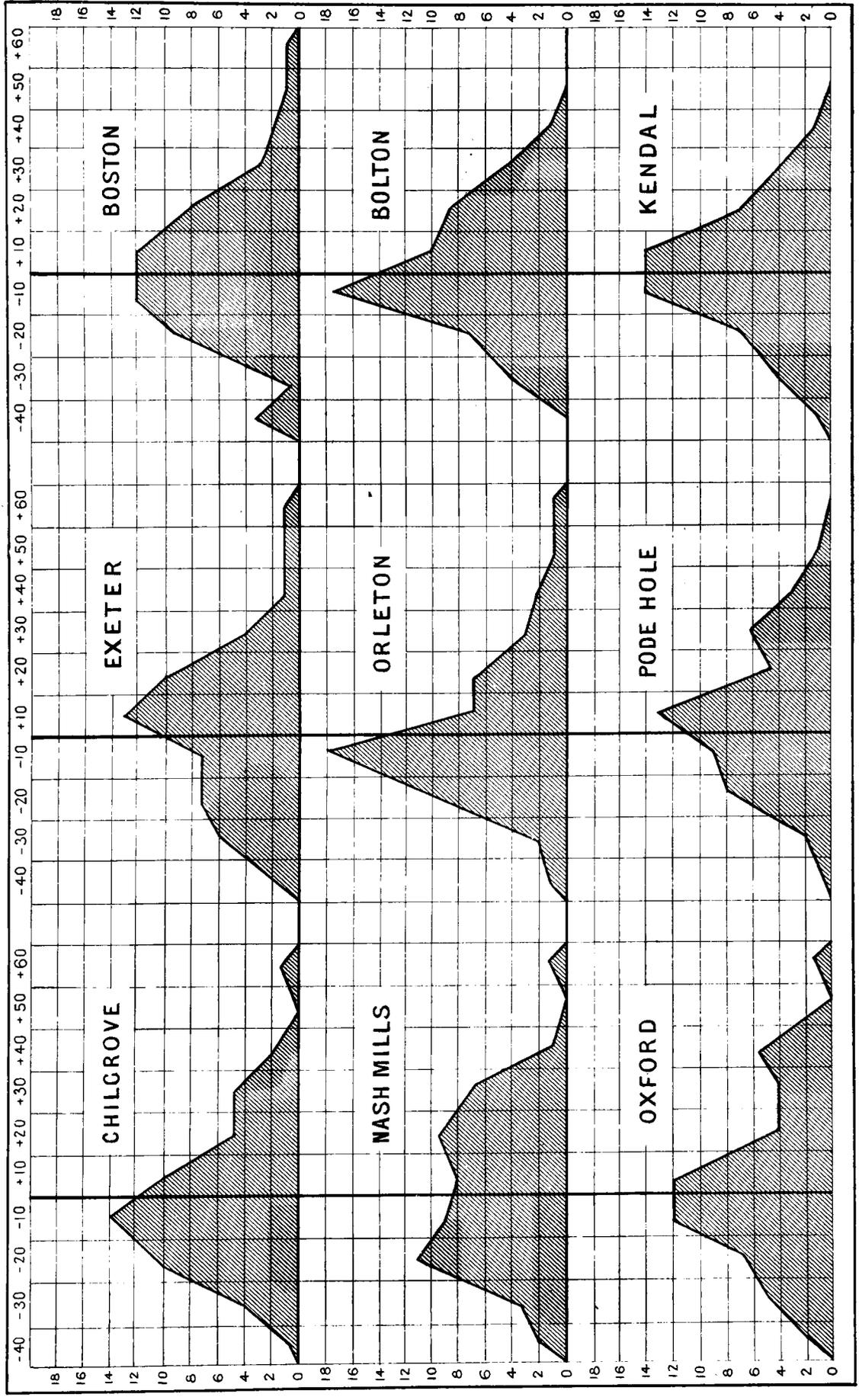
This is shown by Table IV. : (*See next page*)

Ordinary Limits of Fluctuation of Rainfall.—These are shown by the last six lines of Table IV., and by the annexed plate of curves. It appears that the ordinary fluctuation of rainfall is about 14 per cent. above or below the mean, and that departures from the mean exceeding 30 per cent. occur only three or four times in half a century.

Extreme Limits of Fluctuation of Rainfall.—These are shown in the first four columns of Table IV. From them we find that in one extremely wet year the total rainfall may be expected to reach $1\frac{1}{2}$ times the average, or even slightly more. The table shows also that in one extremely dry year the fall *may* be as low as 60 per cent. of the average, but will probably not fall lower than 65 per cent. It further shows that the driest three consecutive dry years *may* have a mean rainfall of only 73 per cent. of the average (the Exeter value is too low for the reason already explained), and will probably have a mean of 81 per cent. of the average. Lastly, it shows that seven consecutive wet years *may* have a mean 22 per cent. above the average, and will probably have a mean 16 per cent. above it ; and a correspondingly long period of dry years *may* have a mean of only 80 per cent. of the average, and will probably have a mean of only 88 per cent.

Comparison of these Limits with Previously suggested Rules.—In *British Rainfall*, 1879, were given the monthly rainfall at the Royal

FREQUENCY OF VARIOUS EXTENTS OF DEPARTURE OF YEARLY TOTAL RAINFALL FROM MEAN ANNUAL FALL



Observatory, Greenwich, from 1841 to 1879, both inclusive, and also remarks upon the table—among others the following :—

“It has been suggested that when a long register of rainfall is examined the following proportions will be found to prevail :—

“The wettest year will be one-third greater than the mean.

“The driest year will be one-third less than the mean.

“The driest group of three consecutive years will be one-sixth less than the mean.

“Now let us apply this to the above table, and we find—

	Theory. in.	Fact. in.	Difference. in.
Wettest year.....	33·01 ...	34·01 ...	+1·00
Driest year.....	16·51 ...	16·38 ...	— .13
Driest three consecutive years ...	20·63 ...	20·71 ...	+ .08

Turning these figures into ratios, we have :—

	GREENWICH.		TABLE IV.	
	Theory.	Fact.	Ordinary.	Extremes.
Wettest year	133	137	147	134—153
Mean fall	100	100	100	100—100
Driest year	67	66	65	60— 73
Driest 3 years	84	84	81	73— 85

But reference may be made to a much earlier work,* where, with reference to the water supply of towns the following remark occurs: “It would not be safe to rely upon always obtaining the mean fall, and therefore the calculations are usually based upon the mean fall in three successive dry years; this is about 80 per cent. of the true mean.” As will be seen from the above table, the present discussion of nine 52 year registers gives 81 per cent., as against the 80 per cent. which I assigned to it in 1867.

Before leaving this subject I must recall attention to the remarks on page 19, as to the drought between 1737 and 1762. I believe that the values above given, say—

	Ratio.	Popular Definition.
Extremely wet year	147 ...	One and half times the average.
Extremely dry year	65 ...	Two-thirds of the average.
Three dry years	81 ...	Four-fifths of the average.

are very nearly correct back to 1750. The earlier records have not been sufficiently examined for me to speak positively about them.

* “Rain : How, When, Where, and Why it is Measured,” by G. J. Symons, 1867, p. 31.

Periodicity.—It is the fashion to ridicule all attempts at foreseeing the character of coming seasons. Believing that such ridicule is most unwise, I would be the last to share in bestowing it on any honest work, and do not in the least mind how much is heaped upon myself. There are some facts of this kind in Table II. to which I wish to draw attention.

I must, however, begin by going back to 1865, in which year I prepared and published* a table very similar to Table I., but for the period 1815 to 1864, and called attention

(1) to the fact that the wettest years were—

1836	1841	1848	1852	1860
(1)	(2)	(3)	(4)	(5)

and that of these Nos. 1, 3 and 5 fell into a 12-year period ;

(2) to the fact that the driest years were—

1826	1834	1844	1854	1855	1858	1864
(1)	(2)	(3)	(4)	(5)	(6)	(7)

and that of these Nos. 2, 3, 4 and 7 fell into a 10-year period.

Now, if we take Table II., we not merely find that the above figures are generally confirmed, but we find the remarkable fact that 1872 (which, of course, falls into the wet series 1836, 1848, 1860, 1872) actually was, by 14 per cent., the wettest year since 1860. And similarly, with respect to the dry series, 1834, 1844, 1854 and 1864, to which 1874 ought to belong ; we find that the fall in 1874 was 10 per cent. below the average, and, excepting 1870, which was drier, it was the driest year since 1864.

I should be very sorry to press these inferences unduly, and therefore mention that the series of values previous to 1815 does not bear them out.

There are two other points to which attention should be drawn. First, it is evident that the year 1824 was common to both the dry and the wet series ; one would expect that to produce an average or perhaps rather above an average (because excesses are greater than defects) [See Table IV.], and so it did. A similar coincidence of the two periods will, of course, occur in 1884. Is it safe to anticipate a mean rainfall for that year of 10 per cent. above the average? *Tempus monstrabit.*

Lastly, it may be well to tabulate the values as they stand in Table II.—

* British Association Report, 1865, p. 202.

WET SERIES.		DRY SERIES.	
Year.	Ratio.	Year.	Ratio.
1836	107	1834	88
48	126	44	82
60	122	54	71
1872	133	64	74
		1874	90
Mean...	122	Mean...	81

The Wetness of the last Seven Years.—In Table IV. will be found a list of the wettest seven consecutive years at each of the nine stations upon the records of which this article is chiefly based. It will be seen that, with three exceptions,* the wettest period is that just closed, viz., 1875–81 inclusive. Moreover, reference to the last column of Table II., which gives the mean ratio over the whole of England for each year from 1830 to 1881, shows that there is no other date at which even three successive years were above the mean, far less four, five, six, or, as in the present case, seven successive years. In the previous investigation (*British Association Report, 1865*) there is no instance of seven or of six successive wet years, and there are only two of five successive wet years, the most recent being 1827–31, with a mean excess of 9 per cent., and the other, 1772 to 1776, with a mean excess of 17 per cent. Compared with these short periods, the recent case of seven successive wet years with an average excess of 13 per cent. may well attract attention. Is it, then, at all remarkable that at the end of such a period we find Parliament engaged upon a bill for Rivers Conservancy and Floods Prevention ?

Graphic Representation of Rainfall Fluctuation.—I am convinced that, by the majority of persons, facts when they can be represented by maps or diagrams, are more readily grasped than when expressed by a long column of figures, and therefore have prepared the diagram which forms the frontispiece to this volume. It is the graphic representation of the figures in the last column of Table II., and shows at a glance the relative wetness and dryness (over England) of each of the last fifty-two years.† Considering how fully every

* And one of them, Exeter, is perhaps traceable to the holly bush.

† I ought, perhaps, to state that this diagram has already appeared in the *Transactions of the Surveyors' Institution*, and to explain why. There was a discussion at that institution on "Rivers Conservancy and Floods Prevention," which I attended, and having the original MS. diagram prepared, I showed it at the meeting in support of my own remarks, and, being always desirous that rainfall information should be as widely spread as possible, I at once acceded to the request of the President and several of the Fellows, who desired its insertion in their Transactions.

step in the construction of Table II. has been explained, and also the thorough manner in which the last column in that table has been discussed, I cannot think that a repetition of those remarks enforced by reference to the diagram is necessary. There is one point, however, which has not been mentioned, and to which attention should be given in considering the diagram, but that subject had better be treated in a separate paragraph.

Wet years and dry years rarely prevail over the whole of England.—If we examine the individual entries in Table II., it will be found that there are few years which were wet at *all* stations, or dry at *all* stations. Out of the 52 years the only ones wet or dry at *all* stations were—

Wet.		Dry.
1841	.....	1840
1848	.....	1844
1852	.....	1851
1860	.....	1854
1866	.....	1855
1872	.....	1858
		1864
		1870

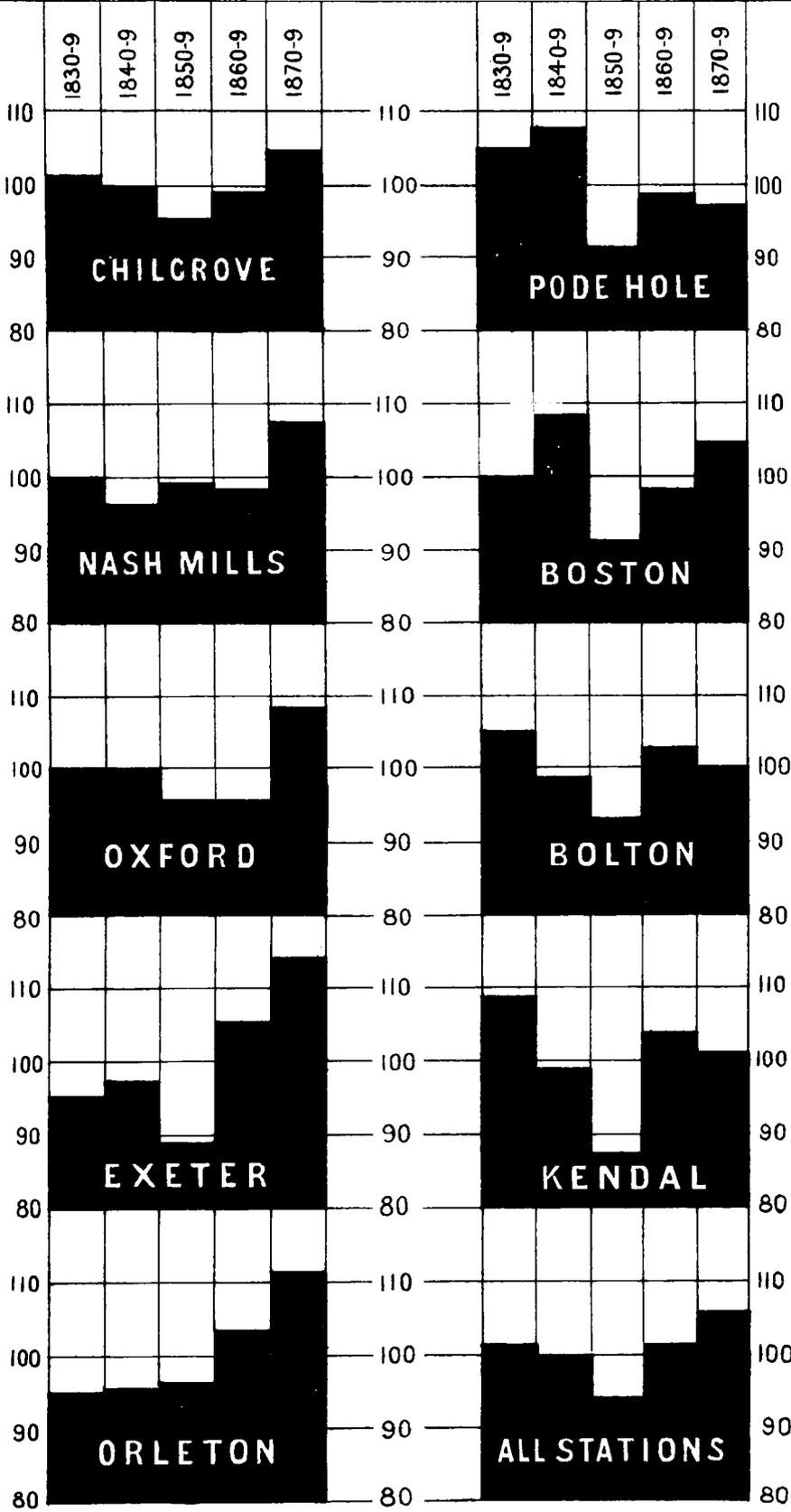
These facts *seem* to agree with that oscillatory distribution to which I have more than once referred, whereby a wet year in the S.E. of England occurs simultaneously with a dry one in the W. and N.W. of Scotland, and *vice versa*, but the subject has never been properly examined.

Decennial Ratios.—The first thing to be done is to give the figures, the next thing will be to ascertain what they teach us. Table V. has been constructed by adding each decade in Table II., and the accuracy of the calculations has been checked by working it independently from the mean values in Table III.

TABLE V.--*Decennial Mean Ratios.*

	Chil- grove.	Nash Mills.	Oxford.	Exeter.	Orleton.	Pode Hole.	Boston.	Bolton.	Kendal.	Mean.
1830-9	101	100	101	95	95	105	100	106	109	101
40-9	100	96	101	97	95	108	108	98	99	100
50-9	96	99	95	89	96	91	91	93	87	93
60-9	99	98	95	105	103	99	97	103	104	101
70-9	104	107	108	114	111	97	104	100	101	105
1830-9	100	100	100	100	100	100	100	100	100	100
1875-81	109	120	122	115	116	112	121	101	99	113

FLUCTUATION OF RAINFALL IN DECENNIAL PERIODS.



The accompanying sheet of diagrams indicates the results of Table V. so clearly that few comments are necessary. At first sight it may be considered that the curves are very irregular, but if the position of each station as shown by the map on page 20 be borne in mind, it will be found that most of the curves confirm one another. Roughly speaking, the result is to show that the rainfall of three decades 1830-9, 1840-9, and 1860-9 was just the average; that of the decade 1850-9 7 per cent. below it; and that of 1870-9 5 per cent. above it. The steady rise of the curve for Orleton is, from an agricultural standpoint, extremely alarming, but the curve on page 18 tends to show that the increase is probably temporary. All the evidence indicates that the recent excess has been more marked in S.W. and central England than elsewhere.

Comparison of the present results with those of previous investigations into the secular variation of English Rainfall.—This subject is of surpassing interest, because it really involves the great questions of the limits of the variability of English climate, of the water supply of our urban populations and of the character of our agriculture. Before proceeding with this section, I wish the reader to refer to page 18, and look carefully at the diagram there given. After the great drought in the middle of the eighteenth century, it will be seen that the decennial means have rarely varied 10 per cent. above or below the mean. The object of the present investigation has been two-fold: (1) to check the accuracy of the latter part of the diagram on page 18, and (2) to continue the curve for ten subsequent years. In the first place we will take the actual figures from *British Rainfall*, 1870, page 56, and from Table V. of the present article.

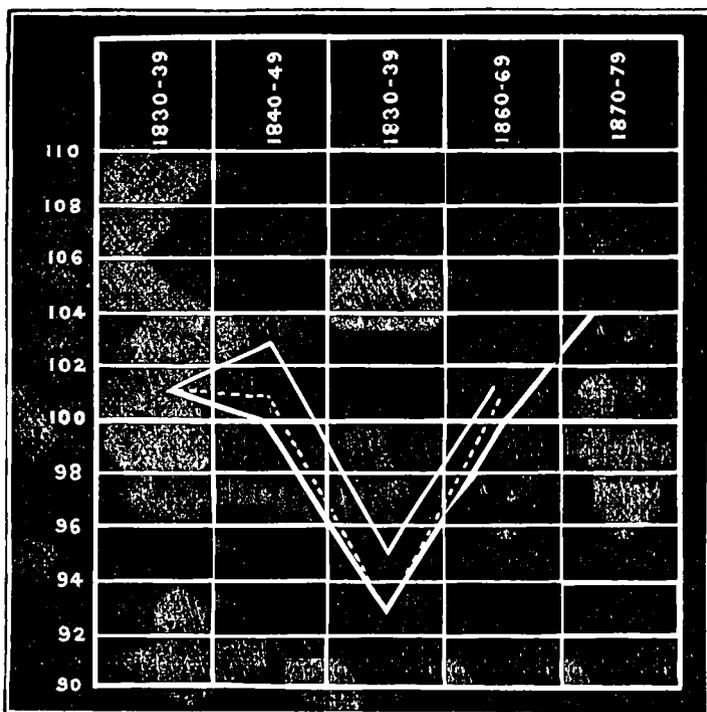
Period.	Secular Variation according to					
	I. British Associa- tion Report.		II. Decennial Averages.		III. Table V.	
1830-9	101·4	.....	101·4	.....	101·4
1840-9	102·6	.....	100·7	.....	100·1
1850-9	95·2	.....	93·0	.....	93·0
1860-9	101·5	.....	100·9	.....	100·4
1870-9	—	—	105·1

From the above it appears improbable that any one of the decennial means from Table V. is in error even to the extent of 1 per cent. This will perhaps be most plainly shown by a diagram identical in principle with that on page 18, but on a larger and more open scale.

The values in column I. are shown by a thin line.

” ” ” II. ” ” a dotted line.

” ” ” III. ” ” a thick line.



Reference should also be made here to the article in *British Rainfall*, 1880, "On the relation of the rainfall of various recent periods to the average of the 30 consecutive years, 1850-79," and to the conclusion therein arrived at, viz. :—

"Lastly, we find that the fall in the decade 1870-9, has been equal to, or above, the mean of thirty years, at every station except Seathwaite in Borrowdale, Cumberland, and that on the average the excess has been about 5 per cent."

That conclusion was based on 55 records, each extending back 30 years, or to 1850 ; the present enquiry is based on only nine records, each covering 50 years, and yet the results are identical, an excess of 5 per cent. in each case.

I think that the agreement shown both by this comparison and by the above diagram, is ample reward for the labour of compiling this article. It appears to establish almost beyond dispute the general accuracy of the values given in 1866 and 1871, especially the latter, and it places beyond question the wetness of the period through which we have lately passed, though not so strikingly as it would have done had the periods chosen begun with 1832 instead of the usual 0=1830, &c., for in that case the value for the last decade 1872-81 would have been 110·3 instead of 105·1. Even without that, however, the final conclusion is important in many respects, for it is that in no decade, back at least to 1730-39, has the mean fall of rain been as great as in the decade 1870-79.

THE SNOW STORMS OF JANUARY 17TH-21ST, 1881.

ON no occasion since I commenced the publication of rainfall returns in 1860, nor, I believe, for many years before, has such a severe strain been put upon the observers as was done by the snow gale of January, 1881.

The difficulty did not arise from the depth of the snow—that by itself would not have been serious—but it did arise from the depth of the snow which fell during a gale of extreme force, whereby open fields and downs were blown bare, while lanes and railway cuttings were filled 15 and even 20 feet deep. Of course, some rain gauges retained a mere fraction of the snow which fell, all the rest being either blown over or blown out of the funnel; others were buried under drifts 10 feet deep. When railway trains, and even the funnels of the locomotives, were buried, it is not remarkable that some rain gauges shared the same fate.

Further complication arose from the fact that as the gale continued snow which had fallen in one district was often cleared by the wind and re-deposited elsewhere; and while, perhaps, entered as snow for the first locality and rightly so entered, its subsequent removal would require notification also, for clearly it did not contribute either to the springs or rivers of the district in which it first fell.

In such an altogether exceptional case exceptional measures were indispensable. They were taken accordingly, a very large mass of data was collected, and Mr. Sowerby Wallis prepared an epitome of it—in fact, a history of the snow storms—which was printed *in extenso* in the *Meteorological Magazine* for February and March, 1881. This history consisted of three parts—(1) A general abstract of all the information; (2) Details for each county; (3) Returns from the twelve great railway companies, giving full particulars of the fall of snow over their respective systems.

It will, I think, be sufficient to give here the general abstract and the map, which graphically represents the conclusions arrived at, and

subsequently I will explain the steps taken to apply the information to the rain returns for the past year

ON THE SNOW STORM OF JANUARY, 1881.

BY H. SOWERBY WALLIS, F.M.S.

After the 9th January snow fell daily on some portion of the British Isles, and on the 12th and 13th rather heavily over the greater part of them, so that by the 17th (on which day practically none fell), there was a considerable depth on the ground over the whole of the United Kingdom, the weather having been so cold that scarcely any had melted. This depth averaged three to four inches over the greater part of England, and rather more in Wales, the N. of England, and in Scotland. During the early morning of the 18th the wind, which was easterly, rapidly increased in force, and blew a strong easterly gale nearly all day, the wind falling again in the south at night, but in other parts of the country the gale lasted till about mid-day on the 19th. It was particularly severe on the east coast, but all round our shores the number of wrecks and casualties was very great, reports from many seaports stating that it was the most severe gale that had been experienced for more than 30 years. Much damage was done to roofs, &c., and a very large number of trees was blown down in the eastern counties (*e.g.*, Lord Rendlesham reports over 1,500, most of them large ones, blown down on his estate), and there were many isolated cases of structural damage in other parts of the country. In London an extremely high tide, increased by the gale, overflowed the low-lying districts on the south of the Thames, causing great distress, augmented by the extreme severity of the weather, among the poorer classes.

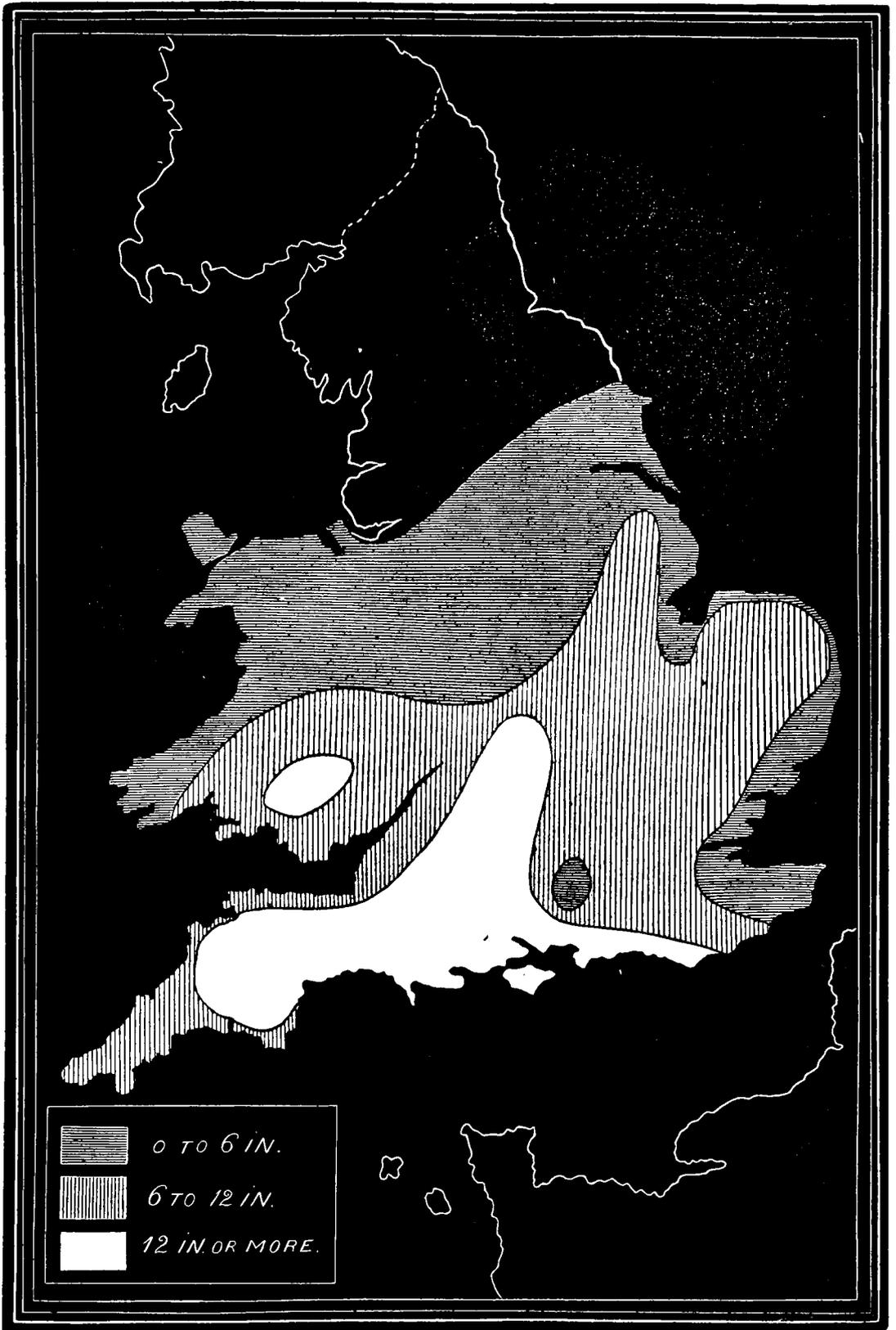
The gale was accompanied by a heavy and steady fall of snow over all but the north of England, which lasted through the 18th and continued, though rather lighter, till about noon on the 19th. The amount of snow deposited over the whole of the southern portion of the country was very great, and was so drifted by the fierce wind, that communication both by rail and road was entirely disorganised, and it was more than a week before the railway and postal arrangements throughout the country recovered their usual regularity and punctuality; the interruption to business was further increased by the large number of telegraph wires which were broken by the gale or by contraction caused by the extreme cold.

Snow fell again on the 20th in the S. and S.W., very heavily in the Isle of Wight and neighbouring districts, blocking up many lines of railway that had with great difficulty been cleared from the fall of the 18th.

Among careful observers in all parts of the country where the snow fell with its full intensity, it appears to be the general opinion that to find anything like a parallel case we must go back to 1836 or to 1814; and it appears that in most parts of the country the depth in those years was greater, but that the drifts were not so great. As regards the fall in the Isle of Wight and South Hampshire, it is believed to be altogether unprecedented in recent times.

One feature of the snow which appears to have been noticed nearly all over the country, was its extreme fineness and dryness, and the remarkable manner in which it penetrated in large quantities through roofs, the cracks of doors and windows, and even the most minute and almost imperceptible crevices.

DEPTH OF SNOW, JANUARY 17th to 21st, 1881.



The loss of life in England and Wales, entirely due to the snow, was very great, and probably an estimate of 100 persons would be very near the truth, and the amount of distress occasioned simply by the stoppage of the supplies of food and fuel to 'country districts from towns is almost incalculable.

Small birds died of starvation in vast numbers, their food being covered by the snow. At Littlehampton, in one shrubbery, more than 100 dead blackbirds and thrushes were found, and the following curious incident is reported in an Isle of Wight newspaper :—“ A friend of ours looking from his window [in Shanklin] on Monday, saw some larks hopping about on his lawn. Presently some rooks swooped down upon the birds, tore several to pieces, and ate them.”

It is very difficult to realise the magnitude of the snow storm and of the drifts ; perhaps some of the men employed in clearing the railways had the best opportunity of doing so. Locomotive engines and trains, in spite of their size and power, were snowed up by the dozen ; not merely stopped, but buried for days together, and in some cases so completely as to be quite hidden. From the Tring cutting on the L. & N. W. railway, 1,700 truck loads of snow were taken. A railway truck is about 15 ft. long, therefore 1,700 trucks would form a train nearly five miles long. A train five miles long to empty *one* cutting on *one* railway, what length of train would it require to remove the snow from all the cuttings on all the railways in England.

The loss to the country was enormous ; over more than half England business was practically stopped for one day at least, and the cost of clearing not only the railways but almost all the roads in the country, is incalculable, not to mention the more or less serious suffering and discomfort. Plymouth was deprived of water for nearly a week. Public and private meetings of all kinds had to be postponed ; in short, that intercourse between man and man on which the whole business and pleasure of life depend, was interrupted.

The accompanying map and following summaries for the different counties are founded on special returns from about 200 regular meteorological observers, and on reports furnished by nearly all the great railway companies, which are especially valuable, as they are based on statistics furnished by the engineers and traffic superintendents of the various lines, who not only had special opportunities of ascertaining the various depths, but who are in the habit of dealing with accurate measurements, and are, therefore, less likely to be led into unconscious exaggeration than amateurs of all classes.

The depths of snow in the various cases must be understood to represent the greatest depth to which the ground was covered at any time between the 17th and 21st of January, as it was impossible to deal with it in any other way ; but except in the extreme S. and S.W., by far the greater portion of it fell during the one continuous storm of the 18th–19th.

The map shows at a glance where the greatest amount fell. Over the white portion the depth exceeded 12 inches, and the part left black is where no appreciable amount fell on the 18th and 19th ; the shaded portions represent respectively where the depth was less than 6 inches, and where it was between 6 and 12 inches.

There was also snow on the ground over almost the whole of Scotland and Ireland, which drifted considerably, and in some cases caused delay to traffic ; but it has no interest in connection with the abnormally heavy fall of the

18th and 19th over the southern portion of England, and therefore needs no further notice. The special feature being that the heaviest falls occurred in those parts of the United Kingdom where ordinarily such falls are most rare.

In the district covered by this storm there are about 820 observers, and it has been necessary to examine into the details of every one of these records before passing the return for insertion in the General Tables. Some of the observers evidently took very great pains to secure accurate results, and their measurements and experiments have been extremely useful. In some cases accurate measurement was almost impossible. I quote portions of three letters in illustration :—

“I may mention that the amount of rain, or rather snow, on 18th January (.90 in.) is not quite accurate, for the snow drifting so much I could not tell the uniform depth and my gauge was completely buried.”

“I did the best I could with the snow in January, but the drift was so great that if the gauge had not been buried I could not have measured correctly, as the drift from the adjoining field, which fell on the gauge, was more than the snow which actually fell from the clouds, and as both were going on at once I could not separate them. I had 4 feet of snow in my aviary, and yet canaries lived out all the time and did not appear to mind it the least.”

“It was simply impossible to get an accurate measurement, or even, perhaps, a very accurate or close estimate of the depth of water deposited on the surface of the ground ; and I presume you will find unusual variations in the returns. Mine, I think, does not err by excess. The gauge was continually being covered with one, two, or even three feet of snow. When a thaw offered, it was, of course, necessary to uncover it ; but it was blown over again in 24 hours perhaps. Then, on days on which the frost did not relax, a little of the surface snow was liable to be converted into water by the heat of the noon-day sun. How much of the snow in any particular spot or locality resulted from downfall, and how much from surface blowing, it was impossible to say at any particular time, or from day to day.”

On examining the returns it was found that in most counties the majority of the records were in very fair agreement with one another and with the reported depth of the snow. But perhaps 100 observers (either through absence, illness, want of experience or apathy, and in many cases doubtless from some such difficulties as those mentioned in the letters just quoted) sent up either blank returns or figures which evidently could not be accepted. Some of these arrived before the publication of the *Meteorological Magazine* for February, 1881, and I therefore inserted in it the following note :—

“Owing to the very exceptional character of the snowstorm, many of the monthly returns on pages 30 and 32 are obviously incorrect. All the figures

to which the ? is attached are not necessarily wrong ; but the observers are requested to report what they believe to have been the average depth of the snow in their neighbourhood, and the nearest possible approach to the truth will be obtained before the publication of the annual totals. Few rain gauges will hold 5 inches of snow, many will not hold 3 inches ; where, therefore, the fall has exceeded those amounts, it is evidently fallacious to report merely what was ' found in the gauge.' Rule XV., Sections (2) and (3), should have been generally followed, but even then some difficulty existed. It is neither easy nor pleasant to obtain accurate measurements of such a storm ; we rejoice to notice the care which many of our observers bestowed upon the matter ; that which they have done will not merely render their own records perfect, but will help to check those of their neighbours, and in spite of all difficulties and a terrible addition to our ordinary work, we have no doubt that eventually few records will prove entirely spoilt."

The Government reporters, whose observations are telegraphed daily to the Meteorological Office, as the basis of its weather forecasts seem to have been even more puzzled than our own correspondents, for the statement in the *Daily Weather Report* of January 19th is as follows :—

" Exceedingly heavy snow fell all over England yesterday, but the violent wind prevented the snow from accumulating in the gauges, and no record can be obtained of the amount that fell."

And in the *Weekly Weather Report* for the week ending January 24th the following note occurs :—

" In consequence of the violence of the gale on the 18th, the snow was not retained in the gauges, so that the above measurements are probably far short of the actual amount of rain."

Even at Greenwich the results from the gauges were useless, and " estimation of the amount which should have been collected was made by afterwards ascertaining the average depth of snow on the ground, and making corresponding allowance."

The same difficulty was felt by Mr. Marriott in preparing the returns received by the Meteorological Society for publication in the *Meteorological Record*. He and I have, however, adopted a practically identical course. The amounts reported were always treated with considerable respect, and alterations were made only where it was *certain* that the figures reported were incorrect.

The examination of the returns sent in to the Meteorological Society was first made by Mr. Marriott and subsequently by myself, and there are only two instances in which I am unable to adopt the figures published by the Meteorological Society.

As stated in the earlier part of this article, I have personally gone

through the whole of the eight or nine hundred records and decided separately on the merits of each. No one dislikes more than I do altering or correcting returns, and never during my twenty-three years of rainfall work have I had a task so contrary to my own liking as the rectification of those for January last. However, the work is done and about 100 records have been altered to the best of my judgment. *All* altered values are (in the General Tables and wherever else they occur in the following pages) printed in italic type, but I hope and believe that they are at least as accurate as the others.

ON THE RAINFALL OBSERVATIONS MADE UPON YORK
MINSTER BY PROFESSOR JOHN PHILLIPS, F.R.S.

By G. J. SYMONS, F.R.S.

[The following paper was prepared for, and read at, the Jubilee Meeting of the British Association, held at York, in August, 1881. As the paper was rather long, and was solely upon Rainfall, it was thought better not to print it in the *Meteorological Magazine*, but to reserve it for the present volume.—ED.]

More than two centuries have passed since a Lancashire squire, one of the Townleys, of Townley, began a regular and systematic record of the fall of rain. More than one century has elapsed since Dr. Heberden, F.R.S., placed three rain gauges, one in a garden at Westminster, one on the roof of a house in the neighbourhood, and the third on the top of the square tower of Westminster Abbey. The results for 1766 were :—

			Total rain.	Ratio.
Garden	height about	1 ft.	22·61 in.	100
House top,	„ „	30 ft.	18·14 in.	80
Abbey tower,	„ „	151 ft.	12·10 in.	54

Similar experiments were made in many places with similar, but not identical, results, but more than half a century passed without, as far as I am aware, any earnest attempt being made to ascertain the cause of the amount collected on these high towers being little more than half that collected near the surface of the ground. The fact was known, but the *cause* was not. As we are all aware, the British Association was started at York in 1831, and one of its best, if earliest, reports was that upon Meteorology by Professor J. D. Forbes, in which he called attention to the lack of accurate knowledge respecting the cause of less rain being collected at great heights above the ground, and said : “The interesting experiments established at York Minster, at the suggestion of the British Association, and under the active superintendence of my friends, Mr. Phillips and Mr. Gray, jun., will soon, I am certain, afford us valuable information on this curious subject.” My object in this paper is partly to bring before the present generation details of the work done here by those two citizens, whom York will not soon forget, John Phillips and William Gray, partly to illustrate the utility of the grants of this Association, but chiefly to show how slowly and with what difficulty the true solution of the problem has been reached.

(1) As regards the work. It consisted in constructing three rain gauges, nearly identical in pattern, in placing one of them in the Museum garden, one on the roof of the Museum, and the third on a pole about nine feet high placed

on the centre tower of York Minster. These gauges were measured on various but identical dates during the years 1832-35, and the results were :—

		Total rain.	Ratio.
Museum garden	2 in. above ground.	21·81 in.	100
„	roof 44 ft. „ „	17·39 in.	80
Minster tower	213 ft. „ „	12·99 in.	60

These totals do not differ very greatly from those obtained about sixty years previously on Westminster Abbey by Dr. Heberden.

(2) Messrs. Phillips and Gray had a small grant from the Association, and observed, not merely these rain gauges, but also other meteorological data, temperature, pressure, &c. In Professor Phillips' first report he thus summed up the state of knowledge of the subject at that date :—“ The notion which is most generally entertained of the cause of this inequality is that the wind blowing horizontally causes fewer drops of rain to fall upon the more elevated gauges. That this notion is a mere fallacy, the least acquaintance with mechanics is sufficient to prove, for certainly the number of drops of rain which fall under the joint influence of gravity and ordinary wind upon horizontal surfaces will be *cæteris paribus* exactly the same at all elevations below the point from which the rain descends. It is supposed by some that eddy winds, produced by the sides of buildings, and rising upwards, may deflect the rain so as to prevent much of it falling on these buildings. It is certainly conceivable that this irregular action against gravity may, when very violent, under particular circumstances, produce a sensible effect, and such appears to be recognised by our experiments in one instance during the equinoctial period of March, 1832. But it is evident that in the majority of cases the effect of the eddying wind is quite unimportant.” Then Professor Phillips, after continuing the experiments for a year, concluded that the diminution of the amount of rain is as the square root of the height above the ground, or $\text{Diminution} = M\sqrt{H}$, in which the coefficient M varies for different seasons of the year. Professor Phillips also found from an analysis of Dr. Heberden's observations on Westminster Abbey, and those by Arago at the Paris Observatory, that the value of M varies for different localities. He further concluded that M varies inversely as the temperature and inversely as the dryness of the air, and gave formulæ for calculating M (for York) from the temperature and the dryness of the air. From these calculations he was led to the following conclusions :—“ It is, therefore, rather as a matter of very probable inference than a plausible speculation that I offer the hypothesis that the whole difference in the quantity of rain at different heights above the surface of the neighbouring ground is caused by the continual augmentation of each drop of rain from the commencement to the end of its descent, as it traverses successively the humid strata of air at a temperature so much lower than that of the surrounding medium as to cause the deposition of moisture upon its surface. This hypothesis takes account of the length of descent, because in passing through more air more moisture would be gathered ; it agrees with the fact that the augmentation for given lengths of descent is greatest in the most humid seasons of the year ; it accounts to us for the greater absolute size of rain drops in the hottest months and near the ground, as compared with those in the winter and on mountains. Finally, it is almost an inevitable consequence, from what is known of the gradation of tem-

perature in the atmosphere, that some effect of this kind must necessarily take place." He continued the observations for two years more, and in his final report states that the experiments clearly show the real dependence of the amount of the diminution of rain at the upper stations upon the temperature of the seasons ; but that the diminution is not uniformly as the square root of the height, but varies with the season, being in winter only as the cube root. He adheres to his original impression that the drops augment in falling by condensation. Hence it seems that having detected the fallacy of the ordinary mode of explaining how the velocity of the wind produced a diminished collection in the upper gauge, Professor Phillips was led entirely to disregard the velocity of the wind, and to forget that the seasons which were characterised by cold and humid air were usually the windy ones. Nor was Professor Phillips by any means alone in the views he held as to the gradual growth of rain drops in their passage from the clouds to the earth. And although I shall hereafter show that since Professor Phillips's time other explanations of the phenomenon have been found which perfectly satisfy the observations, yet we must never forget—least of all would I be a party to so doing—the value of his observations, and the impetus which they gave to this investigation.

Professor Phillips's experiments soon became known throughout the whole scientific world, and Professor Bache, of Philadelphia, hearing of Professor Phillips's report, set up four gauges at the angles of a square tower 162 feet high. His experiments were reported to the British Association at Newcastle in 1838, and in that report he says that his attention was ultimately fixed upon the fact that the effect of eddy winds upon the phenomena observed was by no means a secondary one in amount, and that he could not hope to deduce a law, nor to throw any light on the nature of the phenomena until this disturbing action was got rid of. He has, therefore, thought that it might be useful to those who may undertake similar experiments to submit some of the evidence of the effects, which he attributes to deflected currents of air. He then gives in a table the observations made with the rain gauges in the four angles of the tower, grouped under the winds prevailing during the rainfall, and shows that in general the gauges to the leeward received more rain than those to windward. Thus with a north wind the gauges at the S.E. and S.W. angles received more rain than those at the N.E. and N.W. angles. With a N.E. wind the gauge at the S.W. corner of the tower received the most rain, and so on. "Having seen," continued Professor Bache, "that I could not hope for accurate results by these arrangements, I next tried the effect of elevating the gauge upon a high pole, as was done by Professor Phillips and Mr. Gray with the gauge on the top of York Minster. The differences that appeared in this case were very trifling indeed. Thus on the 26th of August, when the N.E. and S.W. gauges upon the parapet wall gave quantities in the ratio of 1 to 1.68, those six feet above the parapet gave 1 to 1.08 ; with a more moderate wind the quantities were more nearly the same."

The theory that the growth of the raindrop by the condensation of particles of vapour floating in its path was adequate to explain the elevation difference was demolished by Sir John Herschel, who showed that the latent heat of steam, being about 1,000 deg. F., drops of rain, if they acquire an increase in weight amounting to 1 per cent. by condensed vapour must, in so doing, have

their temperature raised 10 deg. F. If they acquire an increase of 5 per cent., they must have their temperature raised about 50 deg. The next theory, or perhaps I should say statement, bearing on this subject is in the volume of the Greenwich Observations for 1843, where it is stated that elevation decrease is greatest when the rain is colder than the air, and least when the rain is warmer than the air. The most important theoretical contribution to this investigation was in a paper read before this Section at Manchester in 1861 (published *in extenso* in the "Phil. Mag.," December, 1861), by Mr. W. Stanley Jevons, F.R.S. He sums up all the previous investigations of the subject, shows the weakness of the different theories which had been advanced, and that the phenomena observed are all consistent with the theory that the fall of rain is practically identical at all elevations, and that the observed differences are due to imperfect collection by the gauges. Then he goes on to show that houses, towers, and even rain gauges themselves, form obstacles to the uniform passage of the rain-bearing air current, gives illustrations of the deflection thus produced, and concludes that less rain will fall on the summit of the obstacle than elsewhere, the surplus being carried forward to the lee side of the obstacle. During the last 15 years experiments analagous to those by Professor Phillips have been repeated in various parts of the country, but with the important difference that the gauges have generally been on isolated poles instead of on buildings. These observations have also been supplemented by anemometric records, and these have proved beyond a shadow of doubt that the difference in the amount collected is always greatest when the wind is strongest. This is shown clearly by a diagram in *British Rainfall*, 1870, which represents the observations made during several years at Rotherham.

There was in *British Rainfall*, 1871, and in the *Meteorological Magazine* for that year, a long discussion as to the mode in which the wind produced this diminished collection. This led Mr. Dines to place several gauges 50 ft. above the ground, on the square tower of his house at Walton-on-Thames. At the British Association meeting at Plymouth in 1877 Mr. Dines read a short paper giving the result of his observations, and (without knowing of Mr. Jevons' paper) said that the conclusion he had come to was that there was no actual decrease at the higher level, but a diminished collection due to eddy. And then he added a sort of P.S. based upon observations made for only a month or two, to the effect that he found that a large gauge on the tower caught much more than a small one. Pursuing his investigations, he found that this excess was due to the position in which this 24in. gauge had been placed. Finally he placed gauges at all corners, and showed that of two gauges somewhat similarly placed, that which is farther removed from the windward side of the building will invariably collect the most rain. The publication of these values led Mr. Rogers Field to examine them, and by tabulating the whole of the individual observations according to their ratio to the fall on the ground and to the direction of the wind, and plotting the values so as to form curves, he showed*—(1.) That the ratio of the rainfall on the tower to the rainfall on the ground depends on the force and direction of the wind. (2.) That when there is no wind the amount of rainfall on the tower is about the same as that on the ground. (3.)

* *Meteorological Magazine*, vol. xiii. (1878), p. 99.

That when there is wind, the amount of rain falling on the tower will vary on different portions of the tower, the portion nearest the point at which the wind strikes the tower receiving less rain than falls on the ground, and the portion furthest from the point at which the wind strikes the tower receiving the same as or more than falls on the ground. (4.) That the excess of rain falling on the portion of the tower furthest from where the wind strikes will, to a large extent, compensate the deficiency of rain on the portion nearest to where the wind strikes, but whether to a sufficient extent to make the average amount of rain falling on the tower equal to that falling on the ground, could not be determined from these experiments. It is to be noticed that this result might to a considerable extent have been foreseen had Professor Bache's observations been known and thoroughly discussed; but they had been forgotten, and thus we have duplicate experiments with identical, and, in the latter case, fully worked up, results. It will be obvious from these conclusions that if the building be flat and large, the fall in the middle of the roof ought to be nearly the same as on the ground. This has actually been found to be the case in two instances; first, at Messrs. Marshall's factory at Leeds, of which the roof is of enormous extent and 32 feet high, a gauge on the roof collects very nearly as much as one on the ground; and similar experiments recently made, and still continued by Mr. Dines upon a roof 5,000 square feet in area and 29 feet high in Surrey, give almost identical results—*e.g.*, in the last four months the difference between the roof and ground gauges has only been 2 per cent., instead of nearly 20 per cent., as would be the case upon a small building, or near the edge of a large one. Thus, finally, experimental evidence proves that Mr. Jevons was quite right in his theoretical view—that the fall of rain is practically identical at all elevations, and that the observed differences are due to imperfect collection by the gauges.

Mr. DINES was glad, after working at the question for many years, to find that meteorologists had now come to an unanimous opinion on the subject. As no objection had been raised to the conclusions he had arrived at, as set forth in the paper, he would not take up the time of the Section in setting up giants in order to knock them down.

The President (Sir WILLIAM THOMSON, F.R.S.) said that it was exceedingly satisfactory to find that this question, which had been a standing difficulty to meteorologists for 50 years, was now finally settled. Herschel had shown conclusively the absurdity of the hypothesis that the increase in size of the rain drops as they fall, would account for the observed diminution in the amount of rain collected at considerable heights above the ground, but all people were not acquainted with Herschel's statement. Mr. Symons had put the matter so clearly in his paper, that there could be no further question about the subject, and it must be considered as settled that the fall is practically identical at all moderate elevations above the ground, the observed diminution being only apparent, and being due to imperfect collection by the gauge.

EVAPORATION.

[Our readers will remember that we transferred the papers connected with this subject to Mr. Rogers Field, C.E. But that hardly precludes an occasional remark in these pages, and therefore we give here a short note upon the subject, translated and abstracted from that interesting little fortnightly magazine, *Ciel et Terre*.—ED.]

Signor Tacchini, Director of the Italian Meteorological Office, stated at the Agricultural Congress in Vienna in 1880, that M. Lesseps had informed him that the evaporation from the Suez Canal was only one-tenth of that indicated by the evaporators. Much surprise need not be felt at this fact, because the determination of the real amount of evaporation is one of the most difficult problems of meteorology, and we have not yet any apparatus capable of determining it under strictly natural conditions. The fact to be ascertained is the quantity of water which the sun carries away from the surface of rivers, lakes, and large bodies of water. The evaporators at present in use are always very small, and thereby influence considerably the fact which has to be observed, by making the water too hot and, therefore, evaporation too active.

Experiments made with instruments of different sizes placed under identical conditions, have shown that the depth of water evaporated increases as the size of the evaporator diminishes.

Now compare the volume of water in an evaporator 1 foot in diameter and 8 inches deep with the water in a canal 35ft. wide and 10ft. deep. The difference between the temperature of these two bodies of water must be considerable, and temperature is well known to be one of the most powerful causes of evaporation. Hence the Vienna Agricultural Conference expressed its desire to see "an apparatus capable of indicating exactly the evaporation from a free water surface, and from the surface of various kinds of bare and cultivated soil." Several members of the Conference advocated the employment of evaporators floating on the surface of large bodies of water.

[This is an excellent illustration of the need for widely disseminating among all nations a knowledge of the work done by each. Mr. Greaves started, in 1859, an evaporator of this very kind—a box 3ft. by 3ft. and 1ft. deep—floating in a quiet part of a flowing stream. Further particulars with engravings will be found in the *Proc. Inst.*, C.E., vol. xlv., 1875-76, but we may just mention that the mean evaporation by this apparatus at Lea-bridge, near London, for 14 years, 1860-73, was 20·6lin. This value is not materially different from those given for Dijon and other places on the Canal de Bourgogne, where evaporators having surfaces of about 70 square feet were employed.—See *British Rainfall*, 1869, p. 157.—ED.]

ROTHERHAM EXPERIMENTAL GAUGES.

It will be remembered that the above gauges were originally erected by Mr. R. Chrimes at Boston Reservoir, Rotherham, for the purpose of obtaining positive evidence respecting the decrease of rainfall with height, simultaneously with data, as to the angle and azimuth of falling rain, and the velocity of the wind. Subsequently, they were re-erected on the bank of the large Reservoir at Ulley.

Having served their original purpose, I suggested a few years since, that they should be dismantled and re-arranged for the purpose of making a different investigation, viz., determining the effect of the height of the embankment on the amount of rain collected. To do this, the gauges will all be placed at one height, and distributed at equal distances along the embankment, right across the valley. From the last letter received from the Manager of the Borough Water Works (Mr. Berry), I hope that this re-arrangement may be carried out this year.

RAIN GAUGE EXPERIMENTS, ULLEY RESERVOIR, ROTHERHAM, 1881.

Lat. 53° 22' 59" N. Lon. 1° 19' 9" W. Altitude 184 ft. $\bar{\wedge}$

FIVE MOUTHED GAUGE. INCLINED
ROTATING
GAUGE.

Height above ground.	5ft.					5 ft.
Months.	Facing East.	Facing North.	Facing West.	Facing South.	Horizon Centre.	45°
January	·270	·298	·276	·299	·333	·390
February.....	2·963	2·164	·813	3·461	2·830	6·125
March	2·581	1·868	1·737	1·190	2·185	4·811
April	·098	·609	·307	·080	·689	·836
May... ..	·117	·718	·464	·400	1·295	1·738
June... .	·292	·218	·272	·670	1·640	1·857
July.....	·174	·277	·541	·213	·955	1·323
August	·316	1·087	·669	1·631	4·315	4·720
September	·391	1·821	·695	·727	1·774	3·019
October	·907	1·472	·943	1·255	2·476	4·770
November	·499	·465	1·596	2·999	2·199	4·920
December	·518	1·593	1·568	1·726	1·888	3·568
Totals	9·126	12·590	9·881	14·651	22·579	38·077

RAIN GAUGE EXPERIMENTS, ULLEY RESERVOIR (*continued*).

ELEVATED GAUGES.

Height above Ground ...	1 ft.			5 ft.			10 ft.		
	Read Daily.	Read Mnthly.	Diff.	Read Daily.	Read Mnthly.	Diff.	Read Daily.	Read Mnthly.	Diff.
Months.									
January	·364	·281	—·083	·230	·281	+·051	·233	·279	+·046
February	2·872	2·838	—·034	2·398	2·467	+·069	2·482	2·546	+·064
March	2·328	2·299	—·029	1·966	2·378	+·412	2·014	2·010	—·004
April	·737	·736	—·001	·647	·669	+·022	·647	·659	+·012
May	1·447	1·372	—·075	1·317	1·349	+·032	1·331	1·336	+·005
June	1·610	1·618	+·008	1·431	1·620	+·189	1·464	1·500	+·036
July	·986	1·005	+·019	·877	1·065	+·188	·941	1·055	+·114
August	4·435	4·374	—·061	4·053	4·354	+·301	4·155	4·190	+·035
September ...	1·878	1·916	+·038	1·592	1·645	+·053	1·611	1·656	+·045
October	2·561	2·790	+·229	2·313	2·401	+·088	2·337	2·545	+·208
November ...	2·103	2·084	—·019	1·961	1·946	—·015	1·908	2·042	+·134
December ...	1·925	1·885	—·040	1·828	1·829	+·001	1·783	1·789	+·006
Totals	23·246	23·198	—·048	20·613	22·004	+1·391	20·906	21·607	+·701

ELEVATED GAUGES (*continued*).

Height above ground	15 ft.			20 ft.			25 ft.		
	Read Daily.	Read Mnthly.	Diff.	Read Daily.	Read Mnthly.	Diff.	Read Daily.	Read Mnthly.	Diff.
Months.									
January	·238	·249	+·011	·207	·247	+·040	·240	·280	+·040
February	2·460	2·416	—·044	2·562	2·433	—·129	2·748	2·518	—·230
March	1·980	1·915	—·065	2·027	1·866	—·161	2·014	1·913	—·101
April	·629	·626	—·003	·637	·609	—·028	·637	·630	—·007
May	1·284	1·300	+·016	1·321	1·300	—·021	1·311	1·371	+·060
June	1·430	1·372	—·058	1·488	1·380	—·108	1·432	1·582	+·150
July	·890	·980	+·090	·912	1·039	+·127	·913	1·000	+·087
August	4·089	4·049	—·040	4·204	4·185	—·019	4·241	4·357	+·116
September ...	1·569	1·543	—·026	1·595	1·555	—·040	1·560	1·696	+·136
October	2·316	2·495	+·179	2·353	2·526	+·173	2·335	2·556	+·221
November ...	1·885	1·900	+·015	2·048	1·920	—·128	2·021	1·910	—·111
December ...	1·709	1·779	+·070	1·853	1·768	—·085	2·166	1·891	—·275
Totals	20·479	20·624	+·145	21·207	20·828	—·379	21·618	21·704	+·086

RAINFALL AT THE ROYAL OBSERVATORY, GREENWICH.

Lat. 51° 28' 38" N. Long. 0° 0' 0"

Communicated by W. H. MAHONEY CHRISTIE, Esq., M.A., F.R.S., F.R.A.S., &c.,
Astronomer Royal.

No. of days on which rain fell.	1881	MONTHLY AMOUNT OF RAIN COLLECTED IN EACH GAUGE.							
		Self-registering Gauge of Osler's Anemometer.	Second Gauge at Osler's Anemometer.	On the roof of the Octagon Room.	On the roof of the Magnetic House.	On the roof of the Photographic thermometer shed.	Gauge partly sunk in the ground. read daily. <i>a</i>	Gauge partly sunk in the ground. read monthly. <i>b</i>	Gauge partly sunk in the ground. read daily. <i>c</i>
		in.	in.	in.	in.	in.	in.	in.	in.
9	Jan. ...	0·708	0·760	1·034	1·067	1·150	1·663	1·348	...
18	Feb. ...	1·103	1·344	1·792	1·954	2·367	2·446	2·350	...
11	March	1·140	1·228	1·407	1·504	1·701	1·835	1·690	...
8	April..	0·298	0·360	0·461	0·560	0·612	0·623	0·480	...
13	May...	0·875	0·955	1·241	1·396	1·542	1·611	1·363	...
9	June...	1·202	1·292	1·649	1·724	1·837	1·863	1·630	...
12	July...	1·538	1·574	1·842	1·992	2·072	2·137	1·980	2·048
17	Aug...	2·752	2·943	3·342	3·589	3·783	3·888	3·732	3·749
15	Sept...	1·525	1·583	1·825	2·017	2·128	2·188	2·108	2·071
13	Oct. ...	2·003	2·212	2·305	2·425	2·692	2·711	2·572	2·690
16	Nov ...	0·988	1·007	1·413	1·797	2·127	2·265	2·272	2·289
15	Dec. ...	1·250	1·376	1·822	2·107	2·380	2·495	2·428	2·450
156	Sums..	15·382	16·634	20·133	22·132	24·391	25·725	23·953	...

The heights of the receiving surfaces are as follows :

	Above the mean level of the Sea.	Above the Ground.
	ft. in.	ft. in.
The two Gauges at Osler's Anemometer	205 6	50 8
Gauge on the roof of the Octagon Room	193 2	38 4
Gauge on the roof of the Magnetic House	176 7	21 9
Gauge on the roof of the Photographic Thermometer Shed	164 10	10 0
The three Gauges, partly sunk in the ground	155 3	0 5

On the occasion of the snow storm of January 18th, accompanied by violent wind, estimation of the amount which should have been collected was made by afterwards ascertaining the average depth of snow on the ground, and making corresponding allowance.

Commencing with the month of July, the ground gauge (*b*) was read daily in consequence of its indications appearing to be constantly less than those of the ground gauge (*a*): at the same time an additional ground gauge (*c*), also read daily, was brought into use. The other gauges are all read daily.

The record by Crosley's self-registering gauge, hitherto given, has been omitted from the above table, its indications not being considered to be trustworthy.

A rainy day is considered to be one on which 0·005 in., or more, is collected in the ground gauge No. 1.

April 6th, 1882.

WILLIAM ELLIS,
For the Astronomer Royal.

ON THE AMOUNT OF RAIN COLLECTED AT VERY CONSIDERABLE HEIGHTS ABOVE THE GROUND.

THIS subject was fully treated in *British Rainfall*, 1880. I do not intend to re-consider any of the points then examined, or to attack any fresh ones, but merely to report upon two of the sets of experiments therein described, and upon some old observations which, in consequence of that article, have been forwarded to me by Mr. E. B. Marten, M.Inst.C.E.

BOSTON CHURCH TOWER.

Mr. Hackford has continued the record of the gauge at the great height of 260 feet, and supplied the data contained in the following table, which closely agrees with that given last year :—

RAINFALL IN THE CHURCHYARD AND ON THE TOWER OF BOSTON CHURCH, LINCOLNSHIRE.

Lat. 52° 59' N. Lon. 0° 3' W.

GROUND GAUGE.

5 in. diam.

3 ft. above ground.

22 ft. above sea.

TOWER GAUGE.

5 in. diam.

260 ft. above ground.

282 ft. above sea.

1881.	Ground Gauge.	Tower Gauge.	Ratio Ground=100.
	in.	in.	
January	1·09	·56	51
February	3·39	·90	27
March	1·75	·43	24
April	1·20	·65	54
May.....	·74	·22	30
June	2·26	1·28	57
July.....	3·59	2·38	66
August	4·10	2·25	55
September	2·42	1·29	53
October	2·49	1·12	45
November	2·26	·98	43
December	2·16	·92	43
TOTAL	27·45	12·98	47

CHESTER SHOT TOWER.

Mr. Walker writes :—“As I considered that there was nothing more to be learned from a rain gauge on the shot tower, I have discontinued the observations.”

WOLVERHAMPTON.

These old observations were made at the Tettenhall pumping station of the Wolverhampton Water Works, which is situated two miles W. of Wolverhampton, and about 450 ft. above sea-level. In 1849 the observations (which were made weekly) were taken by Mr. H. J. Marten, M.Inst.C.E. ; and during 1850-52 by Mr. E. B. Marten. The low gauge was on a post about 7 ft. high, the upper one was on the top of the water tower, 180 ft. high.

As the table *in extenso* would be rather long, and as no details as to wind, &c., could be applied to weekly totals, I have thought it best to form rough monthly totals—I say “rough,” because the observations being weekly it has of course been impossible to apportion the amounts accurately to the calendar months whose names they bear :—

Months.	1849.			1850.			1851.			1852.		
	Low.	High.	Diff.	Low.	High.	Diff.	Low.	High.	Diff.	Low.	High.	Diff.
Jan. ...	in.	in.	in.	2·66	2·01	—·65	2·97	2·19	—·78	3·27	2·65	—·62
Feb. ...	...	...	...	1·12	·79	—·33	·58	·35	—·23	2·03	1·41	—·62
Mar. ...	...	...	...	·43	·19	—·24	3·07	2·46	—·61	·43	·24	—·19
April..	...	...	...	2·20	1·46	—·74	1·27	·94	—·33	·51	·36	—·15
May ...	...	...	...	1·65	1·40	—·25	·96	·67	—·29	·89	·62	—·27
June ..	1·49	1·29	—·20	1·56	1·24	—·32	2·01	1·52	—·49	3·87	3·05	—·82
July ...	2·33	2·03	—·30	2·40	2·10	—·30	2·14	1·66	—·48	2·68	2·31	—·37
Aug ...	2·95	2·40	—·55	·83	·68	—·15	1·38	1·17	—·21	4·87	4·07	—·80
Sept...	2·77	2·83	+·06	·90	·67	—·23	1·21	·94	—·27	3·05	2·45	—·60
Oct. ...	2·20	1·55	—·65	2·17	1·76	—·41	1·91	1·34	—·57	2·53	1·70	—·83
Nov ...	·58	·36	—·22	1·90	1·07	—·83	1·10	·82	—·28	6·86	4·04	—2·82
Dec....	2·52	1·72	—·80	·55	·37	—·18	1·25	1·10	—·15	2·68	2·07	—·61
	14·84	12·18	—2·66	18·37	13·74	—4·63	19·85	15·16	—4·69	33·67	24·97	—8·70

Converting the amounts collected by the high gauge into ratios of those collected by the lower gauge taken as 100, we obtain the following values :—

	1849	1850	1851	1852	MEAN.
January ...	...	76	74	81	77
February...	...	71	60	69	67
March .....	...	44	80	56	60
April .....	...	66	74	71	70
May.....	...	85	70	70	75
June	87	80	76	79	80
July.....	87	88	78	86	85
August ...	81	82	85	84	83
September.	102	75	78	80	84
October ...	71	81	70	67	72
November.	62	56	75	59	63
December..	68	67	88	77	75
Year.....	82	75	76	74	76

Two brief remarks upon the above results may be permitted.

(1) It is evident that the amounts collected were one to the other as 100 to 76, or as 4 to 3—a decrease which agrees fairly well with the values quoted in our last, and with the diagram there given.

(2) The marked influence of season, for the ratio for the summer five months, May to September, averaged 81 per cent., and for the five winter (and windy months), November to March, averaged only 68 per cent. All these results agree very well with those given in the article in our last volume.

THE STAFF OF OBSERVERS.

THE changes in the staff can never be ignored in rainfall work. Deaths and removals must ever thin our ranks, and stations of the highest value must disappear. We are glad, however, to feel that hitherto the growth of the organization has been such that much as we regret the loss of our old correspondents and of their records, the geographical distribution of the stations goes on improving year after year.

Let it not, however, be assumed that we consider that we have reached the "rest and be thankful" condition. Far from it. The removal of Sheriff Shaw from Loch Maddy, in N. Uist, in the Hebrides, leaves a very large district wholly dependent on the very unsatisfactory returns from the Scottish Lighthouses; an accident to the gauge at Achumore, Assynt, leaves west-central Sutherland without a single station; and other like cases might be quoted. On the other hand, the following list will show important additions in several districts, and brief notes respecting them will be found interspersed in the list.

COUNTY ORGANIZATION.—We do not give a separate notice of the County Organizations this year, because we are not aware of any material change. There was, however, one omission in our notice last year, which we desire to rectify. We omitted to mention that Mr. Campbell, of The Asylum, Londonderry, had organized a regular monthly publication, in one of the leading journals in the North of Ireland, of the daily fall of rain at a large number of stations in Ulster. Not having received any copies of the table for some months, we cannot say whether the system is still in operation or not.

TOTAL NUMBER OF STATIONS.—It would be childish to regard a mere number of stations as a satisfactory feature; completeness of geographical distribution, and continuity are the two features to aim at; but numbers (especially when given for each of the 125 counties) are perhaps the only simple expression of maintained vigour, of decadence, or of growth. Hence, and hence alone, we attach con-

siderable importance to the fluctuations in the total number of returns received, and hence we give at the head of each county the number of perfect records received from it. A summary of the results will be found at the end of this article.

ENGLAND AND WALES.

MIDDLESEX (47).

ABSENT RECORDS.

Twickenham (Srawberry Hill)—*No reply.*
Highgate (Milfield Lane)—*Record ceased.*

INSERTIONS.

Kilburn (Netherwood Street).
Stoke Newington.
Hornsey (Campsbourne Road).
Finchley (Avenue House).
Winchmore Hill.
Enfield.

SURREY (60).

Cranleigh (Hall Pl., Hascombe)—*Rcd. imperfct.*
Dorking (Horsham Road)—*Record ceased.*
Upper Caterham—*Record imperfect.*
Croydon (Wandle Road)—*Record ceased.*
,, (Tanfield Lodge)—*Record ceased.*
,, (Waddon House)—*Gauge changed.*
,, (Thornton Heath)—*Record ceased.*
Mitcham (Tamworth Lodge)—*Record incorrect*
Peckham (Asylum Road)—*Record ceased.*

Dorking (Fir Tor).
Betchworth (Brockham Vicarage).
Guildford (Guildown).
Reigate (Ringley Mead).
,, Hill (Gatton).
Godstone (Tyler's Green).
Walton-on-Thames (Hersham).
Beddington.
South Norwood.
Richmond (Ormond Lodge).
Battersea Creek.

KENT (68).

Ashford (East Hill)—*Record ceased.*
Deal (Northbourne)—*Record incorrect.*
Sheldwich—*Record imperfect.*
Canterbury (Bridge Street)—*Record ceased.*
Aylesford (Preston Hall)—*Record imperfect.*
Margate (Acol)—*Record ceased.*
Chatham (School of Mil. Eng.)—*Rcd. incorrect.*
Foot's Cray (Sidecup)—*Observer dead.*

Tunbridge Wells (Sherwood).
,, (Etherton Hill).
Ashford (Westwell).
Edenbridge (Falconhurst Court).
Maidstone (Museum).
Ramsgate (St. Augustine's).
Birchington (Thor).
Margate (Apsley House).
Beckenham (West Wickham).
Eltham Green.
Erith (Crossness), 3 records.

WEST SUSSEX (23).

Littlehampton (Rustington)—*Observer left.*
Horsham—*Record ceased.*

Worthing (Broadwater Road).
Arundel (Yapton, Drove Farm).
Chichester (Westgate) Meadow.
,, (West Dean.)

EAST SUSSEX (40).

Eastbourne (Cavendish Place) <i>Record ceased.</i>	Brighton (Goldstone Bottom).
Hastings (Brookwood)— <i>Record ceased.</i>	Newick (Ketches).
Balcombe Place— <i>No reply.</i>	Crawley (Worth Rectory).

HAMPSHIRE (46).

Isle of Wight (Newport)— <i>Record ceased.</i>	Bournemouth.
Southampton (Ord. Sur. Off.)— <i>Gauge moved.</i>	Portsmouth (Closewood, Cosham).
Petersfield (Castle House)— <i>No reply.</i>	Southampton (Eling House).
Alresford (Arle Bury)— <i>Record incorrect.</i>	Fordingbridge.
Alton (Medstead)— <i>Record ceased.</i>	Petersfield (Liss Place).
„ (E. Worldham)— <i>Record incomplete.</i>	Alton (East Tisted Rectory).
Hartley Grange— <i>Record imperfect.</i>	Whitchurch (North Litchfield).
	•Kingsclere (Ramsdale).

One or two stations in the West of the Isle of Wight are much needed, especially one near Freshwater.

BERKS (16).

Reading (The Acacias)— <i>Record ceased.</i>	Maidenhead (Kimber's Cottage).
„ (Purley)— <i>Record lost.</i>	
Wallingford (Biewberton House)— <i>No reply.</i>	

HERTS (28).

Hemel Hempstead (Gt. Gaddesden)— <i>Rcd. imprft.</i>	Bushey Heath (The Laurels)
	„ Station.
	Watford (Watford House).
	Hoddesdon.
	Rothamsted.

BUCKINGHAM (12).

Datchet (Riding Court)— <i>Record ceased.</i>	
Olney (Filgrave Rectory)— <i>Record incorrect.</i>	

OXFORD (19).

Whitechurch Rectory.
Oxford (Radcliffe Observatory).
„ (Stanton St. John's).

NORTHAMPTON (26).

Daventry (Helidon)— <i>Observer dead.</i>	Daventry (Fawsley).
Peterborough (Westgate)— <i>Record ceased.</i>	Northampton (Hazlewood Road).
	Oundle (Pilton Rectory).
	„

HUNTINGDON (6).

BEDFORD (17).

Ampthill (Lidlington)— <i>No observations.</i>	
Cardington (36 ft. gauge)— <i>Record ceased.</i>	

CAMBRIDGE (31).

Cambridge (Merton Villa)— <i>Observer dead.</i>	Odsey [Royston].
	Littleport (Audley House).

ESSEX (28).

Witham (Rivenhall)— <i>Gauge moved.</i>	Southend.
Dedham (Lower Park)— <i>No reply.</i>	North Ockendon Rectory.
	Little Ilford.
	Romford (Normanhunt).
	Chigwell Row.
	Buckhurst Hill (The Elms).
	Chelmsford (Writtle).

SUFFOLK (32).

Ipswich (Fonnereau Road)— <i>Record ceased.</i>	Belstead Hall, 2 records.
Botesdale (Rickinghall Rectory)— <i>G. blown ovr.</i>	Woodbridge (Bank House).
	Stowmarket (Violet Hill).

NORFOLK (50).

Downham Market (W. Dereham)— <i>Record impt.</i>	Geldeston.
Stoke Ferry (Wereham)— <i>Record imperfect.</i>	Acle.
Downham Market (Fincham)— <i>Record ceased.</i>	Dereham.
Hockering— <i>Record imperfect.</i>	Colkirk.
Salhouse— <i>Record imperfect.</i>	
Lynn (Hillington Hall)— <i>Record ceased.</i>	

WILTS (29).

Salisbury— <i>Gauge moved.</i>	Broad Chalk Vicarage.
Warminster (Downside)— <i>Record imperfect.</i>	Ludgershall (Collingb'ne, Kingston)
	Mildenhall.
	Malmesbury (Charlton Park).
	„ (Minety House).

DORSET (15).

Portland (Verne Citadel)— <i>Record imperfect.</i>	Swanage.
Blandford (Bingham's Melcomb)— <i>No reply.</i>	
Sherborne (Folke Rectory)— <i>Record ceased.</i>	
Cranborne (Pentridge)— <i>Record ceased.</i>	

DEVON (81).

Abbots Kerswell (Court Grange)— <i>Rcrd. impt.</i>	Salcombe (The Molt).
Princetown— <i>Record imperfect.</i>	Brixham (Lupton).
Clyst Hydon— <i>Record ceased.</i>	Totnes.
	Buckfastleigh (Bossel Park).
	Starcross (Southbrook).
	Powderham Castle.
	Cullompton.
	Arlington Court.

Several of these changes are of considerable importance. The breakdown of the station established at Prince Town, Dartmoor, by the Meteorological Society, is perhaps more serious in a purely meteorological aspect than as regards rainfall, since we have other returns from the Moor, *e.g.*, Lee Moor, Lowery, Holne, Leusden, Widdecombe, Cator, and Cowsie. Still, we think

it essential that a station be maintained at Prince Town, and that it might properly be established and worked by the Prison staff.

The loss of the record from Clyst Hydon is to be regretted, because, although there are *now* sufficient records in the district, *none* have that which Clyst Hydon had—a long series of observations for previous years. The two records from Lord Devon's seats at The Molt and Powderham Castle are valuable, and so is the record originally started by Sir Bruce Chichester, Bart., at Arlington Court, Barnstaple, which we are very glad to state is being continued by Lady Chichester.

CORNWALL (35).

Camborne (Crowan).	
Camelford.	
Tintagel (St. Nectan's Glen).	
Bude.	

SOMERSET (32).

Wellington (Sunnyside)— <i>No reply.</i>	Taunton (Bishop's Lydeard).
Illebrewers (Walrond Park)— <i>No reply.</i>	Weston-super-Mare (Worle).
Glastonbury (Street)— <i>Record imperfect.</i>	
Minehead (Porlock)— <i>Record imperfect.</i>	
Burnham— <i>Observer dead.</i>	
Bath (Weston)— <i>Observer dead.</i>	

GLOUCESTER (34).

Over Court, 2nd gauge— <i>Not forwarded.</i>	Tidenham [Chepstow].
Stroud (Cain's Cross)— <i>No reply.</i>	Cirencester (Claremont Place).
Cheltenham (Montpelier Lodge)— <i>Record impt.</i>	,, (Roy. Agricult. Coll.).
Moreton-in-Marsh (Frogmore)— <i>Record ceased.</i>	Northleach (Hampnett Rectory).

HEREFORD (19).

Whitfield— <i>No reply.</i>	Hereford (Fownhope Vicarage).
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SHROPSHIRE (19).

Church Stretton (Church Preen)— <i>Rcrd ceased.</i>	Ludlow (Bromfield Vicarage).
Shifnall (Haughton Hall)— <i>Observer dead.</i>	Craven Arms (Stokesay Vicarage).
Shrewsbury (Fitz Manor)— <i>Record ceased.</i>	
Whitchurch— <i>No reply.</i>	

STAFFORD (28).

Burton-on-Trent (Horninglow)— <i>Record ceased.</i>	Wolverhampton (Town Hall).
Cheadle (Farley)— <i>Record ceased.</i>	Lichfield (St. Michael's Rectory).
	Uttoxeter (Leigh).
	Weaver Hills (Beacon Stoop).
	Etruria.
	Knyppesley [Congleton].

One of these new stations is of considerable importance, viz., that of Beacon Stoop, on the Weaver Hills, the gauge being 1216 ft. above sea level, or 306 ft. higher than our previously highest station in Staffordshire

—Alstonfield, which is 910 ft. above sea level. The total amount of R collected is not large, not so much as at Mr. Wragge's low level station at Oakamoor, the fall being :—

Oakamoor	346 ft.	37·14 in.
Beacon Stoop	1216 ft.	36·04 in.

The wind at the upper station is probably so strong as to drive the R nearly horizontally across, instead of allowing it to fall into, the gauge.

WORCESTER (20).

| Bewdley (High Street).

WARWICK (20).

Coventry (Stoke)—*Record imperfect.*
 Bickenhill Vicarage—*Record ceased.*
 Birmingham (Bloomsbury Street)—*Rcd. impt.*

LEICESTER (21).

Market Harboro' (Fairfield Road)— <i>Obs. dead.</i>	| Market Harboro' (The Hutch).
Kilby Vicarage— <i>Record ceased.</i>	| Fleckney.
Loughboro' (Nan Pantan Res.)— <i>Record impt.</i>	|

RUTLAND (7).

Burley-on-the-Hill.—*Gauge leaked.*

LINCOLN (43).

Grantham— <i>Record ceased.</i>	| Horncastle (Bucknall).
Lincoln (Branston Hall)— <i>Record ceased.</i>	| N.LevelEngine [Thorne, Doncast'r]
Louth (Calcethorpe)— <i>Record ceased.</i>	|
„ (Kestern Grange)— <i>Records ceased.</i>	|

NOTTS (27).

Nottingham (Highfield House)— <i>Record ceased.</i>	| Normanton on Soar.
	| Kingston Hall.
	| Nottingham (Beeston Fields)
	| „ (Cavendish Crescent).
	| „ (Stoke Bardolph, Sew Fm.)
	| „ (Strelley Hall).
	| Hucknall Torkard (Forge Mills).

DERBY (38).

Trent College— <i>No reply.</i>	| Stapenhill [Burton].
	| Chesterfield (Brampton, St. Thomas)
	| Burbage House.

CHESHIRE (43).

Chester (Lead Works, Shot Tower)— <i>Rcd. csd.</i>	| Chester (The Lead Works).
Lyme Park— <i>Record incorrect.</i>	| Thornycroft Hall.
Macclesfield M.S. & L.R.— <i>Record incorrect.</i>	| Macclesfield Park.
Lymm (Agden Hall)— <i>Observer dead.</i>	| Neston (Oakhill).
	| Northenden (Wythenshawe).

LANCASHIRE (122).

Warrington (Bewsey Street)— <i>Record ceased.</i>	Warrington (Cemetery).
Wigan (Beech Hill)— <i>Record imperfect.</i>	Manchester (St. Bede's College).
Bolton-le-Moors (The Freehold)— <i>Not observed.</i>	Maghull.
Burnley (Monkholme)— <i>Record imperfect.</i>	Prestwich.
Lancaster (Wray)— <i>Record imperfect.</i>	Bolton (Hampden Street).
	Bury (Gin Hall).
	Sunnyhurst Hey Reservoir.
	Lytham (Woodville Terrace).
	Elswick Lodge.
	St. Michaels on Wyre.
	Galgate.
	Woodland Rectory.

YORK, WEST RIDING (150).

Penistone (Ingbirchworth Res.)— <i>No reply.</i>	Rotherham (Dinnington Hall).
Barnsley— <i>No reply.</i>	Tickhill.
Marsden (Standegge)— <i>Record imperfect.</i>	Sheffield (Chapelton).
Ackworth School— <i>No reply.</i>	Doncaster (Hatfield).
Leeds (Methley Park)— <i>No reply.</i>	Wakefield (Thornes).
Bradford (Thornton Moor)— <i>Record imperfect.</i>	" (Hardy Croft).
" (" Res.)— <i>Record ceased.</i>	Stanley (Field Head).
" (Top of Stairs)— <i>Record imperfect.</i>	Goole.
" (Leeming Res.)— <i>Record imperfect.</i>	Leeds (Wortley Reservoir).
Bingley (The Grange)— <i>Record imperfect.</i>	Bradford (Stubden Reservoir).
Slaidburn (Cabin Hill)— <i>Gauge out of order.</i>	" (Heaton ").
York (Cherry Hill).— <i>No reply.</i>	Leeds (Eccup).
Harrogate Cemetery— <i>Record imperfect.</i>	Ilkley (Cherry Bank).
Ripon (Borage House)— <i>Record destroyed.</i>	" (Carcroft).
Wharfedale (Oughtershaw Hall)— <i>Record imperfect.</i>	York (Phil. Soc. Gardens).
Langstrothdale (Cam Fell)— <i>Record ceased.</i>	Skipton (Thorpe Fell).
Sedbergh (Long Lane)— <i>Gauge changed.</i>	Pateley Bridge (Grimwith Res.).
	Settle.
	" (Austwick).
	Thornton in Lonsdale.

YORK, EAST RIDING (17).

Hunmanby (Wold Newton Vic.)— <i>Gge. burst.</i>	Market Weighton (Dalton Hall).
	" " (Holme on the Wolds).
	Hornsea.

YORK, NORTH RIDING (40).

Aysgarth Vicarage— <i>Two Records ceased.</i>	Scarborough (St. Nicholas).
Helmsley (Nawton)— <i>No reply.</i>	Hambleton Hills (Nab Farm).
Northallerton (Rounton)— <i>Record incomplete.</i>	" (Lime Kiln House).
	Lockwood Reservoir.

DURHAM (20).

Eaglescliffe [Yarm]— <i>Record ceased.</i>	Whorlton (The Green).
Darlington (Flora Gardens)— <i>Record ceased.</i>	
Durham Observatory— <i>Gauge burst.</i>	
Sunderland (Claremont Terrace)— <i>Obs. dead.</i>	

NORTHUMBERLAND (46).

Newcastle (Rye Hill)— <i>Record ceased.</i>	|	Holeyn Hall.
North Shields (Billy Mill Res.)— <i>Record imperfect</i>		Newcastle-on-Tyne, (Clifton Road).
Alwinton (Harbottle)— <i>Record incorrect.</i>		„ (Welburn Jesmond).
Hartburn (Wallington)— <i>No reply.</i>		
Morpeth (Bothalhaugh)— <i>Not observed.</i>		

CUMBERLAND (55).

The Sty, <i>New gauge—Record imperfect.</i>	|	Seathwaite.
Wythburn Vic.— <i>Record imperfect.</i>		Loweswater (Godferhead).
Keswick (Shu-le-crow)— <i>Gauge broken.</i>		Whitehaven (Distington).
Maryport (Wyndham Row)— <i>Observer dead.</i>		Carlisle (St. James' Road).

WESTMORELAND (38).

Kirkstone Pass— <i>Record ceased.</i>	|	Mardale, <i>Three records.</i>
		Shap (Swindale).
		„ (Sleddale).
		„ (Tailbert Beck).
		Crosby Ravensworth (Reagill).

My readers may remember records from Wet Sleddale being published for the years 1867, 1868, and 1870 as 87·00, 108·75, and 101·00 respectively. Few persons expected such a fall on the eastern verge of the English Lake District or would have thought it possible. In the autumn of 1880 I arranged with Mr. Hoggarth, of Shap, for the resumption of observations at Sleddale, and for the commencement of other records in the adjacent valley of Swindale. The gauges were all new ones, and were all placed by myself; and the new observations again prove Sleddale far wetter than Ambleside. I had the old gauge at the “Dun Bull,” at Mardale, repaired, and also supplied a new one, and Mr. H. P. Holme, of Mardale, recommenced observations at a point intermediate between the “Dun Bull” and the lake. All these gauges have been regularly observed, so that altogether we have six important additional records for this district.

MONMOUTH (13).

Tredegar (Ebbw Vale)— <i>Record ceased.</i>		Llantilio Court.
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GLAMORGAN (19).

Swansea (George Street)— <i>No reply.</i>		Aber-tri-dwr.
		Swansea (S. Dock Entrance).

CARMARTHEN (6).

Carmarthen Gaol— <i>Record incorrect.</i>		Llandilo (Golden Grove).
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PEMBROKE (10).

|

CARDIGAN (4).

| Cwmsymlog.

BRECKNOCK (7).

| Llanwrtydd Wells.
| Abergwessin.

RADNOR (2).

MONTGOMERY (14).

Llanidloes (Llidiart-y-waun School)— <i>No obs.</i>	| Llangurig (Esgair Clochfan).
Newtown (Caersws)— <i>No reply.</i>	| Dylife Mine.
Machynlleth (Waenbwl)— <i>Gauge broken.</i>	| Montgomery.
Llanwddyn— <i>Record ceased.</i>	| Buttington Vic.
„ (Hoel-y-ffrid)— <i>Record ceased.</i>	| Rhosyperfed.
„ (Cefnglas)— <i>Record incomplete.</i>	| Bwlch Tomlyd.

It will be noticed that there are several additional stations in this county and also two in Brecknock. The explanation lies in the fact that being strongly impressed with the necessity of additional records from this part of Wales, and from the sources of the Severn and the Wye, I enlisted for the former, the services of Mr. Watkins of Llandoverly, and supplied gauges, for which he found observers at Abergwessin and at Llanwrtydd Wells. And Mr. H. Sowerby Wallis took others down and erected them at Llangurig (Esgair Clochfan), at Dylife Mine, and at Bwlch Tomlyd. The gauge at Rhosyperfed is not a new one, but one moved from the old Lluest fawr station at Garthbibio.

FLINT (6).

Hawarden [Chester]—*Record ceased.* |

DENBIGH (15).

Wrexham (Plas Plower)— <i>No reply.</i>	| Chirk (Cefn-y-wern).
Abergele (Garthewin)— <i>Observer dead.</i>	| Cae Llwyd Res.
	| Eglwys-Fach (Bodnant).

MERIONETH (10).

CARNARVON (9).

| Llanbedr-y-Cennin Lyndulyn.
| Llanfairfechan.

ANGLESEA (5).

Rhianva [Bangor]— <i>Record ceased.</i>	| Plas Rhos-celyn.
Bodewryd (Rhosybol)— <i>No reply.</i>	|

ISLE OF MAN (4).

Calf of Man—*Record incorrect.* |

ISLES OF SCILLY (1).

JERSEY (3).

Millbrook—*Observer ill.*

GUERNSEY (3).

| Guernsey (Villa Carey).

SCOTLAND.

WIGTON (3).

| Ardwell House.

KIRKCUDBRIGHT (11).

DUMFRIES (9).

Langholme (Caulfield)—*Record ceased.* | Langholme (Westwater).

ROXBURGH (13).

Hawick (Goldielands)—*Observer dead.* |

SELKIRK (3).

| Bothwickbrae.
| Bowhill.

PEEBLES (4).

| Peebles (Stobo Castle).

BERWICK (2).

Coldstream (Milne Graden)—*Record incompte.*
Lauder (Thirlestane Castle) - *Record incompte.*
Berwick (Paxton House)—*Record incomplete.*
St. Abb's Head—*Record incorrect.*

HADDINGTON (4).

Haddington Asylum—*Record imperfect.* |

EDINBURGH (24).

Pentland Hills (Bonally)—*Not forwarded.* | Swanston.
Costorphine (Meadowfield)—*Record ceased.* | Harbour Hill.

LINLITHGOW (1).

LANARK (10).

AYR (9).

Girvan (Almont)—*Not forwarded.* | Shaw's W. W. Works (Kelly Dam).
Kilmarnock (Annanhill)—*Record ceased.* |

RENFREW (20).

Stanely Reservoir— <i>Record incomplete.</i>	Shaws W. Works	(Green Water).
Paisley (Ferguslie House)— <i>Gauge broken.</i>	”	(Garvocks).
	”	(Shielhill).
	”	(Darndaff Moor)
	”	(Spango Burn).
	”	(Prospect Hill).

It will be seen that there are several new records from the Shaws Water Works. We were formerly not quite sure of the relative position of these gauges. Mr. Wilson has favoured us with a map giving them all, and the whole series has been re-arranged accordingly.

DUMBARTON (5).

Garelochhead (Arddarroch)—*Observer dead.* | New Kilpatrick (Chesters).

STIRLING (5).

BUTE (4).

ARGYLL (32).

Lochgilphead (Auchnaba)—*Gauge broken.* | Kilmory.

CLACKMANNAN (1).

KINROSS (1).

FIFE (11).

Cupar Asylum—*Record incorrect.* | Outh.

PERTH (28).

Callander (The Gart)— <i>Not forwarded.</i>	|	Lochearnhead.
Meigle (Belmont Castle)— <i>No reply.</i>	|	
Blair Athole— <i>No observations.</i>	|	

FORFAR (12).

Guthrie (Bolsham).—*Not forwarded.* |

KINCARDINE (2).

Girdleness—*Record imperfect.* |

ABERDEEN (19).

Inverury Manse—*Vitiated by snow.* |

BANFF (2).

ELGIN (6).

Grantown H.R.S.—*No reply.* |

NAIRN (2).

WEST ROSS (12).

Stornoway (Lewis Castle).—*Record imperfect.* | Applecross Gardens.

EAST ROSS (6).

Cromarty—*Record imperfect.*| Dingwall H.R.S.
| Tarbetness.

WEST INVERNESS (14).

Loch Sheil (Glenaladale)—*Gauge overflowed.*
N. Uist (Spanish)—*Observer left.*

| Dunvegan.

Although unable to quote Ben Nevis as a new record complete for 1881, we could not think of passing without recognition the persevering labour whereby Mr. Clement Wragge has succeeded in starting, and for four months maintaining, *daily observations* on its summit. As a rule, no record is quoted in these pages unless perfect for the year, but until a fixed observatory is built upon the summit, all that we seem likely to get are such values as Mr. Wragge sends us. It can hardly be much more difficult to ascend Ben Nevis in winter than it is to ascend Scafell, but while we receive regularly the returns from Scafell and other English mountain stations, there is not a single Scottish record from any station 2000 ft. high, or upwards, excepting this one of Mr. Wragge's at 4406 ft. We are glad, therefore, of any fragments, and still more so to think that at the present moment Mr. Wragge is at work again with supplementary apparatus.

The results in 1881 were :—

Station	Fort William (Public School).	Fort William (Achintore.)	Ben Nevis.
Gauge { Diameter	6 in.	5 in.	8 in.
{ Height	1 ft.	1 ft.	1 ft.
{ Altitude	36 ft.	25 ft.	4406 ft.
June	in. 6·25	in. ...	in. 12·31
July	11·57	10·90	15·19
August	6·90	6·41	12·34
September	2·30	2·01	6·09
Total, June-Sep..	27·02	...	45·93
Total, May-Sep..	20·77	19·32	33·62

EAST INVERNESS (6).

Roy Bridge (Kinchillie)—*No reply.*Laggan—*Gauge stolen.*Strath Errick (Farraline House)—*Record incrt.*Beauly (Beaufort Castle)—*No reply.*

SUTHERLAND (11).

Assynt (Achumore)—*Gauge broken.*

Kinbrace, H.R.S.

| Lairg, H.R.S.

| Kinbrace (Achintoul).

CAITHNESS (6).

Georgemas, H.R.S.—*Record incomplete.*
 Dunnethead—*Record incorrect.*

ORKNEY (10).

Pomona (Deerness)—*Record incomplete.*
 Stronsay (Auskerry)—*Record incorrect.* | Kirkwall.

SHETLAND (5).

IRELAND.

CORK (8).

| Roche's Point.

KERRY (8).

Caherciveen (Darrynane Abbey)—*No reply.* | Tralee (Ardfert Abbey).

WATERFORD (5).

TIPPERARY (6).

Nenagh (The Lodge)—*Record imperfect.* | .

LIMERICK (2).

CLARE (4).

WEXFORD (5).

KILKENNY (4).

Piltown (Bessborough Park)—*Record ceased.*
 Kilkenny (Butler House)—*Record imperfect.* |

WICKLOW (2)

Delgany (Innismore)—*Record imperfect.*
 Enniskerry—*Gauge overflowed.* | Bray (Florence Terrace).

CARLOW (3).

KILDARE (No STATION).

QUEEN'S COUNTY (3).

KING'S COUNTY (4).

Birr Castle—*One record imperfect.* |

DUBLIN (6).

MEATH (3).

WESTMEATH (1).

Athlone (Twyford)—*Gauge blown over.* |

LOUTH (4).

LONGFORD (1).

GALWAY (9).

MAYO (4).

| Ballinrobe (Kilrush).

ROSCOMMON (No Station).

SLIGO (4).

LEITRIM (1).

Carrick-on-Shannon—*Record ceased.* |

CAVAN (2).

Belturbet (Redhills)—*Gauge blown over.* |

FERMANAGH (4).

| Enniskillen (Lisbellaw) 2nd gauge.

MONAGHAN (1).

ARMAGH (4).

DOWN (15).

ANTRIM (8).

White Abbey (Abbeyville)—*No reply.* |Antrim (The Manse)—*No reply.* |Larne (Carnlough)—*No reply.* |

| Broughshane (Quolie).

LONDONDERRY (11).

| Dungiven.

| Londonderry.

TYRONE (9).

Caledon Glebe—*No reply.* |Beragh (Clogherny)—*Two records mixed.* |

DONEGAL (12).

Dunfanaghy—*Record imperfect.* |

| Lough Eske.

| Castlefinn (Finn Lodge)

SUMMARY.

The following table is self-explanatory, but it requires a few comments :—

Number of perfect Rainfall Records utilized in each successive volume of British Rainfall from 1871 to 1881, both inclusive.

	England.	Wales.	Scotland.	Ireland.	Total.
1871.....	1038	88	311	67	1504
1872.....	1154	86	319	71	1630
1873.....	1180	85	354	77	1696
1874.....	1216	88	336	87	1727
1875.....	1274	91	332	138	1835
1876.....	1357	108	352	165	1982
1877.....	1421	105	369	162	2057
1878.....	1435	117	353	166	2071
1879.....	1452	113	338	166	2069
1880.....	1501	127	326	160	2114
1881.....	1548	141	313	153	2155
Diff. { Increase.	47	14	—	—	41
{ Decrease.	—	—	13	7	—

On the whole I regard this analysis with no particular satisfaction. The continued decline in the number of accurate and perfect returns from Scotland is extremely unsatisfactory. The falling off since 1877 amounts to one-sixth of the total number, and the mere decrease in numbers is aggravated by the two facts (1) that the decrease occurs in every year, being successively 16, 15, 12, and 13, and (2) that many of the absent records are from localities where the stations were previously insufficient in number. Important and satisfactory as are the additions in England and Wales, and small as is the decrease in Ireland, neither is sufficient to remove from my mind the impression produced by this continual retrogression of our friends over the border. Will they arouse themselves, or must the Southerners try to arouse them ?

OBITUARY.

Although rather longer than the list in our last volume, the following must be regarded as very short when it is remembered that it represents nearly all the deaths among about 1500 persons. Besides its shortness, the statement is in another respect satisfactory, in that it shows that several of the more important records are being continued.

OBSERVERS DECEASED TO JUNE, 1882.	PERIOD OF OBSERVATION.		Perfect Yearly Records.
	DATE.		
Ainsworth, T. Esq., The Flosh, Cleator	1844-53	1855-69 T	25
Berens, Miss, Sidcup, Kent.....	C 1862-81	imp T.....	19
Beresford, D. W. P., Esq., Fenagh, Bagnalstown ...	C 1866-76,	79-81.....	14
Birt, W. R., Esq., F.R.A.S., Walthamstow	C 1871-75	T.....	5
Boyd, Rev. J., West Melton, Rotherham	C 1861-80	C.....	20
Busfield, Mrs., Morland Hall, Westmoreland.....	1877-78	T.....	2
Bush, C., Esq., Weston, Bath.....	C 1862-80	T... ..	19
Chadwick, R. Esq., Matlock Bath, Derby	C 1866 imp	-80 C.....	14
Cox, S. W., Esq., Market Harborough	C 1872 imp	-80 T.....	8
Curley, T. Esq., C.E., Broomy Hill, Hereford	C 1864-70	T.. ..	7
Davies, D. R. Esq., Agden Hall, Lymm, Warrington	1880	T	1
Elliot, Prof., Goldielands, Hawick, N.B.	1862-80	T.....	19
Emson, D. K., Esq., Wimbish, Saffron Walden.....	C 1864-72	T.....	9
Estlin, Captain, Burnham, Somerset.....	C 1865 imp	-79 T.....	14
Field, Mr., The Cemetery, Hastings.....	C 1862-78	T... ..	17
Gladstone, T. S., Esq., Capenoch, Dumfries	C 1867-81	.....	15
Grubb, Miss, Glenam, Clonmel	C 1865-80	C.....	16
Jardine, A. Esq., Lanrick Castle, Perth ...	C 1851-80	C.....	30
Lattley, R. J., Esq., Cregg Park, Gort, Galway	C 1864-81	.....	18
Morris, Rev. A. J. T. Muthill, Crieff, N.B.....	C 1863-69	T.....	7
Oliver, M., Esq., St. Peter's, Ipswich	C 1866-70	T.....	5
Oxley, C. C., Esq., Redcar, Yorks	1859-64	.....	6
Rae, L., Esq., Keel Ho., Castlemaine, Kerry	C 1879-81	T.....	3
Reed, W., Esq., Fullands School, Taunton	C 1865-80	C.....	16
Robinson, Rev. T. R., D.D., F.R.S., Obs, Armagh.	C 1836-81	C.....	46
Ruston, A. S., Esq., Aylesby House, Chatteris	1874-81	C.....	8
Warren, G., Esq. { Brook House, Cambridge.....	C 1866-68	imp T.....	2
{ Merton Villa, Cambridge.....	C 1868 imp-	81 imp T ...	12
White, J., Esq., Arddarroch, Dumbartonshire	C 1848 imp	-80 T.....	32
Wilson, R. jun., Esq., Wyndham Row, Maryport... ..	C 1876-80	T.....	5
Wynne, B. W., Esq., Garthewin, Abergale.....	C 1874-77	1879-80 ..	6
Yeld, Dr., Sunderland	C 1880	T	1

NOTE.—C indicates commencement of record and also its continuation, T its termination
No records are quoted unless they are perfect, and copied in our MS. volumes.

RAINFALL AND METEOROLOGY

OF

1881.

ON THE METEOROLOGY OF 1881.

WITH NOTES OF SOME OF THE PRINCIPAL PHENOMENA.

These Notes should be read in conjunction with those on Heavy Rains in 1881.]

JANUARY.

10th.—*St. Lawrence* (II). Snow drops and winter aconite in blossom.

11th.—*Heighington* (XI). 0·41 in. of R fell in 10 minutes.—*Forsinard H.R.S.* (XIX). Great gale of wind.

12th.—*East Layton* (IX). Heavy fall of S.—*Elterwater* (X). Very stormy afternoon with S.

13th.—*Kilworthy Hill* (V). Min. temp. 8°.

14th.—*Coundon* (VI). Min. temp. 1°.—*Nottingham, Strelley Hall* (VII). Very thick fog.—*St. Mullins* (XXI). River Barrow frozen and navigation suspended, and remained so until the 30th.

14th to 16th.—*Blencowe School* (X). Very cold, the 14th being the coldest day of the year.

15th.—*Addiscombe* (II). Coldest day of year; mean of max. and min. 19°·8.—*Kilworthy Hill* (V). Min. temp. 5°·0.—*Leicester, Belmont Villas* (VII). Min. temp. 6°·0.—*Bucknall* (VII). Min. temp. 5°·0.—*Nottingham, Strelley Hall* (VII). Min. temp. 0°·8; on grass, —2°·9; mean temp. of day, 12°·9; minima during the year.—*Worksop, Hodsock Priory* (VII). Solar halo.

16th.—*Nottingham, Strelley Hall* (VII). Min. in shade, 9°·1; on grass, —2°·2.—*Worksop, Hodsock Priory* (VII). Min. temp. on grass, —4°·0.—*Sedbergh* (IX). Min. temp. 5°·0.—*Elterwater* (X). Min. temp. 3° 0.—*Cambuslang, Bushy Hill* (XIV). Min. temp. —2°·0.—*Miltown Malbay* (XX). L and T.—*Ballinasloe* (XXII). Min. temp. 8°·0.

17th.—*Ashford, Bethersden* (II). Temp. fell to 10°·0.—*Little Ilford* (IV). Min. temp. 6°.—*Trowbridge, Holt* (V). Min. temp. of year 5°·5.—*Babbacombe* (V). Solar Halo.—*Worksop, Hodsock Priory* (VII). Min. in shade, 1°·8; max. before 7 p.m. 16°·3.—*Crichton Inst.* (XII). Min. temp. 3°·5.—*Cambuslang, Bushy Hill.* (XIV). Min. temp. —1°·0—

Forres (XVII). A thermometer on the S fell to -5° .—*Ballyhyland* (XXI). 15 inches of S.—*St. Mullins* (XXI). 12 inches of S.

17th and 18th.—*Brighton, Blatchington Road* (II). Average depth of S about 18 inches.

17th to 20th.—*Christchurch, Mudeford* (II). Unprecedented snow-fall, all traffic stopped for 3 days, the S being over 3 ft. deep.—*Southampton, Cadland* (II). S fell, yielding 1.82 in. and remained on the ground till after the close of the month; roads blocked, the drifts in places being upwards of 9 ft. deep.

18th.—*Pinner Hill* (I). Gale and S.—*Abinger Hall* (II). The stormiest day remembered, with a fall of about 12 inches of S.—*Tenterden, Summerhill* (II). Terrible gale and S storm.—*Tenterden* (II). About 5 in. of S, very much drifted.—*Sevenoaks, River Hill* (II). 13 or 14 inches of S.—*Littlehampton* (II). N.E. gale, with S till 4 p.m.—*Chichester, Singleton Rect.* (II). The S drifted to 7, 8, and 10 ft., and all communication was stopped, so that no provisions could be brought into the village.—*St. Leonards* (II). Fearful E. gale with about 1 foot of S.—*Hailsham* (II). Average depth of S, 10 inches; old inhabitants say that the fall was greater in 1836, but that the wind was not so high that year.—*Falmer* (II). From daylight to dark, a tremendous wind, with blinding sleet, raged with fearful force, and the cold was intense.—*St. Lawrence* (II). Heavy N.E. gale and S.—*Farringdon* (II). Twelve careful measurements of the snow in selected spots gave an average depth of 15 inches, and the individual measurements did not vary greatly.—*Watford, Oaklands* (III). Numerous measurements gave the average depth of the S as about 7 inches.—*Throcking Rect.* (III). Average depth of S 6 to 8 inches.—*Addington* (III). Very stormy, snowing and drifting.—*Oxford, Magdalen Col.* (III). Heavy gale with S and sleet, average depth 6 inches.—*Cambridge, Merton Villa* (III). Violent gale from E., and S storm after 1 p.m.—*Southend* (IV). Strong E. wind with 6 inches of S.—*Rendlesham Hall* (IV). Very severe S.E. gale and drifting S.—*Bishops Hill* (IV). Heavy E. by S. gale with S drifts 6 or 7 feet deep.—*Ellough Rectory* (IV). Whole gale from S.E. with drifting S, spray from the sea, 6 miles distant, deposited on windows facing E.—*Cossey* (IV). Average depth of S 5 in.—*Chippenham, Lacock* (V). Average depth of S about 12 inches.—*Langton Herring* (V). High E.N.E. wind and heavy S.—*Beaminster* (V). Blowing hard from N.E. all day with heavy S, all traffic in the streets stopped.—*Babba-combe* (V). Very severe gale with very high sea and tide; 59 miles

of wind from 7 to 8 a.m.—*Ashburton, Druid* (V). Fearful S storm from N.E., drifting very much, and the roads soon became blocked.—*Exeter Institution* (V). S 12 to 14 inches deep.—*Gittisham* (V). S 12 inches deep.—*Hampnett Rect.* (VI). Average depth of S about 4 in.—*Cheltenham* (VI). Terrible gale and S drifts.—*Ross, The Graig* (VI). Hurricane and about 10 inches of S, with the most severe drifts since 1814.—*Malvern, Colwall* (VI). Average depth of S about 5 inches.—*Kenilworth* (VI). Heavy drifting S storm with very cold N.E. gale, wind force 9.—*Bickenhill* (VI). S drifts, in lanes, 7 or 8 ft. deep.—*Partney* (VII). Very strong gale from 4 to 10 p.m. causing considerable S drifts.—*Tredegar, Bedwellty House* (XI). Violent S storm, stopping all communication, drifts from 2 to 20 ft. deep.—*Llandoverly* (XI). A severe hurricane from N.E. all day, with some fresh S, drifts up to 25 ft. deep, streets impassable, and all shops shut.—*Warrenpoint* (XXIII). About 15 inches of S fell, and the roads soon became impassable. On four roads leading from Warrenpoint there were drifts 6, 8, 9, and 13 ft. deep.

18th and 19th.—*Hampton Wick* (I). 5 inches of S fell.—*Canterbury, Harbledown* (II). S 8 feet deep in places.—*Assenton* (III). Average depth of S 8 inches.—*Milton Ernest* (III). S much drifted, average depth about 7 inches.—*Crewkerne, Bincombe House* (V). S about 1 ft. 6 in. deep.—*Coundon* (VI). Heavy S.—*Worksop, Hodsock Priory* (VII). Easterly gale, S drifting.

19th.—*St. Lawrence* (II). S all day, average depth 1 ft. 10 in.—*Sherborne* (V). Average depth of S estimated at 2 ft.—*Kingsbridge, Fore Street Hill* (V). Depth of S 1 ft. 6 in.—*Nottingham, Strelley Hall* (VII). S 6 to 9 a.m., drifted by strong N.E. wind; some lanes rendered impassable.—*Forsinard* (XIX). Great gale and severe S drifts.—*Miltown Malbay* (XX). Intense frost, S.E. gale, and severe drifts.

20th.—*Reepham* (IV). Depth of S on ground about 8 inches.—*Cullompton, Bradninch* (V). Average depth of S on ground 22 inches.—*Cheltenham* (VI). Min. temp. —3°·3.

21st.—*Alderbury* (V). Min. temp. 11°.—*Worksop, Hodsock Priory* (VII). Min. temp. 1°·6, coldest in year.—*Buttington Vic.* (XI). Min. temp. 4°.

22nd.—*Littlehampton* (II). Min. temp. 10°.—*St. Leonards* (II). Min. temp. 16°·7.—*St. Lawrence* (II). Min. temp. 15°·5.—*Addington* (III). Min. temp. 0°, on grass —6°.—*Teignmouth, Woodway* (V). Min. in air 11°·3.—*Court Barn* (V). Intensely hard frost, ther. facing N. read 12°.—*Cambuslang, Bushy Hill* (XIV). Min. temp. —1°.

22nd to 24th.—*Cork, Royal Institution* (XX). Both branches of the river Lee frozen over, and skating thereon.

23rd.—*Ashford, Bethersden* (II). Temp. fell to 11°.

24th.—*Southampton, Woolston Lodge* (II). Min. temp. 9°.—*Buncrana* (XXIII). Min. temp. 13°.

25th.—*Nottingham, Strelley Hall* (VII). Thick fog at 4.45 p.m., temp. of air 15°·5, which was the max. for day up to that hour.—*Worksop, Hodsock Priory* (VII). Max. temp. 17°·5.—*Brampton St. Thomas's* (VII). Min. temp. 5°.—*Unthank Hall* (X). Min. temp. 0°·1.

26th.—*Nottingham, Strelley Hall* (VII). Branches of trees bent to the ground by very thick rime.—*Whorlton* (X). Min. temp. of month —1°.—*Brymbo* (XI). Min. temp. of year —3°.—*Miltown Malbay* (XX). S.E. gale, with S, H, sleet, and R.

27th.—*Addiscombe* (II). The last of 14 days remarkably severe frost.—*St. Leonards* (II). Dense fog all day, most unusual.

29th.—*Addington* (III). Very large flood.

31st.—*Littlehampton* (II). Aurora borealis.—*St. Lawrence* (II). Aurora from 6.30 to 9 p.m.—*Addington* (III). Aurora.—*Cambridge, Merton Villa* (III). Aurora borealis.—*Bishop's Hill* (IV). Most brilliant display of aurora.—*Babbacombe* (V). Bright aurora.—*Cheltenham* (VI). Splendid aurora.—*Partney* (VII). Aurora in evening.—*Nottingham, Strelley Hall* (VII). Fine aurora between 8 and 9 p.m.—*Worksop, Hodsock Priory* (VII). Aurora seen at night.—*Scarborough* (IX). Fine aurora.—*Shap* (X). Aurora borealis at night.—*Melrose* (XII). Beautiful display of aurora.—*Lochbroom* (XVIII). Brilliant aurora.—*Achonachie Lodge [Beaully]* (XVIII). Splendid aurora.—*Miltown Malbay* (XX). Magnificent aurora.

FEBRUARY.

4th.—*Wakefield, Stanley Vic.* (IX). Thrush singing.

6th.—*Cheltenham* (VI). Fine aurora.—*Port Madoc* (XI). Strong gale.—*Dumfries, Crichton Inst.* (XII). Severe S.E. gale.—*Moville* (XXIII). S.E. gale.

7th.—*St. Leonards* (II). Severe gale from S.—*St. Lawrence* (II). L and T at night.—*Diss* (IV). Heavy gale from W.—*Compton Bassett* (V). Strong gale.—*Babbacombe* (V). W.S.W. gale in evening.—*Ashburton, Druid* (V). Heavy storm all day ; T, L and H in evening.—*Kilworthy Hill* (V). Great storm, T, L, H.—*Altarnum* (V). Heavy gale with T and L.—*Crewkerne, Bincombe House* (V). TS and gale.—*Worksop*,

Hodsock Priory (VII). Southerly gale.—*Brampton St. Thomas* (VII). Heavy gale.—*Walton-on-the-Hill* (VIII). Severe S.E. gale with S and heavy R.—*Middlesboro', Southfield Villas* (IX). Strong gale, N.E.—*Elterwater* (X). Extremely stormy, with nearly a foot of S during the day and R afterwards; total 2·15 in.—*Shap* (X). Great storm of wind and S.—*Llanwrtydd Wells* (XI). Great storm.—*Abergwessin* (XI). Very stormy.—*Lochbroom* (XVIII). Severe gale and drifting S.—*Sligachan* (XVIII). Stormy, with R and S.—*Forsinard* (XIX). Great gale of wind and heavy S drifts.—*Watten* (XIX). Very stormy with R and S.—*Cahir, Tubrid* (XX). Very stormy at night.—*Tipperary, Henry Street* (XX). Stormy.—*Newcastle West* (XX). Stormy night.—*Miltown Malbay* (XX). S.W. gale.—*Corofin* (XX). Severe storm.—*Kilconnell* (XXII). Storm from S.W.—*Dowra* (XXII). Gale.

7th and 8th.—*Menaifron* (XI). Heavy gale S.S.W. to N.N.W.

8th.—*Littlehampton* (II). L and T.—*St. Leonards* (II). TS with H and R.—*Kingsbridge, Fore St. Hill* (V). L.—*Oakamoor* (VI). Very disastrous flood occasioned by a fall of 1·36 in. of R on the 7th; houses flooded, bridges washed away, and railway traffic stopped on Churnet Valley line; part of railway washed away at Consall, and considerable damage done between Oakamoor and Alton, where the water was 5ft. deep on the line.—*Workshop, Hodsock Priory* (VII). Westerly gale.—*Waterford, Newtown* (XX). Fearful gale.

10th.—*Addington* (III). Very stormy; T and L at mid-day.—*Northampton, Hazlewood Road* (III). T, L, and H.—*Diss* (IV). Heavy squalls with T.—*Druid House* (V). Heavy storm all day; L and H in evening.—*Buttington Vic.* (XI). Highest flood on the Severn since 1852.—*Keith* (XVII). Terrific S storm and gale, railways blocked.—*Lochbroom* (XVIII). Terrible S drifts.—*Newcastle West* (XX). Wild night; L.—*Dowra* (XXII). Gale.

11th.—*Ross, The Graig* (VI). Very high flood on the Wye: about 13ft. at Ross, and 16ft. at Hereford.

13th to 15th.—*Druid* (V). Continuous R for 51 hours. 2·93 in.

14th.—*Littlehampton* (II). First thrush heard.—*Colyton* (V). The highest flood ever known in Colyton.

15th.—*St. Lawrence* (II). Yellow crocus in bloom.—*Nottingham, Strelley Hall* (VII). Remains of S drifted on 18th and 19th January still under the hedges.

16th.—*Addiscombe* (II). Very dense fog.—*Miltown Malbay* (XX). Aurora.

22nd.—*Workshop, Hodsock Priory* (VII). S nearly 4in. deep.

24th.—*Throcking* (III). T.

27th.—*Nottingham, Strelley Hall* (VII). Storms of S in afternoon.

28th.—*St. Leonards* (II). Min. temp. of month, 29°·1.—*St. Lawrence* (II). Blue hepatica in bloom.

MARCH.

1st.—*Pinner Hill* (II). Min. temp. 25°.—*Eastbourne* (II). Min. temp. 25°·5.—*Ashburton, Druid* (V). Min. temp. 25°.

1st and 2nd.—*Littlehampton* (II). Min. temp. 21°.

2nd.—*Kilconnell Rect.* (XXII). S.E. storm, with S, H, and sleet.—*Moville* (XXIII). Strong gale.

3rd.—*Littlehampton* (II). Gale all day ; heavy R at night.—*St. Leonards* (II). Gale from E.—*Diss* (IV). Gale from E. at night.—*Compton Bassett* (V). Strong gale throughout.—*Ashburton, Druid* (V). Heavy storm all night, with R and H.—*Cheadle* (VI). Five inches of S fell during the night.—*Worksop, Hodsock Priory* (VII). Southerly gale.—*Walton-on-the-hill* (VIII). Heavy S.E. gale.—*Cockermouth, Whin-fell Hall* (X). Strong S.E. gale, the strongest since that of Jan. 1839.—*Llandoverly* (XI). Heavy gale.—*Menaifron* (XI). Heavy E.S.E. gale, with terrific squalls.—*Keith* (XVII). Heavy gale and S.—*Lochbroom* (XVIII). Gale.—*Forsinard* (XIX). Great gale and snow drifts.—*Cork, Royal Institution* (XX). High tide 6.55 a.m. ; great flood ; lower part of the city submerged.—*Killygarvan Glebe* (XXIII). Heavy gale all day.

3rd and 4th.—*Macclesfield* (VIII). Violent gale.—*Portmadoc* (XI). Strong gale.

3rd, 4th, and 5th.—*Shap* (X). Dreadful storm of wind, S, H, and sleet.

3rd to 5th.—*Leden Urquhart* (XVI). Soft S, which drifted in many places to a depth of 15 ft. ; considered the most severe storm of the century.

4th.—*Worksop, Hodsock Priory* (VII). S 3 in. deep.—*Cockermouth, Higham* (X). Great storm ; many trees blown down.

4th and 5th.—*Crichton Inst.* (XII). Severe S.E. gale.—*Melrose* (XII). Very stormy, with S ; railroads blocked.

4th to 6th.—*Auchtermuchty* (XVI). About 24 inches of S, blocking railways and rendering roads impassable ; drifts of 10 and 14ft. in places.

5th.—*Darlington* (X). Heavy S storm, followed by rapid thaw,

causing tremendous flood in the Tees from 8th to 10th.—*Blencowe School* (X). Great fall of S.

5th to 6th.—*Kemback* (XVI). 14 inches of S, and great drifts on the roads.

7th.—*Ross, The Graig* (VI). Very warm day; mean temp. $50^{\circ}9$.—*Nottingham, Strelley Hall* (VII). Heavy hailstorm at 1.30 p.m., preceded by a clap of T.—*Thixendale* (IX). T.

8th.—*Cheadle* (VI). H storms, and T and L at 0.30 p.m.

9th.—*Dinsdale* (X). Gale and TS.

11th.—*Nottingham, Strelley Hall* (VII). Max. in shade $58^{\circ}5$, in sun $106^{\circ}0$. at 5.45 p.m.; humidity, 53.—*Kemback* (XVI). Rapid thaw, and heavy floods.

13th.—*Nottingham, Strelley Hall* (VII). Rooks began to build.

17th.—*Nottingham, Strelley Hall* (VII). First butterfly seen.

21st.—*Addiscombe* (II). Peach on south wall first in blossom.—*Exeter Institution* (V). S storm and ice as thick as a penny piece.—*Allan Rock* (XXIII). 3 inches of S.

23rd.—*St. Leonards* (II). Gale from S.—*Diss* (IV). Gale from W. in evening and night.

23rd, 24th, 25th.—*Worksop, Hodsock Priory* (VII). Very stormy, with R and S.

25th.—*Shap* (X). TS from 5 to 6 p.m.

28th.—*Nottingham, Strelley Hall* (VII). Min. in shade $24^{\circ}8$, on grass $17^{\circ}2$.

29th.—*Miltown Malbay* (XX). Sharp frost; ice $\frac{3}{4}$ in. thick.

31st.—*Nottingham, Strelley Hall* (VII). Duration of sunshine 11.1 hours = 87 per cent. of possible duration.

APRIL.

2nd.—*Addiscombe* (II). Fresh gale E.N.E. Total motion 646 miles.

2nd to 5th.—*Babbacombe* (V). Heavy and prolonged E.N.E. gale.

3rd.—*Gowdhurst Vic.* (II). N.E. gale; garden wall blown down.

4th.—*Coundon* (VI). Ice 1 in. thick on the water troughs and drinking basins for animals.—*Nottingham, Strelley Hall* (VII). Min. temp. $24^{\circ}8$.—*Worksop, Hodsock Priory* (VII). Min. temp. $21^{\circ}9$, the lowest in April during the last six years.—*Elterwater, Woodlands* (X). Elterwater Tarn covered with fresh ice.

6th.—*Nottingham, Strelley Hall* (VII). Duration of sunshine 11.7 hours = 89 per cent. of possible duration.

13th.—*Nottingham, Strelley Hall* (VII). First swallow seen; max. in shade $62^{\circ}4$.—*Whorlton* (X). TS.—*Ballinasloe* (XXII). T.

14th.—*Cheadle* (VI). T at 3.30 p.m.—*Coston* (VII). T.—*Menai-fon* (XI). TS.

16th.—*Wroaxton* (III). Heavy T.—*Bolton* (VIII). T and L at night.

18th.—*Addiscombe* (II). Relative humidity at 3 p.m., only 40.

18th and 19th.—*Babbacombe* (V). N.E. gale.

21st.—*Canterbury, Harbledown* (II). S.—*Cheadle* (VI). Min. temp. $25^{\circ}3$.

26th.—*Abinger Hall* (II). T and H.—*Tenterden* (II). TS.—*Littlehampton* (II). T and H.—*St. Leonards* (II). TS, with H and S.—*Oxford, Magdalen College* (III). T.—*Cambridge, Merton Villa* (III). TS at 1 p.m.—*Southend* (IV). TS at noon.—*Diss* (IV). A succession of violent TSS with H from 10 a.m. to 1.30 p.m.—*Compton Bassett* (V). TS with H.—*Nottingham, Strelley Hall* (VII). Soft H at 8.40 a.m.—*Melrose, Abbey Gate* (XII). T and H.—*Newcastle West* (XX). T and H at 10.30 p.m.

27th.—*Canterbury, Harbledown* (II). T and L.—*Melrose, Abbey Gate* (XII). T and L.

29th.—*Ashburton, Druid* (V). Shock of earthquake at 8.15 a.m.—*Nottingham, Strelley Hall* (VII). Temp. at 9 a.m. $53^{\circ}8$.

30th.—*Nottingham, Strelley Hall* (VII). Cuckoo first heard.

MAY.

1st.—*New Barnsley* (XXIII). Cuckoo heard.

4th.—*Throcking* (III). TS.—*Southend* (IV). TS at 8.30 p.m.

7th.—*Nottingham, Strelley Hall*. (VII). First landrail heard.

10th.—*Ashburton, Druid* (V). Min. temp. of month, $36^{\circ}5$.

11th.—*Nottingham, Strelley Hall* (VII). Min. in shade, $29^{\circ}3$, on grass, $23^{\circ}2$; last frost of season in air. Ice on buckets as thick as a shilling.

13th.—*Canterbury, Harbledown* (II). Frost.—*Nottingham, Strelley Hall* (VII). Max. in shade $70^{\circ}9$.

15th.—*Miltown Malbay* (XX). Very heavy gale S.W. to N.W.—*Ballinasloe* (XXII). Heavy squalls all day.—*Kilconnell* (XXII). Strong gale from S.W., veering to N.W.—*Killygarvan Glebe* (XXIII). Strong gale N.N.W.

16th.—*Diss* (IV.) S.W. gale.

17th.—*Nottingham, Strelley Hall* (VII.) Only sunless day in month.

19th. —*Trowbridge, Holt* (V). TS.—*Nottingham, Strelley Hall* (VII.) TS at 1 p.m. ; L at night.—*New Barnsley* (XXIII). TS, with H.

20th.—*Northampton, Hazlewood Road* (III). TS, with H.—*Bolton* (VIII). T and L at 3.30 p.m. Terrific TS at Oldham about same time.

22nd.—*Addiscombe* (II). Duration of sunshine 14.3 hours ; the brightest day since sunshine observations commenced in January, 1880.—*Nottingham, Strelley Hall* (VII). Duration of sunshine 14.3 hours = 89 per cent. of possible duration.

25th.—*Liverpool, Walton-on-the-Hill* (VIII). T and L.—*Elterwater, Woodlands* (X). T and L in night.—*Shap* (X). T and L at 4 a.m.

26th.—*Muswell Hill* (I.) T.—*Oxford, Magdalen Coll.* (III). TS.—*Southend* (IV). L at night.—*Cheltenham* (VI). TS at night.—*Coston* (VII). T in afternoon.—*Nottingham, Strelley Hall* (VII). T at 4 p.m.—*Worksop, Hodsock Priory* (VII). TS at night.—*Macclesfield Park* (VIII). L and T.—*Llanfrechfa Grange* (XI). T.—*Corwen, Rhug* (XI). TS.—*Menaifron* (XI). TS.

27th.—*Diss* (IV). Heavy TS at 2.30 p.m. ; 1.75 in. of R fell in 1 hour and 10 minutes.—*Liverpool, Walton-on-the-Hill* (VIII). T and L in early morning.—*Llwydiarth Esgob* (XI). Stormy, T.

28th. — *Muswell Hill* (I). T and L about 6 p.m.—*Abinger Hall* (II). TS in evening.—*Tenterden* (II). TS.—*Littlehampton* (II). Slight TS.—*St. Lawrence* (II). L and T in distance.—*Diss* (IV). Beautiful solar halo at 2.30 p.m.—*Trowbridge, Holt*. (V). TS.—*Compton Bassett* (V). T and vivid L from 5 to 7 p.m.—*Ross, The Graig* (VI). Very severe TS 4.30 to 5.30 p.m.—*Great Malvern* (VI). TS and 1.13 of R in 2 hours.—*Elterwater, Woodlands* (X). TS.—*Shap* (X). T.—*Cambuslang, Bushy Hill* (XIV). T and L.—*Glasgow, Queen's Park* (XIV). TS.

29th.—*Castle Lodge* (X). TS.—*Daffrn newydd* (XI). TS.

30th.—*Ashburton, Druid* (V). Max. temp. of month 74°.—*Nottingham, Strelley Hall* (VII). Max. in shade 78°.8., in sun 131°.2.—*Worksop, Hodsock Priory* (VII). Sunniest day in the year, duration 14.5 hours.—*Blencowe School* (X). Hottest day of the year, max. temp. 83°.

31st.—*Worksop, Hodsock Priory* (VII). Max temp. 79°.7.

JUNE.

1st.—*Nottingham, Strelley Hall* (VII). Max. in shade, 78°.6.

2nd.—*Littlehampton* (II). Solar halo.—*St. Leonards* (II). Solar halo.—*Addington* (III). Distant T.—*Pewsey* (V). T.

3rd.—*Addiscombe* (II). Lowest relative humidity of year 33 at 3 p.m.

4th.—*Nottingham, Strelley Hall* (VII). Max. in sun, $141^{\circ}9$.

6th.—*Muswell Hill* (I). T and L.—*Tenterden* (II). TS.—*Bromley Common* (II). Heavy H and T.—*Littlehampton* (II). Heavy H storm, cutting through all kinds of leaves.—*Brighton, Blatchington Road* (II). TSS with H.—*St. Leonards* (II). TS.—*Oxford, Magdalen College* (III). TSS.—*Pewsey* (V). T.—*Culne, Compton Bassett* (V). T, L, H, and R.—*Coston Rectory* (VII). T and L, particularly vivid between 5.30 and 6.30 p.m.—*Nottingham, Strelley Hall* (VII). Slight TS, with fine intervals.—*Darlington, Whorlton* (X). TS.—*Alston, Moor House* (X). S.—*Cambslang, Bushy Hill* (XIV). T and L.—*Lochbroom* (XVIII). Very cold and stormy; S and H.—*Belfast, New Barnsley* (XXIII). H storm.

6th and 7th.—*Tomintoul* (XVII). S in night.

7th.—*Canterbury, Harbledown* (II). Very severe TS, with 1.15 in. of R.—*Southend* (IV). TS with H.—*Langton Herring* (V). Solar halo.—*Rhayader, Nantgwiltt* (XI). Frost in night; potatoes blackened.—*Llwydiarth Esgob* (XI). S on hills in Carnarvonshire.—*Miltown Malbay* (XX). Frost, T and H.—*Mullingar, Belvedere* (XXI). Min. temp. 29° .

7th and 8th.—*Llandoverly* (XI). Hoar frost.—*Craigellachie, Elchies* (XVII). H and S, and frost on the latter night, nipping much tender vegetation.

8th.—*Addington* (III). White frost, min. on grass, $27^{\circ}5$.—*Langton Herring* (V). T. *Fitzhead Court* (V). Sharp frost.—*Shap, Copy Hill* (X). S at 5.10 p.m.—*Alston, Moor House* (X). S.—*Miltown Malbay* (XX). Sharp frost.

9th.—*Ross, The Graig* (VI). Sharp frost, min. on grass, 28° .—*Sansaw Hall* (VI). Min. temp. on grass, $29^{\circ}0$.—*Darlington, Whorlton* (X). Min. temp. 33° .—*Watten* (XIX). Frost at night.

10th.—*Nottingham, Strelley Hall* (VII). Min. on grass, $30^{\circ}9$; last frost of season.—*Melrose, Abbey Gate* (XII). Min. temp. $27^{\circ}4$.—*Tomintoul* (XVII). Min. temp. 23° ; potatoes frost-nipped.

15th. *Caistor*. (VII). T and L.

17th.—*Tenterden* (II). TS.—*Brighton, Blatchington Road* (II). Heavy steady rain in evening, 1.07 in.—*St. Leonards* (II). TS.—*Southend* (IV). TS.—*Miltown Malbay* (XX). Southerly gale.

18th.—*Canterbury, Harbledown* (II). Violent TS at night.—*Sheffield, Chapeltown* (IX). .12 in. of R in 8 min.

19th.—*Ross, The Graig* (VI). TS.—*Bolton* (VIII). Distant L at night; heavy TS at Southport.

20th.—*Langton Herring* (V). L.—*Torquay, Babbacombe* (V). Solar halo.

21st.—*Nottingham, Strelley Hall* (VII). Heavy storm of R and wind.—*Ballinasloe, Kilconnell* (XXII). S.W. gale.—*Killygarvan Glebe* (XXIII). Heavy TS.

22nd.—*Pewsey* (V). T.—*Caistor* (VII). T and L.—*Nottingham, Strelley Hall* (VII). Heavy TS, with H, 2.15 to 2.25 p.m., in which time .18 in. of R fell.—*Bolton* (VIII). T at 11.30 a.m.

24th.—*Torquay, Babbacombe* (V). Solar halo.

30th.—*Borrowdale, Castle Lodge* (X). Great flood.—*Elterwater, Woodlands* (X). Heavy R, 2.65 in., and floods.—*Shap, Copy Hill* (X). Strong gale and heavy R, 2.06 in., causing considerable floods on the following day.

JULY.

2nd.—*St. Leonards* (II). Solar halo.—*Torquay, Babbacombe* (V). Solar halo.

3rd.—*Hailsham* (II). Intensely hot.—*Sunsaw Hall* (VI). T at night.

4th.—*Shaftesbury* (V). TS.—*Elterwater, Woodlands* (X). T and L from 6.30 to 10 p.m.

4th and 5th.—*Coston Rectory* (VII). Extremely hot, max. temp. on the latter day, 85°1.

5th.—*Muswell Hill* (I). Very heavy TS.—*Pinner Hill* (I). TS.—*Dorking, Abinger Hall* (II). Heavy TS all night.—*Addiscombe* (II). Sharp TS at night.—*Littlehampton* (II). Very hot; T and light R.—*Brighton, Blatchington Road* (II). Very hot; terrific TS came up rapidly from S.W. at 11 p.m., vivid L; T very loud; about 5 minutes' tremendous R, .46 in.; L all night.—*St. Leonards* (II). TS in night.—*Hailsham* (II). TS.—*St. Lawrence* (II). L and T rather heavy.—*Oxford, Magdalen Coll.* (III). Severe TS.—*Northampton* (III). Intense heat, max. temp. 80°.—*Southend* (IV). TS.—*Little Ilford* (IV). Max. temp. 95°.—*Diss* (IV). TS.—*Pewsey* (V). T.—*Calne, Compton Bassett* (V). A hot and sultry day, T, L, and R at 10 p.m.—*Langton Herring* (V). TS.—*Ashburton, Druid* (V). TS all night.—*Kilworthy Hill* (V). T and L.—*Holsworthy, Court Barn* (V). TS.—*Highampton, Winsford* (V). Ther. in shade, 92°7; T in evening.—*St. Austell, Cosgarne* (V). T and L in evening.—*Altarnum* (V). Heavy TS.—*Crewkerne, Bincombe House* (V). .63 in.

of R fell in two hours.—*Cheltenham* (VI). Very sultry; TS at night.—*Ross, The Graig* (VI). Hot day (max. temp. 87°); rain after 10.30 p.m., with sheet L and T.—*Lincombe Lock* (VI). TS.—*Leicester, Belmont Villas* (VII). Max. temp. 85°·5.—*Partney* (VII). L and T in night.—*Horncastle, Bucknall* (VII). Max. temp. 92°.—*Nottingham, Strelley Hall* (VII). Max. in shade 88°·8, the max. of the year; a fog in early morning and a TS at night.—*Worksop, Hodsock Priory* (VII). Max temp. 85°·7.—*Brampton St. Thomas* (VII). TS with R.—*Macclesfield Park* (VIII). Max. temp. 84°; very vivid L.—*Liverpool, Walton-on-the-Hill* (VIII). Severe TS, max. temp. 86°·5.—*Bolton* (VIII). Occasional distant T during the afternoon and evening, very heavy T, L, and R 8.40 to 11 p.m. and at intervals afterwards; R to 11 p.m., 1·48 in.; 11 p.m. to 9 a.m. on 6th, 0·88 in.; total 2·36 in.—*Burnley, Briercliffe Vic.* (VIII). Terrific TS with 1·75 in. of R.—*Lancaster, Hest Bank* (VIII). Violent TS and 2·08 in. of R.—*Flookburgh, Fair View* (VIII). TS.—*Cartmel, Holker* (VIII). Very severe TS.—*Broughton-in-Furness* (VIII). TS and great heat.—*Wakefield, Stanley Vic.* (IX). Severe TS.—*Otterburn* (IX). Awful TS, 1·80 in. of R.—*Scarborough* (IX). TS, heavy R, 1·29 in.—*Dinsdale* (X). Fearful TS.—*Darlington* (X). Splendid TS with heavy R.—*Blencowe School* (X). TS.—*Shap, Copy Hill* (X). Heavy TS, 7 to 9 p.m., with 1·03 in. of R, ·70 in. fell in 25 minutes.—*Llandoverly* (XI). Very hot, max. temp. 84°, T.—*Castle Malgwyn* (XI). TS in evening.—*Llanwrtyld Wells* (XI). TS in evening.—*Buttington Vic.* (XI). Max. temp. 91°.—*Abergwessin Vic.* (XI). TS.

5th and 6th.—*Torquay, Babbacombe* (V). TSS.—*Caistor* (VII). T and L.—*Middlesboro', Southfield Villas* (IX). Continued sheet and forked L and very heavy R.

6th.—*Pinner Hill* (I). TS.—*Addiscombe* (II). TS 9.45 to 11.15 a.m.—*Bromley Common* (II). TS.—*Cookham Vic.* (II). Heavy TS 7 to 9 a.m., total R to 9 a.m. 2·25 in.—*Addington* (III). T, L, and heavy R, 8.30 to 9 a.m., 0·67 in.; 9 to 9.30, 0·43 in.; 9.30 to 11, 0·43 in.; total 1·53 in.—*Oxford, Magdalen Coll.* (III). TSS.—*Northampton* (III). T, L, and R, 1·52 in.—*Leyton Observatory* (IV). Heavy TS.—*Rendlesham Hall* (IV). TS.—*Cheltenham* (VI). TS.—*Coston Rect.* (VII). T and L in morning.—*Horncastle, Bucknall* (VII). TS, and 1·05 in. of R.—*Nottingham, Strelley Hall* (VII). T during afternoon.—*Macclesfield Park* (VIII). TS at 1.45 a.m.—*Melrose, Abbey Gate* (XII). T and L 4.55 a.m.—*Cupar, Kembuck* (XVI). T and L at 5 a.m., with heavy R.—*Loshbroom* (XVIII). Very stormy and cold.—*Killygurvan Glebe* (XXIII). N.W. gale all day.

8th.—*Nottingham, Strelley Hall* (VII). H 1.15 p.m.

10th.—*Shap, Copy Hill* (X). Great gale.

11th.—*Melrose, Abbey Gate* (XII). S.W. gale.—*Newcastle West* (XX). Stormy night.—*Miltown Malbay* (XX). Strong southerly gale.—*Killygarvan Glebe* (XXIII). S.W. gale.

11th to 14th.—*Skye, Sligachan* (XVIII). 5.99 in. of R in the 4 days.

12th.—*Northampton* (III). Heavy storm.—*Torquay, Babbacombe* (V). Solar halo.

14th.—*Brymbo* (XI). Max. temp. of year 85°.—*Melrose, Abbey Gate* (XII). S.W. gale.—*Lochbroom* (XVIII). Very stormy.

15th.—*Addiscombe* (II). Max. 92°.4, the highest since observations began in 1873.—*Sevenoaks, River Hill* (II). Max. temp. in shade 93°.—*Bromley Common* (II). The hottest day since August 13th, 1876, max. temp. 91°.—*East Tisted Rect.* (II). Max. temp. 95°.—*Addington* (III). Very hot, max. temp. 89°.—*Diss* (IV). Tremendous heat, temp. 92° in shade at 1.30 p.m.—*Torquay, Babbacombe* (V). Lunar and solar halos.—*Worksop, Hodsock Priory* (VII). Max. temp. 85°.4.—*Brampton St. Thomas* (VII). Max. temp. 85°.

16th.—*Rendlesham Hall* (IV). TS.

17th.—*Hull* (IX). Sudden and violent gale about 7 p.m., causing quite a panic in some churches.—*Shap, Copy Hill* (X). Strong gale.

18th.—*Cheltenham* (VI). TS at night.—*Ross, The Graig* (VI). TS.—*Coston Rect.* (VII). L in evening.—*Nottingham, Strelley Hall* (VII). Max. in shade 84°.8, in sun 141°.9; duration of sunshine 13.6 hrs. = 86 per cent. of possible duration.—*Llanfrechfa Grange* (XI). T and L at 11.30 p.m.

19th.—*Nottingham, Strelley Hall* (VII). T 3 p.m.; min. in shade 69°.0, mean temp. of day 73°.9, highest daily mean temp. in year.

20th.—*Addiscombe* (II). As a London fog was drifting over here about 9 a.m., a slight shower of R occurred, which, washing the floating smut out of it, caused all the plants in my garden to become covered with dark oily stains; these stains remained visible for weeks.

22nd.—*St. Leonards* (II). Moderate gale, W.S.W.

23rd.—*Miltown Malbay* (XX). Heavy gale from S.W.—*Ballinasloe* (XXII). L at 10.30 p.m.

24th.—*St. Leonards* (II). Moderate gale, W.S.W.—*Nottingham, Strelley Hall*. (VII). Heavy storm of R, with T 6.40 to 7.15 p.m., nearly all the rain (.16 in.) fell in 5 min.—*Macclesfield Park* (VIII). TS at 6 p.m.—*Middlesboro', Southfield Villas* (IX). Heavy gale,

S.W.—*Tipperary, Henry Street* (XX). Gale arose suddenly about noon

25th.—*Cupar, Kemback* (XVI). R and frequent T.

25th and 26th.—*Caistor* (VII). T and L.

26th.—*Tenterden* (II). TS.—*Littlehampton* (II). T, with passing showers.—*Brighton, Blatchington Rd.* (II). 5 p.m. violent TSS came from N.W., vivid forked L, thunder immediately following; a man killed about a mile from here; R .40 in.—*Diss* (IV). First wheat cut.—*Pewsey* (V). T.—*Compton Bassett* (V). TS at 2 p.m.—*Langton Herring* (V). T.—*Sansaw Hall* (VI). T.—*Coston Rect.* (VII). T in afternoon, heavy R at intervals.—*Nottingham, Strelley Hall* (VII). T 5 to 5.15 p.m.; heavy storm passed to E.—*Bolton* (VIII). A little T during the morning, TS about 4 p.m.—*Flookburgh, Fair View* (VIII). TS.—*Broughton-in-Furness* (VIII). TS.—*Cambuslang, Bushy Hill* (XIV). T and L.

27th.—*Oxford, Magdalen Coll.* (III). Min. temp. 35°, ice on ponds in exposed places.

28th.—*Torquay, Babbacombe* (V). Min. in shade 41°·2, on grass 33°·4.—*Nottingham, Strelley Hall* (VII). Solar halo.

30th.—*Boston* (VII). Whirlwind at 5 p.m. [See *Met. Mag.* for September, 1881.]

31st.—*St. Leonards* (II). Moderate gale, S.S.E. to S.W.—*Diss* (IV). Stiff gale.—*Torquay, Babbacombe* (V). S.W. gale midday.—*Coston Rect.* (VII). Gale in afternoon and rapid fall of bar.—*Buglawton* (VIII). Between 0.30 and 1.15 p.m. R = 1·01 in.—*Park Green* (VIII). .52 in. of R fell in 30 min.—*Macclesfield Park* (VIII). TS.—*Otterburn* (IX). Great flood.

AUGUST.

2nd.—*Shap, Copy Hill* (X). Ice formed on small pools.

3rd.—*Torquay, Babbacombe* (V). Solar halo.

4th.—*Killygarvan Glebe* (XXIII). S.S.W. gale at night.

5th.—*Nottingham, Strelley Hall* (VII). Max. in shade, 81°·4.—*Worksop, Hodsock Priory* (VII). Max. temp. 82°·1.—*Miltown Malbay* (XX). Gale from N.W.—*Killygarvan Glebe* (XXIII). S.W. gale.

6th and 7th.—*Newcastle West* (XX). Strong winds from W. by N.

8th.—*Ross, The Graig* (VI). TS at midnight.—*Diglis* (VI). TS in night.—*Nottingham, Strelley Hall* (VII). T 8 p.m. and rain most of the night, total fall 1·12 inches.—*Scarborough* (IX). Heavy TS, 1·60 in. of R.

9th.—Whirlwind in Hertfordshire about 1 a.m.—*Newcastle West* (XX). Strong winds W.

10th.—*Shap* (X). Strong gale.—*Killygarvan Glebe* (XXIII). W.N.W. gale.

12th.—*Addiscombe* (II). 1·08 in. of R between 9 a.m. and 9 p.m., the heaviest fall in Croydon in August for 19 years.—*Nottingham, Strelley Hall* (VII). Min. in shade 43°·3, on grass 34°·0.—*Lochbroom* (XVIII). Terrible storm.

16th.—*Bishops Castle* (VI). 1·20 inches of rain in 1 hour 30 min.

17th.—*Nottingham, Strelley Hall* (VII). TS 6 p.m.—*Macclesfield Park* (VIII). TS with H.

19th.—*Torquay, Babbacombe* (V). W.S.W. gale midday.—*Brigg* (VII.) Whirlwind about 3 p.m. [See *Met. Mag.*, September, 1881.]—*Bolton* (VIII). T between 4 and 5 p.m. Heavy TS at Lytham in afternoon.

21st.—*Arundel, Dale Park* (II). ·50 in. of R fell in 30 minutes.—*St. Lawrence* (II). ·55 in. of R fell in 25 minutes from 12 to 12.25.—*Christchurch, Mudeford* (II). ·30 in. of R fell in 20 minutes.—*Highampton, Winsford* (V). T over Dartmoor.—*Borrowdale, Castle Lodge* (X). T.

22nd.—*Darlington, Whorlton* (X). TS. ·78 in. of R fell in one hour.—*Menafcon* (XI). TS.—*Craigellachie, Elchies* (XVII). Frost, blackening potatoes on high lands.—*Miltown Malbay* (XX). L and T.

23rd.—*Littlehampton* (II). TLH and R.—*Addington* (III). T.—*Oundle* (III). 1·06 in. of R fell in 1 hour 30 minutes.—*Ashburton, Druid House* (V). TS.—*Kilworthy Hill* (V). T and L.—*Koss, The Graig* (VI). Severe TS. 1·40 in. of R; 1·02 fell in 30 minutes, and 1·31 in. in 1 hour.—*Nottingham, Strelley Hall* (VII). TS from noon till 2.20 p.m., during which time 1·13 in. of R fell, total fall in the 24 hours 1·45 in. Max. fall during year.—*Worksop, Hodsock Priory* (VII). 1·35 in. of R. Max. fall in the year.—*Milford* (VII). 1·40 in. of R, more than 1 inch of which fell in one hour.—*Llanfrechfa Grange* (XI). Heavy TS 3 miles to S.—*Corwen, Rhug* (XI). TS. 2·00 in. of R. *Dalnaspidal* (XVI). Frost.

24th.—*Southend* (IV). TS.

24th and 25th.—*Littlehampton* (II). S.W. gales.

25th.—*St. Lawrence* (II). Gale.—*Torquay, Babbacombe* (V). S.W. gale.—*Worksop, Hodsock Priory* (VII). S.W. gale at night.—*Cartmel, Broughton Hall* (VIII). 2·54 in. of R.—*Broughton-in-Furness* (VIII). Great gale and 1·92 in. of R.—*Slaidburn, Whiteholme* (IX). 2·38 in. of R, causing a very heavy flood.—*Otterburn* (IX). 2·07 in.

of R and great flood.—*Darlington, Whorlton* (X). Heavy R, 1·19 in. Flood in the Tees.—*Shap, Copy Hill* (X). Heavy R and floods.—*Llanfrechfa Grange* (XI). Gale all day with heavy R.—*Dalnaspidal* (XVI). Gale and 1·57 in. of R.

26th.—*Diss* (IV). Gale from S.W.—*Langton Herring* (V). Very stormy.—*Worksop, Hodsock Priory* (VII). S.W. gale.—*Watten* (XIX). Stormy.

27th.—*Langton Herring* (V). L.

28th to 31st.—*Newcastle West* (XX). Slight frosts at nights.

29th.—*Diss* (IV). Heavy R, 1·08 in.—*Nottingham, Strelley Hall* (VII). R with T 3.10 to 4.30 p.m.—*Worksop, Hodsock Priory* (VII). TS 5 p.m.—*Bolton* (VIII). T from 1 to 2.30 p.m. and TSS in many parts of the country.—*Scarborough* (IX). Heavy TS, 2·47 in. of R.—*Elterwater, Woodlands* (X). Distant T and L.

30th.—*Selling, Harefield* (II). The most terrific TS ever remembered. A waterspout broke 1½ miles S.S.W., rendering the roads impassable.

SEPTEMBER.

1st and 2nd.—*Newcastle West* (XX). Frosty nights.

5th.—*Kingsteington, Teignbridge House*. (V). The heaviest fall of R ever recorded here, 2·43 in.

6th.—*St. Leonards* (II). Moderate gale from S, L in evening.—*Highampton, Winsford* (V). N.E. gale, with 1·33 in. of R.

9th.—*Nottingham, Strelley Hall* (VII). Distant T 1.45 to 2 p.m., storm to westward.—*Bolton* (VIII). T and L 3.30 p.m.

13th.—*Newcastle West* (XX). Aurora.—*Kilrush* (XX). Very bright aurora.

14th.—*Torquay, Babbacombe* (V). Solar halo.

17th.—*Nottingham, Strelley Hall* (VII). Min. in shade 37°·9, on grass 31°·3; first frost on grass.

18th.—*Tenterden* (II). TS.—*St. Leonards* (II). TS in early morning, L in evening.—*St. Lawrence* (II). L and T in distance.—*Addington* (III). L at night.—*Southend* (IV). TS.—*Calne, Compton Bassett* (V). Heavy rain, with L at 7 p.m.—*Taunton, Fullands School* (V). Heavy TS 4.45 to 5.45 p.m.—*Coston Rectory* (VII). T and vivid L at night.—*Bolton* (VIII). Several peals of T during afternoon.

20th.—*Littlehampton* (II). T, L, and R.—*St. Leonards* (II). TS about midnight.—*Torquay, Babbacombe* (V). TS.—*Ashburton, Druid House* (V). R, T, and L.—*Taunton, Fullands School* (V). Heavy TS

5 to 6 a.m.—*Newcastle West* (XX). Exceedingly heavy R 2 to 2.30 p.m.—*Miltown Malbay* (XX). Southerly gale.—*Killygarvan Glebe* (XXIII). S.E. gale at night.—*Buncrana* (XXIII). Strong S.E. wind.

20th and 21st.—*Langton Herring* (V). T.—*Ballinasloe* (XXII). Very wet, 2.22 in. of R fell in the two days.

21st.—*Addiscombe* (II). Short, but rather sharp TS 1 to 2 a.m.—*Bromley Common* (II). Sharp TS.—*Trowbridge, Holt* (V). L.—*Shap, Copy Hill* (X). Strong gale.—*Llanfrechfa Grange* (XI). T at 7 a.m.—*Cupar, Kemback* (XVI). The heaviest daily fall of R for three years, 1.71 in.

21st and 22nd.—*Belford, Middleton Hall*. (X). 2.66 in. of R fell in 24 hours, causing the greatest flood ever known.—*Melrose, Abbey Gate* (XII). 2.10 in. R in 31 hrs. 50 min.—*Watten* (XIX). Stormy, S.E.

23rd.—*Melrose, Abbey Gate* (XII). Tweed flooded.

24th.—*Brighton, Blatchington Road* (II). .92 in. of R fell in night with the bar. above 30.0 in.—*Lochbroom* (XVIII). Stormy.

26th.—*Torquay, Babbacombe* (V). Solar halo.

27th.—*Miltown Malbay* (XX). Southerly gale.

OCTOBER.

1st to 2nd.—*Highampton, Winsford* (V). Clear frosty nights.

6th.—*Littlehampton* (II). White frost.—*Addington* (III). Tender plants cut off by frost.—*Nottingham, Strelley Hall* (VII). Min. in shade 34°.5, on grass 27°.6.

7th.—*Bromley Common* (II). Min. temp. on grass, 18°.

8th.—*Hythe* (II). The heaviest fall of R in 24 hours since 1865, 2.72 in.—*St. Leonards* (II). TS in afternoon, gale from E. at night; 1.64 in. of R.—*Winchelsea* (II). Great fall of R, chiefly in the night, 2.32 in.—*Winchelsea, The Friars* (II). 1.84 in. of R in night.

9th and 10th.—*Shap, Copy Hill* (X). Strong gale.—*Miltown Malbay* (XX). Heavy gales from W. to N.W.

10th.—*Coston Rect.* (VII). Very high gale at night.—*Dalnaspidal* (XVI). Heavy gale.—*Lochbroom* (XVIII). Very stormy.—*Skye, Sligachan* (XVIII). Gale from S.W.—*Killygarvan Glebe* (XXIII). S.W. gale.

11th.—*Torquay, Babbacombe* (V). S.W. gale at night.—*Wakefield, Stanley Vic.* (IX). Gale in night.—*Killygarvan Glebe* (XXIII). W. by N. gale.

11th and 12th.—*Watten* (XIX). N.W. gales, with H on latter day.

12th.—*Sansaw Hall* (VI). High wind N.E. ; T.—*Achonachie Lodge* [*Beaully*] (XVIII). Ben Wyvis and high hills covered with S.

13th.—*Southampton, Millbrook* (II). Hurricane S.W.—*Sandy* (III). Heavy storm.—*Salisbury, Alderbury* (V). The greatest storm known for many years.—*Torquay, Babbacombe* (V). S.W. gale at night.—*Ashburton, Druid House* (V). Gale all night.—*Sansaw Hall* (VI). Very high wind, N. and N.W.—*Nottingham, Strelley Hall* (VII). Heavy R all night with high wind, 1·02 in.—*Wakefield, Stanley Vic.* (IX). Gale in night.—*Otterburn* (IX). 1·95 in. of R, and great flood.—*Blencowe School* (X). Great storm and heavy rainfall, 1·61 in.—*Cardmarthen Gaol* (XI). 2·20 in. of R in 12 hours, the heaviest fall since 1866.—*Castle Malgwyn* (XI). S.W. gale and very wet, 1·41 in. of R.—*Abergwessin Vic.* (XI). Very stormy, 2·32 in. of R.—*Douglas, Victoria Id.* (XI). Whole gale from N.W.—*Cahir, Tubrid* (XX). Whole gale, many trees blown down.—*Nenagh, Castle Lough* (XX). Very severe storm, the worst for many years ; velocity of wind at Kingston at one period said to have reached 84 miles per hour.—*Gort, Cregg Park* (XXII). Strong S.W. gale.—*Ballinasloe, Kilconnell* (XXII). Strong wind from W.N.W.—*Ballinasloe* (XXII). Strong gale at night, 1·26 in. of R.—*Moville* (XXIII). N.E. gale veering to S.W. ; 24 fishing boats and 3 lives lost.

13th and 14th.—*Urbridge, Harefield Park* (I). Gale from S.W. to W. ; 72 trees blown down in the park, mostly elms.—*Oxford, Magdalen Coll.* (III). Very high W. wind, much damage.—*Trowbridge, Holt* (V). Very heavy gale.—*Crewkerne, Bincombe House* (V). A tremendous gale from S.W. to N.W.—*Menai-fon* (XI). Very heavy gale N.W., backing to W.—*Dalnaspidal* (XVI). Gale with R, S and sleet ; *Fermoy, Glenville* (XX). Heavy gale.—*Miltown Malbay* (XX). Great storm from N.W., and 1·01 in. of R.

13th, 14th and 15th.—*Elterwater, Woodlands* (X). Almost a hurricane ; 3·35 in. of R in the three days.

14th.—*Hampstead, Roslyn House* (I). Trees 300 years old blown down.—*Pinner Hill* (I). W.S.W. gale.—*Tenterden, Summerhill* (II). Great hurricane.—*Hythe* (II). Violent S.W. gale.—*Bromley Common* (II). Violent gale.—*Littlehampton* (II). Violent gale S.W.—*St. Leonards* (II). Whole gale from W.S.W. to W.—*St. Lawrence* (II). Heavy gale all day.—*Addington* (III). Very heavy gale ; much damage.—*Bedford, Clapham Park* (III). Furious gale ; much damage to trees.—*Southend* (IV). Heavy gale from W. to S.W.—*Braintree, Bocking* (IV). Hurricane.—*Rendlesham Hall* (IV). Strong gale.—

Stowmarket, Wetherden Rect. (IV). The most violent gale for 40 years, many large trees thrown down and rooted up.—*Ellough Rect.* (IV). Hurricane from S.W.—*Diss* (IV). Furious gale; immense damage to trees, &c.—*Norwich, Essex Street* (IV). Very heavy gale, many chimneys and trees blown down.—*Calne, Compton Bassett* (V). Heavy gale, many trees blown down.—*Langton Herring* (V). Great storm, some large limbs of trees blown down, and some houses lost a few slates and tiles.—*Torquay, Babbacombe* (V). Violent S. W. to W. gale, max. velocity 53 miles, from 5 to 6 a.m.—*Llanthony Lock* (VI). Very heavy gale from W.—*Ross, The Graig* (VI). Violent gale.—*Hereford, Richmond Place* (VI). Tremendous gale.—*Sansaw Hall* (VI).; Very high wind, tremendous gusts from 5 to 8 a.m.—*Diglis* (VI). Gale from W.—*Holt Lock* (VI). Gale from S.—*Coston Rect.* (VII). Tremendous gale all day, trees blown down and branches broken off in all directions.—*Nottingham, Strelley Hall* (VII). Great gale, but much less damage done than in most places.—*Worksop, Hodsock Priory* (VII). Severe gale, doing much damage to trees.—*Macclesfield Park* (VIII). Strong westerly gale.—*Liverpool, Walton-on-the-Hill* (VIII). Violent gale.—*Wakefield, Stanley Vic.* (IX). Severe gale all day.—*Thirvendale* (IX). Most violent gale, trees uprooted in all directions.—*Middlesboro', Southfield Villas* (IX). A most terrific hurricane from N.W. to N., immense loss at sea, also great destruction of property on land.—*Darlington, Whorlton* (X). Gale, and a flood in the Tees.—*Howick Hall* (X). Gale of unprecedented violence.—*Shap, Copy Hill* (X). The strongest gale for years.—*Llanfrechfa Grange* (XI). Heavy gale of wind, trees injured.—*Llandoverly* (XI). Blowing a hurricane, but not quite so strong as on Jan. 18th.—*Llanwrytydd Wells* (XI). Terrific storm of wind and R.—*Denbigh, Bodnant* (XI). Hurricane, with H, and 1.52 in. of R.—*Port Madoc* (XI). W.S.W. gale.—*Melrose, Abbey Gate* (XII). Very severe gale and 1.76 in. of R.—*Dollar* (XVI). Very high wind.—*Forres* (XVII). High wind, with R and sleet.—*Skye, Sliguchan* (XVIII). S.W. gale, with H showers.—*Forsinard* (XIX). High wind.—*Watten* (XIX). Stormy, with R and H.—*Waterford, Newtown* (XX). Fearful storm.—*Kilrush* (XX). Great gale.—*Sligo, Mount Shannon* (XXII). Severe gale.—*Lough Allen, Dowra* (XXIII). Very stormy from N.W.—*Londonderry, Knockan* (XXIII). Severe gale.—*Killygarvan Glebe* (XXIII). Violent northerly gale.—*Buncrana* (XXIII). Severe gale from N.W.

14th to 15th.—*Brighton, Blatchington Road* (II). Violent gale from W.—*Glenaladale* (XVIII). S on hills.

15th.—*Littlehampton* (II). Squally, with H and R.—*Nottingham, Strelley Hall* (VII). Heavy S storm 6.15 to 7 a.m., ground quite white.—*Liverpool, Walton-on-the-Hill* (VIII). TS, with H and R in early morning.—*Broughton-in-Furness* (VIII). S on Coniston Old Man and Blackwood and surrounding fells.—*Londonderry, Knockan* (XXIII). S on mountains.

16th.—*Ellough Rectory* (IV). Min. temp. 26°·0.—*Nottingham, Strelley Hall* (VII). Min. in stand 27°·3, on grass 20°·5, first frost in air.

16th and 17th.—*Wakefield, Stanley Vic.* (IX). Severe frost.

17th to 23rd.—*Miltown Malbay* (XX). Continual gale.

18th.—*Nottingham, Strelley Hall* (VII). Duration of sunshine 8·5 hrs. = 83 per cent. of possible duration.—*Elterwater, Woodlands* (X). Mock sun at 4 p.m.

18th to 21st.—*Tipperary, Henry Street* (XX). Continuous gale.

18th to 23rd.—*Douglas, Victoria Road* (XI). E. gale.

19th.—*Torquay, Babbacombe* (V). Solar halo, E.S.E. gale.—*Llandovery* (XI). Gale.—*Port Madoc* (XI). N.E. gale.—*Macclesfield Park* (VIII). Very strong easterly gale.—*Killygarvan Glebe* (XXIII). Heavy S.E. gale.

19th and 20th.—*Londonderry Knockan* (XXIII). High wind.

20th.—*St. Leonards* (II). Gale from E.—*Diglis* (VI). Gale, E.N.E.

20th to 22nd.—*Torquay, Babbacombe* (V). E. gale.

21st.—*Ashburton, Druid House* (V). Gale all night.—*Holt Lock* (VI). Stormy from S.W.—*Lochbroom* (XVIII). Gale from S.E.

21st to 24th.—*Nottingham, Strelley Hall* (VII). R fell continuously, though often only a slight drizzle, from 6 a.m. on the 21st to 11 a.m. on the 24th=77 hrs. ; fall in this time, 1·59 in.

21st and 22nd.—*Fermoy Glenville* (XX). Great gale.

22nd.—*St. Leonards* (II). Gale from S.E.—*Addington* (III) Stormy and wet, 1·08 in. of R.—*Langton Herring* (V). Heavy gale from E.—*Partney* (VII). Violent gale in afternoon and night.—*Lochbroom* (XVIII). Hurricane S.E. and E.

22nd and 23rd.—*Killygarvan Glebe* (XXIII). Easterly gale.

24th.—*Abergwessin Vic.* (XI). Very stormy.

28th and 29th.—*Oxford, Magdalen Coll.* (III). Hailstorms.

28th to 30th.—*Ballinasloe, Kilconnell* (XXIII). Strong frost.

29th.—*Addington* (III). H showers.—*Calne, Compton Bassett* (V). Sharp frost, H at noon.—*Coston Rect.* (VII). Heavy S storm at 7.30 a.m., and frequent H showers during day.—*Caistor* (VII). S and H.—

Nottingham, Strelley Hall (VII). Squalls of sleet, with soft H; 1 inch of S fell in night.—*Middlesboro', Southfield Villas* (IX). S.—*Darlington, Whorlton* (X). Frost at night.—*Alston, Moor House* (X). S.—*Miltown Malbay* (XX). Frost, ice $\frac{1}{4}$ inch thick.

29th and 30th.—*Elterwater, Woodlands* (X). Solar halos; sharp frost, min. in shade 27° and 21° respectively.—*Belfast, New Barnsley* (XXIII). Frost.

30th.—*Tavistock, Kilworthy Hill* (V). Min. temp. 22° .—*Holsworthy, Court Barn* (V). Sharp frost.—*Broughton-in-Furness* (VIII). Min. temp. 22° .—*Borrowdale, Castle Lodge* (X). S.—*Llandoverly* (XI). Hard frost at night.—*Killygarvan Glebe* (XXIII). Hard frost.

31st.—*Langtree Wick* (VI). Sharp frost, ice $\frac{1}{4}$ inch thick.—*Llandoverly* (XI). Gale in evening.—*Llanwrtydd Wells* (XI.) S in night.—*Abergwessin* (XI). Very cold.—*Fermoy, Glenville* (XX). Strong gale, but of short duration.—*Cahir, Turbid* (XX). Great storm of wind and R, 1.75 in.—*Tipperary, Henry Street* (XX). Storm of wind and R, 1.45 in.—*Miltown Malbay* (XX). Very furious southerly gale.—*Ballinasloe, Kilconnell* (XXII). Violent storm from S.E., veering to S.—*Londonderry, Knockan* (XXIII). Keen frost.—*Killygarvan Glebe* (XXIII). Gale at night.

NOVEMBER.

1st.—*Addington* (III). Snowing more or less all day.—*Coston Rect.* (VII). S showers all the morning.—*Nottingham, Strelley Hall* (VII). Slight S 9 a.m. to 6 p.m., depth 1 in.

6th.—*Oxford, Magdalen Coll.* (III). Thick fog.

7th.—*Hailsham* (II). Fogs.

8th.—*Addington* (III). Dense fog.—*Torquay, Babbacombe* (V). Dense fog.

8th and 9th.—*Llanfrechfa Grange* (XI). Fog.

9th.—*St. Leonards* (II). Solar and lunar halos.

11th and 12th.—*Newcastle West* (XX). Strong gale, S.W.

13th.—*Southampton, Woolston Lodge* (II). Max. temp. $60^{\circ}7$.—*Sansaw Hall* (VI). Max. temp. 62° .—*Nottingham, Strelley Hall* (VII). Max. in shade, $60^{\circ}6$; in sun, $101^{\circ}5$.—*Worksoy, Hodsock Priory* (VII). Max temp. $64^{\circ}5$.

13th to 17th.—*Newcastle West* (XX). L in evenings, and successive wild nights.

14th.—*Addington* (III). Dense fog.—*Coston Rect.* (VII). Very

foggy. — *Worksop, Hodsock Priory* (VII). Min. temp. 52°·3. — *Miltown Malbay* (XX). Heavy gale from W.—*Killygarvan Glebe* (XXIII). S.S.W. gale at night.

15th.—*St. Lawrence* (II). Swallows seen.—*Lochbroom* (XVIII). Very stormy night.—*Miltown Malbay* (XX). Stormy, H, R, T and L.

15th and 16th.—*Shap, Copy Hill* (X). Strong gales.—*Melrose, Abbey Gate* (XII). S.W. gale, with T and L.

16th.—*Diss* (IV). Heavy gale from S. by W., and W.S.W.—*Langtree Wick* (V). Blowing a gale from W.—*Maisemore Lock* (VI). High wind and T.—*Llanfrechfa Grange* (XI). L and high wind.—*Dalnaspidal* (XVI). Gale.—*Lochbroom* (XVIII). Very stormy.—*Achonachie Lodge, [Beauly]* (XVIII). TS with H.—*Skye, Sligachan* (XVIII). S.W. gale and H showers.—*Waterford, Newtown School* (XX). L 5.30 to 6 p.m.—*Ballinasloe, Kilconnell* (XXII). Much L.—*Ballinasloe* (XXII). Very squally, TS at 6 p.m. with H.

16th and 17th.—*St. Leonards* (II). South-westerly gales.—*Northampton* (III). Heavy gale.—*Torquay, Babbacombe* (V). S.W. gales.

17th.—*Littlehampton* (II). Thick fog.

18th.—*Northampton* (III). Dense fog.—*Coston Rect.* (VII). Sharp frost; very foggy.—*Skye, Sligachan* (XVIII). Gale and heavy R.—*Kilrush* (XX). L.

19th.—*Kilrush* (XX). L.—*Miltown Malbay* (XX). Very heavy gale from S.W.—*Killygarvan Glebe* (XXIII). Heavy S. gale at night.—*Moville* (XXIII). Strong gale S.

19th to 21st.—*Dalnaspidal* (XVI). Gales.

20th.—*Northampton* (III). Gale.—*Shap, Copy Hill* (X). Strong gale.—*Kilrush* (XX). T.

20th and 21st.—*Torquay, Babbacombe* (V). S.W. gale.—*Ashburton, Druid House* (V). Heavy gale.

20th to 22nd.—*St. Leonards* (II). S.S.W. gale.

21st.—*Littlehampton* (II). Rough W. wind, H, R, and T.—*Salisbury, Alderbury* (V). Storm in early morn from S.E. to S.W.—*Calne, Compton Bassett* (V). Gale at night.—*Ross, The Graig* (VI). Violent gale after 9 p.m.—*Diglis Lock* (VI). Heavy gale at night.—*Wakefield, Stanley Vic.* (IX). Gale at night.—*Darlington, Whorlton* (X). Strong gale at night.—*Elterwater, Woodlands* (X). Heavy S.W. gale all day.—*Shap* (X). Very heavy gale at night, buildings unroofed and many trees down.—*Llanurtydd Wells* (XI). Stormy.—*Cambuslang, Bushy Hill* (XIV). Terrific gale, with T and L.—*Craigellachie, Elchies* (XVII). High gale, trees overthrown, houses unroofed.—*Budgate, Cawdor* (XVII). T.

—*Lochbroom* (XVIII). Such a night and tide was never seen.—*Watten* (XIX). Gale at night.—*Waterford, Newtown School* (XX). L.—*Nenagh Castle Lough* (XX). Storm, T and L.—*Kilrush* (XX). Great gale, with T and L.—*Miltown Malbay* (XX). Furious S.W. gale, the greatest of the year.—*Ballinasloe, Kilconnell* (XXII). Very strong gale from S., veering to S.W., the most severe for some years.—*Tuam, Gardenfield* (XXII). The greatest storm for many years; a great number of trees blown down.—*Londonderry, Knockan* (XXIII). Very heavy gale.—*Buncrana* (XXIII). Gale commenced at 6 p.m. and increased to one of fearful violence, forcing up the spring tides to a height unknown before.

21st and 22nd.—*Menafron* (XI). Very severe gale W. to W.N.W.—*Tarbert, Stonefield* (XV). Great storm, much injury to shipping and trees.—*Islay, Ardbeg* (XV). Very strong gale and the highest tide on record.—*Ballinasloe* (XXII). Strong gale and L at night.—*Londonderry* (XXIII). Very severe gale, velocity of wind from 60 to 80 miles per hour.—*Ramelton, Killygarvan Glebe* (XXIII). S.W. hurricane with heavy T and L.—*Moville* (XXIII). Whole gale S.W.

21st to 23rd.—*Newcastle West* (XX). Great storms.

22nd.—*Addington* (III). Very stormy.—*Shap, Copy Hill* (X). Strong gale.—*Castle Malgwyn* (XI). T and L with heavy showers.—*Menafron* (XI). Heavy TS.—*Melrose, Abbey Gate* (XII). Very severe S.W. gale.—*Helensburgh* (XV). Very heavy gale, with R, H, T and L, doing much damage.—*Dalnaspidal* (XVI). Terrific gale, T and L.—*Budgate, Cawdor* (XVIII). Stormy.—*Lochbroom* (XVIII). A day to be remembered.—*Achonachie Lodge [Beauly]* (XVIII.) Great gale with T.—*Glenfaladale* (XVIII). Most violent gale.—*Skye, Sligachan* (XVIII). Severe gale.—*Watten* (XIX). Heavy storm of wind S. to S.W.—*Kilrush* (XX). L and T.—*Ennis* (XX). Violent storm.—*Ballinasloe, Kilconnell* (XXII.) T and L with H.—*Stewartstown* (XXIII). Great storm of wind.—*Allan Rock* (XXIII). Very stormy evening, blew a gale during the night, great damage done.

22nd to 25th.—*Miltown Malbay* (XX). Stormy from S.W. with frequent H, T and L.

23rd.—*St. Leonards* (II). Solar halo.—*Bolton* (VIII). T and L at 5.30 p.m.—*Elterwater, Woodlands* (X). L, H and R.—*Port Madoc* (XI). S.W. gale.—*Lochbroom* (XVIII.) Still very stormy.

24th.—*Brighton, Blatchington Road* (II). 13 in. of R fell in two minutes.—*Coston Rect.* (VII). Distant T.—*Abergwessin* (XI). Very stormy, 1.06 in. of R.—*Dalnaspidal* (XVI). T and L.

25th.—*Brighton, Blatchington Road* (II). Strong gale.—*Addington* (III). Large flood.

25th to 27th.—*Canterbury, Harbledown* (II). Severe gales.

26th.—*Addiscombe* (II). Strong S.W. gale.—*Crowborough Observatory* (II). The most severe gale for several years, much heavier than that of October 14th. More than a hundred trees either down or broken off; part of the roof (new) stripped of its slates, and in the neighbourhood many roofs taken off entirely. In the three days, 25th-27th, 3·21 in. of R fell.—*Addington* (III). Very stormy night.—*Banbury, Wroxton* (III.) S.W. gale.—*Northampton* (III). Gale.—*Salisbury, Alderbury* (V). Storm of wind and R beginning from S.E. at 2 p.m., changing to S.W. at midnight, and continuing with T and H at 8 a.m. till 10 a.m. on 27th.—*Langtree Wick* (V.) Tremendous gale from S.W.—*Maisemore* (VI). S.W. gale.—*Cheltenham* (VI). Gale at night. Bar. sank to 28·774 in.—*Ross, The Graig* (VI). Tremendous gale at night with T and H.—*Cheadle, The Heath Ho.* (VI). During the gale there was at 10.30 p.m. a squall with L, of such exceptional violence, that, though it only lasted seven minutes, it overthrew one of the large and solid stacks of stone chimneys on this house, the weight of which was so great as to break right through into the hall.—*Cheadle, Tean Vic.* (VI). A tremendous gust of wind, only lasting four or five minutes, passed here during the gale at 10.15 p.m., apparently on the veering of the wind from S. to S.W. It blew over the chimney of the infant school, and forced in the central window of the boys' school.—*Diglis* (VI). Heavy TS.—*Partney* (VII). Strong gale in evening and night.—*Coston Rect.* (VII). Gale all night and all day and night of 27th.—*Broughton-in-Furness* (VIII). Great gale.—*Sheffield, Chapelton* (IX). Heavy N.W. gale with L at night.—*Wakefield, Stanley Vic.* (IX). Severe gale with R, T and L.—*Castle Malgwyn* (XI). Rough S.W. wind with L, T and heavy R, 1·53 in.—*Abergwessin Vic.* (XI). T and 1·31 in. of R.—*Corwen, Rhug* (XI). Very stormy and wet.—*Menaifron* (XI). Gale sprang up suddenly from S.S.E., veering to W.S.W. before morning of 27th, with terrific squalls during the night.—*Newcastle West* (XX). L in evening, stormy night.—*Nenagh, Castle Lough* (XX). Gale.—*Miltown Malbay* (XX). Great storm, extraordinary high tide.—*Ballinasloe, Kílconnell* (XXII). Very severe storm from S., veering S.W. and W.—*Londonderry, Knockan* (XXIII). Severe gale; bar. remarkably low.—*Killygarvan Glebe* (XXIII). Heavy gale at night from S.

26th and 27th.—*Muswell Hill* (I). Tremendous gale from S.W. with violent R.—*Littlehampton* (II). Gale, with T and H on the latter day.—*Langton Herring* (V.) Great gale.—*Torquay, Babbacombe* (V). S.W. gale attaining an hourly velocity of 53 miles and rising to the rate of 72 miles per hour in squalls. T, L and H.—*Hereford, Richmond Place* (VI.) Tremendous gale.—*Worksop, Hodsock Priory* (VII). S.W. gale.—*Port Madoc* (XI). W.N.W. gale.—*Ballinasloe* (XXII). Violent gale with TSS. 2.44 in. of R in the two days.

26th to 28th.—*Tenterden, Summerhill* (II). Terrific gales.—*Diss* (IV). Heavy gale from S. and S.S.W., commencing at 5.30 p.m. on 26th, and continuing with almost unabated violence till mid-day of 28th.

27th.—*Dorking, Abinger Hall* (II). T, L and H.—*Addiscombe* (II). Fresh S.W. gale; L in evening.—*Tenterden* (II). T at 10 p.m.—*St. Leonards* (II). Gale from W.S.W., with L and H; solar halo.—*St. Lawrence* (II). L and T.—*Addington* (III). Great flood, very high wind.—*Southend* (IV). Heavy gale.—*Rendlesham Hall* (IV). S.E. gale.—*Ellough Rect.* (IV). Violent gale from S.W.—*Calne, Compton Bassett* (V). Strong gale.—*Langtree Wick* (V). Fearful storms of wind and H from S.W. all day.—*Ashburton, Druid House* (V). Strong wind, heavy showers H and L.—*Partney* (VII). Gale, at times exceedingly strong.—*Wakefield, Stanley Vic.* (IX). Gale all day.—*Ripon, Mickley* (IX). T, vivid L, and 1.50 in. of R.—*Darlington, Whorlton* (X). Strong gale from S.W.; 1.15 in. of R.—*Elterwater, Woodlands* (X). Terrible gale of wind.—*Llanfrechfa Grange* (XI). High wind, and T, L and H.—*Melrose, Abbey Gate* (XII). S.W. gale; L and 1.07 in. of R.—*Waterford, Newtown* (XX). Fearful gale.—*Newcastle West* (XX). L in evening, stormy night.—*Ennis* (XX). Violent gale.—*Ballinasloe, Kilconnell* (XXII). Storm with T and L, from S. veering to N.W.; 1.75 in. of R.

27th to 28th.—*Liverpool, Walton-on-the-Hill* (VIII). Very stormy.—*Denbigh, Bodnant* (XI). High wind with H, 1.61 in. of R in the two days.

28th.—*Sansaw Hall* (VI). T in early morning.—*East Layton* (X). Severe gale.

29th.—*Cahir, Tubrid* (XX). Full gale and heavy R at night, 1.50 in.—*Nenagh, Castle Lough* (XX). Gale.—*Miltown Malbay* (XX). Strong gale from S.W.—*Ballinasloe, Kilconnell* (XXII). S.W. gale.

30th.—*Ashburton, Druid House* (V). Ripe wild strawberries in hedges.—*Miltown Malbay* (XX). L.

DECEMBER.

2nd.—*St. Lawrence* (II). Saw a pair of swallows.—*Nottingham, Strelley Hall* (VII). Max. in shade 50°·8.

5th.—*Partney* (VII). Gale.

5th and 6th.—*Ballinasloe, Kilconnell* (XXII). Gale S. to S.W.

6th.—*Rendlesham Hall* (IV). S.S.W. gale in evening.—*Diss* (IV). Strong gale from S.S.E.—*Torquay, Babbacombe* (V). S. gale.—*Dalnaspidal* (XVI). Gale with S and R. 1·19 in.—*Lochbroom* (XVIII). Terribly stormy night. 1·00 in. of R.—*Skye, Sligachan* (XVIII). Very severe gale from S.—*Watten* (XIX). S.E. gale at night.—*Londonderry* (XXIII). Violent gale.—*Killygarvan Glebe* (XXIII). Heavy S. gale all day.—*Buncrana* (XXIII). Gale from S.S.W.

6th and 7th.—*St. Leonards* (II). Gales at night.

7th.—*Lochbroom* (XVIII). Terribly stormy day.—*Miltown Malbay* (XX). Severe storm from S.W.

8th.—*Miltown Malbay* (XX). T, L and H.—*Londonderry, Knockan.* (XXIII). Mountains white with S.

9th.—*St. Lawrence* (II). Gale from N.E., with 1·97 in. of R and S.—*Addington* (III). Dense fog.—*Oxford, Magdalen Coll.* (III). Dense fog.—*Coston Rect.* (VII). Very foggy.—*Nottingham, Strelley Hall* (VII). Thick fog all day.

10th.—*Pinner Hill* (I). 3 in. of S.—*Calne, Compton Bassett* (V.) Dense fog.

13th.—*Skye, Sligachan* (XVIII). Gale with heavy R.—*Newcastle West* (XX). Stormy night, W.N.W.

15th.—*Newcastle West* (XX). Stormy night.

16th.—*Littlehampton* (II.) Violent gale.—*Torquay, Babbacombe* (V). S.S.E. gale.—*Abergwessin* (XI). Stormy, with R and S. 1·51 in.—*Miltown Malbay* (XX). T and L.

17th.—*Muswell Hill* (I). Violent gale, with heavy squalls of R.—*Addington* (III). Very stormy and heavy R after 2 p.m. 1·61 in.—*Amphill, Silsoe* (III). ·67 in. of R fell in 1 hour 30 min.—*Sandy Rect.* (III). Heavy R. 1·17 in., followed by floods.—*Rendlesham Hall* (IV). S.W. gale, with heavy R. 1·37 in.—*Diss* (IV). Strong gale from S., with 1·01 in. of R.—*Calne, Compton Bassett* (V). Gale and heavy R.—*Langton Herring* (V). Heavy storm.—*Abergwessin* (XI). Stormy, H at night. 1·14 in. of R.—*Watten* (XIX). Storm of wind and R at night.—*Newcastle West* (XX). H showers in night.—*Miltown Malbay* (XX). Storm, T and L.

17th and 18th.—*Altarnum* (V). Destructive gale.—*Hythe* (II). Strong S.W. gale with heavy H and R.—*Braintree, Bocking* (IV). The highest flood known for 40 years.—*Torquay, Babbacombe* (V). Severe S.W. gale (velocity 63 miles from 2 to 3 a.m.) on 18th, doing much damage.

18th.—*Addington* (III). High wind, great flood.—*Pampesford Hall* (III). Great gale and R.—*Elterwater, Woodlands* (X). Heavy showers of H and R. T and L at 9.30 a.m.—*Dalnaspidal* (XVI). Gale, with S.—*Watten* (XIX). High wind.

19th.—*Pewsey* (V). T.—*Crewkerne, Bincombe Ho.* (V). A heavy gale at night, with T, L and H.—*Castle Malgwyn* (XI). Heavy showers, with L and T.—*Abergwessin* (XI). H and R.—*Miltown Malbay* (XX). T and L. Severe gale from N.

20th.—*St. Leonards* (II). Gale in early morning, L over sea in evening.—*Diss* (IV). Strong gale from S.E.—*Salisbury, Alderbury* (V). Great gale.—*Trowbridge, Holt.* (V). Heavy gale and TS.—*Langton Herring* (V). Heavy gale, with T and L.—*Torquay, Babbacombe* (V). W. gale with TS, parhelion.—*Llanfrechfa Grange* (XI). Gale, with T and L in early morning.—*Miltown Malbay* (XX). Furious storm from N.W.—*Killygarvan Glebe* (XXIII). Heavy S.E. gale at night.

22nd.—*St. Lawrence* (II). Yellow aconite in flower.

23rd.—*St. Lawrence* (II). Bar. rose 1 inch in 24 hours.—*Torquay, Babbacombe* (V). Aurora Borealis.—*Nottingham, Strelley Hall* (VII). Min. on grass 16°·8.—*Watten* (XIX). S.E. gale.

24th.—*Nottingham, Strelley Hall* (VII). Min. in shade 22°·0, on grass 20°·7.

26th.—*Wakefield, Stanley Vic.* (IX). Beautiful day. Bees flying and thrush singing.

28th.—*Oxford, Magdalen Coll.* (III). H storm.—*Nottingham, Strelley Hall* (VII). Fog all day.

29th.—*Coston Rect.* (VII). Aconites in flower.

31st.—*Nottingham, Strelley Hall* (VII). Thick fog till 2 p.m.

OBSERVERS' NOTES ON THE MONTHS.

JANUARY.

I. *Muswell Hill*. Total rainfall only a little more than half the average of nine years. The most noteworthy feature of the month was the S storm and gale of the 18th.

II. *Abinger Hall*. The month will be remembered as one of the most severe on record; twice the thermometer reached zero, and common laurels were left quite brown. The storm of the 18th has had no parallel in the lives of the oldest people.—*Addiscombe*. This month was exceedingly cold, very dry and bright, with a calm and dry atmosphere. It was remarkable as being the third extremely cold and the second very dry January in succession; for a long and very severe frost; for a deep fall of snow, which continued to lie upon the ground for upwards of a week; for the great prevalence of north-easterly winds; for the singularly low temperatures registered upon the surface of the snow on the 20th, 21st, and 22nd; for a heavy S storm, accompanied by a strong easterly gale on the 18th; and for a brilliant display of aurora on the evening of the last day.—*Hythe*. A severe wintry month.—*Canterbury, Harbledown*. Freezing for eleven consecutive days and nights.—*Littlehampton*. The coldest month on record, and the snowfall of the 18th the heaviest since 1836.—*St. Leonards*. Almost continuous frost from 9th to 26th.

III. *Buntingford, Throcking Rectory*. A cold month; mean temp. $28^{\circ}6$, max. $48^{\circ}1$ on the 31st; min. $10^{\circ}7$ on 22nd; between 13th and 26th the mean was only $21^{\circ}4$, the max. never rising above 32° during this period until 26th; min. below 12° on 22nd, 24th, 25th, and 26th. Severe gale and S storm on 18th, drifts 10, 12, and 14 feet deep; impossible accurately to estimate the fall.—*Addington*. Nice winter weather from 1st to 11th; very cold, with frequent intense frosts from 12th to 28th; mean temp. 28° , which is lower than the mean of any other month for a great number of years. The temp. once fell just below zero, and on seven nights below 10° .—*Stonor Park*. The month was very severe, the temp. falling 20° below

freezing every night for a week, and on two nights being only 1° above zero ; a thaw set in on the 26th, and the remainder of the month was wet and windy.—*Aston Rowant*. The coldest January for 40 years.—*Oxford, Magdalen Coll.* Hard frost from 7th to 27th ; min. temp. 8° on the 21st ; min. on grass, zero on 21st.—*Wroxton*. The most inclement weather I have known in 32 years. Average min. temp. for the fourteen days, 13th to 27th, $12^{\circ}6$; absolute min. $8^{\circ}5$ on 22nd.—*Cambridge, Merton Villa*. Very severe frost prevailed during the third and fourth weeks, the mean temp. from the 12th to 26th being only $22^{\circ}3$; that of the whole month was $29^{\circ}5$; min temp. 2° on the 21st.

IV. *Southend*. Continuous frost from 12th to 27th.—*Harlow, Sheering*. On thirteen days during the month the max. temp. did not rise above 32° ; min. 9° on the 17th.—*Rendlesham Hall*. Very severe frost from the 18th to the 26th, the min. temp. on the latter night being 4° .—*Diss*. The first week fine ; from the 12th to the 26th unusually cold ; on the 18th it blew a hurricane till evening and snow fell heavily, drifting into the roads and rendering them impassable ; tiles and stacks were blown about by the wind, and a few trees broken. A thaw set in on the 27th, and continued to the end of the month.

V. *Compton Bassett*. The weather up to the 17th was dry and frosty, from thence to the end stormy in the extreme ; the 18th was a bitterly cold and boisterous day, with driving snow that penetrated into the crevices of tiles and windows to an unprecedented extent ; immense drifts were formed in various places, blocking the roads for two days. A gentle thaw set in on the 27th, and by the end of the month the S had disappeared. Min. temp. 3° on the 15th and 16th.—*Langton Herring*. This month will long be remembered for the intensity of the cold and the depth of the snow, the coldest night was that of the 21st-22nd, when the min. was $12^{\circ}8$, and the coldest day the 25th, when the max. between sunrise and sunset was only 20° .—*Babbacombe*. A very cold month ; mean temp. $34^{\circ}6$, about 7° below the average ; min. in air $15^{\circ}3$ on the 20th, and on grass $6^{\circ}5$ on 15th. The air temp. fell below 32° on nineteen consecutive nights, from the 8th to the 26th ; an unusually long frost, the intensity being extreme from the 15th to 22nd. Snow fell every day from the 16th to the 21st : very heavily on the 18th, the depth being 6 inches, but it drifted in places to the depth of 8 feet ; the ground was covered from the 11th to the 27th, and some of the drifts

remained till the 31st. Total rainfall about half the average ; bar. pressure average ; N.E. winds prevailed from 2nd to 27th ; S.W. afterwards. Gales frequent.—*Teignmouth, Woodway*. Snow on ground from 11th to 28th inclusive ; temp. in shade below 32° on 21 days.—*Court Barn*. At the age of over 60 years, I do not remember such severe weather. Birds in considerable numbers may be seen dead ; almost all business and intercourse stopped by the drifted S on the 18th and 19th.—*Langtree Wick*. Severe frost from 7th to 26th ; heavy snow on 18th and 19th ; drifts 10 and 12 ft. deep.—*Altarnum Vic*. The coldest month on record here, mean temp. $30^{\circ}\cdot 2$, min. 3° on 26th. The S drifts on the 17th varying in depth up to 10 feet ; a thaw commenced on 27th, and mild weather followed.

VI. *Cheltenham*. A mild damp month at beginning and end ; exceptionally cold in the middle.—*Ross, The Graig*. Frost set in on the 6th, continuing unbroken for 21 days, and was the most severe period of equal length since 1838 ; mean temp. from 7th to 27th $22^{\circ}\cdot 5$; mean max. $29^{\circ}\cdot 9$; mean min. $15^{\circ}\cdot 2$. The frost of January, 1823, was very similar in intensity and duration.—*Hereford, Richmond Place*. Exceptionally cold ; mean temp. $28^{\circ}\cdot 7$; min. -2° .—*Sansaw*. Snow on ground from 11th to 28th ; drifts on the 18th, nowhere more than 2 ft. deep. Min temp. 8° on 15th.—*Burton-on-Trent*. The most wintry month remembered ; min. temp. 4° on 15th and 16th ; skating on the Trent for a fortnight. Mean temp. $27^{\circ}\cdot 3$, on the 14th the max. temp. was only 23° .

VII. *Loughborough*. Severe frost from 7th to 27th ; from 14th to 21st the max. temp. was below 31° ; min. on 15th and 16th $1^{\circ}\cdot 9$. S on night of 18th, with E. gale and deep drifts. Aurora on 31st.—*Coston*. A very remarkable month, the severe weather of the middle contrasting with the milder beginning and end. Min. temp. -2° on 16th.—*Partney*. Much mist and fog during the month ; mean temp. at 9 a.m. $22^{\circ}\cdot 3$.—*Nottingham, Strelley Hall*. A dry and very cold month, mean temp. $28^{\circ}\cdot 9$. The weather was mild till the 5th ; from 11th to 22nd the mean temp. of every day was below 30° ; from 24th to 30th very foggy, the last four days warm.—*Worksop, Hodsock Priory*. A very cold month, from 12th to 27th intensely so ; mean temp. only $28^{\circ}\cdot 3$, probably about 10° below the average. S lay on the ground from 11th to the end of the month. Sunshine was very scarce and the last week was very foggy.

VIII. *Macclesfield*. The smallest rainfall of any month since June, 1868.—*Broughton-in-Furness*. Frost began on the 5th and continued

till the 27th, Coniston Lake only frozen at the upper end. Min. temp. -5° .

IX. *Wakefield, Stanley Vic.* Mild to the 6th, followed by strong frost till the 26th, the lowest temp. being 9° ; on the 18th a biting E. wind blew; S fell on the night of the 26th, succeeded by a general thaw. Bees about on the 1st.—*Sedbergh.* Mean temp. $29^{\circ}\cdot 2$.—*Scarborough.* The coldest month since observations were commenced in 1866, the mean temp. being $6^{\circ}\cdot 4$ below the average; min. temp. $10^{\circ}\cdot 5$ on the 26th. S and H showers were frequent in the middle of the month, but not heavy; fog was prevalent in the last week.

X. *Haweswater, Measand.* Weather dry and frosty, with a thick covering of S till the 26th, when a thaw set in.—*Elterwater.* A very dry month with three weeks of severe frost; skating began on Rydal Water, Elterwater, and some other lakes, on the 8th and was continued without intermission for 21 days, the ice on Elterwater being 1 foot in thickness by the end of that time. Temp. in shade at or below 32° on 22 days.—*Shap.* The coldest month remembered, many small birds killed by the cold, and in a few instances farm-yard poultry.

XI. *Llanfrechfa Grange.* Unusually low temp. for a length of time, but fortunately calm, except on 18th and 19th, when a cutting N.E. wind blew, with fine S, which drifted violently. Min. temp. 11° on the 15th.—*Castle Malgwyn.* Frost set in suddenly on the 6th with unusual severity, the temp. falling below zero five times, the min. being -10° on the 20th. The frost broke up on the 26th.—*Nantgwilt.* By far the coldest weather since January, 1861; heavy gale on 18th, but little S.—*Carno.* The most severe weather known for the last 20 years, but not so much S as in other parts of the country.—*Menaiifron.* Intensely cold, frost set in on 7th and continued unbroken for 20 days; $9\frac{1}{2}$ inches of S fell on the 14th, and on 17th a heavy gale occurred, which formed drifts of the S 10 feet deep.—*Douglas, Victoria Road.* A very cold month, frost from 7th to 27th. Min. temp. 12° on the 17th.

XII. *Carsphairn.* During the month we had very severe frost, but with that exception it was very good winter weather; very little S, not 2 in. altogether.—*Crichton Inst.* The first two or three days were mild, but after that frost set in and lasted until nearly the end of the month; mean temp. $26^{\circ}\cdot 3$, greatly below the average.—*Melrose.* The month has perhaps the lowest mean ever recorded ($21^{\circ}\cdot 9$); the temp. fell below 32° on 29 nights and below zero on 7 nights, the

min. being -10° on the 17th. S fell on 9 days, amounting to $28\frac{1}{2}$ in., the heaviest fall in 24 hours being $9\frac{1}{2}$ in. on 13th. Wind moderate, principally N. and W. River Tweed frozen over for a fortnight, and curling and skating enjoyed upon it.

XVI. *Kemback*. S on the ground from 12th to end of month. Mean temp. $27^{\circ}\cdot 4$, min. $7^{\circ}\cdot 5$ on 17th.—*Aberfeldy*. The frost during the month was more severe and of longer duration than has been known for many years.

XVII. *Tomintoul*. Frost most intense during the whole month.

XVIII. *Lochbroom*. Frost from the 3rd to the 26th, terribly severe in the middle of the month; an arm of the sea for 6 miles was covered with ice 6 or 7 in. thick for 3 weeks, so strong that it was used as a thoroughfare.—*Glenfinnan*. General character of month, calm, bright and sunshiny, with very severe frost; last few days mild and genial.—*Aviemore*. S not very heavy at any time, frost very severe.

XIX. *Forsinard*. Much S and severe drifts in middle of month.—*Watten, H.R.S.* The chief characteristics of the month were the heavy and severe S storms from the 10th to the 19th, and the intensely hard frost.

XX. *Cork, Newsom's Quay*.—River Lee frozen over for a mile below the city.—*Tipperary*. A great frost set in early, and continued until the 26th.—*Castle Lough*. A very cold month, frost set in towards the end of the first week, gradually increasing in intensity, the max temp. being frequently from 5° to 7° below freezing. The last few days were warm and genial.—*Kilrush*. A very severe month, the hardest frost since 1830. The River Shannon was frozen from Limerick to Gross Island, a distance of 12 miles, so that the river steamers could not ply; fogs very frequent.—*Ennis*. From 15th to 25th the temp. ranged from about 26° as the max., to 14° as the min., and on the 16th fell to 12° .—*Miltown Malbay*. A very cold month; frost commenced on the 5th, and continued without intermission until the 25th, being of unexampled severity on the nights of the 20th, 21st, and 22nd; the ice on cleared water, after the latter night, being $3\frac{1}{2}$ in. thick, and tidal rivers and creeks were frozen over. S fell occasionally from the 12th to 17th, being finally 12 in. deep and remaining on the ground for 16 days.

XXI. *Twyford*. Hard frost from 5th to 28th; min. temp. 8° on 22nd.

XXII. *Kilconnell*. Temp. during the month unusually low.—*Tuam*,

Gardenfield. Excessive frost during the greater part of the month. Max. temp. $48^{\circ}8$. Min. $9^{\circ}0$.—*Enniscoe.* Frost from the 5th to the 26th, said to be the most severe for 50 years, Lough Conn completely frozen over. Min. temp. zero on the 22nd, and below 10° on 7 other nights.

XXIII. *Newtownards.* Frost from 5th to 27th inclusive, min. temp. 10° on the 17th.—*New Barnsley.* Fine and open till the 8th, when the densest fog ever known occurred, followed by frost and S till the 26th, when a thaw set in, which, although rapid, did not cause any floods; close of the month very fine.—*Bushmills.* Frost set in early in the month, followed by one of the most severe S storms experienced for many years.—*Stewartstown.* Frost daily from 6th to 27th.—*Killygarvan Glebe.* A severe month; although not much S fell, it lasted a long time, and the frost was remarkably hard, no high wind, excepting on one day. Mean temp. $30^{\circ}2$, $6^{\circ}3$ below the average.

FEBRUARY.

I. *Muswell Hill.* The wettest February in ten years, total fall more than double the average, R or S falling on 21 days. Six inches of S on the 20th and 21st, and four inches more on the 23rd.—*Enfield.* The ground was covered with S at the close of the month; frost occurred on sixteen nights; dense fog on six days.

II. *Addiscombe.* This was a cold, exceptionally wet, and singularly dull month, with a very windy and humid atmosphere. It was remarkable as being the fourth very humid February in succession; for frequent falls of R and S; for the many and occasionally dense fogs; for the unusual prevalence of north-easterly winds; and generally for its dull and gloomy character.—*Hythe.* A dull wintry month. Frost on nine days; min. temp. 26° on 6th and 28th.—*Littlehampton.* Very cold all the month, N.E. winds prevailing, no growth in fields or gardens; min. temp. 24° on the 28th.—*St. Leonards.* A cold month, with a whole gale from S. on 7th; frost on seven days.—*St. Laurence.* A wet month, seriously interfering with farming and gardening operations; frost on eight days.

III. *Buntingford, Throcking Rect.* A wet month. Mean temp. $35^{\circ}4$; max. $48^{\circ}9$ on 3rd; min. $25^{\circ}4$ on 7th. Strong winds between 5th and 11th; fog prevalent from 16th to 22nd; S fell to the depth of 6 in. on 20th.—*Addington.* Generally dull, with frequent fogs;

very stormy from 7th to 10th, and cold from 19th to 23rd ; the temp. during that period never rising above 36° ; frost on seventeen days.—*Henley-on-Thames, Stonor Park*. The month opened with mild but dull and miserable weather ; it became colder towards the middle, and there were some sharp frosts at the end.

IV. *Rendlesham Hall*. A cold wet month, with much wind and S storms.—*Diss*. A cold, cheerless month, without any severe frosts ; the second week was squally and unsettled, and the remainder of the month cold and sunless ; during the gale on the 7th and 8th pressure fell from 30·12 in. to 29·01 in. in 24 hours.

V. *Calne, Compton Bassett*. Cold and stormy, with frequent heavy showers of R ; some S and sharp frosts towards the end, frost on 11 days.—*Langton Herring*. A cold, wet month, the mean temp. at 9 a.m. being 2°·4 below the average. The 28th was the coldest day in February for 9 years, the min. temp. being 24° and the max 32°.—*Babbacombe*. Wet, cold, gloomy, and foggy. R fell on each of the first 15 days, making, with the last 6 days of January, a wet period of 21 consecutive days. The temp. was rather high till the 10th, and low after the 21st. The days were cold, the max. temp. being only 51°·2 on 1st ; heavy S fell on 27th, and S showers occurred on 3 other days. Pressure below the average, it was low and variable till the 15th, and rather high and equable from 19th to 25th. S.W. to N.W. winds prevailed till the 15th, and N.E. after the 16th. Fog unusually prevalent ; TS, S and H on 7th and 10th, L and H on 8th.

VI. *Cheltenham*. A cold, damp and unpleasant month ; atmospheric pressure very variable from 10th to 13th, with strong wind, min. temp. 13°·5 on 22nd.—*Ross, The Graig*. Snowing, raining or freezing most of the month, scarcely any fine weather ; mean temp. 38°·8, frost on 11 days, min. temp. 25°·4 on 7th.—*Sansaw*. Generally a fine month, much sunshine, and very little mist or fog ; frost on 14 days, min. temp. 22° on 24th.—*Burton-on-Trent*. Mean temp. 37°·5 ; min. 23° on 7th and 28th. The Trent was often in flood from melting S and heavy rains during the first fortnight. The last fortnight very cold.

VII. *Melton, Coston*. R nearly double the average of the last 8 years ; frost on 17 days, min. temp. 21°·3 on 7th.—*Nottingham, Strelley Hall*. A very wet month, hindering farming operations, the ground seemed thoroughly full of water, some wells overflowing. We had a nearer approach to a flood than would be thought possible

on the top of a hill.—*Worksop, Hodsock Priory*. A cold, stormy, dull, and very wet month; in fact, it seems to have been the wettest February for more than 20 years; sunshine even less prevalent than in January.

IX. *Sedbergh*. Mean temp. $36^{\circ}\cdot9$, min. 25° on 28th; frost on 12 days.—*Scarborough*. Weather during the month very unsettled, fog, R, S and H being unusually abundant. Mean temp. $36^{\circ}\cdot8$, more than 3° below the average; frost on 6 days. Min. temp. $29^{\circ}\cdot8$ on 28th. Rainfall 1.49 in. above the average of 15 years. Atmospheric pressure low.

X. *Kirkstone Pass*. S fell on 20 days during the month, and at the close was 2 feet deep on the ground.—*Shap*. A very stormy month, with much S and frost.—*Haweswater, Measand*. Early part of month rainy; middle mild; latter part windy, with S and sleet.

XI. *Llanfrechfa Grange*. Unusually cold, all vegetation very late, the latter part of the month much colder than the early part; frost on 15 days. Min. temp. 27° on the 25th and 28th.—*Castle Malgwyn*. The beginning of the month very wet, the end very cold. Min. temp. 14° on the 23rd.

XII. *Dumfries, Crichton Inst.* R considerably above the average, temp. and pressure both below the average; wind, as a rule, moderate; frost on 26 days. Min. temp. 20° on the 12th.—*Melrose, Abbey Gate*. The mean temp. of the month ($30^{\circ}\cdot6$) was $4^{\circ}\cdot4$ below the average, frost occurring every day. The amount entered as R was largely composed of S, the total being .36 in. above the average; not much wind, prevailing direction N. and E. Agricultural work very much in arrear.

XVI. *Cupar, Kemback*. Mean temp. $33^{\circ}\cdot5$, frost on 17 days; occasional floods, caused by the melting S. Farm work at a standstill, the ground being frozen except an inch or two at the surface. Min. temp. $19^{\circ}\cdot5$ on 28th.

XVIII. *Lochbroom*. The first half of the month was very stormy, the latter part frosty.—*Glenaladale*. First half of the month very wet, with a heavy fall of S on the 9th; remainder very fine, calm, and clear, though not always sunny; temperature uniformly low. Prevailing direction of wind, easterly.—*Sligachan*. A very seasonable month, but with some rather hard frosts.

XIX. *Watten*. First half of the month stormy, with S; latter part frosty.

XX. *Waterford, Newtown*. Early part of month bright, the days

warm, and nights cold ; latter part uniformly dull, with little daily range of temp.—*Tipperary, Henry Street*. First half wet, with much wind, second half variable.—*Miltown Malbay*. First part of month rainy and very stormy, but mild ; second half, with the exception of one day's heavy rain, dry, cold, and seasonable, with occasional sharp frosts at night.

XXIII. *Seaforde*. Frost on fifteen days, min. temp. 22° on the 11th.—*Newtownards*. First half of month very wet, last half cold.—*Bushmills*. Rainfall of the month double the average for the past seven years.—*Killygarvan Glebe*. Rather a stormy month, without any very severe frost. Rainfall about an inch above the average, temp. 3° below it ; frost on fourteen days, min. temp. 23° on 6th.

MARCH.

I. *Muswell Hill*. Rainfall about one-third above the average, but the number of wet days small.—*Enfield*. S fell on 6 days, H on 2 ; lunar halos were seen on 3 nights. Min temp. 21° on 27th.

II. *Dorking, Abinger Hall*. The month was changeable, but on the whole fairly good, though bitter E. winds were somewhat prevalent.—*Addiscombe*. A mild, somewhat dry, and particularly bright month, with a rather dry and very windy atmosphere. It was remarkable as being the ninth windy, and the third bright and dry March in succession ; and for its similarity in many respects to the same month of the previous year.—*Hythe*. The month was fine and favourable for the season ; frost on 7 days, min. temp. 24° on 1st.—*St. Leonards*. Several moderate gales and moderate falls of S during the month, but many very fine days ; min. temp. 25°·0 on 1st, frost on 5 days.

III. *Buntingford, Throcking Rect*. An average month ; mean temp. 40°·6, max. 61°·2 on 16th, min. 24°·3 on 1st and 30th. S on 25th and 26th, followed by a spell of bright weather.—*Addington*. Early part of the month unsettled, from the 10th to the end fine weather for working the land ; frost on 12 days, min. temp. 19° on 29th.—*Stonor Park*. The month opened very wet but mild ; after the first week, dry weather set in, with frequent sharp frosts.

IV. *Harlow, Sheering*. Rainfall 0·30 in. above the average, frost on 16 days, min. temp. 21° on 1st.—*Rendlesham Hall*. First part of the month wet and stormy ; fine, bright, and dry from 13th to 18th ; frost nightly from 26th to 30th.—*Diss*. A cold, bright, month ;

S and cold winds from E. from 3rd to 8th ; then 11 days of dry, bright weather ; from 20th to 26th cold, with westerly gales and S ; and the remainder of the month was dry, bright and very cold, with E. winds.

V. *Trowbridge, Holt*. A very cold harsh month, S on 3 days ; March 26th to April 10th the longest drought of the year, 16 days.—*Calne, Compton Bassett*. The first part of the month was showery and cold ; the middle rough and windy, with several showers of S ; the last part dry and cold, with sharp frosts at night ; frost on 13 days. Min. temp. 20° on 30th.—*Langton Herring*. The month began with two cold days, the min. temp. (22°) occurring on the 1st ; from the 3rd to the 21st the temp. was high and very equable and the last 10 days were cold. Mean temp. $0^{\circ}3$ above the average ; frost on 8 days.—*Babbacombe*. A variable month, the beginning and end being winterly and the middle warm and spring-like, causing vegetation to make rapid progress. The rainfall was much above the average, but the number of wet days was small. Mean temp. about the average, but the range was considerable, the min. ($21^{\circ}3$ on 2nd) being the lowest recorded in March. S.W. winds prevailed generally to the 11th and from the 20th to 26th ; E. during the remainder of the month. Gales on 5 days ; solar halos on 3 days, lunar halos on 2 days.—*Altarnum Vic*. Min. temp. 19° on 1st, mean $42^{\circ}4$, which is about the average, wind very variable till 26th.

VI. *Cheltenham*. A cold beginning and end, with a very beautiful and calm middle, frost on 14 days. Min. temp. $16^{\circ}0$ on 1st and 29th.—*Ross, The Graig*. Remarkable, even for March, for its great contrasts of cold and heat and drought and wet ; after clear sharp frost on the first two days, a week of wet weather, then scarcely any R during the rest of the month ; from 26th to 31st almost cloudless, with severe frosts and great radiation. From the 5th to the 21st warmer than any similar period for 25 years. Frost on 12 days. Min. temp. $22^{\circ}6$ on 28th.—*Sansaw*. The first 3 days cold ; from 4th to 20th warm and genial, followed by unusual cold, the frost increasing in intensity each day and rendering the ground so hard that it could not be worked till midday, when it had partly thawed ; frost on 15 days. Min. temp. 24° on 30th.—*Burton-on-Trent*. Mean temp. $41^{\circ}0$, Trent in high flood on 6th, E. winds during the last 5 days.—*Coundon*. Frost on 15 days. Min. temp. 25° .

VII. *Melton, Coston*. A very fine month, although the wind was at times very cold, especially towards the close ; frost on sixteen days,

min. temp. 15° on 1st.—*Nottingham, Strelley Hall*. Dry after the first ten days ; from 25th of this month to the 10th of April no rain fell, which was very favourable for farmers, the ground, which was reduced by the severe frost in January to a fine mould, was in capital order for spring sowing. The last ten days very cold, with frosts at night.—*Worksop, Hodsock Priory*.—Temp. about the mean, rainfall above it ; the first week stormy and very wet, with a high flood, then followed a fortnight of dry and warm weather, and the last ten days were cold, but, on the whole, bright and dry ; much more sunshine than in the two preceding months.

VIII. *Liverpool, Walton-on-the-Hill*. Cold and unsettled, with sharp frost at the close.

IX. *Sedburgh*. Mean temp. $39^{\circ}\cdot3$; frost on twelve days, min. temp. 19° on 1st and 2nd.—*Scarborough*. Mean temp. $40^{\circ}\cdot4$, $0^{\circ}\cdot9$ below the average ; rainfall 1·19 in. above the average ; prevailing direction of wind N. and E. ; light S showers frequent, frost on ten days, min. temp. $22^{\circ}\cdot4$ on 1st.—*East Layton*. A cold frosty month, min. temp. 20° on 2nd.

X. *Whorlton*. Very cold, with frequent high wind and S ; frost on fourteen days, min. temp. 12° on the 2nd.—*Elterwater, Woodlands*. Frost on nineteen days, min. temp. 15° on 1st.

XI. *Llanfrechfa Grange*. Warm in the middle, cold at the end ; frost on twelve days, min. temp. 24° on 1st.—*Castle Malgwyn*. Very cold throughout, and unusually sharp frosts in the latter part.—*Douglas, Victoria Road*. An awful month, bitterly cold, with S on nine days, and almost unceasing gales.

XII. *Dumfries, Crichton Inst.* A cold, boisterous month, with a low mean temp. and a heavy rainfall ; S fell heavily on three days, frost on 21 days, min temp. $11^{\circ}\cdot5$ on 22nd.—*Melrose, Abbey Gate*. Temp. $2^{\circ}\cdot8$ below and rainfall 0·5 in. above the average. A good deal of S fell at the beginning of the month, and being accompanied by high wind blocked all the railways in the district ; it was followed by R, which, with the melting S, caused the Tweed to rise higher than at any other time since 1846, destroying much property.

XVI.—*Cupar, Kemback*. First three days and last ten days cold ; mean. temp. $36^{\circ}\cdot4$, min. 16° on 2nd ; frost on 12 days.

XVIII.—*Lochbroom*. A very bad month, cold, and stormy with much R and S.—*Glenaladale*. General character of the month very cold, wet, and stormy ; the first few and last few days fine but frosty.

XIX.—*Watten*. Perhaps the most severe month of the hard, long

winter ; in the first week a storm of four days' duration, the parallel of which has not been seen by the present generation, though the quantity of S was not unusual ; the second week was fine, but the remainder of the month was stormy with frost and S.

XX.—*Waterford, Newtown.* Frost on ten days ; min. temp. 22° on 18th.—*Nenagh, Castle Lough.* Early part of the month rainy, the last week bright and cold, frosty at night.—*Newcastle West.* In general, calm and favourable for agriculture, but vegetation is backward, owing to the cold E. wind ; sharp frosts at night at the end of the month.—*Kilrush.* Very changeable and severe during the early part, but fine and dry during the remainder.—*Miltown Malbay.* Stormy, with S and sleet till the 10th when soft muggy weather set in, holding to the 19th, from thence to the 26th severe boisterous weather, followed by frost, with easterly winds and cloudless sun, till the end of the month.

XXI.—*Graigie, St. Mullins.* Frost on nine days ; min. temp. 26° on 28th.

XXII.—*Ballinasloe, Kilconnell.* Very severe frosts at night, with persistent E. winds at the end of the month.—*Ballinasloe.* Wet and stormy during the first half, remainder fine ; frost on ten days ; min. temp. 24° on 1st and 30th.

XXIII.—*Rathfriland.* Unusually cold with almost continuous E. wind.—*Seaforde.* Frost on 15 days ; min. temp. 20° on 21st.—*Newtownards.* Unusually wet, except the last week ; the first four and the last ten days very cold.—*Bushmills.* A very stormy, cold month ; from 20th to 26th a severe storm of wind and S ; from 26th to end of month hard frost.—*Stewartstown.* Unusually cold and wintry.—*Ramelton, Killygarvan Glebe.* A stormy month, with a good deal of R and S and some sharp frosts at night after the 22nd. Mean. temp. 39°·5, 3° below the average, frost on 15 days. Min. temp. 22° on 31st.

APRIL.

I. *Isleworth.* Dry, with low temp. ; high winds, but some warm spring weather.—*Muswell Hill.* Total rainfall only 30 per cent. of the average.

II. *Dorking, Abinger Hall.* A particularly fine month ; severe frosts on the 21st and 22nd.—*Addiscombe.* Cold, extremely dry, and somewhat dull, with a very dry and most exceptionally windy atmosphere. It was remarkable for a very slight rainfall, for the unusual strength

and prevalence of north-easterly winds, and for the singular steadiness of atmospheric pressure.—*Hythe*. Dull and cloudy, with strong E. winds; vegetation backward; frost on two days, min. temp. $29^{\circ}5$ on 20th.—*Littlehampton*. Very dry and cold, min. temp. 24° on 21st, doing much damage to potatoes and currant bushes.—*St. Leonards*. Windy and somewhat cloudy, but with very little R. Mean temp. at 9 a.m. $46^{\circ}9$; min. $29^{\circ}1$ on 21st, the only day on which frost occurred.—*Southampton, Woolston Lodge*. Very dry, with much strong E. wind; max. temp. $66^{\circ}7$ on 18th.

III. *Buntingford, Throckington Rect.* A dry month, bright, but becoming cloudy and unsettled towards the close. Mean temp. $43^{\circ}5$; max. $62^{\circ}6$ on 17th; min. $23^{\circ}1$ on 4th. Rainfall only $\cdot81$ in.; wet days, 13; TS on 26th; S on 19th, 20th, and 21st.—*Addington*. By far the driest April for many years, the rainfall being only about a quarter of the average. Frost on ten days; min. temp. 24° on the 22nd.—*Northampton, Haslewood Road*. Very cold, with E. wind up to the 21st, from thence to the end warm, with N.W. and S.W. winds; frost on ten days; min. temp. 22° on 2nd.

IV. *Ipswich, Bishops Hill*. Dry till quite the close of the month; temperature variable, and frosty nights frequent. Vegetation very backward.—*Diss*. The month opened with ten days of brilliant weather, with remarkably clear atmosphere and sharp biting N.E. wind; the next eight days were warmer with S.E. winds, but on the afternoon of the 18th it became suddenly cold again, and on the 21st there were frequent showers of sleet and S, with very cold westerly winds.

V. *Compton Bassett*. Cold and dry, with sharp night frosts up to the 10th, when it changed warmer, with occasional light showers; frost on 12 days; min. temp. 26° on the 4th.—*Langton Herring*. Easterly winds unusually prevalent and strong from 1st to 8th. The range of the bar. was remarkably small, being only $0\cdot43$ in. during month, and from 11th to 22nd only $0\cdot10$ in.; frost on five days; min. temp. 29° . Solar halos were unusually numerous, being observed on six days.—*Babbacombe*. A cold, windy, and very dry month, the rainfall only one-third of the average. The temp. was below the average, especially on the first eight days, and from 19th to 21st, when strong E.N.E. winds prevailed, but warm days occurred from 11th to 18th and from 23rd to 29th. The bar. was about the average height and remarkably steady. E.N.E. winds were very prevalent, blowing steadily to the 10th and from the 16th to the 20th. Solar halos

were unusually prevalent, being visible on eight days. Fog on six days.—*Fitzhead Court*. A fine dry month, with cold N.E. winds.

VI. *Cheltenham*. A calm, dry month, bar. very steady ; severe frost on 21st and 23rd, doing much damage to vegetation ; sycamore and horse chestnut in good leaf by end of month, oak showing. Frost on nine days. Min. temp. $20^{\circ}6$ on 21st.—*Ross*. The driest April in Herefordshire since 1854, and a great prevalence of N. and E. winds. Bitterly cold till 8th and from 19th to 23rd ; warmer and generally fine and bright, but with a few slight showers, from 9th to 18th and 24th to 30th. Frost on six days. Min. temp. $26^{\circ}0$ on 21st.—*Burton-on-Trent*. E. winds, with frosts and cold showers, prevailed till the 22nd, when a milder period commenced. Mean temp. $43^{\circ}4$.—*Coundon*. Rainfall ($\cdot66$) the smallest ever recorded in April since observations were commenced in 1867, except 1873, when $\cdot65$ in. fell. Frost on 11 days. Min. temp. 24° on 3rd.

VII. *Melton Mowbray, Coston*. A fine but rather cold month. Frost on twelve days. Min. temp. $26^{\circ}5$ on 4th.—*Nottingham, Strelley Hall*. Although the minima during the month were generally low, the maxima on many days were high. From 1st to 7th a cold dry period, with frosts every night but the 2nd. From 11th to 18th a warm, wet period, during which 1.10 in. of R fell, out of a total for the month of 1.23 in. Cold again from 19th to 23rd ; the last two days very warm.—*Worksop, Hodsock Priory*. Cold and dry. Mean temp. about $4^{\circ}0$ below, and rainfall less than half the average. N. and E. winds very prevalent. An increase in the prevalence of sunshine. Vegetation unusually late.

VIII.—*Macclesfield*. A cold, dry month ; temp. $3^{\circ}4$ below the average, rainfall 33 per cent. above it ; easterly winds prevailed on 19 days ; frost on nine days ; min temp. $23^{\circ}4$ on 20th.

IX.—*Sedbergh*. Mean. temp. $44^{\circ}4$, min. 29° on 3rd and 4th ; frost on eight days.—*Scarborough*. Mean temp. $41^{\circ}8$, nearly 3° below the average ; rainfall less than half the average ; cold northerly and easterly breezes very persistent, greatly retarding vegetation ; min. temp. $31^{\circ}3$ on 3rd.

X.—*Whorlton*. Cold and dry ; frost on eight days ; min. temp. 24° on 9th.

XI.—*Llanfrecha Grange*. Cold, vegetation much retarded by the E. wind ; frost on nine days ; min. temp. 27° on the 4th.—*Llandoverly*. A remarkably dry and cold April, with easterly winds prevailing the greater part of the month ; frost on eight days ; min. temp. 28° on

the 3rd.—*Douglas, Victoria Road.* Very cold, vegetation backward, trees almost leafless on the 30th ; wind E. or N.E. on 27 days.

XII.—*Crichton Inst.* A cold, ungenial month, easterly winds prevailing until the last week ; the wind was generally light, and frosty mornings were frequent. Mean temp. and rainfall were both low ; bar. high, frost on 15 days, min. temp. $21^{\circ}0$ on 4th.—*Melrose, Abbey Gate.* An unseasonably cold, dry month ; mean temp. $39^{\circ}2$, $2^{\circ}9$ below the average, rainfall about half the average, wind principally from the E., frost on 22 days, min. temp. $16^{\circ}2$ on 6th.

XVI.—*Kemback.* An unusually dry April ; mean temp. $41^{\circ}6$, min. $23^{\circ}5$ on 6th, frost on 11 days.

XVIII.—*Lochbroom.* Dry and cold, good for the agriculturist, but bad for the grazier.—*Glenaladale.* The greater part of the month very dry, with powerful sun, but cold E. or N.E. winds and frost at night ; the last few days calm, warm, dull, and moist, perfect for vegetation.—*Sligachan.* First 12 days very cold and dry, bright sun during the day and frost at night, from 12th to end of month very fine seasonable weather.

XIX. *Watten.* Cold and dry for first three weeks, last week milder.

XX. *Tipperary, Henry St.* E. and N. winds prevailed until towards the close of the month, with frost at night.—*Castle Lough.* The first part of the month was dry, with frost at night, and E. to N. winds by day, checking vegetation ; towards the middle there was a change and some R, but the wind returned to the dry quarter for another week, with cool, dry weather, but towards the end of the month the weather became milder and the atmosphere humid.—*Kilrush.* Fine and dry but rather cold ; vegetation very backward. *Miltown Malbay.* First three weeks bitterly cold, with parching E. winds and severe frosts ; the last week mild, with R.

XXII. *Ballinasloe.* Month generally fine, but harsh winds from N. and N.E. very prevalent, rendering vegetation backward ; frost on 6 days. Min. temp. 28° on 1st.

XXIII. *Newtownards.* Unusually cold and dry ; favourable for farm work.—*New Barnsley.* Frosty from 1st to 8th ; spring weather from 10th to end of month.—*Killygarvan Glebe.* A fine month, with some sharp frosts in the early part ; only one day of high wind. Rainfall slightly above average. Meantemp. $44^{\circ}0$, $2^{\circ}6$ below average ; pressure high ; frost on 9 days ; min. temp. $23^{\circ}5$ on 4th.—*Buncrana.* On the whole a very fine month ; most favourable for farming operations ; frost on 5 days. Min. temp. 28° on 2nd.

MAY.

I. *Isleworth*. Unsettled, temp. changeable, strong winds toward the middle of month; some very fine days, nights generally cold. Temp. 79° on 31st.—*Muswell Hill*. Total rainfall little more than half the average.—*Enfield*. L was seen on 2 days and T heard on 3 other days; frost on 4 nights.

II. *Addiscombe*. May was warm, very dry, extremely bright, and exceptionally windy. It was remarkable as being the third dry and the fourth very windy month in succession; for the long duration of bright sunshine; for one particularly cold night in the first half of the month, and another, towards its close, which was as exceptionably warm; also for the high atmospheric pressure indicated by the barometer during the greater part of the second week.—*Hythe*. A fine month, with prevailing N. and E. winds.—*Bromley Common*. A beautiful month, but a severe frost on the 10th did great damage to fruit bloom. R much wanted, only 3.19 in. having fallen in three months. Max. temp. 76° on 31st, min. 25° on 11th.—*Littlehampton*. Max. temp. 82° on 28th, 30th, and 31st; min. 28° on 11th.—*St. Leonards*. Gales on five days; frequent solar halos. Max. temp. $75^{\circ}6$ on 31st; min. 37° on 4th.—*St. Lawrence*. R much wanted. Max. temp. $72^{\circ}2$ on 28th; min. $37^{\circ}5$ on 11th.—*Southampton, Woolston Lodge*. Dry, with a good deal of searching E. wind. Min. temp. 31° on 11th.

III. *Buntingford, Throcking Rect.* A dry month, little R falling before the 15th. Mean temp. $52^{\circ}2$; max. $76^{\circ}3$ on 31st; min. $31^{\circ}7$ on 4th.—*Addington*. A fine month, but rather dry. Max. temp. 78° on the 31st; min. 23° on the 11th.—*Stonor Park*. A warm month, but with a few frosts in the early part.—*Oxford, Magdalen Coll.* Max. temp. 73° on 29th; min. $30^{\circ}5$ on 11th.—*Banbury, Wroxton*. Mostly fine and very dry; cold at night. Max. temp. 81° on 31st; min. 28° on 11th.—*Northampton, Haslewood Road*. R less than one-third of the average.

IV. *Sheering Rect.* Max. temp. 73° on 25th and 30th; min. 29° on 11th.—*Ipswich*. Very dry, but a good amount of sunshine; frequent frosty nights, but not much damage to vegetation, except general retardation.—*Ellough Rect.* Frost on three nights. Max. temp. 79° on 31st; min. 26° on 4th.—*Diss*. A month of brilliant spring weather, but with frequent frosts at night.

V. *Langton Herring*. Very dry; total rainfall only 0.72 in., mean temp. about 2° above the average of nine years, max. 73° , the highest

registered in May during the same period, min. 35° , range 38° , which has never been exceeded in the same month.—*Babbacombe*. A very fine and dry month; rainfall less than one-third of the average, the temp. was slightly above the average, and the mean diurnal range ($16^{\circ}\cdot 0$) was the greatest observed here; the last week was very warm, the max. exceeding 72° on four days. The bar. was high and its range large. S.W. wind prevailed in the first and third weeks, blowing gales on the 5th and from 15th to 19th. The relative humidity and amount of cloud were less than in any other month since 1876; fog occurred on three days, solar halos were seen on four days. Max. temp. $73^{\circ}\cdot 7$ on 28th; min. $39^{\circ}\cdot 8$ on 4th.—*Cosgarne*. Max. temp. $75^{\circ}\cdot 0$ on 30th, min. $36^{\circ}\cdot 4$ on 11th.—*Altarnum Vic.* A very dry month; half the total R fell on the 18th. Temp. in shade 75° on 31st.

VI. *Cheltenham*. A bright and dry month; max. temp. $78^{\circ}\cdot 5$ on the 31st, min. $26^{\circ}\cdot 2$ on 12th.—*Ross, The Graig*. Although dry, cold and parching during the first half, the mean temp. was much in excess of that of the same month of the last two years; max. temp. $80^{\circ}\cdot 0$ on 31st, min. $28^{\circ}\cdot 8$ on 11th.—*Burton-on-Trent*. A pleasant month, but exhibiting a great want of R; max. temp. 85° on 1st.

VII. *Loughborough*. A dry month; only nine rainy days, total fall .96 in. Max. temp. $82^{\circ}\cdot 5$ on 31st.—*Melton, Coston*. A very dry month; cold at first, but hot towards the end, culminating in the unusually high max. of $76^{\circ}\cdot 5$ on 31st.—*Nottingham, Strelley Hall*. Little R, and a large amount of sunshine; a total of 230·9 hours = 47 per cent. of the possible duration was recorded, the largest amount recorded during any month of the year. Mean range of temp. $20^{\circ}\cdot 9$. The soil when worked became so exceedingly dry that mangolds never germinated and swedes came very irregularly.—*Worksop, Hodsock Priory*. The month was characterised by warm sunny days and a dry atmosphere; the maxima were higher than in any May since 1875, but the nights were rather cold. Rainfall about the average, but the greater part of it fell during the nights of the 24th and 26th. Bright sunshine showed a great increase, the total duration being equivalent to 49 per cent. of the time that the sun was above the horizon.

VIII.—*Macclesfield Park*. Mean temp. ($54^{\circ}\cdot 8$) was $3^{\circ}\cdot 7$ above the average. Max. $74^{\circ}\cdot 8$ on the 31st; min. $33^{\circ}\cdot 3$ on 10th.—*Liverpool, Walton-on-the-Hill*. A rather cold, unsettled month, but fine and warm at the close.

IX.—*Wakefield, Stanley Vic.* The month was very dry. Max. temp. 80° on 31st, min. 30° on 10th.—*Scarborough.* Rainfall rather less than two-thirds of the average ; mean temp. $46^{\circ}\cdot 0$. Max. $71^{\circ}\cdot 3$ on 13th ; min. $33^{\circ}\cdot 5$ on 11th.

X.—*Whorlton.* Fine pleasant month ; max. temp. 80° , min. 30° .—*Elterwater, Woodlands.* Fresh S on the mountains on the 4th, very hot towards the end of the month. Max. temp. 77° on 29th ; min. 32° on 11th.

XI.—*Llanfrechfa Grange.* Max. temp. 75° on 27th, min. $39^{\circ}\cdot 0$ on 17th and 21st.—*Llandoverly.* Max. temp. 76° on 31st, min. 35° on 10th.

XII.—*Dumfries, Crichton Inst.* The first part of the month rather cool, but frosts occurred only twice. The latter part unusually warm and there were several TSS, but without R. Total rainfall below the average, falling mostly in light showers ; mean temp. above the average ; the max. $76^{\circ}\cdot 0$ on 31st, min. $30^{\circ}\cdot 0$ on 3rd. Mean pressure below the average.—*Melrose.* A decidedly favourable month ; rainfall $1\cdot 10$ in. above the average ; mean temp. ($49^{\circ}\cdot 1$) 1° above average, max. $79^{\circ}\cdot 5$ on 31st, min. $25^{\circ}\cdot 6$ on 10th, frost on seven days.

XVI. *Cupar, Kemback.* Mean temp. $49^{\circ}\cdot 7$; max. $73^{\circ}\cdot 5$ on 30th ; min. $32^{\circ}\cdot 5$ on 3rd.

XVIII. *Lochbroom.* An unusually fine month.—*Glenaladale.* First part of the month fine, but rather chilly ; middle very wet, stormy, and cold ; last ten days surpassingly beautiful, and as hot as the dog days.

XIX. *Forsinard.* First part of month cold and showery, latter part fine and warm.

XX. *Fermoy, Glenville.* We never had a finer month for all outdoor work.—*Tipperary.* Weather variable ; from 15th to 20th cold, and the remainder of the month unusually hot.—*Castle Lough.* Middle of month wet, showery, and windy ; latter part very hot ; everything looking promising.—*Miltown Malbay.* The finest May within remembrance ; very hot at the end.

XXI. *Twyford.* Max temp. $71^{\circ}\cdot 0$ on 26th ; min. 37° on 11th.

XXII. *Kilconnell.* Unusually high temp. at the end of the month.—*Ballinasloe.* Max. temp. 73° on 30th ; min. 36° on 11th.

XXIII. *Dowra.* Temp. very high during the month. Agricultural prospects could hardly be better.—*Newtownards.* A very fine month ; the last week unusually warm ; crops making rapid progress.—*Belfast, New Barnsley.* A grand month for vegetation ; crops looking

remarkably well.—*Bushmills*. High temp. and seasonable R rendered the month exceedingly favourable. Max. temp. 80° on 27th; min. 32° on 16th.—*Killygarvan Glebe*. A fine month, occasionally very warm; rainfall and mean pressure both a little above average; mean temp. 51°·5, 3°·5 above the average; max. temp. 77° on 31st; min. 33° on 3rd.—*Buncrana*. Beautiful weather, the crops looking well. Max. temp. 78°; min. 37°.

JUNE.

I.—*Isleworth*. Fine summer weather at beginning and end; remainder of month variable, with some TSS and lower temp.—*Muswell Hill*. Rainfall an inch below the average of nine years; though a dry fine month, there were never more than four consecutive days without R.

II.—*Dorking, Abinger Hall*. The month was truly lovely, genial showers alternating with bright sunshine; crops promising.—*Addiscombe*. This, the first of the summer months, was of average temp., dry and bright, with a calm atmosphere. It was remarkable as being the fourth dry month in succession, as well as the first dry June for four, and the first bright June for three years; also for the great change in temp. that took place during the early part of it, and the low reading registered by the exposed ther. on the 9th.—*Hythe*. A very favourable month; max. temp. 73° on 1st and 4th; min. 40° on 9th.—*Bromley Common*. A fine and calm month; rather windy towards the end. Vegetation still very late. Max. temp. 80° on 4th, min. 37° on 9th.—*St. Leonards*. A fine month on the whole; no gales. Max. temp. 74°·1 on 1st, min. 39°·8 on 9th.—*St. Lawrence*. Hay crops short, but got in generally in good condition. Max. temp. 74°·1 on 3rd, min. 39° on 9th.

III.—*Buntingford, Throcking Rect*. A dull unsummerlike month. Mean temp. 36°·7; max. 78°·3 on 4th, min. 34°·6 on 9th; R 1·66 in.; wet days, 13; T on 2nd, 6th and 12th; last trace of frost on 10th.—*Addington*. Not a growing month, the nights being frequently very cold, and the grass white with frost on two or three occasions, and ice formed on shallow water. Max. temp. 79° on the 1st, min. 33°·5 on 9th.—*Northampton*. Rainfall much below the average of 15 years. Fluctuations of the bar. great, especially in the last 10 days. Max. temp. 73° on 1st and 14th; min. 38° on 8th.

IV.—*Harlow, Sheering Rect*. Rainfall ·27 in. below average of 10

years. Max. temp. 80° on 1st, 2nd and 4th ; min. 36° on 9th and 10th.—*Ipswich, Bishop's Hill*. A fine bright month, with just about the average amount of R. The nights were mostly unusually cold, with many slight frosts, even to the last days of the month.—*Diss*. A pleasant bright month, but no great heat, indeed the nights throughout were decidedly cold ; the only unsettled weather occurred between the 4th and 9th, when there were some heavy showers over singularly limited areas, and some cold winds from the N.W. Garden crops promising, barley and wheat look well.

V. *Trowbridge, Holt*. A wet month, with a mean temp. below the average ; TSS on 6th and 22nd.—*Calne, Compton Bassett*. The weather during the greater part of the month was dull, cold, and showery ; the last three days were very fine and bright. Max. temp. 78° on 1st ; min. 34° on 10th.—*Langton Herring*. R fell on 18 days, which caused some anxiety for the hay crop, but the last three days were bright and sunny and much hay was carried in good condition. Mean temp. $1^{\circ}3$ below the average of nine years ; max. 73° on 1st ; min. 39° on 9th.—*Torquay, Babbacombe*. A cold, wet and cloudy month, except the first four days, which were very hot and fine, the max. temp. on the 3rd ($77^{\circ}8$) being the highest observed since July, 1878. Temp. fell rapidly after the 5th, and remained very low till the 11th, on which day the max. was only $52^{\circ}7$; on 8th and 9th there were frosts on grass. Mean pressure about the average. The prevailing winds were N.W. to the 9th, variable from 10th to 13th and on 23rd and 24th, S. from 14th to 18th, and S.W. after the 19th, slight gales blowing on 21st and 22nd. The air was very dry from 1st to 3rd, but very damp on 10th and 11th and from 13th to 17th, during which time fog prevailed. Vegetation was backward, making but slow progress from insufficiency of sunshine. Min. temp. $39^{\circ}9$ on 9th.—*Altarnun Vic*. A cool, showery month. Shade temp. 77° on 1st and 2nd.

VI. *Cheltenham*. A dull, showery, and very calm month, no hot days, except just at the beginning. Max. temp. 78° on 3rd ; min. $31^{\circ}5$ on 9th.—*Ross, The Graig*. First five days very hot ; very sharp frost, doing much damage to tender vegetation, on 9th. Winds light and variable for first nine days, then almost entirely from S. and W., with cool, showery weather ; vegetation doing well. Max. temp. $79^{\circ}9$ on 3rd ; min. $35^{\circ}2$ on 9th.—*Burton-on-Trent*. A burst of sunshine at the beginning, followed by a week of cold winds and frosty nights.

VII. *Melton Mowbray, Coston Rect.* With the exception of the first few days the month was on the whole chilly and ungenial. Max. temp. in shade $76^{\circ}2$ on 1st; min. $25^{\circ}8$ on 8th.—*Nottingham, Strelley Hall.* Rainfall below the average; only 31 per cent. of possible duration of sunshine recorded. The first four days were the only ones on which the temp. rose above 70° ; from 5th to 11th the max. were not above 60° , and on some nights the min. were low; mean temp. of second week 8° below average.—*Worksop, Hodsock Priory.* Temp below the average, the second week being particularly cold, the rainfall was also small, and less than that of any of the six previous Junes, though the number of rainy days was large, the falls all being slight.

VIII.—*Macclesfield Park.* A cold month with very little sunshine. Mean temp. ($55^{\circ}1$) below the average. Max. temp. $74^{\circ}8$ on 2nd, min. $35^{\circ}0$ on 9th.

IX.—*Scarborough.* The fine warm weather which characterized May, continued till the 6th of this month, when a sudden change occurred, followed by low temp. for a week, with some H and slight TSS. Mean temp. just above the average, and R less than two-thirds of the average. Max. temp. $71^{\circ}1$ on 2nd, min. $40^{\circ}5$ on 10th.—*East Layton Hall [Darlington].* The first few days were hot, followed by a period of very cold, ungenial weather, bringing vegetation almost to a standstill. Max. temp. 92° on 2nd, min. 34° on 7th.—*Lune Head.* First week very hot, the remainder of the month cold and showery.

X.—*Shap, Copy Hill.* June began with bright, hot weather; on the 6th, at 4 p.m., a storm of wind and H swept over Shap, the mountains near Swindale and Mardale being thinly covered with S; the weather was again cool in the latter part of the month, T frequent.—*Measandbecks.* Weather during the month cold, with H and S at beginning, latter part rainy.

XI. *Castle Malgwyn.* A very cold and damp month, excepting the first two days. Temp. several times below 40° , and down to 37° on the 10th.—*Douglas, Victoria Road.* A regular Manx June, wet, windy, and cold; average temp. $52^{\circ}0$.

XII. *Dumfries, Crichton Inst.* A cold, wet month, rainfall greatly above the average, and mean temp. considerably below it. Fluctuations of the bar. were gradual, and the mean was rather high. Vegetation backward. Max. temp. $76^{\circ}4$ on 3rd; min. $34^{\circ}3$ on 9th.—*Melrose, Abbey Gate.* Mean temp. $52^{\circ}6$, $2^{\circ}5$ below the average; frost on five

nights ; rainfall .47 in. above the average. The first half of the month was dry and cold, but towards the end favourable weather prevailed. Max. temp. 80°·6 on 1st ; min. 27°·4 on 10th.

XVI. *Dollar*. Very warm at the beginning, followed by cold bleak weather, with frequent R ; pressure very unsteady and temp. low during the latter part of the month.—*Cupar, Kemback*. Very cold after the 6th ; cloudy for greater part of month. Cereals backward ; hay good ; root crops promising ; strawberries injured by frost during second week. N.E. winds prevailed till 18th, S. and W. winds from 19th to end. Mean temp. 53°·8 ; max. 74°·5 on 1st and 2nd ; min. 34°·5 on 8th and 10th.

XVIII. *Lochbroom*. A miserably cold month ; everything very backward.—*Glenaladale*. Temp. generally low, and a good deal of wind.

XIX. *Watten*. Cloudy, sunless and very cold, frost on several nights ; vegetation much injured.

XX. *Tipperary, Henry St*. R frequent, and temp. low.—*Nenagh, Castle Lough*. After the middle of the month there was a great deal of R, and the temp. was generally low. Sharp frost on night of 8th blackened potato stalks.—*Kilrush*. Very wet, wild and cold for the season ; vegetation very slow, but public health good.—*Miltown Malbay*. The first few days of the month were very warm ; but on the 4th the wind veered to N., bringing heavy H showers for two or three days, followed by sharp frosts, which wrought incalculable damage to the potato crop. The weather of the remainder of the month was cold, rainy, sunless and ungenial ; S.W. to N.W. winds prevailed.

XXII. *Ballinasloe*. Beginning of month cold with harsh winds ; frost about the 8th cut down all potatoes in bog lands. Latter part of month mild but wet. Max. temp. in shade 73° on 1st, min. 32° on 8th.

XXIII. *Newtownards*. R every day but three during the last half of month. Crops most luxuriant, but dry warm weather needed at the close.—*Belfast, New Barnsley*. Showery and cool all the month. Crops doing well and promising abundance.—*Ramelton, Killygarvan*. A wet, stormy and cold month excepting the first few days. Rainfall 1·50 in. above, and temp. 3° below the average. Mean temp. 53°·5, max. 77° on 1st, min. 34° on 8th.—*Buncrana*. The month was not seasonably genial. Max. temp. 75° on 1st, min. 40° on 7th.

JULY.

I. *Isleworth*. Fine with high temp. until the 6th, when a heavy fall of R occurred, followed by some fine summer weather, changing to showery with a decrease of temp. towards end of month. Mean temp. $65^{\circ}\cdot5$.—*Muswell Hill*. Rainfall $\cdot5$ in. below the average of nine years. Owing to the extreme heat of the first three weeks and the fact that five-sixths of the whole R fell between 5th and 8th and 28th and 31st inclusive, the month was much drier than the total rainfall would indicate.

II. *Addiscombe*. July was hot, dry, and exceptionally bright, with a windy and very dry atmosphere. It was remarkable as being the fifth dry month in succession, and the first warm, dry or bright July for three years; also for the great prevalence of South-Westerly winds, for the extreme heat of one day in the middle of the month, and for one singularly cold night towards its close.—*Hythe*. First three weeks very dry and fine; last week wet and stormy. Max. temp. $82^{\circ}\cdot5$ on 15th, min. 48° on 27th.—*Bromley Common*. A fine dry month, with a high max. temp., the mean being reduced by cold nights; shrubs suffering from drought, R having been deficient every month since January. Max. temp. 91° on 15th, min. 39° on 28th.—*Littlehampton*. First part of the month very dry and hot, and vegetation suffering greatly; R in the last week. Hay and straw very short.—*St. Leonards*. The first three weeks of the month were very hot; a slight fall of temp. took place on the 7th, but on the 10th it rose again, and a max. in shade of $85^{\circ}\cdot6$ was recorded on 15th. Winds were chiefly from S.W. to N.W.; min. temp. $48^{\circ}\cdot9$ on 7th.—*Southampton, Woolston Lodge*. Great heat from 12th to 19th; max. temp. 92° on 15th, min. $38^{\circ}\cdot8$ on 28th.

III. *Buntingford, Throcking Rect*. A bright month, with some very hot weather during the first half; mean temp. $62^{\circ}\cdot3$, max. $89^{\circ}\cdot6$ on 15th, min. $44^{\circ}\cdot5$ on 28th. R $2\cdot06$ in., wet days 14; T on 5th, 6th, 8th and 15th. The close of the month was showery.—*Addington*. A fine month throughout; a few very warm days now and then. Of the total rainfall ($3\cdot34$ in.) $2\cdot60$ in. was registered on four days. Max. temp. 89° on 5th, min. 38° on 28th.—*Henley-on-Thames, Stonor Park*. A favourable month on the whole, though rather too dry in the early part. Crops all looking well; no potato disease.

IV. *Ipswich, Bishop's Hill*. July set in very hot, and continued so till the last week. On several days temperatures of 90° were

registered, and on the 15th 92°. Several very cold nights after the 20th, and a white frost on the 25th.—*Ellough Rect.* T on six days. Max. temp. 89° on 15th; min. 40° on 21st, 27th, 28th.—*Diss.* A month of extreme heat with some sudden alternations to cold. On the 5th my ther. registered 91° in shade, and on the 15th 92°; but the 6th was absolutely cold, and very cool weather also followed the 15th, lasting for a day or two; on 26th the temp. at noon was 60°, and on 27th we had fires. Hay crop short in quantity, but secured in perfection; cereals look well, roots greatly improved by the R of the last week. Air singularly clear except on 28th, when what is called a “blight” occurred.

V. *Trowbridge, Holt.* Strong white frost on 28th. Min. on grass 26°·3; max. in shade 90° on 5th, followed by a storm of T and L at night and with heavy squalls of wind and R.—*Calne, Compton Bassett.* A very fine month; hot, bright and sunny till 28th, heavy R during the last three days. Max. temp. 85° on 15th, min. 44° on 21st.—*Langton Herring.* The first 20 days, with the exception of the 5th, when a TS occurred, were favourable for securing the hay; the last 11 days showery. Max. temp. 83° on 15th, the highest registered during 10 years' observations; min. 47° on 9th and 28th; mean temp. slightly above average.—*Torquay, Babbacombe.* A fine dry month; no R was measured from the 9th to the 18th, and one-half of the total for the month fell on the 30th. Very fine hot weather prevailed on the 3rd and 4th and from 10th to 18th, but it was cloudy and showery from the 5th to the 9th and after the 19th. The mean temp. was slightly above the average, the mean shade max. 70°·7, mean max. in sun 128°·9, and absolute shade max. 82°·8 (on 15th) were all higher, and the mean daily range (17°·5) was greater than any previously observed here, but the temp. was low from the 6th to 9th and from 25th to 28th. Pressure about the average; westerly winds prevailed on 16 days.—*Holsworthy, Court Barn.* Early part of the month remarkably fine for hay harvest.—*Altarnun Vic.* Temp. and rainfall average; max. temp. 84° on 19th.

VI. *Cheltenham.* A dry month on the whole, with a rather high mean temp.; max. temp. 86°·8 on 5th, min. 35°·8 on 28th.—*Ross, The Graig.* A fine month; but vegetation a good deal dried, wheat early. Very hot on 5th and 15th (87°·0 and 86°·8 respectively); great prevalence of westerly winds and unusually dry weather. Grass min. on 28th 32°·5, shade min. 38°·5 on 28th.—*Burton-on-Trent.* Some very hot days during the first three weeks, max.

temp. 91° on 5th ; corn ripened rapidly under this influence. Mean temp. 63° .

VII. *Melton Mowbray, Coston Rect.* A variable month, with two periods of extreme heat, preceded and followed by comparatively cold days and nights. Ground very dry during the early part, and the R of the latter part greatly refreshed vegetation. Max. temp. $85^{\circ}\cdot 1$ on 5th ; min. 40° on 28th.—*Nottingham, Strelley Hall.* A warm dry month, with very large range of temp. Mean max. $71^{\circ}\cdot 1$; mean temp. $61^{\circ}\cdot 6$. A hot period from 10th to 21st, during which the temp. three times rose above 80° , and only one fall of R ($\cdot 05$ in.) occurred, fine weather for hay harvest ; this was followed by a comparatively cold period till 28th.—*Worksop, Hodsock Priory.* The warmest month since July, 1876, the temp. rising above 80° on five occasions ; rainfall only about half the average and a great contrast to July, 1880 ; there were no heavy falls ; the wind was W. and S.W. during most of the month ; bright sunshine showed an increase over June equivalent to 38 per cent. ; the warm weather brought on the crops very fast, and the corn was nearly ripe at the end of the month.

VIII. *Liverpool, Walton-on-the-Hill.* Month generally unsettled, only two warm days. Max. temp. $86^{\circ}\cdot 5$ on 5th.

IX. *Scarborough.* Mean temp. $1^{\circ}\cdot 3$ above and R $\cdot 50$ in. above the average. Max. temp. $80^{\circ}\cdot 6$ on 14th ; min. $47^{\circ}\cdot 3$ on 21st.—*Lune Head.* A cold, showery month, bad for haymaking.

X. *Elterwater, Woodlands.* A cold wet month. Max. temp. 71° on 5th ; min. 41° on 1st and 3rd.—*Shap, Copy Hill.* The beginning of the month was windy, wet, and cold, quite unlike summer. The 4th and 5th were sultry, a severe TS occurring on the latter day, and $\cdot 70$ in. R fell in 25 minutes. The middle of the month was warm and dry, but there was a good deal of R in the last week.

XI. *Llanfrechfa Grange.* Hay harvest late and crop light on account of the low temp. of May and of part of June. Weather hot till the 20th ; much cooler afterwards. Max. temp. 81° on 5th ; min. 45° on 28th.—*Castle Malgwyn.* A very cloudy month. Prevailing winds S. and S.W. Continued showers kept everything growing ; only two or three hot days.—*Douglas, Victoria Road.* A cold, wet month, unredeemed by one bright summer-like day. Total rainfall not abnormal, but number of wet days extraordinary.

XII. *Dumfries, Crichton Institution.* A moist, cold month ; no great heat, and little sunshine ; mean temp. several degrees below the

average. Bar. low ; prevailing wind S.W. Rainfall below the average. T storms on 5th and 26th. Max. temp. $68^{\circ}4$ on 19th ; min. $39^{\circ}0$ on 21st.—*Melrose, Abbey Gate*. Rainfall 1.26 in., and mean temp. 3° below average ; prevailing winds W. and S.W., generally moderate in force. A favourable month for hay making. Max. temp. 75° on 5th ; min. $36^{\circ}7$ on 21st.

XVI. *Dollar*. A cold, wet, and sunless month ; nine days without a glimpse of sunshine ; the coldest July I remember. Max temp. 76° on 14th, min. 38° on 27th.—*Cupar, Kemback*. Unusually wet and an extraordinary want of sunshine ; on only 13 days was blue sky seen, except for very short periods. Grain crops likely to be of very bad quality. Temp. not very low, considering the want of sun ; pressure very unsteady ; wind chiefly westerly. Mean temp. $51^{\circ}2$, max. $70^{\circ}5$ on 4th and 15th, min. 42° on 27th.

XVII. *Keith*. Very cold for the season.

XVIII. *Glenaladale*. Weather wet, cold, and stormy throughout the month.—*Sligachan*. A very, cold, wet month, all out-door work very far behind, sheep-shearing on many farms six weeks late, hay crops light, oats looking well.

XIX. *Watten*. Cloudy and wet, with frequent high winds.

XX. *Miltown Malbay*. A chilly, sunless, ungenial July ; R fell on 22 days, and cold S.W. winds prevailed throughout. Only six or seven days' sunshine. A most unfavourable month for agriculture.

XXII. *Kilconnell*. Though the total rainfall was not large, the continued slight showers, with very little sunshine, rendered the month most gloomy and damp for midsummer. Temp. throughout remarkably low.—*Ballinasloe*. First part of the month dull and misty but very close ; crops looking well. Latter part of the month cold, with very heavy showers. Max. temp. 71° on 14th, min. 42° on 27th.

XXIII. *Newtownards*. Temp. low, very little sunshine. Crops luxuriant, but dry, warm weather much needed.—*Belfast, New Barnsley*. The month was fair, with occasional showers till the 11th. From 11th to 16th very fine and hot ; after that date only four fine days, the weather being very changeable and retarding haymaking.—*Ramelton, Killygarvan*. Wet and stormy, with hardly any sunshine. Rainfall and temp. about the average. Mean temp. $56^{\circ}5$, max. 70° on 5th and 14th, min. 39° on 21st.—*Buncrana*. The weather during the month was variable and uncertain, with strong winds. Max. temp. 72° on 14th, min. 47° on 8th and 15th.

AUGUST.

I. *Muswell Hill*. An extremely wet month, especially the last three weeks; rainfall (4·51 in.) fully 50 per cent. above the average of nine years; it was, however, exceeded in August, 1879 (5·18 in.) and 1878 (6·13 in.).

II. *Addiscombe*. Most exceptionally cold and wet and very dull, with a singularly humid and extremely windy atmosphere. It was remarkable as being the fifth cloudy August in succession, the sixth windy month of this year, and the first wet one since February; also for a long and unbroken period of unseasonably cold, wet weather, for the great prevalence of S.W. winds, and for the heavy rainfall of the 12th.—*Hythe*. A very wet and squally month; total rainfall 6·37 in., 3·08 in. above the average of 17 years and the heaviest during that period with the exception of August, 1878, when 7·66 in. fell. Max. temp. 77° on 5th; min. 47° on 10th and 27th.—*Canterbury, Harbledown*. Temperature very equable.—*Bromley Common*. Cold and wet on the whole; very windy at times; harvest not nearly completed at the end of the month. Max. temp. 82° on 5th; min. 40° on 28th.—*Littlehampton*. The wettest August remembered here; and after the drought of July very detrimental to vegetation.—*St. Leonards*. A rainy month, with several gales.—*Southampton, Woolston Lodge*. Very wet and miserable. Max. temp. 78°.

III. *Buntingford, Throcking Rect.* A terribly wet month, heavy R on 8th, after which there were only two days without R; very hindering to harvest operations. Mean temp. 56°·4; max. 82°·4 on 5th; min. 41°·4 on 28th. Rainfall 4·85 in.; wet days 23.—*Addington*. Weather fine from 1st to 7th, the remainder cold and wet and most unfavourable for harvest; after the 8th the temp. never reached 70°. Rainfall 4·75 in., the greatest in August for 10 years, excepting 1878 (4·97 in.). Max. temp. 81° on 5th; min. 36° on 28th.—*Assenton*. Cold, with excessive R.—*Henley-on-Thames, Stonor Park*. A very miserable, wet month; corn crops good, but spoilt by the continual R.—*Aston Rowant*. The excessive rainfall seriously injured the harvest.—*Northampton*. Rainfall much in excess of the average of 15 years.

IV. *Harlow, Sheering Rectory*. More R than in any month since 1864, and 3·03 in. more than the average in August for 10 years. Max. temp. 80° on 5th; min. 41° on 28th.—*Ipswich, Bishop's Hill*. A dismal month (after the first few days), with nearly 3¼ inches of R;

about $1\frac{1}{4}$ inches more than the average. Very cold ; altogether a most discouraging harvest-time.—*Ellough Rect.* The weather during the month was very gloomy, cold, and showery, with only occasional glimpses of sun. T on 24th and 30th. Max. temp. 78° on 5th and 8th ; min. 43° on 21st.—*Diss.* Hot fine weather for the first seven days, succeeded by heavy rains, which continued with only four days' intermission to the end of the month. Some early farmers secured corn in good condition, but for the rest the prospect is gloomy. Potatoes excellent, little or no disease. Apples and other produce good. Public health remarkably good.

V. *Calne, Compton Bassett.* The first seven days were very fine and bright ; the remainder of the month was rough, wet, and cold. Max. temp. 79° on 5th ; min. 39° on 28th.—*Langton Herring.* A very wet and cold month. Of 5.56 in. of R, 4.54 in. fell between 15th and 30th. Much grain of all kinds seriously damaged. Mean temp. $60^{\circ}3$, $2^{\circ}5$ below the average, and lower than that of any other August for nine years. Max. temp. 73° on 1st ; min. 45° on 28th.—*Babbacombe.* A cold, wet, and cloudy month ; the only warm and fine period occurred from the 2nd to the 5th ; the latter half of the month was very wet and stormy, seriously interfering with harvest operations, but it changed to very cold and dry weather on the 31st. The rainfall was nearly double the average ; very heavy showers fell on the night of the 22nd-23rd at 11.51 p.m. ; 0.04 in. fell in 30 seconds, a rate of 4.80 in. per hour, and .25 in. fell in nine minutes from 11.51 to 12 p.m. The coldest August registered in six years, and the wettest month since October, 1880. Pressure was slightly below the average, and the range great. W.S.W. winds were very prevalent, but were interrupted by N.E. on 1st and 31st ; variables on 2nd, 4th, 5th, 23rd, and 30th ; N.W. on 13th, 14th, and 27th, and S.E. on 21st and 22nd ; fog on three days. Max. temp. $77^{\circ}7$. on 5th ; min. $45^{\circ}8$. on 28th.—*Altarnun Vic.* A fine week, with the temp. daily above 70° to commence with, followed by three weeks of cold, showery weather, most disastrous for corn and late hay harvests.

VI. *Cheltenham.* With the exception of a few fine days at the commencement, a wet, cold, disagreeable month. Temp. considerably below that of September, 1880. Max. temp. $80^{\circ}4$ on 5th, min. $37^{\circ}2$ on 28th.—*Ross, The Graig.* Very wet and cold after the 8th. Max. temp. $80^{\circ}8$ on 5th, min. $40^{\circ}8$ on 28th.—*Burton-on-Trent.* Hot till the 6th. Max. temp. 86° on 5th, thence cold and showery, frost on grass on 28th (31°). Mean temp. 57° .

VII. *Coston Rect.* The coldest August since 1873 and the wettest (4·73 in.), except August, 1878 (5·48 in.); only two days could be considered hot. The constant R from the 7th to the end delayed harvest operations and caused the grain to sprout. Max. temp. 81° on the 5th, min. 38°·8 on 28th.—*Spalding, London Road.* Fearfully wet, causing immense mischief to the corn crops; scarcely one dry day occurred during the whole of the harvest.—*Nottingham, Strelley Hall.* A very wet, damp month, only the first six days were fine and warm, from thence to the end there were only three days without rain, the temp. never rose above 70° and only three times above 65°. Only 24 per cent. of the possible duration of sunshine was recorded. This weather ruined the harvest, very little corn being cut at the end of the month.—*Worksop, Hodsock Priory.* Rainfall heavier and temp. lower than in any August in the previous six years. The first week was fine and hot, and harvest began hereabouts, but after this the weather became unsettled and remained cold and very wet to the end of the month; falls of R exceeding an inch occurred on the 8th and 23rd. Westerly winds predominated and sunshine was deficient. A small proportion of the corn was got in in good condition before the heavy rains of the latter half of the month, but the majority suffered very severely from the wet, and the harvest was very late.

VIII. *Macclesfield.* Rainfall more than 24 per cent. above the average of 30 years.—*Macclesfield Park.* A wet, cold month, more remarkable for the persistence of the R than for its quantity, only four days on which none fell. Mean temp. 4°·3 below average, max. 78°·8 on 5th, min. 41°·3 on 2nd.—*Liverpool, Walton-on-the-Hill.* An excessively cold, wet, and unsettled month.

IX. *Scarborough.* The wettest and coldest August for 15 years, the rainfall being 5·09 in. above the average, 2·30 in. more than that of any other August, and even ·35 in. above the largest amount registered in *any* month. The max. fall in 24 hours (2·47 in. on 29th) is also the largest recorded. Mean temp. (56°·9) 2° below average; max. 81° on 5th; min. 45° on 28th.—*Lune Head.* A cold, wet month, bad for haymaking.

X. *Darlington, Whorlton.* Fine during the first half of the month, continuous R during the latter half.—*Measandbecks.* Weather during the month bleak and cold; R falling more or less every day.

XI. *Llandoverly.* A very wet month, and very much against the harvesting of both hay and corn. Max. temp. 73° on 5th; min. 40° on 27th and 31st.—*Castle Malgwyn.* A very dull, showery, and unseason-

able month ; R on 18 days.—*Douglas, Victoria Road*. Cold, wet, and windy month, unrelieved by one summer like day ; hay in many places uncarried ; harvest not begun. On 25th whole gale from S.E. ; bedding plants (geraniums), and cabbages blown out of the ground by the roots.

XII. *Dumfries, Crichton Institute*. A very ungenial month, cold and damp, with little sunshine, and much R. Mean pressure and temp. below the average, but rainfall above it. Severe gale from N.W. on the 10th ; TS on the 21st. Max. temp. $65^{\circ}5$ on 4th ; min. 38° on 2nd.—*Melrose, Abbey Gate*. Cold and wet, the coldest August for 10 years. Mean temp. $52^{\circ}1$, $4^{\circ}3$ below average ; rainfall 1.97 in. above average, Max. in shade $69^{\circ}9$ on 4th ; min. $31^{\circ}4$ on 29th.

XVI. *Dollar*. Cold and wet, with frequent high winds. Bad weather for ripening cereals and fruit.—*Cupar, Kemback*. Very little sunshine or wind. Mean temp. $54^{\circ}2$; max. 73° on 4th ; min. 41° on 21st and 28th.

XVIII. *Lochbroom*. A terrible month for harvest. R on 23 days, but the last three days were fine, and the weather appeared settled.—*Glenaladale*. Until last few days the weather was cold, wet, and sunless ; most unpropitious weather for harvest.

XIX. *Watten*. Cold and very cloudy throughout the month.

XX. *Tipperary, Henry Street*. The latter half of the month was cold and wet.—*Nenagh, Castle Lough*. A very wet month, most injurious to hay-saving. Very little corn ripe.—*Newcastle West*. Exceptionally wet on 24 days ; harvest entirely suspended from 1st to 27th.—*Kilrush*. A wet, wild, and changeable month.—*Miltown Malbay*. A very wet month, without much sunshine.

XXII. *Ballinasloe*. Weather unusually fine in the day, with R at night during the first part of the month, but the latter part was very wet, doing much damage to crops and flooding the river banks. Max. temp. 70° on 4th, min. 41° on 31st.

XXIII. *Newtownards*. Last half of the month very wet. Potato blight general ; spread with extreme rapidity during the wet weather.—*Belfast, New Barnsley*. Unsettled and showery till the 24th, with the exception of an occasional fine day ; not much R, but always damp. On 25th-26th a regular downpour of R, 1.90 in. falling in the two days. After the 29th very fine and dry.—*Bushmills*. Temp. low and R almost constant during the whole month. Max. temp. 79° on 4th, min. 32° on 30th and 31st.—*Londonderry, Knockan*. A wet,

cold month.—*Ramelton, Killygarvan*. A cold, stormy month with the exception of a day or two occasionally. Rainfall just the average temp. $5^{\circ}4$ below it. Mean temp. 54° ; max. 70° on 4th, min. 36° on 23rd.

SEPTEMBER.

I. *Muswell Hill*. A dry month on the whole, the rainfall being about three-quarters of the average.

II. *Dorking, Abinger Hall*. On the whole the month was unfavourable for harvest, fine days being followed by showery or wet nights.—*Addiscombe*. This, the first of the autumn months, was cold, rather dry and extremely dull, with a singularly calm and most exceptionally humid atmosphere. It was remarkable as being the third very humid September in succession; for frequent rains, fogs, calms, and dews, and for the low temperature indicated by the exposed thermometer on the last day.—*Hythe*. A wet and dull month, with the exception of a few fine days; disastrous to harvest. Max. temp. 70° on 18th; min. 47° on 29th.—*Bromley Common*. A showery month, but no heavy R; though a measurable quantity fell on 21 days, the total fall was $\cdot 17$ in. below the mean of 15 years; very little wind. Max. temp. 70° on 18th and 25th; min. 37° on 30th.—*Littlehampton*. Many days hot, and nights frequently cold; prevailing winds N. and N.E.; pastures most verdant and much growth of vegetation.—*St. Leonards*. Frequent R fell, and the month altogether was cool and unsettled; winds were chiefly moderate, and upon only one day did a velocity of 40 miles an hour occur. Max. temp. 68° on 18th; min. $47^{\circ}4$ on 4th.—*St. Lawrence*. A fine month on the whole; the best honey season for many years. Max. temp. $68^{\circ}1$ on 18th; min. 48° on 1st.

III. *Buntingford, Throcking Rect*. A fairly fine month after the 6th. Mean temp. 54° ; max. $74^{\circ}1$ on 18th; min. $43^{\circ}1$ on 29th. R $2\cdot 11$ in.; max $\cdot 70$ in. on 24th; wet days 15; weather cloudy throughout; L on 18th.—*Addington*. Many fine days, but frequent fogs in the morning; slight frost at the end of the month. Temp. only once exceeded 70° . Max. temp. 75° on 15th; min. 34° on 29th.

IV. *Southend*. The month was remarkable for the very light winds. Although the rainfall was not heavy, the amount of cloud was much above the average. Max. temp. 72° on 18th; min. $44^{\circ}5$ on 29th.—*Diss*. A wet month; harvest not over till the third week, and much corn hardly worth collecting; some active farmers on the lighter

lands did well, but for later ones the prospect is gloomy indeed. Root crops fairly good. Colds and rheumatism prevalent, but otherwise little sickness.

V. *Calne, Compton Bassett*. The weather at the beginning and end of the month was very fine and dry, in the middle variable, with frequent showers of R. Max. temp. 73° on 18th, min. 38° on 16th.—*Langton Herring*. A fine, calm month; half the rainfall falling on the night of the 6th (1.30 in.). Temp. very equable, the range being only 20° . Mean temp. $56^{\circ}8$, $1^{\circ}9$ below the average of nine years. Several heavy dews. Max. temp. in shade 66° , min. 46° , both occurring several times.—*Babbacombe*. A fine and generally dry month; more than half the total R fell on the 5th. It was mostly fine on the first four days, from the 10th to the 16th and after the 26th, but showery from 5th to 9th and 17th to 26th. The temp. was slightly below the average, chiefly owing to cold nights; the day temp. was variable, only rising to $55^{\circ}1$ on the 11th, but reaching $72^{\circ}4$ on 18th. Pressure was slightly above the average; it was high on the 1st, 2nd, 13th, and 16th, and after the 27th, but low from 5th to 7th and 18th to 22nd; it was very steady from the 10th to 15th, and on the last three days. The winds were light and variable, but were generally from N.E. to the 5th and S. to W. after 17th; heavy dews were unusually frequent.

VI. *Cheltenham*. A beautiful autumnal month, with the exception of a week of dull weather towards the close, but the month finished with glorious weather, bright and calm. Some limes and horse chestnuts nearly bare at the end of the month. Max. temp. $71^{\circ}2$ on 18th, min. $35^{\circ}7$ on 16th.—*Ross, The Graig*. The driest September since 1865. First and fourth weeks showery. Harvest just completed at the close of the month. Very little grain spoilt in this district. Max. temp. in shade $73^{\circ}4$ on 18th, min. $37^{\circ}8$ on 29th.—*Burton-on-Trent*. Cold and showery throughout. Mean temp. $54^{\circ}8$.

VII. *Melton Mowbray, Coston Rect*. Most unfavourable for harvest operations, R being almost continuous until the last week. Max. temp. $72^{\circ}0$ on 18th, min. $35^{\circ}1$ on 29th.—*Nottingham, Strelley Hall*. Although the total fall of R was below the average, the air was very damp, and only 25 per cent. of the possible duration of sunshine was recorded. The ground was thoroughly soaked, which made harvest operations very tedious. Harvest not nearly finished at end of month.—*Worksop, Hodsock Priory*. Dull, very damp, and showery, but with a small total rainfall—and cold, but with an unusually

small diurnal range of temp. and a very large number of calms. The rainfall was less than in any September during the preceding six years. Sunshine very deficient, except during the last few days.

VIII. *Macclesfield Park*. Very cloudy, only four days being clear. Max. temp. 68°·5 on 18th ; min. 35°·8 on 2nd.

IX. *Scarborough*. Rainfall 1·90 in. above average, which greatly interfered with the ingathering of the harvest, and caused much corn to sprout. Mean temp. 0°·3 lower than the mean of 15 years ; max. 68°·3 on 18th ; min. 44°·5 on 17th.—*Lune Head*. Greater part of the month fine, but there were heavy rains about the middle.

X. *Darlington, Whorlton*. Wet but warm ; harvest abundant, but not gathered in. Max. temp. 65° on 7th ; min. 40° on 29th.—*Elterwater, Woodlands*. Rainfall below the average. Max. temp. 65° on 20th ; min. 38° on 9th and 16th.

XI. *Llanfrechfa Grange*. Very warm weather, with unusually little rain ; harvest late but not much injured, and a better yield than was expected. Max. temp. 70° on 18th ; min. 43° on 22nd and 29th.—*Llandoverly*. A good harvest month. Max. temp. 68° on 20th ; min. 38° on 1st.—*Castle Malgwyn*. A very fine month ; harvest gathered in in good condition.—*Douglas, Victoria Road*. A great improvement on the three preceding so-called summer months. R fell on 11 days only, though yielding a large quantity, the heavy falls on 4 days being remarkable ; the remainder of the month mostly fine and bright, though very cold. The last few days' temp. slightly exceeded the average, which had not been even reached since June 2nd.

XII. *Dumfries, Crichton Inst.* The month was cloudy and damp, although the rainfall was below the average ; pressure was rather high, but the mean temp. was several degrees below the average. Max. temp. 65°·3 on 13th ; min. 36°·5 on 1st.—*Melrose, Abbey Gate*. Mean temp. 49°·5, 1°·1 below average ; rainfall ·81 in. above average ; a most unfavourable month for harvest operations, fully two-thirds of the R falling during the day, and drying winds being scarce. Max. temp. 63°·8 on 8th ; min. 29°·8 on 28th.

XVI. *Cupar, Kemback*. A very cold, cloudy month, great want of sun and wind ; more unfavourable weather for harvest could scarcely be experienced, much grain spoilt. E. and N.E. winds prevailed. Mean temp. 52°·1 ; max. 63° on 8th ; min. 36°·5 on 28th.

XVII. *Keith*. Weather dark and dull, harvest progressing slowly.

XVIII. *Glenalvalde*. A fine, warm, dry month, not much sunshine, hazy, dull, and close ; very little wind, prevailing direction, S.E.

XIX. *Watten*. A good month, dry and comparatively mild, though the absence of sunshine continued a marked feature, more especially in the first part of the month.

XX. *Waterford, Newtown*. Weather mostly dull, with light winds, prevailing direction N.E. during the first half of the month, S.W. in the latter half. Max. temp. 66° on 24th; min. 37° on 1st.—*Tipperary, Henry St*. The first half of the month was beautiful, the second half variable and showery.—*Newcastle West*. A good harvest month. *Kilrush*. An exceedingly fine month.—*Miltown Malbay*. First half of the month dry, warm and sunny; splendid weather for harvesting; latter half rainy, warm, growing weather, retarding harvest operations.

XXII. *Ballinasloe*. First part of the month fine and bright, but the latter portion very wet. Max. temp. 63° on 10th; min. 38°.

XXIII. *Belfast, New Barnsley*. First five days of the month fine, followed by broken weather, the wind constantly changing.—*Ramelton, Killygarvan*. A pretty fine month, nearly 1 inch less than the average rainfall and very little wind. Mean temp. 53°; max. 69° on 10th; min. 33° on 1st.

OCTOBER.

I. *Isleworth*. Continuous stormy weather. Temp. low; fall of leaves 14 days earlier than usual.—*Muswell Hill*. Rainfall almost exactly the average of nine years.

II. *Addiscombe*. An exceedingly and persistently cold month, dry on the whole and very bright. The coldest October for at least forty years, the most windy for eleven years and the least cloudy for nine years. It was also remarkable for the great prevalence of N.E. winds, for a strong W. gale on the 14th, for the heavy rainfall of the 22nd, and for the low temp. registered by the exposed thermometer on the 17th.—*Hythe*. A cloudy, wet, and cold month. Max. temp. 61° on 11th, min. 31°·5 on 16th.—*Bromley Common*. A cold, showery month, though with no great amount of R. Remarkable absence of sunshine; prevailing wind N. to E. Max. temp. 63° on 11th, min. 26° on 17th.—*Littlehampton*. Altogether a pleasant month, dry weather prevailing; vegetation vigorous.—*St. Leonards*. A very unsettled, rainy and cold month; a fall of S on morning of 30th, which remained unmelted for four or five hours. Max. temp. 63° on 1st; min. 32°·2 on 31st.—*St. Lawrence*. Rainfall less than half the average of ten years. Max. temp. 61°·8 on 11th; min. 30°·5 on 31st.

III. *Buntingford, Throcking Rect.* A cold month throughout, weather becoming unsettled after the 20th. Mean temp. $41^{\circ}\cdot9$; max. $58^{\circ}\cdot4$ on 1st; min. $27^{\circ}\cdot3$ on 31st; slight S on 29th; first trace of frost on 5th—*Addington.* First four or five days fine and settled, the rest of the month changeable. Tender plants cut off by frost on the 6th. Max. temp. 61° on 1st; min. 23° on 31st; frost on seven days.—*Henley-on-Thames, Stonor Park.* A very cold month but good weather for ground work.

IV. *Southend.* Remarkably heavy rainfall. Max. temp. $62^{\circ}\cdot8$ on 11th; min. $30^{\circ}\cdot7$ on 31st.—*Harlow, Sheering Rect.* Rainfall $\cdot02$ below average of 10 years. Max. temp. 59° on 1st and 11th; min. 21° on 17th; frost on five days.—*Diss.* A wet, cold month; a gale, accompanied by heavy R ($\cdot84$ in.), arose suddenly at 10 p.m. on 13th, raging with great fury till 9 p.m. on 14th, when it gradually subsided. Mischief done to trees, whose hold in the soil was greatly weakened by the long-continued wet, was immense; all kinds of poplars (except the Lombardy, which were killed by the cold of last winter), particularly those which grew by the side of the water-courses, were uprooted in every direction, as also were oaks, elms, apples, and acacias, and those which remained standing were terribly smashed and torn; buildings suffered little; telegraphic communication interrupted, and trains delayed by timber falling across the lines; no lives lost. Colds, bronchial affections and rheumatism very prevalent.

V.—*Calne, Compton Bassett.* First week fine and dry, from thence to the end of month variable. Strong gale on 14th from N.W. did great damage to trees. Max. temp. 59° on 2nd; min. 23° on 30th; frost on six days.—*Langton Herring.* Total rainfall $2\cdot76$ in., of which $2\cdot12$ in. fell between the 19th and 25th. First and last weeks very favourable for agricultural operations. Mean temp. $46^{\circ}\cdot6$, the coldest for 10 years, and $4^{\circ}\cdot2$ below the average. Max. temp. 62° on 11th; min. 28° on 31st.—*Babbacombe.* A cold month, with rainfall about the average, but few wet days; the weather was fine, dry, and cold, with a high bar. on the first seven days, from 16th to 19th and 25th to 31st, but wet, stormy, and mild from the 8th to the 15th and 20th to 25th, with a low bar. on the 14th and from 20th to 24th; $2\cdot99$ in. of R fell in the five days from the 20th to 24th, of which $1\cdot50$ in. fell on 20th. The temp. was much below the average, the min. in the air $30^{\circ}\cdot2$, and on the grass $17^{\circ}\cdot3$ on 31st were the lowest registered in the past six Octobers. The first frost of the season

occurred on the 31st. The bar. was slightly above the average, but varied considerably; the prevalent winds were N.E. to the 5th, and from the 25th to the 30th; W.S.W. from 10th to 14th, and E.S.E. from 17th to 24th; N.W. or variable on the other days. A violent gale from S.W. and W. on 14th (max. velocity 53 miles per hour, 5 to 6 a.m.) Max. temp. in shade $65^{\circ}\cdot3$ on 11th.—*Altarnun Vic.* Sixteen frosty nights, min. temp. 20° on the 30th; trees uprooted by gale on 14th.

VI.—*Cheltenham.* A month of great atmospheric disturbance, two considerable depressions and several minor ones passing over; the 14th a day of terrible tempest. From 19th to 22nd very strong winds, slight S on 29th. Trees, oaks and elms excepted, stripped of leaves at the end of the month. Max. temp. $60^{\circ}\cdot6$ on 1st and 11th. Min. $21^{\circ}\cdot5$ on 31st; frost on eight days.—*Ross, The Graig.* A very cold month, with E. winds; R not much, except on 7th, 13th, and 22nd; many large trees blown down by gale of 14th, about as severe as that of Oct. 14th and 15th, 1877; frost on five nights. Max. temp. in shade 62° on 1st and 2nd; min. $26^{\circ}\cdot2$ on 31st.—*Burton-on-Trent.* E. winds throughout, the gale on the 14th terribly destructive; early fall of leaves and great abundance of hawthorn berries, &c. Mean temp. $44^{\circ}\cdot6$; min. 25° on 17th and 18th.

VII. *Melton Mowbray, Coston Rect.* A very variable month, the first five days and from 16th to 20th very fine, almost the whole of the remainder exceptionally stormy. Max. temp. 59° on 11th; min. $23^{\circ}\cdot5$ on 17th.—*Nottingham, Strelley Hall.* A cold but sunny month; mean temp. $44^{\circ}\cdot4$; little R up to 19th, excepting one fall of 1.02 in.; from 19th to end of month rather wet.—*Worksop, Hodsock Priory.* Another cold month with small diurnal range, colder than any October of the preceding six; on scarcely any day was the mean temp. above the average. The most memorable feature of the month was the gale on the 14th, which, though not so severe as in many places, did great damage to trees.

VIII. *Macclesfield Park.* The latter half of the month was exceptionally cold and stormy. Max. temp. $59^{\circ}\cdot1$ on 11th; min. 25° on 30th; frost on four days.

IX. *Bradford, Queensbury.* Three falls of R exceeding 1 inch—1.62 in. on 14th, 1.69 in. on 23rd, and 1 in. on 24th.—*Scarborough.* A wet and cold month, more especially the latter half; some H and S showers towards the end. Mean temp. $2^{\circ}\cdot3$ lower than, and rainfall

·87 in. above, the average.—*Darlington, East Layton*. A very unsettled month and generally sunless, but owing to a few very sharp and cold winds, farmers were enabled to gather in the harvest. Max. temp. 65° on 2nd ; min. 23° on 31st.—*Lune Head*. Very changeable, with a heavy fall of S towards the end.

X. *Darlington, Whorlton*. Dull and cold, with a few lovely days from 15th to 19th. Max. temp. 55° on 3rd ; min. 23° on 31st ; frost on two days.—*Elterwater, Woodlands*. Stormy and wet from 10th to 14th inclusive, the remainder of the month fair, and towards the end particularly frosty. Max. temp. 63° on 1st ; min. 21° on 30th ; frost on five days.—*Shap, Copy Hill*. The early part of the month was favourable for securing the harvest and taking up potatoes. On 9th, 10th, and 12th strong N.W. gales occurred, with R and H, the highest mountains being covered with S on the 13th, on which day 1·48 in. of R fell, causing a great flood. Very rough wind on 14th ; a little S and hard frost at end of month.

XI. *Llandoverly*. A good month for late wheat sowing ; hard frost at the close. Max. temp. 64° on 23rd ; min. 24° on 30th ; frost on six days.

XII. *Melrose, Abbey Gate*. A cold and wet month. Mean temp. 39°·2, 4° below, and rainfall ·35 in. above, the average. Max. temp. 59°·8 on 1st.—*Dumfries, Crichton Inst.* A cold, damp, variable month ; rainfall below average, but there was little sunshine ; winds often high, especially from E., N.E., and S.E. ; great gale between 13th and 14th. Mean pressure pretty high, the fall, however, at the time of the gale was the greatest ever recorded at this station. Max. temp. 63° on 2nd ; min. 21°·2 on 31st ; frost on eight days.

XVI. *Dollar*. A cold, wet and stormy month ; frost on three or four nights.

XVII. *Keith*. Very bad harvest weather ; about one-half of the corn crop out in this district on 31st. Frost at the end of the month.

XVIII. *Lochbroom*. Beginning and end of the month very fine, but from the 8th to the 24th the weather was very stormy.—*Glenaladale*. The second week of the month was very wet and stormy, followed by about a week of dry weather, with cold winds ; the remainder was very beautiful, bright and calm : temp. somewhat low ; prevailing direction of wind S.E. ; extraordinary rainfall from N.E. on night of 13th–14th, 1·94 in. fell in 10 hours.—*Sligachan*. First week very fine, from 6th to 17th wild and unseasonable, remainder

of the month fine, dry and cold: Crops fair and well-secured; no frost, only a little S on hill tops.

XIX. *Watten*. The first week was fine, but the remainder of the month stormy, with R and H showers.

XX. *Fermoy, Glenville*. Three heavy storms during the month, viz., on 13th-14th, on 21st-22nd (the greatest), and on 31st.—*Waterford, Newtown*. With the exception of a few days at the beginning and end, the month was dull and cold. Max. temp. $60^{\circ}5$ on 1st; min. 28° on 16th.—*Nenagh, Castle Lough*. A changeable month, fine weather and R alternating, some cold days towards the end, with one sharp frost.—*Newcastle West*. Gales frequent, several being exceptionally severe, and two causing considerable destruction among trees, stacks, and buildings.—*Miltown Malbay*. Continuous gales and storms; the temperature after the first week, which was close and fine, was very low. Heavy gales raged from the 8th to the 14th, and from 16th to 24th.

XXII. *Ballinasloe, Kilconnell*. The month was marked by an unusual prevalence of strong E. winds and low temp.—*Ballinasloe*. First part of the month very fine and bright, but the latter portion wild, stormy, and cold. Max. temp. 60° on 1st; min. 25° on 30th; frost on five days.

XXIII. *Newtownards*. Fine drying E. winds from 15th to 19th inclusive, and again from 24th to 30th; during these periods large quantities of corn were gathered.—*Belfast, New Burnside*. A changeable month, fine till the 7th, from 8th to 15th stormy, with R and H, and S on the 14th, one week earlier than in 1880; from 16th to 22nd variable, then fine; severe frost on 29th and 30th.—*Bushmills*. The min. temp. on 30th (21°) is believed to be without precedent for 40 years. Max. temp. 64° on 1st; frost on four days.—*Ramelton, Killygarvan*. Greater part of the month very stormy, but some very fine days; rainfall below the average, temp. 4° below it. Mean temp. 45° ; max. 63° on 1st; min. 21° on 31st; frost on five days.

NOVEMBER.

I.—*Muswell Hill*. Rainfall .05 in. above average of nine years. First half of month fine on the whole, most of the R falling in the night; the third week, however, was wetter, while in the last week more than half the total rainfall was recorded.

II.—*Dorking, Abinger Hall*. One of the best months of the year, so

genial and warm that all outdoor operations have been carried on without hindrance. Severe H storm on 27th, very large pieces of transparent ice falling, heavy peals of T to the N. W.—*Addiscombe*. November, in complete contrast to the preceding month, was exceedingly and continuously mild. It was the first mild November for four years, and singularly free from fogs.—*Hythe*. Wet and mild; strong S. winds and violent gales from 19th to 28th, destroyed nearly the whole of the old town sea wall. Max. temp. 62° on 12th; min. 35° on 28th and 29th.—*Bromley Common*. An unusually mild month, and fine in the middle. Mean temp. 7°·9 above the average of 15 years. Rainfall 1·48 in. above the mean of 15 years. Max. temp. 64° on 5th and 13th; Min. 27° on 1st; frosts on four days.—*Littlehampton*. Exceptionally mild, but terrific winds at the end; gales raged incessantly from 19th to 29th, ships driven from their moorings and plants blown out of the ground.—*St. Leonards*. Many severe gales; that of the 26th–27th being the heaviest I have known; weather throughout cloudy, and nearly every day above the mean temp., winds nearly all from between S. and W. Max. temp. 57°·5 on 4th; min. 35°·5 on 1st. *St. Lawrence*. The warmest November for many years. Mr. J. B. Martin, of Ventnor, writes that in 40 years there has been only one November with a higher mean temp., viz., 1852, when it was 59°·9 (0°·3 higher than 1881), but in that month the rainfall was 7·42 in. on 27 days. Max. temp. 59° on 12th; min. 38° on 1st.

III.—*Buntingford, Throcking Rect*. The only month in the year showing a temp. above the mean; S.W. gales prevalent; mean temp. 46°·3 (higher than that of October); max. 61°·2 on 5th; min. 29°·6 on 1st; R 2·36 in.; wet days 18; some large flakes of S fell on 1st; strong gale with heavy R in night on 25th–26th.—*Addington*. Cold till the 4th, followed by beautiful mild weather till the 14th. After that date it continued mild, but very rough; temperature above the average. Max. 60° on 4th and 6th; min. 29° on 18th; frost on 4 days.—*Henley-on-Thames, Stonor Park*. Very mild, with strong winds prevalent almost the whole month.—*Northampton*. The latter part of the month was exceedingly mild; spring flowers in some places being very abundant. Max. temp. 54° on 4th; min. 30° on 1st.—*Cumbridge, Beech House*. Mean temp. 5°·9 above the average of 13 years; max. 59° on 5th; min. 32° on 1st; very high wind on 26th.

IV. *Harlow, Sheering Rec*. Rainfall ·67 in. above the average of 10 years. Max. temp. 61° on 6th; min. 30° on 1st, frost on two days.

—*Ipswich, Bishop's Hill.* Fine, mild, and dry ; rainfall 0·5 in. below the average, temp. uniformly high, thrushes singing freely in the last week.—*Diss.* A beautiful November, warm, bright and free from fogs ; much wind in the latter half, amounting to severe gales on 16th, 26th, 27th, and 28th, all from S.W., and announced by great fall of mercury and followed by a rapid rise ; the damage on the 26th was not so great as on Oct. 14th, because weak trees were already down and the rest leafless, and chimney pots and tiles had been recently made secure. The weather was favourable to farmers, and young wheat looks well. Public health fairly good.

V.—*Calne, Compton Bassett.* A wet but mild month, no frost in shade. Strong gales frequent ; max. temp., 61° on 13th, min. 33° on 18th.—*Langton Herring.* Wet and extremely mild, mean temp. 49°·7, 6°·1 above the average of nine years, and 3°·2 above that of October. Fogs on five days, max. temp. 58° min. 37°.—*Babbacombe.* A very mild, wet, stormy, damp, dull and gloomy month. It was the wettest month since October, 1880, and was warmer, damper, more windy, dull and foggy than any of the previous five Novembers. A measurable amount of R fell on 25 days, and slight amounts on three days more ; a heavy fall of 1·30 in. on 26th. Mean temp. 50°·3, was very high and exceeded that of October by 1°·7 ; the temp. rose above 50° on every day but the second, and above 60° on the third and twelfth, reaching 62°·3 on the latter day, and the min. was only 37°·8 on 29th. The bar. was about the average, but oscillated largely from its max., 30·456 in., on the 13th to its min., 28·901 in., on 26th. S.W. winds were unusually prevalent, but were interrupted by variables on the 1st, 6th, and 7th, and E. on the 2nd, 8th, and 9th. S.W. gales blew on eight days, some of them being very heavy, reaching a rate of 72 miles per hour in some terrific squalls on the 26th and 27th.—*Altarnun Vic.* Mild and rainy throughout, max. temp. 60°.—*Crewkerne, Bincombe Ho.* A very wet and stormy month, but very mild.

VI.—*Cheltenham.* A month to be remembered for abnormally high temp. and wind velocity, culminating in the gale of the 26th and 27th. Roses, violets, stocks and wallflowers in full bloom at the close, and a clematis had put forth its spring shoots to the extent of 4 in. in an open garden. A deficiency of ozone compared with the previous month, max. temp. 61°·3 on 4th ; min. 28°·8 on 18th, frost on two days.—*Ross, The Graig.* The cold period which had lasted with only a week's slight intermission in the middle of Sept. from Aug. 9th, gave place

on Nov. 3rd to the warmest period of which I can find record, lasting without break till the 8th Dec. No frost at 4 ft. above ground, and only two days on which polar winds blew. Very heavy gales on 21st, 24th, and 26th; max. temp. 61° on 4th and 12th; min. 33°·0 on 18th.—*Burton-on-Trent*. Very cold on 1st with S., on 3rd a mild, showery period commenced, which lasted till December 8th; max. temp. 62° on 13th, mean temp. 45°·6, one degree higher than that of October.

VII.—*Melton Mowbray, Coston Rect.* A remarkable month, the mean and extreme temperature being higher than those of October and of any other November since 1872 inclusive. Prevailing wind S.W. Max. temp. 60° on 13th; min. 29° on 30th, frost on five days.—*Nottingham, Strelley Hall*. A very warm month after the first three days, the mean temp., 46°·2, was 1°·8 higher than that of October. The min. in air was only three times below 32°. Most of the R fell during the last half of the month.—*Worksop, Hodsock Priory*. Rainfall about the average, temp. abnormally high, the mean was 4° higher than that of any November of the preceding six, and 2°·2 higher than in October, the max. and some of the min. were also unusually high, the latter part of the month was rather stormy, S.W. winds prevailed throughout.

VIII.—*Macclesfield Park*. Very mild and remarkably free from fog, max. temp. 60°·6 on 4th, min 31° on 1st. Frost on three days.

IX.—*Mickley*. Temp. very high all the month. Scarlet anemones, primroses and daisies flowering like spring.—*Scarborough*. An exceptionally mild month, mean temp. 4°·8 above the average, and higher than that of any corresponding month; with the exception of a slight shower or two on 1st there was an entire absence of S, and the rainfall was only a little over half the average. S. to W. winds prevailed during the whole of the month, some rather heavy squalls occurring in the latter part. A little T and L. Max. temp. 61°·1 on 14th, min. 33°·5 on 1st.—*Darlington, East Layton*. One of the openest and mildest Novembers experienced for many years, yet the ground was kept wet by the number of rainy days. Max. temp. 62° on 27th, min. 29° on 19th.

X.—*Darlington, Whorlton*. Generally warm, with the exception of the first few days. Max. temp. 60° on 14th; min. 27° on 1st.—*Elterwater, Woodlands*. A wet and most stormy month; temp. remarkably high; mean 46°·1; max. 56° on 7th and 12th; min. 27° on 18th; frost on four days.—*Shap, Copy Hill*. November in this district

was one continual storm of wind and R, gale after gale and flood after flood ; T and L frequent in the latter part of the month.

XI.—*Llanfrechfa Grange*. Very mild, very wet, and very stormy. Max. temp. 59° ; min. 31°.—*Llandoverly*. Continuous wet weather throughout, but very mild. Max. temp. 60° on 8th ; min. 35° on 17th and 25th.—*Castle Malgwyn*. A very mild and wet month, with several severe gales.—*Douglas, Victoria Rd.* Most deplorable month, which may be summed up as one of eternal gales, S.W. and S.S.W., and continuous rainfall. Mean temp. about 46°, which is high. On 26th bar. fell to 28·34 in (corrected), the lowest observed here.

XII.—*Dumfries, Crichton Inst.* Very wet and stormy, with many heavy gales, especially in the latter half. Rainfall far above the average. There was little sunshine, but the mean temp. is 4° above the average ; max. 57°·6 on 6th ; min. 24° on 18th ; frost on 9 days.—*Melrose, Abbey Gate*. Excessively mild, with a great number of gales, accompanied by R and L. Mean temp. 41°, 4°·3 above average, higher than that of any other November for 10 years. Rainfall ·60 in. above average. Prevailing winds S.W. and W.

XVI.—*Dollar*. Generally very mild, but dull and cloudy with occasional high winds.

XVII.—*Lochbroom*. The first two days were fine, but on the 3rd winter weather set in with wind and rain, it continued very stormy during the remainder of the month ; on the night of 21st and 22nd the tide rose many feet above the ordinary height of spring tides, and being accompanied by much R and a perfect hurricane from W. and S.W., caused great devastation both inland and on the coasts.

XVIII.—*Glenaladale*. The second half of the month was extremely stormy ; temp. exceptionally mild.—*Sligachan*. A very cold and stormy month, much T and L at night about the 23rd.

XIX.—*Watten*. The month opened bitterly cold, succeeded by ten days of mild and fine summerlike weather, the remainder being marked by a series of gales.

XX.—*Waterford, Newtown*. An exceedingly mild and stormy month, max. temp. 59° on 6th, min. 31° on 26th.—*Nenagh, Castle Lough*. The latter part of the month was wet, while during the whole of it high winds, gales and storms prevailed. Temp. generally high for time of year, only two or three frosts.—*Newcastle West*. Extremely stormy all over the district, trees were broken by the wind, night after night.—*Kilrush*. The month was very fair for the season up to 21st, but after that date it was wild and severe.—*Miltown Malbay*.

The month was characterized by frequent and severe gales, accompanied by high tides and heavy seas, doing serious damage along the coast; T and L almost daily from 15th to 30th, only three days during the month without R.

XXI.—*Athlone, Twyford*. Temp. generally high, with a good deal of stormy weather; max. 59° on 11th, min. 32° on 26th.

XXII.—*Ballinasloe, Kilconnell*. The month was totally free from fog, rather an unusual occurrence for November; remarkably stormy with occasional T and L from 15th to 29th.—*Ballinasloe*. First part of the month mild and pleasant with slight R at night, the latter portion very rough, heavy gales with R and frequent L being almost continuous after the 16th; the R on 26th and 27th was so excessive as to cause the highest floods known since 1839; max. temp. 58° on 13th, min 31° on 26th.—*Tuam, Gardenfield*. Extremely wet on the 28th, the highest flood that has occurred for a quarter of a century.

XXIII.—*Newtownards*. The month was characterized by high temp. Many fine days and several severe gales.—*Belfast, New Barnsley*. Unsettled, stormy and damp throughout, a most violent gale on the night of the 21st.—*Bushmills*. A very stormy month, frost on seven days; max. temp. 62° on 5th, min. 30° on 1st, 3rd, and 25th.—*Stewartstown*. A very wet month, R on 24 days, and the total fall much above the average.—*Ramelton, Killygarvan*. Wet, calm and mild for the first half, heavy gales afterwards. Mean temp. 44°·6, 1°·6 above average; max. 57°·5 on 14th, min. 29° on 26th.

DECEMBER.

I.—*Isleworth*. Generally unsettled and changeable, some severe frosts and heavy winds.—*Muswell Hill*. Rainfall not quite ·5 in. above the average of nine years, nearly all the R fell in the first twenty days.

II.—*Hythe*. Dull, stormy, and wet. Max. temp. 53° on 2nd; min. 30° on 21st; frost on five days.—*Canterbury, Harbledown*. Frosty only on seven nights, fog at end of month.—*Bromley Common*. A pleasant, open month, and not really wet, though R fell on 16 days. Primroses and violets in bloom out of doors. Calm on the whole, with no S; winds generally S. to S.W. and W. Max. temp. 53° on 17th; min. 21° on 24th; frosts on ten days.—*Littlehampton*. Very little sun all through the month, no frosts to injure vegetation,

and wild flowers in full bloom in the hedges.—*St. Leonards*. A very pleasant month on the whole, with wind chiefly between S. and W. Max., in shade, $53^{\circ}\cdot 1$ on 17th; min. $31^{\circ}\cdot 8$ on 23rd.—*St. Laurence*. With the exception of the broken weather between the 18th and 19th, a most enjoyable month, especially the last 12 days. Very high bar. from 23rd to 29th. Max. temp. $55^{\circ}\cdot 5$ on 2nd; min. $30^{\circ}\cdot 3$ on 11th; frost on four days.

III.—*Buntingford, Throcking Rect.* A mild but wet month, weather remaining open throughout, S falling on 10th, 11th, and 17th, but barely to the depth of an inch. Max $50^{\circ}\cdot 4$ on 2nd, min. $26^{\circ}\cdot 3$ on 11th and 24th; R 4.01 in.; max. 1.36 in. on 17th. A thick, yellow, London fog came upon us at 2 p.m. on 16th; geranium and rose in bloom in the open, under S. wall in the middle of the month.—*Addington*. Altogether a variable month, but with little frost. Wind S.W. or W. on 25 days; dense fogs on two or three occasions. Max. temp. 53° on 2nd; min. 20° on 24th; frost on 12 days.—*Banbury, Wroxton*. Heavy floods and the land very wet. Max. temp. 57° on 2nd; min. 19° on 24th; frost on 16 days.

IV. *Harlow, Sheering Rect.* Rainfall .93 in. above the average of ten years. Max. temp. 51° on 2nd, min. 21° on 25th.—*Ipswich, Bishops Hill*. A wet month, nearly twice the average rainfall, causing heavy floods.—*Ellough Rect.* Weather upon the whole fine, mild, and open. Max. temp. 47° on 2nd, min. 20° on 23rd.—*Diss*. A warm, pleasant month, with three strong gales (6th, 17th, and 20th). On 17th the rainfall amounted to 1.01 in., and rather extensive floods were the result. The only sharp frosts occurred on the nights of the 22nd and 23rd, when the temp. fell to 26° and 22° respectively, but after that time the weather was fine and open to the close of the year. Young crops look well, and there is but little sickness.

V. *Calne, Compton Bassett*. The first few days were fine and dry, but from 4th to 21st the weather was unsettled, several white frosts, boisterous winds, and heavy showers occurring. No S fell throughout, and the month closed with exceptionally fine weather. Max. temp. 53° on 2nd; min. 23° on 23rd.—*Langton Herring*. Weather mild and wet for the first week, followed by a colder and drier period. Wet from 14th to 21st; from thence to end of month mild and fine, with high bar. Mean temp. 2° above the average; max. 55° on 2nd; min. 28° on 11th and 23rd. Frost on only six nights.—*Altarnun Vic.* First week very mild; primrose in flower on 13th. Gales from 17th to 20th, uprooting trees and doing other

damage. Min. temp. 22° on 23rd.—*Creukerne, Bincombe House*. A very mild month; frosts registered on only six occasions.—*Babbacombe*. Temp., humidity, and amount of cloud were about the average, rainfall slightly below, but number of wet days above the mean. Most of the R fell on the first nine days, and from the 14th to 20th; a long wet period of 24 consecutive days ended on the 9th, the longest observed since January, 1877. Very gloomy weather prevailed from the 13th to 17th, and on the 25th, 26th, 29th, and 31st, but the 10th, 11th, 21st, and 23rd were very fine days. It was warm and damp till the 6th, on the 17th, and after the 26th, but cold from the 9th to the 12th and 21st to 23rd. Bar. slightly above average, with a large range; S.W. winds generally prevailed. A severe S.W. gale on 17th–18th (attaining a velocity of 63 miles from 2 to 3 a.m. on 18th), doing much damage. Max. temp. $54^{\circ}2$ on 28th; min. 29° on 11th.

VI.—*Cheltenham*. A dull, foggy month, with some few exceptionally bright days; atmospheric pressure very irregular; skating on shallow ponds on 25th, ice $\frac{3}{4}$ in. thick, vegetation very forward, great deficiency of ozone, no indication on 22 days; strong winds prevalent. Max. temp. 54° on 2nd, min. 19° on 24th; frost on 12 days.—*Ross, The Graig*. Although there were a few hoar frosts with dense fogs, especially in the river valley during the middle of the month, there was only one night of severe frost. About 40 species of garden plants in bloom on the 8th, also about 40 wild or native species in flower. Rainfall of 16th and 17th (1.39 in. in about 29 hours) very heavy for time of year. Frost on 10 nights, max. temp. $53^{\circ}5$ on 2nd, min. $18^{\circ}6$ on 24th.—*Burton-on-Trent*. Mean temp. $37^{\circ}4$, min. 19° on 11th, frosts on grass every night after 8th, skating on shallow pools, &c. on 11th, 23rd, and 24th.

VII.—*Melton Mowbray, Coston Rect.* At times very mild; much more open than the two preceding Decembers. Prevailing winds W., max. temp. 52° on 2nd, min. 17° on 24th. Frost on 16 nights.—*Nottingham, Strelley Hall*. On the whole a warm month, though damp; mean temp. $37^{\circ}1$. Rainfall about the average, little R after 21st, S fell on only two days.—*Worksop, Hodsock Priory*. The first few and the last few days were mild, the rest of the month was cold, but without any severe frost. Rainfall about the average.

VIII.—*Liverpool, Walton-on-the-Hill*. An unsettled month with but little frost.

IX.—*S Scarborough*. Another mild month, mean temp. nearly 1°

above the average, whilst that of the last week was 4° above the average of the corresponding week. Rainfall 0·92 in. below average, S fell for 20 minutes on one day only, wind generally S.W., with fog at times, max. temp. 49°·4 on 2nd, min. 29° on 10th. Frost on five days.—*Darlington, East Layton*. Exceptionally fine and open, with a very small rainfall, and scarcely any S. A few aconites, a double white polyanthus, and a daphne all in flower. Max. temp. 50° on 27th, min. 26° on 24th.

X. *Elterwater, Woodlands*. The month was extremely variable, nearly all kinds of weather occurring; on the 24th people were skating and the thermometer stood at 36° most of the day, but R fell in the night, on the 25th the temp. rose to 51°, and scarcely a trace of ice could be seen. Max. temp. 51° on 25th and 29th; min. 19° on 23rd; frost on 11 days.—*Shap, Copy Hill*. November began and ended with a few mild, damp days; there were few frosts and very little S fell; spring flowers in bloom in sheltered places.

XI. *Llanfrechfa Grange*. The latter part of the month was remarkably mild. Max. temp. 53° on 2nd; min. 25° on 24th.—*Llandoverly*. Weather very genial during the first week, wild primroses and other spring flowers being plentiful, and a butterfly seen on the 6th full of activity; sharp frost followed, but did not last, and the latter part was again mild. Max. temp. 53° on 2nd; min. 21° on 10th.—*Castle Malgwyn*. The month was mild and damp, with very little frost.—*Menaifron*. Greater part of the month exceptionally mild, sixteen varieties of wild flowers in blossom between the 4th and 8th. W.S.W. gale on 17th, continuing from N.W. on 18th.—*Douglas, Victoria Rd.* Mild, many very bright days, a nice month for time of year.

XII. *Dumfries, Crichton Inst.* The month was dull, damp, and stormy; rainfall considerably below the average; temp. generally mild, with the exception of a few days about the middle and towards the end of month; mean pressure and temp. about the average. Max. temp. 51°·8 on 3rd; min. 20° on 23rd; frost on 20 days.—*Melrose, Abbey Gate*. Very mild for the season, rainfall about ·50 in. below the average. Max. temp. 51°·2 on 25th; min. 15°·6 on 23rd.

XVI. *Dollar*. Exceedingly mild during the whole month, the last week like spring.

XVIII. *Lochbroom*. Very fine and warm, bees out at times as thick as in June. Occasional gales.—*Glenaladale*. Generally very stormy and wet; first and last weeks extremely mild; on 13th 1·64 in. of R fell in 14 hours.

XIX. *Watten*. Open and exceptionally mild, with frequent gales of wind.

XX. *Tipperary, Henry Street*. Much R at the beginning of the month; hard frost from 9th to 13th, followed by variable but generally cold weather until the 25th. Last week very fine.—*Nenagh, Castle Lough*. The month was generally rainy and stormy, but mild.—*Newcastle West*. Exceptionally windy and wet; not sufficient frost to cover any considerable pond with ice; crocuses and daisies blooming at the end of the month.—*Kilrush*. A very bad month, very wet, wild and severe.—*Miltown Malbay*. The month was mild, rainy, tempestuous, with much T and L; only four days without R; prevailing wind S.W.

XXII. *Ballinasloe*. The month generally was mild and blustery, with great changes of temp., being extremely mild at the beginning and end, but bitterly cold from 15th to 23rd. Max. temp. 50° on 1st; min. 19° on 12th. Frost on 19 days.

XXIII. *Belfast, New Burnsley*. On the whole a fine, open month, but rather changeable and stormy, with only occasional frosts. From 26th to 29th spring-like weather.—*Ramelton, Killygarvan*. A rather stormy, wet month; rainfall about the average. Some few nights frost, and occasional heavy fog. Mean temp. 36°, 3°·5 below the average. Max. 49°; min. 20°; frost on 20 days.—*Buncrana*. Strong winds and variable weather throughout the month, but temp. high, with exception of about eight days at intervals. Cattle still able to get a considerable part of their food in the grass fields. Max. temp. 59° on 3rd and 27th; min. 24° on 10th. Frost on eight days.

OBSERVERS' NOTES ON THE YEAR 1881.

ENGLAND.

DIVISION I.—MIDDLESEX.

TEDDINGTON.—A very bad year, vegetation suffered from droughts and from long periods of wet; gales unusually numerous.

EALING.—Twelve falls of R exceeding .50 in., but none reaching 1 in.

HAMPSTEAD, ROSLYN HO.—Extremes of cold in January and of heat in July; very mild November and December; much sun, little fog.

MUSWELL HILL.—Total rainfall about 3 per cent. below the average of 9 years; the fall in February, March, August, and December exceeded the average, and in January, April, May, June, July, and September were deficient; the three consecutive months, April–June formed the driest period of the year, the aggregate fall being little more than half the average. Only one fall of R exceeding 1 in. in 24 hours.

DIVISION II.—SOUTH EASTERN COUNTIES.

ABINGER HALL.—Winter severe; spring cold, but dry and fine, and good weather continued till harvest time, but disastrous rains occurred in August and September.

CROYDON, ADDISCOMBE.—The year 1881 may be concisely described as having been a cold, rather dry, and fairly bright year, with a most exceptionally windy atmosphere of average humidity.

TENTERDEN, SUMMERHILL.—A most stormy and tempestuous year, spring very cold and dry.

TENTERDEN.—January dry and colder than even January, 1880; high winds at the beginning of February, and heavy rains in the first week of March; April and May dry: June and July also dry, though the rainfall was above the average owing to heavy rains at Whitsuntide and in the last week of July; August and September wet; no S in November and December, and grass growing all the

winter. Not a week without R from July 20th to December 20th ; nearly rainless periods of 17 days in January, of 11 in March, of 16 in April, 13 in May, 18 in July, and 12 in December. Remarkable absence of E. winds in some of the dry periods, and an unusual amount of fine weather with S. and W. winds.

GOWDHURST.—Rough winter, white frost on May 4th, hot July, wet August, mild autumn and winter.

ASHFORD, WESTWELL.—Excessive drought in early spring and up to the end of May ; August and September very wet.

RAMSGATE, THE VALE.—Rainfall of the year a little below the average of the preceding six, but number of wet days almost exactly the average ; only one fall exceeding 1 in. in 24 hours. R fell on 57 days in August, September, and October, exactly the same number as in the preceding six months when the crops were growing. The most notable meteorological events were the great S storm of January 18th and the tremendous gale of October 14th.

ERITH, CROSSNESS.—Total rainfall 2·50 in. below the average of 19 years, and the smallest fall since 1870.

LITTLEHAMPTON.—Spring fairly dry ; early summer good ; wet autumn ; sunless winter. Two terrific gales, otherwise less wind than usual.

MIDHURST, LYNCH.—The extraordinary severity of January—the temp. ranging from 27° to 11° between the 12th and 27th—and the unusual snowfall are particularly noticeable. The total rainfall was high and curiously distributed ; March, usually a dry month having 3·76 in. ; July and August had a combined fall of 10·54 in., of which 6·75 in. fell in the harvest month. The fall in October was moderate and favourable to early wheat sowing. Several severe floods in the low lands in autumn. Severe gales damaged the hop crop, blew down many trees, and stripped stacks, especially in October.

BRIGHTON, BLATCHINGTON ROAD.—The seventh consecutive year with a rainfall above the average. Very cold in January ; February, and part of March very wet. Very hot in July, August very wet. Harvest once more seriously damaged by wet. Severe gales during the last three months. Altogether not a good year for farmers, spring too dry and August far too wet.

LEWES, IFORD.—A cold and wet February and March after an arctic January ; April and May cold and dry, June and part of July hot, with occasional showers, August and part of September very

wet, destroying in a great measure the results of the harvest. The coldest October and the mildest November and December known for many years.

MARESFIELD, FOREST LODGE.—Total rainfall 1·29 in. above the average of the preceding 25 years, there being a deficiency in the first half of the year and an excess in the latter half; max. fall in 24 hours, 1·63 in. on February 19th. I have been particularly struck by the entire untrustworthiness of the bar, as a “weather glass” during the year 1881, every rule given in meteorological works for judging of approaching fine or wet weather by its aid having been falsified over and over again.

CROWBOROUGH OBSERVATORY.—Total rainfall ·13 in. above the 10 years’ average.

ERIDGE CASTLE.—As a whole the season was favourable, although the heavy rain of August injured the harvest.

SOUTHAMPTON, ELING HOUSE.—First six months very dry, rainfall less than half that of the last six months. Hay and grass very short, harvest disastrous owing to the excessive rains of August.

MICHELMERSH RECTORY.—Total rainfall 3·00 in. below the average; number of wet days 11 below average.

WHITCHURCH, NORTH LITCHFIELD.—April and May very dry, and the hay crop short; August, the harvest month in this part of the country, extremely wet.

BLACKWATER, HURSTLEIGH.—Rainfall nearly 4 in. below the average of five years; the fall in February, August, November and December exceeded the average, in March was within ·05 in. of the average, while the remaining seven months it was deficient; four falls exceeding 1 in. in 24 hours occurred—two of them in August.

LONG WITTENHAM.—Rainfall very little above the average; the year would have been dry but for the excessive fall of August.

DIVISION III.—SOUTH MIDLAND COUNTIES.

SOUTHGATE, THE LAWNS.—Rainfall above the average; a dry April, cold May, and dry June made the hay crop more than 50 per cent. below the average.

WATFORD, WANSFORD HOUSE.—The seventh consecutive year with a rainfall considerably above the average.

DATCHWORTH RECTORY.—Another year with considerably more than the average rainfall; the number of wet days was also large.

The year was remarkable for rapid and great changes of temperature and for many gales. Dry periods occurred from January 1st to 17th, seventeen days with $\cdot 06$ in. of R; and March 9th to April 10th 33 days with $\cdot 16$ in. of R.

HITCHEN.—Total rainfall slightly above the average of 30 years.

BUNTINGFORD, THROCKING RECTORY. — A deficiency in the mean temp. occurred in every month except November, being most noticeable in January and October; the range was exceptionally great— $78^{\circ}9$, *i.e.*, from $10^{\circ}7$ on January 22nd to $89^{\circ}6$ on July 15th. Rainfall $\cdot 68$ in. below the average of ten years, an excess being noticeable in August and December, and a deficiency in April and May. Mean amount of cloud at 9 a.m. $6\cdot 5$, the amount being greatest in February, September, and November, and least in March, April, May, and October. Nearly two-thirds of the total rainfall occurred in the last six months. During the closing months of the year strong gales were prevalent. A very distinct solar halo was visible on 17th of January at 3 p.m., the day before the memorable snow-storm.

SLOUGH, LANGLEY.—Rainfall $\cdot 40$ in. above the average of last nine years; owing to the small rainfall and cold weather in April and May crops were short; and a very wet August prevented the corn being secured in good condition.

SLOUGH, UPTON.—Dry spring, with much east wind; August wet; autumn mild, especially September.

ADDINGTON.—Rainfall about the average of last ten years; falls exceeding 1 in. in 24 hours occurred on October 22nd and December 17th ($1\cdot 61$). On the latter occasion we had the largest flood noticed for years. Several very low temperatures occurred in January, the minimum being zero on the 22nd, but there was no unusually low reading in any other month, though a very damaging frost occurred on 11th of May (23°); potatoes, currants, and gooseberries much injured; the max. temp. for the year, 88° occurred on July 15th. November was remarkable for mildness, being many degrees above the average. Not many T storms, and a great want of sunshine, particularly during the autumn.

BANBURY, BLOXHAM GROVE.—The cold spring and small amount of R in April and May ruined the grass crop, and the month of August was disastrous to the corn harvest. No two fine days in succession.

BEDFORD.—January cold, unusually severe and protracted; August

very wet, and crops much damaged ; September, very little wind for drying the crops.

GRANCHESTER MILL.—Mill stopped 23 days during the year by floods.

MARCH.—Rainfall 3·22 in. below the average of previous 7 years.

ELM, COLDHAM HALL.—Spring dry and promising ; summer, characterised by sudden and great changes of temp. ; August and September perhaps the worst harvest months ever experienced, owing more to the absence of sun and wind than to the excess of R ; autumn very mild and favourable.

DIVISION IV.—EASTERN COUNTIES.

DUNMOW, HIGH RODING.—Total rainfall nearly 2 in. above the average, number of wet days also above it.

BRAINTREE, BOCKING.—A year remarkable for extremes of heat and cold, for wind, and floods ; August extremely wet.

IPSWICH, BISHOPS HILL.—Rainfall of the year just the average, August and December much above the average, January, May, July, and November below it.

DISS.—The year began mildly, but in the second week of January severe weather, with S, set in. A coldish spring and wet May led to a poor *haysel*, but brilliant and intensely hot weather in June and July gave hopes of a fine harvest, which, however, were destroyed by the excessive rains of August and September. The rainfall in October was heavy and the hurricane of the 14th very destructive to trees, &c. Another violent gale occurred on November 26th, and others on December 17th and 20th. The year closed with exceedingly mild weather, and altogether was a very healthy one in this neighbourhood.

GELDESTON [BECCLES].—Total rainfall for the year very near the average ; February, March, August, October and December above the average ; July and November much below it.

GELDESTON RECTORY.—Spring unfavourable for the growth of corn and hay, July excessively hot, autumn cold and wet, November very fine ; the worst year for farmers of the last six unfavourable ones.

NORWICH, POSTWICK.—Severe cold in January, intense heat in July, exceptionally stormy, but remarkably free from T and L.

NORWICH, ESSEX STREET.—Severe frost from January 14th to

18th ; August, September, and October were rainy and very unfavourable for securing the harvest.

MATTISHALL.—Very cold in January, very dry in May ; unseasonably cold in the second week of June, very hot in the first week of July, wet August, mild December ; 71 kinds of flowers in blossom on December 31st.

LYNN, HILLINGTON.—Spring cold, August wet, October and November stormy, November and December mild.

WELLS.—Early summer the most lovely ever remembered, followed by a most disastrous harvest, the rainfall in August, September and October being excessive.

DIVISION V.—SOUTH WESTERN COUNTIES.

STEEPLE ASHTON.—Rainfall below the average ; a large amount of S in January and February, much rain in August, scarcely any frost or S in October, November, and December.

COMPTON BASSETT.—The early months were remarkable for intense frost and heavy falls of S. In the spring, vegetation was retarded by cold winds and frosty nights ; the summer months were cloudy with occasional hot days, the max. temp. being 85° on July 15th ; the autumn was fine and open, with but slight frosts.

LANGTON HERRING.—Total rainfall 2·10 in. above the average of six years. The year was remarkable for great vicissitudes of temp., for the S storm of January 18th-20th, the severe frost of January 13th-26th, for the intense heat of July 15th, and for severe storms in the last three months, especially that of October 14th. Mean temp. 49°·3, 1°·1 below the average of nine years.

WIMBOURNE, CHALBURY.—Rainfall a little below the average of the preceding 16 years, and number of wet days also slightly deficient ; the spring quarter was unusually dry.

PLYMOUTH NAVIGATION SCHOOL.—Rainfall about 9½ per cent. below the average of 17 years, rainy days average ; the summer temp. was low, which brought the mean for the year below the average. E. winds rather in excess.

BERE FERRERS.—Very little T during the year.

TORQUAY, LAMORNA.—Rainfall 5 per cent. below the average of 17 years, and number of rainy days 3 per cent. below it.

TORQUAY, BABBACOMBE.—A cold and rather dry year ; barometric pressure, average. Mean temp. 49°·3 ; max. 82°·8 July 15th, min.

15°·3 January 20th, showing an extreme range ; frost on 37 days ; longest dry period, 11 days, September 26th to October 6th ; longest wet period, 24 days, November 16th to December 9th.

EXETER, BRAMPFORD SPEKE.—Rainfall about 3·5 in. below the average of 16 years, and smaller than that of any other year since 1873. January, April, May and September were unusually dry, May being the driest in 17 years. February, March, June and August were above the average. Autumn mild, with heavy gales, sharp frosts in the first week of October, little afterwards, only five frosts in December.

CULLOMPTON, STRATH CULM.—Rainfall as near as possible the average of 18 years.

BODMIN, FORE STREET.—January very cold, with S on 11 days and E. winds prevalent, February also cold. March very wet ; April dry ; June wet ; September very dry ; October cold, with heavy gales ; November warm and stormy ; December very wet and very mild.

CREWKERNE, BINCOMBE HOUSE.—Rainfall 2·17 in. above that of 1880, but number of wet days 10 less, being the least number since 1870, when there were 128, and only 27·20 in. of rain. I consider 1881 a wet year, with heavy rainfalls. For the last six years the rainfall has been in excess of the average ; the longest dry period during the year was 15 days, from March 26th to April 9th.

MINEHEAD, EXFORD RECTORY.—Notwithstanding the very heavy fall of S in January, and a wet August and November, the year was one of moderate rainfall ; April and September unusually dry.

DIVISION VI.—WEST MIDLAND COUNTIES.

CLIFTON, SOUTH PARADE.—The driest year since 1873, nevertheless the rainfall was above the average.

CIRENCESTER, ROYAL AGRICULTURAL COLLEGE.—Rainfall for the year a little below the average ; April was unusually dry, and August excessively wet.

CHELTENHAM.—Total rainfall below the average, though the number of wet days is not small, no fall of one inch in 24 hours. Abnormally high temp. in November, and disastrous gales in November and December.

ROSS, ROCKLANDS.—Rainfall 3·38 in. below the average of 28 years.

ROSS, THE GRAIG.—The first year with a rainfall below the average since 1874 ; S and frost in January, E. winds very prevalent in the spring ; two short, hot periods in July ; very cold three months from August 9th to November 3rd ; very warm November 4th to December 9th ; great gales in the autumn.

BRYNGWYN.—The driest year since 1874 ; lowest temp. zero on January 14th, highest 86° on July 5th ; mean temp. of January below average, and of July above it.

LEDBURY, WEST BANK.—Dry spring, hot May, cold June (only half a crop of hay, but well got), hot July, but very few close nights, cold and wet August, cold, sunless September, but corn harvested in fair condition.

BISHOP'S CASTLE, MORE RECT.—A year of great extremes, intense cold in January and great heat in July, abnormally high temp. and frequent violent gales in the autumn.

TAMWORTH, LICHFIELD ST.—The S storm and gale of January 18th were very severe, but we had less S in the Midlands than fell in other parts of England ; up to July the R fall was below the average as we escaped the T storms which ravaged Lancashire and Cheshire ; the heat in July was most intense, particularly on the 5th and 15th ; the rainfall in August was most calamitous and destroyed all hopes of a good harvest ; the gale of October 14th was fearfully destructive ; November and December were wild and stormy, but very mild, one sharp frost in December lasting two days.

BURTON-ON-TRENT, SHOBNALL.—Total rainfall 3·42 in. below the average ; S fell on 22 days.

CHEADLE, TEAN VIC.—Emphatically a cold year, even the spell of exceptional heat experienced in the neighbourhood of London in July did not extend to here, the absolute max. in shade being only 85°. The persistent cold weather of August was, as far as I know, unprecedented, and the low temp. of the early part of June was unusual ; May was a fine month, and November exceptionally mild.

COVENTRY.—Rainfall about the average of the preceding 15 years, and the smallest amount registered since 1874.

DIVISION VII.—NORTH MIDLAND COUNTIES.

ASHBY MAGNA.—The early part of the year was cold and dry, and the season was promising till about the middle of August, when rain set in and continued persistently for nearly two months.

BARKBY VICARAGE.—Very fine spring, wet harvest time, mild autumn and winter.

SYSTON.—Total rainfall nearly two inches below the average of 13 years.

LOUGHBOROUGH.—Total fall of R 1·05 in. below the average ; mean temp. 48°, 1°·2 below the average ; highest 89°·7 on July 5th ; lowest 1°·9 on January 15th and 16th ; highest in sun (blackened bulb in vacuo) 140°·1 on July 5th ; lowest on grass 0°·9 on January 16th, number of nights frost in air, 79, on grass 107.

MELTON MOWBRAY, COSTON RECTORY.—The driest year since 1874, especially remarkable for the high temp. of November, the S storm of January, and the gales in the latter part. Mean temp. 46°, max. 85°·1 on July 5th ; min. —2°, January 16th.

LOUTH.—Total rainfall 1·69 in. below the average of 16 years ; mean temp. 46°·7, 1°·1 below the average.

NOTTINGHAM, STRELLEY HALL.—The total fall of R for the year was about 1·5 in. above the average. The fall in August was 19 per cent., and the fall in February and August together 35 per cent. of the total fall during the year ; this large rainfall in August was most disastrous for the harvest. There was a promise of an average crop, but when it was ripe the rain commenced.

WORKSOP, HODSOCK PRIORY.—Taken as a whole the year was one of average rainfall ; there were two wet periods, viz., February and the first week of March, and August ; on the other hand January and April were very dry, and during the remaining months the fall presented no unusual features. Temp. was low, the mean for the year (47°) being lower than that of any of the preceding five years, except 1879 ; this is to a great extent accounted for by the very severe weather in January ; October and April were also cold months, while November was unusually warm. The dry spring with the sunny days in May and the warm weather in July gave promise of fairly good corn crops, but the wet of August did enormous damage to the harvest, and was a severe trial to many farmers. The turnip crops were good and the autumn was favourable for work ; the season was a good breeding one for game birds owing to the absence of TSS and heavy rains.

CHESTERFIELD, HARDWICK HALL.—Early part of the year most severe, with heavy falls of S, followed by a most genial spring ; summer very favourable, except the latter part, which was cold, wet, and sunless ; autumn and early winter mild and sunny.

CHESTERFIELD, BRIMINGTON HALL.—After the severe winter fine weather and sunny days prevailed until July, but in August heavy rain injured the corn crops, and September and October being also wet, they were only garnered in a damaged state.

DIVISION VIII.—NORTH WESTERN COUNTIES.

CHELFORD, ASTLE HALL.—Rainfall average ; severe frost from 7th to 27th of January ; July was remarkably hot, the max. temp. being 91° on 5th. The year was remarkable for the number of exceptionally heavy gales.

NESTON, HINDERTON.—Rainfall 3·70 in. below the average of 19 years ; the fall in January (·45 in.) the smallest recorded in that month.

FRODSHAM, FOX HILL.—Very severe in January, February and March, dry in April and May, wet in August ; exceedingly mild in November, and but little frost in December.

LIVERPOOL, WALTON-ON-THE-HILL.—An unsettled year, especially at the end ; total rainfall rather above the average.

BLUNDELLSANDS, PARK CORNER.—Only one fall of R, exceeding 1 in. in 24 hours, while there were six in 1880 ; May, June and August wet, July very hot, last month very mild and open.

BOLTON, THE FOLDS.—Rainfall 4·41 in. above the average of 50 years.

ORMSKIRK, RUFFORD.—Rainfall nearly 1 in. below the average of 10 years.

ELSWICK LODGE.—Rainfall above the average, number of wet days below it ; mean temp. below the average. January the coldest month for 10 years, min. temp. —4°·0, many evergreens killed, and great destruction of small birds.

ARKHOLM, STORR'S HALL.—Rainfall nearly 8 in. above the average. May, June, July and August wet ; January, September, and October dry. A cold year, every month except May, November, and December, having a temp. below the average. November and December warm, with wind and R.

CARTMEL, HOLKER.—Very hard frost in January of 23 days' duration, with S lying almost the whole time. Spring cold and late, followed by a wet and sunless summer ; July and August the two wettest months of the year. Total rainfall 6·5 in. above the average of seven years.

GRANGE, PIT FARM.—A severe January, cold spring, showery May and June, cold, wet July, and very cold, wet August, fine October, warm November and December. Max. temp. 80°; min. 6°.

CARTMEL, BROUGHTON HALL.—Rainfall more than 6 in. above the average of 12 years, and more than a quarter of the total amount fell in the two months, July and August.

ULVERSTON, COLTON.—A wet and cold year, the only warm period was the week commencing May 28th, when the temp. in shade rose to 80° on four days, after which time it only once exceeded 70°. Rainfall 6·35 in. above the average of seven years.

MONK CONISTON PARK.—An unusually wet, cold, and stormy year.

DIVISION IX.—YORKSHIRE.

ROTHERHAM, DINNINGTON HALL.—The smallest rainfall of any year since 1873.

ROTHERHAM, WATH-UPON-DEARNE.—Early months very severe, spring cloudy, summer very cloudy, but some hot days in July; November and December mild and open. Rainfall 20 per cent. above the average of 18 years.

HATFIELD.—On the whole a dry year; nearly one-fourth of the total R fell in the month of August.

HUDDERSFIELD, DALTON.—Rainfall ·40 in. below the average of 15 years.

WAKEFIELD, ALVERTHORPE HALL.—January remarkably dry. February, March and April very cold, frost and S up to April 20th, May and June dry and warm, rain set in on July 23rd, and it continued cold and wet throughout the autumn.

THORNTON-IN-CRAVEN.—Total rainfall 3·30 in. above the average of 19 years.

HULL, FULFORD HOUSE.—January very cold, temp. falling to 8° on the 15th: a fine spring; heavy R in August; last months very mild.

HULL, DERRINGHAM.—Intense cold during January. Max. temp, 45° on 31st; min. 5° on 15th and 18th; mean 29°·3, the lowest since 1849, and probably since 1814; April cold, with a min. temp. of 22° and S storms on the 20th; May fine and dry, with much sun, but a min. temp. of 27° on 11th; June and July fine, with a fair amount of sun; August and September wet; November and December mild.

HUNMANBY, FOXHOLES RECTORY.—The weather was very severe in January; variable in February; March was not unfavourable, though the rainfall was above the average; April, May, and June were very cold, but comparatively dry; July was bright and hot, with occasional copious showers; frequent heavy rains in August and September; October, for the most part, cold and wet; November and December were unusually mild and sunny.

MALTON.—Rainfall 2·93 in. above the average of 22 years.

AYSGARTH VICARAGE.—Rainfall of the last six months of the year much above the average. Seven falls of R exceeding 1 in. in 24 hours occurred during the year—an unprecedentedly large number.

RICHMOND, FORCETT PARK.—January very dry; February wet; May fine; June fine and hot; July fine; heavy rains in August and September; October and November wet; December very foggy.

DIVISION X.—NORTHERN COUNTIES.

DARLINGTON, HEIGHINGTON.—Rainfall 3·90 in. above the ten years' average.

SEAHAM.—Rainfall of the first six months above the average, and July, August, and September excessively wet, which, accompanied by a low temp. and deficiency of sunshine, proved disastrous to corn and fruit crops.

SUNDERLAND, WEST HENDON HOUSE.—The seventh consecutive wet year. There was, more or less, S on the ground within one mile of this house for 74 consecutive days, viz., January 10th to March 24th, which is the longest period recorded during 25 years.

NEWCASTLE, TOWN MOOR.—An unusual quantity of S; in the aggregate about 6 ft.; rainfall 3·85 in. above the average of 14 years.

BINGFIELD HOUSE.—Very cold spring, very wet autumn, late harvest, November and December very mild, with frequent strong winds.

WHITEHAVEN, BRAYSTONES.—Rainfall 1·62 in. below the average of 17 years.

COCKERMOUTH, WHINFELL HALL.—Rainfall more than 4 in. below the average, early months of the year severe, a cold summer, end of the year mild and open.

COCKERMOUTH, BROUGHTON GRANGE.—Very dry, cold spring, dull, wet summer, with the temp. never above 76°; fine in early autumn; altogether the wettest year since 1877.

BLENCOWE SCHOOL.—January was an unusually cold month, the greatest severity being on the 14th, 15th, and 16th, when the ther. showed readings of -2° , $-2^{\circ}5$, and -3° . On the 14th the max. was 18° , being the lowest recorded here. From the 3rd to the 29th the min. was never above freezing point, the rainfall was very small; the lakes were all frozen and skating was general. February, March and April were cold months, S generally taking the place of R. The fall of March 5th will long be remembered, drifts being 6 ft. deep commonly, and in some railway cuttings 15 to 16 ft. Farm work was much hindered, no corn being sown at the end of March, cold nights and bitter N.W., N. and N.E. winds prevailed during 20 days of April. May was a fairly good month, so too was June; July was not favourable, heavy rains on 5th, 26th and 31st, doing considerable damage. The great drawback of the month, and indeed of the summer was want of sunshine. August, a melancholy month, almost sunless. September, though not wet, was very moist. The remaining months were very mild, unusually so, except the latter days of October.

PENRITH.—Rainfall 4.04 in. above average of 15 years.

KENDAL, KENT TERRACE.—Rainfall 7 in. above the average.

ELTERWATER WOODLANDS.—Rainfall 1.64 in. above the 10 years' average.

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS.

DINGESTOW COURT.—February, August and November wet, the other nine months not remarkable. Winter continued till the middle of April, many shrubs being much injured by the frost; more sunshine than usual, especially in the winter and spring months.

ST. DAVIDS'.—A great fall of S, which stopped ordinary traffic for some days marked the commencement of the year, the spring was cold and dry, upon which the early summer was a great improvement, fair crops of hay were secured in good condition, and the result of the corn harvest exceeded expectation; the autumn was somewhat boisterous and wet, but exceptionally mild.

RHYL.—Very severe frost in January, with heavy fall of S; an unusual amount of R in August, scarcely any fogs during the year.

RUABON, WYNNSTAY.—Beginning of year wet, with severe frost; spring genial and favourable; summer cold and ungenial; autumn

mild and favourable ; end of year mild, open, and comparatively dry, with severe gales. Rainfall below the average.

ROSSETT, TREVALYN HALL.—Total rainfall the smallest since 1874, and 2·42 in. below the average of 10 years ; February, March and August were decidedly wet, January and September dry. Temp. below the average during the greater part of the year, but remarkably so in January ; max. temp. 87° July 5th, min.—2°·5 January 16th.

I. OF MAN, DOUGLAS, VICTORIA ROAD.—A wet and cold year, rainfall above the average of seven years.

JERSEY, ST. AUBINS.—Rainfall 2 in. below the average of seven years, mean pressure, 30·022 in., slightly above the average ; mean temp. 51°·4, 0°·6 below the average. The rainfall was considerably above the average in June and August, and below it in April, September, and November.

SCOTLAND.

DIVISION XII.—SOUTHERN COUNTIES.

CARSPHAIRN.—Almost no summer weather, with the exception of two or three weeks in May.

DUMFRIES, CRICHTON INSTITUTION.—Although the year was moist, the rainfall was scarcely up to the average ; the summer was wet and ungenial, and the last three months were stormy but mild ; the year throughout was unfavourable for vegetation.

THORNHILL, CAPENOCH.—The temp. was generally below the average, and the number of wet days unusually great ; there were several severe storms.

TEVIOHEAD MANSE.—Exceedingly severe winter, and very wet and changeable summer, crops late, and badly secured.

MELROSE, ABBEY GATE.—Rainfall 2·39 in. above the average of nine years ; mean temp. 41°·6, 2°·9 below average ; excessive frost and S at the beginning of the year, little sunshine in summer, gales and heavy rainfall in autumn.

WOOPLOW [GALASHIELS].—Cold and stormy throughout.

DIVISION XIII.—SOUTH EASTERN COUNTIES.

COLDSTREAM, THE HIRSEL.—January and February were remark-

able for extreme frost and heavy snowfall ; the summer was cold and sunless with moderate rainfall ; autumn extremely wet, the falls in August and September being the highest for 13 years, with the exception of August 1877.

MARCHMONT HOUSE.—Dry frosty weather in May, heavy rainfall in August and September.

DIVISION XIV.—SOUTH WESTERN COUNTIES.

BIGGAR, CAMBUS WALLACE.—Although the rainfall of the year was not great, the fall in the summer and autumn months was heavy, and they were characterized by low temp. and a want of sunshine.

HAMILTON, BOTHWELL CASTLE.—The summer temp. in this locality was unusually low and there was little sunshine.

BALLANTRAE, GLENDRISHAIG.—Winter severe, cold and snowy ; spring late, cold and barren ; summer wet and almost sunless ; autumn wet and remarkably stormy.

GIRVAN, PINMORE.—Rainfall .29 in. above the average of 14 years ; summer damp, with an absence of sunshine and heat ; autumn and early winter unusually mild.

DIVISION XV.—WEST MIDLAND COUNTIES.

TARBERT, STONEFIELD.—Winter and spring unusually severe ; summer damp and without heat ; autumn wet and very stormy.

ISLAY, ARDBEG.—Much S and hard frost in January ; February and March very wet ; a late seed-time followed by a wet, sunless summer resulted in a late harvest ; November and December unusually mild, no frost or S, except on the high lands, but a remarkable number of gales mostly from S. or W.

ISLAY, EALLABUS.—Several days' curling in January, never known in Islay before ; March, June, and July cold and wet ; October, November, and December very rough and stormy.

DIVISION XVI.—EAST MIDLAND COUNTIES.

CALLANDER, LENY.—The special features of the year were the long continuance of low temp.—especially severe in the first three months—and the want of sunshine and summer weather ; only three months during the year in which frost was not registered. Max.

temp. 80° in June ; min. 8° in January. Rainfall below the average. Well-grown trees, 30 or 40 years of age—such as elms—split up by the frost in the early part of the year, and Alpine or white hares driven from the higher hills to covers in the valleys.

ARBROATH.—Total rainfall 2·36 in. above the average of 39 years ; February, March, August and October were considerably above the average ; January and April below it.

DIVISION XVII.—NORTH EASTERN COUNTIES.

ABOYNE CASTLE.—The year was marked by very severe frost and heavy S in the first three months ; by extraordinary heat at the end of May and in the first ten days of June ; and by wet, cold, and want of sun during the remainder.

MONYMUSK, CLUNY CASTLE.—The early part of the year was remarkably severe, and the seed-time was cold ; during the last quarter gales were unusually frequent and violent.

ELLON, TILLYDESK.—Rainfall of the year moderate, vegetation suffered greatly by the frosts in June, which were of frequent occurrence.

CRAIGELLACHIE, ELCHIES.—Unusually low temp. in January ; H, S, and frost in June ; July, August and September, comparatively sunless, and consequently cold. Harvest late and precarious. November and December remarkably dry and mild.

GORDON CASTLE.—Intense frost in January, with a deep and lasting S storm, followed by a cold and late spring ; great heat for about a fortnight at the end of May and beginning of June ; a cold sunless summer, lasting till the end of October ; November and December, dry fine, and mild.

DIVISION XVIII.—NORTH WESTERN COUNTIES.

ACHONACHIE LODGE [BEAULY].—Summer mostly wet and cold ; autumn and winter mild and open ; max. temp. 82° on June 1, min. —4° on January 17th.

ALNESS, ARDROSS CASTLE.—The year was memorable for six months of S and frost, followed by a wet and sunless summer.

DIVISION XIX.—NORTHERN COUNTIES.

GOLSPIE, DUNROBIN CASTLE.—The year was dull and sunless, with low temp. during the summer months.

WATTEN.—Long severe winter, noted alike for heavy S drifts and intense frosts ; spring late and cold ; summer, cold, cloudy and sunless ; good autumn, though late and windy ; December exceptionally mild ; frequent heavy gales in the latter part of the year.

IRELAND.

DIVISION XX.—MUNSTER.

CORK, NEWSOM'S QUAY.—Rainfall 2 in. above the average ; max. temp. 75° on June 2nd and July 5th, about five degrees lower than usual ; min. 12° on January 16th, the lowest recorded since 1820.

DROMORE CASTLE.—A wet year but a good deal of sunshine in the dry intervals. November was the most stormy month on record.

PORTLAW, CURRAGHMORE.—A most unkind summer, cold and wet, with very little sunshine ; latter part of the year very wet, more or less rain every day.

TIPPERARY, HENRY STREET.—Rainfall 2 in. above the average of seven years. November was marked by a succession of great storms.

NENAGH, CASTLE LOUGH.—Frost from beginning of January to 25th, except three days, on which S fell. February and part of March rainy ; latter part of March and April fairly dry ; May showery, but very pleasant. Seventy days on which rain fell in the three months, June, July, and August ; September and October fairly dry ; November and December wet and very stormy. Total rainfall about the average.

MILTOWN MALBAY.—The first five months were dry and frosty, night frosts continuing well into June, and doing much damage. Very cold summer with little sun, high winds and much R ; August very rainy, September fair, winter very tempestuous and wet, but mild.

DIVISION XXI.—LEINSTER.

STONEFYORD, INISNAG.—January dry up to 17th, with very low temp., April and May dry, with harsh E. winds, autumn dry and fine, but stormy.

DUBLIN, FITZWILLIAM SQUARE.—Rainfall 1·24 in. below the average of 16 years, number of wet days slightly above it.

BALBRIGGAN.—Rainfall 5·36 in. below the average of 10 years. January was very severe, the roads at one time being blocked by S.

DIVISION XXII.—CONNAUGHT.

BALLINASLOE, GARBALLY GARDENS.—A cold, unfavourable year throughout.

DIVISION XXIII.—ULSTER.

ENNISKILLEN, FLORENCE COURT.—Rainfall of the year above the average. February and March very wet; summer months cold, with much damp weather; November and December much rain, high floods, and very stormy.

NEWCASTLE, FAIRLEIGH.—Temp. very low nearly all the summer; November and December very stormy.

SYDENHAM, ALMA HOUSE.—The rainfall was no less than 6·23 in. in excess of the average of 15 years; in January S fell on six occasions; February and March were very humid, the rainfall of both being considerably above the average. Fortunately the fall in April was slightly under the average, affording a favourable seed-time (though late). May and June were both wet and sunless months, the rainfall of the former being 1·54 in., and of the latter 1·93 in. above the average; July about the average fall with considerable warmth and rapid vegetation; August the driest month of the year, rainfall ·34 in. below the average, with much sunshine and consequent rapid ripening of cereals. September of a like dry character, R ·47 in. below the average, affording a very favourable harvest time, all crops being carried in good condition. The rainfall in October, November and December was only slightly in excess of the average, the autumn being generally fair and enjoyable. No continuous frosts, but low temperatures at intervals, culminating in the min. on December 11th of 18°.

BELFAST, NEW BARNSLEY.—Beginning of the year very severe; spring favourable for agricultural operations; summer and harvest time unfavourable; frequent storms in the last months of the year.

LONDONDERRY.—On the whole a favourable year for agricultural pursuits; very little frost or S, except in the month of January.

COLERAINE.—Total rainfall above the average; unusually large falls in June, July and August.

STEWARTSTOWN.—Rainfall of the year about the average.

DONEGAL.—The year 1881 was even more favourable for agriculture than 1880. Severe frost in the early part of the year; comparatively little rainfall in April and May; heavy fall in June, and moderate again in August and September, while the temp. was mild and genial, and most suitable for the planting, maturing, and ingathering of the crops; max. temp. 77° on May 31st, min. 7° on January 22nd.

RAPHOE, CONVOY HOUSE.—The rainfall of the year was not excessive, though the number of wet days was large, but there was a remarkable absence of heat, the temp. being very low all the summer, and severe frosts frequent in spring; min. temp. 4° on January 21st, max. 74° on May 31st. A constant succession of gales in November, that of the 21st being the heaviest experienced since 1839, and doing an immensity of damage.

RAMELTON, BALLYARE.—The rainfall of the year is low, the first five months having been dry; in January there was much S, and the hardest frost for many years, the temp. on two nights having fallen to zero; the summer was cold, June, July, and August being very sunless, and in the autumn and winter, gales were frequent and severe.

RAMELTON, KILLYGARVAN.—The year was remarkable for very hard frost in January, and a long continuance of S, although the actual fall was not much; a very windy summer and many severe gales in the autumn and winter. Rainfall a little above the average; mean pressure 29·874 in., mean temp. 45°·4, max 77° on May 31st, and June 1st, min. 6° on January 25th.

BUNCRANA, ROCKFORT.—There was little sunshine during the summer months, but the crops were abundant, especially potatoes; the latter part of the year was prolific of storms, rising to hurricanes on October 14th, November 22nd, and December 6th, and doing much damage to trees and houses, and to embankments, sea walls and boats all round the coast.

HEAVY RAINS IN SHORT PERIODS.

I MAY be mistaken, but am strongly inclined to believe that few years have been characterized by a more marked absence of “torrential” rains than 1881. Unfortunately, we have scarcely any *details* of the fall during the great thunderstorm which prevailed over a large part of England and Wales, and especially over Lancashire and Yorkshire, on July 5th–6th, and the three waterspouts of which we have records all fell at some distance from any gauge; hence, the details available for this section of our work are exceptionally meagre.

It will be remembered that in order to keep the length of the list of “Heavy Rains in Short Periods” within moderate compass, we determined approximately what might be regarded as a fall occurring (in some part of the British Isles) with sufficient frequency to warrant its exclusion from the list of exceptionally heavy falls in short periods. The limits suggested by the diagram on p. 122 of *British Rainfall* 1874, and more clearly shown in the frontispiece to *British Rainfall* 1876, and which have been adopted in the table on the following page were as follows:—

Duration of Fall. h. m.	Depth. in.	Rate per hour. in.	Duration of Fall. h. m.	Depth. in.	Rate per hour. in.
5	·20	2·40	45	·60	·80
10	·30	1·80	1 0	·70	·70
15	·35	1·40	1 15	·75	·60
20	·40	1·20	1 30	·78	·52
25	·44	1·06	1 45	·82	·47
30	·50	1·00	2 0	·83	·42

The only entries for 1881 which can be called specially worthy of note are those from Brighton, Llandudno, and Diss, but not one of them is without precedent.

The value of the Brighton observation is materially reduced by the uncertainty as to the duration, which is given as “about five minutes,” however, even if the five were eight or ten, the entry would still be entitled to a place in the table, and that the fall, though very rapid, is not without precedent may be seen by turning to page [79], *British Rainfall*, 1878.

Heavy Falls in Short Periods in 1881.

Date.	Division.	Station.	Amount.	Duration.		Rate per hour.
			in.	hr.	min.	in.
Nov. 24 ...	II.	Brighton, Blatchington Rd	·13	...	2	3·90
July 5 ...	II.	" " " "	·46	...	5 ?	5·52
Jan. 11 ...	X.	Darlington, Heighington.	·41	...	10	2·46
May 26 ...	XI.	Llandudno	1·18	...	25	2·83
July 5 ..	X.	Shap	·70	...	25	1·68
Aug. 21 ...	II.	St. Lawrence	·55	...	25	1·32
Aug. 23 ...	VI.	Ross, The Graig	1·02	...	30	2·04
July 31 ...	VIII.	Macclesfield, Park Green	·52	...	30	1·04
July 31 ...	VIII.	Congleton, Buglawton ...	1·01	...	45	1·36
Aug. 23 ...	VI.	Ross, The Graig	1·31	1	0	1·31
Aug. 22 ...	X.	Whorlton	·78	1	0	·78
May 27 ...	IV.	Diss	1·75	1	10	1·50
Aug. 23 ...	VI.	Ross, The Graig	1·42	1	30	·94
Aug. 16 ...	VI.	Bishop's Castle	1·20	1	30	·80
Aug. 23 ...	III.	Addington ...	1·06	1	30	·71
Aug. 23 ...	III.	Oundle, Bramstone Ho...	1·06	1	30	·71
May 28 ...	VI.	Great Malvern	1·13	2	0	·56
July 6 ...	VII.	Boston	1·08	2	0	·54

Results of Observations of Pastorelli's Storm Rain Gauge and of Casella's Self-recording Rain Gauge, at Camden Square, during 1881.

This statement is chiefly a negative one, the marked feature of 1881 at this station being the absence of torrential rains.

The only set of observations by Pastorelli's gauge which is worthy of note is the following, during a thunderstorm on May 28th :—

Time.	Reading of Gauge.	Fall since previous reading.	Rate of fall per hour.	Time.	Reading of Gauge.	Fall since previous reading.	Rate of fall per hour
6.0 p.m...	0·00 in...	— in...	— in.	6.6 p.m...	·15 in...	·04 in...	2·40 in.
6.1 ...	·01 ...	·01 ...	·60	6.7 ...	·21 ...	·06 ...	3·60
6.2 ...	·02 ...	·01 ...	·60	6.8 ...	·22 ...	·01 ...	·60
6.3 ...	·04 ...	·02 ...	1·20	6.9 ...	·24 ...	·02 ...	1·20
6.4 ...	·06 ...	·02 ...	1·20	6.10 ...	·28 ...	·04 ...	2·40
6.5 ...	·11 ...	·05 ...	3·00				

In the records from the Casella Self-recording gauge, there are scarcely any falls worthy of note, the above being by far the heaviest ; the next to it is a fall of 0·18 in. in 10 minutes, between 11 and 11.10 a.m. on July 5th.

The following table gives all the instances of more than 0·20 in. falling in an hour :—

May 28th	6 to 6.10 p.m.	0·28 in.	Sept. 21st	0.40 a.m. to 1.12 a.m.	·29 in.
June 17th	8 to 9 p.m. ...	·21 in.	,, 25th	1·25 a.m. to 2.25 a.m.	·26 in.
July 6th	1 to 2 a.m. ...	·24 in.	Oct. 23rd	4.45 a.m. to 5.45 a.m.	·22 in.
Aug 12th.	4 to 5 p.m. ...	·28 in.	Nov. 27th	0·30 a.m. to 1.30 a.m.	·24 in

HEAVY FALLS IN 24 HOURS DURING 1881.

THERE are only two ways in which the mass of information extracted and tabulated for the second portion of this article can be brought within reasonable compass. First, by selecting for notice those days on which the heaviest fall in the year (always indicated by **M** = max. fall) occurred at more than a certain number of stations; or, secondly, by selecting those dates on which the falls were themselves large, or large relatively to the total annual fall at the station. In compiling these notes in previous years I have always adopted the second course, but have incidentally referred to the total number of stations at which each fall was the **M**, if that number was at all remarkable. I do not know of any better method, and have, therefore, for the following remarks taken out all instances of upwards of 2 in. of rain falling in 24 hours, or of the fall in 24 hours exceeding 6 per cent. of the total yearly fall.* One or the other, or both, of the above limits have been passed on various dates at 169 stations.

PART I.—CHRONICLE.

At stations in the Isle of Wight and South Hampshire, the fall of **S** during January was so great as to yield the **M**, but owing to the uncertainty attaching to its measurement, it has been thought better to refrain from quoting it as **M**.

FEBRUARY 7TH.

Several small **M**, chiefly in Shropshire, Staffordshire and Derbyshire, producing local but unimportant floods.

FEBRUARY 13TH.

A few **M** in Devon and Cornwall.

* For example, at a station having in 1881 a total fall of 30 inches, the fall in some one day must have been 1·80 inches, in order to entitle it to notice in these pages.

MAY 5TH.

An unimportant M in North Lancashire and Westmoreland.

MAY 17TH.

Very heavy rain in Wales ; the principal M are as follows :—

Cardiff (Pentyrch)	2·05 in.	or 4·2 per cent.
Neath (Glyncorwg).....	3·91 „	4·6 „
Aberdare (Ty Draw)	4·17 „	4·2 „
Trawsfynydd	2·11 „	3·3 „
Rhiwbrifdir	3·27 „	3·4 „

JUNE 6TH.

A local fall near Lynn, in Norfolk ; being a dry district, the percentages are high—

Outwell Sluice	1·73 in.	or 7·1 per cent.
St. Germans	1·96 „	8·5 „
Terrington	2·16 „	8·4 „

JUNE 30TH.

A M at some wet stations and, therefore, a day with large total rainfall, though generally with very small percentage. I have previously pointed out, and nothing has yet occurred to contradict it, that at wet stations the M never bears so large a proportion to the total annual fall as it does at dry stations ; in fact, it may roughly be said that while the total yearly rainfall at a wet station may be *seven times* that at a dry one, the M at a wet station is rarely, if ever, *twice* that at dry ones.

Of course the volume of water produced by a rainfall which probably averaged $2\frac{3}{4}$ inches over the whole Lake District, produced considerable local floods. M above 2·75 in.—

VIII. Hawkshead	3·04 in.	or 4·2 per cent.
X. Seathwaite	4·99 „	3·8 „
„ Wythburn	3·50 „	3·4 „
„ Stapleton	3·62 „	7·9 „
„ Ambleside.....	2·79 „	3·5 „
„ „ Lesketh Howe	2·93 „	3·5 „
„ Patterdale Hall.....	2·90 „	3·4 „

JULY 5TH.

This was in many respects the most important M in the year, but

there are no features of exceptional interest. It was produced by heavy TSS in Lancashire and Yorkshire. M above 2·50 in., or above 7 per cent. were as follows :—

VIII.	Haslingden, Holden Wood	3·25 in.	or 5·2 per cent.
„	Burnley, Simonstone	2·57 „	6·1 „
„	Huncoat, Burnley Res....	3·35 „	7·3 „
IX.	Bradford, Doe Park	2·56 „	5·1 „
„	Pateley Bridge, Grimwith	2·68 „	4·8 „
„	Ripon, Mickley	2·53 „	6·0 „
„	Whitby	2·80 „	8·5 „

JULY 6TH.

TSS in the early morn, chiefly between Reading and Peterborough.

II.	Cookham Vic.....	2·25 in.	or 7·3 per cent.
III.	Wellingboro'	2·21 „	7·1 „
„	Stanground Sluice.....	1·81 „	7·7 „

JULY 31ST.

A very heavy R—perhaps a waterspout—fell in the N.W. of Derbyshire and the E. of Cheshire. At Park Green, Macclesfield, ·52 in. fell in half-an-hour, and at Buglawton, near Congleton, 1·01 in. fell between 0·30 and 1·15 p.m. The fall in 24 hours was 2·38 in. (= 5·7 per cent.) at Matley's Field, Mottram, and 2·13 in. (= 5·1 per cent.) at Hill End, Mottram. Much more must apparently have fallen near Goyts Moss, about three miles W. of Buxton. (*At Buxton the fall was only just above 1 in.*)

BUXTON.—Buxton was visited by a heavy thunderstorm on Sunday afternoon, July 31st, about one o'clock. The lightning was very vivid and startling. Rain fell in torrents, and the gutters being unable to carry away all the water, the footpaths and roads were swept by streams, which cut them up and damaged them to a great extent. It is said that £100 will not repair the damage to the roads and footpaths. A by-wash at the new reservoir in Lightwood burst, and the embankment was carried into the reservoir, doing damage to the extent of £100. Two trees almost in the centre of the town were struck by lightning, one of them being completely stripped of its bark. So severe a storm has not been known in the neighbourhood for years. At the head of the old reservoir Mr. Sawyer Smith's wall was washed down, and also a great deal of rock and stone. Scores of tons of stone, earth, and trees were washed down from the collecting springs to the head of the old reservoir. A number of pipes was also displaced, and the connection between the springs and the pipes was severed. What with the damage to the reservoir and the roads also, it will probably cost the Local Board £200 to restore the same. In

Hogshaw, the brook was considerably swollen, and the water found its way into some of the houses. Many of the lower parts of Buxton were also flooded, and the Gardens did not escape the ruthless influence of the water.

GREAT TORNADO IN THE GOYT VALLEY.—One of the most singular occurrences which has taken place since the memorable flood in 1872, was manifested on Sunday afternoon, and while it lasted created very great concern and fears for the safety of both persons and property. It appears that suddenly, or with very little warning, the high wind in the morning, freshened in the afternoon into a storm, and caused either a cloud or a waterspout to burst with great violence near the Cat and Fiddle at the head of the Goyt Valley, which was quickly flooded to such an enormous extent that the roar of the rushing water could be heard some distance, as it advanced madly carrying trees and stones before it, and in its descent to Whaley Bridge it carried away three foot-bridges, besides sundry planks crossing the stream. In the valley in which the gunpowder manufactories of the Fernilee Gunpowder Mills Company are situate, the works were deluged, the valley being like an immense lake, the tramways to the various buildings were torn up and washed away, the roads destroyed, and much loose timber carried away. A cottage near, which had only been repaired lately, and inhabited, was half filled, and surrounded with water, the inhabitants managing to escape and obtain shelter elsewhere. Reaching the valley above the Botany Bleach Works of Messrs. Hall Brothers, at Harwich End, the banks of the Goyt became a vast lake; sand, stones, timber, and even a large foot-bridge being carried off and deposited high and dry on the shore after the water had receded. A large wall had its top portion lifted away some distance. At Messrs. Hall's works the water pipes were broken for a great length, and some of the supports of a wooden trough were bent and twisted almost from their places by the force of the flood. The noise of the stream at Whaley Bridge was very great, and the fury of the torrent which moved down in one vast volume was astonishing. It subsided very quickly, though till about six o'clock there was a great stream flowing. The banks below Whaley Bridge were torn down and much damaged.

At the village of Combs, near Chapel-en-le-Frith, considerable damage was done to the hay crops as the water rolled down the hillsides like small rivers. The large reservoir which supplies the Peak Forest canal was very low at the time, and so was capable of receiving a large portion of the water. Had not this been the case the damage must have been most serious. The water came with such a sudden rush that it rolled down the river course like one huge wave. *Buxton Advertiser, August 6th, 1881.*

AUGUST 21st.

A B of considerable intensity, but generally of short duration occurred in the Isle of Wight and adjacent counties. At St. Lawrence, Isle of Wight, 0·55 in. fell in 25 minutes, at Dale Park, Arundel, 0·70 in. fell in half-an-hour, and at Mudieford, Christ Church, 0·30 in. fell in 20 minutes.

AUGUST 23RD.

M at stations in several counties between Somerset and the south-east of Yorkshire ; the only entries worthy of note are—

VI.	Atherstone	2.40 in.	or 8.6 per cent.
VII.	Doddington.....	1.71 ,,	7.1 ,,

AUGUST 24TH.

M at some stations south of Edinburgh ; the fall at Clubbiedean was 2.70 in., or 6.6 per cent.

AUGUST 25TH.

There were three groups of M on this day, the first and largest in North Lancashire and West Yorkshire, another in Central Aberdeenshire, and the third in the N.E. of Ireland. The English falls above 2.75 in. were—

VIII.	Poaka Beck	3.08 in.	or 5.1 per cent.
„	Little Langdale	4.85 ,,	4.0 ,,
IX.	Dunsop Houses	2.80 ,,	4.1 ,,

The Aberdeenshire values above 6 per cent. were—

	Braemar	2.56 in.	or 6.9 per cent.
	Tillypronie	2.26 ,,	7.3 ,,
	Blackstock	2.08 ,,	6.5 ,,
	Kinmundy	1.85 ,,	6.2 ,,

AUGUST 30TH.

A waterspout burst near Selling, Kent, but no rain gauge was near the spot.

SEPTEMBER 5TH.

A rather heavy fall in the Dartmoor district, but not calling for much special notice, although the fall of 2.43 in. at Kingsteignton is reported by the observer there as unprecedented.

SEPTEMBER 21ST.

Another heavy M in Aberdeenshire and parts of Perth and of Forfar, extending southward along the east coast as far as North-umberland. The following are the principal values :—

XVI.	Inver Braan	2.11 in.	or 5.0 per cent.
„	Dundee	2.25 ,,	7.0 ,,
„	„ Eastern Necrop... ..	2.35 ,,	6.9 ,,
„	„ Broughty Ferry... ..	2.13 ,,	6.1 ,,
„	Balnakilty	2.69 ,,	6.9 ,,
XVII.	Glen Tanar	2.48 ,,	6.4 ,,
„	Aboyne Castle.....	3.20 ,,	10.6 ,,
„	Manse of Logie	2.38 ,,	8.0 ,,
„	Loanhead	2.38 ,,	8.6 ,,
„	Cluny Castle	2.05 ,,	6.8 ,,

OCTOBER 8TH.

A M in the south-east of England ; the greatest rainfall was 2·72 in. (=6·6 per cent.), at Hythe, being the greatest fall recorded at that station since 1865. The greatest percentage was 7·4 ; (=1·81 in.), at Hunton Court, Maidstone.

OCTOBER 13TH.

Heavy R general, but not important anywhere. M above 2·50 in. :—

IX.	Dunford Bridge	2·68 in.	or 5·0 per cent.
XI.	Mardy	2·51 „	4·3 „
XII.	Drum Park	2·50 „	4·5 „

OCTOBER 21ST.

A waterspout burst, or at any rate an exceptional fall of water occurred, on the high ground (806 ft. π) known as Little Haldon, about 3 miles W. of Dawlish, and about the same distance N.W. of Teignmouth, Devonshire. The largest amount of rain actually measured was 2·06 in., at Lower Reservoir, Teignmouth, the M for that station (=4·6 per cent.), and about $1\frac{3}{4}$ in. was measured at most stations in the neighbourhood. Very much more must have fallen on the hill, as the following extracts from the careful report prepared for the *Meteorological Magazine* by Mr. G. W. Ormerod sufficiently prove :—

Lidwell Farm, distant about two miles and a half from Teignmouth, and about the same distance from Dawlish, is situated on the highest level ground at the end of a deep narrow valley to the west of Dawlish, where it nestles in a nook at the foot of the abrupt hill-sides of Little Haldon. A small brook, commencing near the ruins of “Lidwell Chapel,” runs to the west of the farm-house, and falls, just above the farm-yard, nearly at right angles into another brook which, also coming from Little Haldon, passes in nearly a direct line through the farm-yard. Sheds and cart-houses stand on the right of the brook, and the house and the more important farm-buildings on the left. On the morning of Friday, October 21st, the fall of rain was moderate, until about 8 o'clock a.m., when a labourer, standing on a raised terrace that overlooked the farm-yard, saw it filled with water in the course of a few minutes. The pigs below him were saved with difficulty, and such was the case with a cow and a calf ; a cart and horse ready to start were nearly washed away, but were saved by the farmer, who went through water that reached above his waist, and he is five feet eight inches in height. The only loss of life was of four fowls and one duck. Earth, sand, and stones were washed down in considerable quantity, and coloured marks on a cart-shed to the right of the brook show that the flood had risen about five feet above the ordinary height of the stream. The mass of water that caused this damage appears to have fallen suddenly on

the upper part of the hill, and on the hill-sides to the west of Lidwell Farm ; the hill-sides to the east and south are not injured. A neighbouring farmer in the same valley saw the water rolling down the hill-side, and rode home to prevent his farm being damaged by the flood. Smallcombe Farm, in the next valley to the north of Lidwell, stands near a brook that joins, a short distance lower down, the brook that runs by Lidwell. This farm-house is also at the foot of the hill-side ; the water rushed down upon it from Little Haldon. Some of the fields were much cut up, and the flood got into the house, bringing stones, gravel, and mud in such quantities that the lowest floor was made uninhabitable, and the household had to remove upstairs.

* * * * * * *

The road to Kingsteignton is, I am informed, greatly damaged, being torn up to the depth of 18 inches, and banks of stone, gravel, and rubbish deposited. Similar damage has taken place on the road descending to Ideford ; the rush of water has made a hollow, about three feet deep, along the centre of parts of the road from Ideford to Luton, and the foot-bridge at that place has been washed away.

NOVEMBER 26TH.

The **M** at a few stations very widely scattered.

DECEMBER 13TH.

Heavy **M** in the N.W. of Scotland, the most remarkable being 5·42 in.=4·7 per cent., at Sligachan, Skye.

PART II.—ABSTRACT.

In this second part of the discussion of heavy falls in 24 hours, date, and the geographical limits of individual rains are of secondary importance, the primary points being—

- (1) To ascertain from Table I. the greatest **M** in any part of the British Isles, and in Table II. to compare them with the corresponding data for previous years.
- (2) To ascertain from Table III. what have been the greatest percentages of the total fall in the year which have fallen in any 24 hours, and by Table IV. how these values compare with those of previous years.
- (3) To compare, by means of Table V., what has been the average value of the **M** at upwards of a thousand stations; how this compares with previous experience, and to examine other results afforded by this investigation.

There are always two difficulties connected with these tables—
 (1) The certainty that, no matter how large our staff of observers, we shall never obtain records of *all* the heaviest falls; they are generally very local, and no system of rain gauge stations which could reasonably be established would prevent such falls as those of July 31st, August 30th, and October 21st, 1881, escaping without being quantitatively recorded; (2) That frequently the extreme M fail to be recorded owing to the observers allowing their rain gauges to become filled and to overflow. I am glad to report that at present I am aware of only two records thus vitiated during 1881.

The greatest fall in 24 hours during 1881 occurred at Sligachan, a very wet station under the Cuchullin Hills and about nine miles S. of Portree, in the Isle of Skye, the total amount being 5·42 in. ; then follow two stations in the English lake district, with between $4\frac{3}{4}$ and 5 in. ; two in South Wales, each with about 4 in. ; and eight others, with between 3 and 4 in., in different districts. Table II. shows that these amounts do not differ much from the average, but that an unusual number of them occurred in wet localities, which, of course, involves the further result that unusually few of them occurred in dry districts.

This last fact comes out most strikingly in Table IV., where we find that the highest percentages were 13 per cent. below the average ; in fact, have since 1864 been lower only in the years 1869 and 1876, thus proving in the fullest manner the rarity of torrential rains in 1881.

Table V. shows in the first place how heavy this branch of the work has become, for it shows that 1,194 records have been extracted and their percentages computed and discussed, But it shows something more important, for it shows that, taking the whole of the British Isles, the heavy falls were less than usual, both in amount and in relation to the total yearly fall.

TABLE I.—*Maximum Falls in 1881.*

Date.	Div.	Stations.	Depth.	Per cent.	Fall in year.
Dec. 14 ...	XVIII.	Skye (Sligachan)	5·42in.	4·7	115·41 in.
June 30 ...	X.	Seathwaite.....	4·99 ,,	3·8	130·58 ,,
Aug. 25 ...	VIII.	Bridge End [Little Langdale]	4·85 ,,	4·0	121·12 ,,
May 17 ...	XI.	Aberdare (Ty Draw)	4·17 ,,	4·2	98·83 ,,
" " ...	"	Neath (Glyncorwg)	3·91 ,,	4·6	85·83 ,,
June 30 ...	X.	Stapleton	3·62 ,,	7·9	45·82 ,,
" " ...	"	Wythburn Vicarage.....	3·50 ,,	3·4	102·45 ,,
July 5 ...	VIII.	Huncoat (Burnley Road Res.)	3·35 ,,	7·3	45·63 ,,
May 17 ...	XI.	Rhiwbryfdir	3·27 ,,	3·4	96·79 ,,
July 5 ..	VIII.	Haslingden (Holden Wood)..	3·25 ,,	5·2	62·76 ,,
Sept. 21 ...	XVII.	Aboyne Castle	3·20 ,,	10·6	30·09 ,,
Aug. 25 ...	VIII.	Ulverston (Powka Beck) ...	3·08 ,,	5·1	60·65 ,,
June 30 ...	"	Hawkeshead	3·04 ,,	4·2	72·69 ,,
May 5 ...	X.	Elterwater.....	2·96 ,,	3·2	92·79 ,,
June 30 ...	"	Ambleside (Lesketh Howe) ..	2·93 ,,	3·5	82·77 ,,
" " ...	"	Patterdale Hall	2·90 ,,	3·4	85·05 ,,

TABLE II.—*Comparison of Maximum Falls with those in previous years.*

MEAN.				ABSOLUTE.			
Years.	Depth.	Per Cent.	Mean total fall at these stations.	Depth.	Per Cent.	Station.	Division.
	in.		in.	in.			
1865 ...	3·67	6·4	61·8	6·41	5·5	Seathwaite.....	X.
1866 ...	3·40	4·4	86·2	6·38	3·6	Seathwaite.....	"
1867 ...	3·17	9·0	42·5	4·78	17·7	Hartlip	II.
1868 ...	3·32	6·1	65·9	5·60	4·8	Camusinas.....	XV.
1869 ...	3·68	5·0	77·7	6·70	4·5	Seathwaite.....	X.
1870 ...	3·20	7·5	43·8	6·00	17·1	Tongue	XIX.
1871 ...	3·08	5·7	61·6	4·24	9·6	Melbury.....	V.
1872 ...	4·10	6·6	73·1	5·82	3·2	Seathwaite.....	X.
1873 ...	2·97	6·2	60·7	4·20	2·9	Seathwaite ...	"
1874 ...	3·96	4·6	86·5	5·32	4·4	Bryn Gwynant	XI.
1875 ...	4·52	7·8	63·9	5·33	9·7	Newport W. W.	"
1876 ...	3·37	5·9	57·6	4·50	5·5	Foffany	XXIII.
1877 ...	3·77	4·6	93·4	4·98	5·3	Skye, Portree..	XVIII.
1878 ...	3·57	7·4	57·2	4·24	8·6	Springfield ...	XI.
1879 ...	3·66	9·5	50·4	4·05	4·1	Little Langdale	X.
1880 ...	3·50	7·7	51·1	4·75	3·9	Seathwaite.....	"
Mean ...	3·56	6·5	64·6	5·21	6·9	.....	...
1881 ...	3·65	4·9	83·1	5·42	4·7	Sligachan	XVIII.
Diff. ...	+·09	-1·6	+18·5	+·21	-2·2	.....	...

TABLE III.—*Maximum Per-Centages in 1881.*

Date.	Div.	Stations.	Per Cent.	Depth.	Fall in year
Sept. 21 ...	XVII.	Aboyne Castle	10·6	3·20in.	30·09 in.
" " ...	"	Cromar (Loanhead)	8·6	2·38 "	27·61 "
Aug. 23 ...	VI.	Atherstone	8·6	2·40 "	27·87 "
July 5 ...	IX.	Whitby	8·5	2·80 "	32·75 "
June 6 ...	IV.	St. Germans (Outlet Syphons)	8·5	1·96 "	23·12 "
" " ...	"	Terrington.....	8·4	2·16 "	25·85 "
Sept 21 ...	XVII.	Cromar (Logie Coldstone) ...	8·0	2·38 "	29·76 "
June 30 ...	X.	Stapleton	7·9	3·62 "	45·82 "
Feb. 11 ...	VI.	Stoke (Stanley Res.)	7·8	2·00 "	25·58 "
July 6 ...	III.	Stanground Sluice	7·7	1·81 "	23·52 "
March 5 ...	VI.	Coalbrookdale (Horsehay) ...	7·7	1·76 "	22·74 "
" " ...	X.	Seaham Hall.....	7·6	2·70 "	35·54 "
Oct. 8 ...	II.	Maidstone (Hunton Court)...	7·4	1·81 "	24·53 "
July 5 ...	VIII.	Huncoat (Burnley Road Res.)	7·3	3·35 "	45·63 "
Aug. 25 ...	XVII.	Tillypronie	7·3	2·26 "	30·77 "
July 6 ...	II.	Cookham Vicarage	7·3	2·25 "	30·64 "

TABLE IV.—*Comparison of Maximum Per-Centages with those in previous years.*

Years.	MEAN.			ABSOLUTE.			
	Per Cent.	Depth.	Mean total fall at these Stations.	Per Cent.	Depth.	Station.	Division.
		in.	in.		in.		
1865 ...	9·9	2·62	28·4	13·0	4·40	Fleckney.....	VII.
1866 ...	8·1	2·31	29·3	10·0	2·48	Burton	VI.
1867 ...	11·0	2·85	25·3	17·7	4·78	Hartlip	II.
1868 ...	8·6	2·55	30·1	11·0	4·00	Tongue	XIX.
1869 ...	7·9	2·17	27·9	10·0	3·40	Tillydesk	XVII.
1870 ...	10·0	2·34	22·9	17·1	6·00	Tongue	XIX.
1871 ...	9·0	2·43	26·8	11·5	3·62	Warter	IX.
1872 ...	8·1	3·43	42·5	10·0	3·70	Hillington Hall	IV.
1873 ...	9·7	2·39	24·7	11·8	2·77	Oscott	VI.
1874 ...	9·2	2·16	23·7	11·9	2·50	Welwyn.. [Hall	III.
1875 ...	10·2	3·76	37·5	13·2	3·95	Letheringsett ...	IV.
1876 ...	7·4	2·49	33·7	8·5	3·70	Cragside	X.
1877 ...	8·2	2·73	33·1	9·3	3·09	Wellington.....	VI.
1878 ...	10·2	3·05	30·0	11·8	3·90	Haverstock Hill	I.
1879 ...	10·9	3·31	30·5	12·3	3·80	CambridgeM. V.	III.
1880 ...	9·5	3·06	32·3	11·7	3·34	Marmont Pr. L.	III.
Mean ..	9·2	2·73	29·9	11·9	3·72	.....	...
1881 ...	8·1	2·42	30·3	10·6	3·20	Aboyne Castle..	XVII.
Diff. ...	-1·1	-·31	+ ·4	-1·3	-·52	.....	...

TABLE V.—*Comparison of the Mean of all the Maximum Falls in 1881 with similar data for previous years.*

Years.	Number of Returns.	Mean Percentage.	Mean Amount.	Mean Total Fall in year.	1867 being assumed =100.	Total Fall being assumed =34in. Mean Max. =
			in.	in.		
1865.....	481	5.1	1.70	33	106	5.00 per cent
1866.....	590	3.7	1.48	40	129	4.35 "
1867.....	584	4.6	1.44	31	100	4.24 "
1868.....	676	4.3	1.43	33	106	4.21 "
1869.....	637	4.2	1.42	34	108	4.18 "
1870.....	687	4.9	1.30	27	81	3.82 "
1871.....	752	4.9	1.49	30	98	4.38 "
1872.....	743	3.4	1.59	47	151	4.68 "
1873.....	809	4.6	1.35	29	94	3.97 "
1874.....	1010	4.4	1.41	32	103	4.15 "
1875.....	1081	5.0	1.83	37	119	5.38 "
1876.....	1112	3.9	1.49	38	123	4.38 "
1877.....	1180	3.8	1.56	41	132	4.59 "
1878.....	1186	4.3	1.49	35	113	4.38 "
1879.....	978	4.2	1.52	36	116	4.47 "
1880.....	1117	4.8	1.72	36	116	4.41 "
Mean ...	852	4.4	1.51	35	112	4.41 "
1881.....	1194	4.1	1.45	35	113	4.27 "
Diff.....	+ 342	— .3	— .06	0	+ 1	— .14 "

MONTHLY FALL OF RAIN IN 1881.

THE "Observers' Notes upon the Months of 1881" on pages [30] to [76] have given such full verbal descriptions of the special characteristics of each month in all parts of the British Isles that it remains only to give the absolute rainfall values, and a very brief summary of what they prove.

As regards the absolute values, the following pages contain records from 232 stations selected primarily with the object of securing an equal amount of information from all parts of the British Isles, due attention being paid to the accuracy of the observations, to the assumed or known good position of the rain gauge, and to the desirability as far as practicable (in order to secure continuity) of quoting the same station year after year.

Having thus stated in the most concise manner possible, the guiding principles upon which these voluminous monthly tables are compiled, it appears unnecessary to do more than to leave them to speak for themselves.

In the next place, there is the series of twelve maps—one for each month. For the construction of these, 45 stations were chosen, for each of which the monthly mean was determined for each month from the observations made during the decade 1870-79. Then a table was constructed, showing for each station whether the fall in each month of 1881 was within one inch of the average, or more than an inch above or below it. Upon the map for each month were then placed marks over the site of each station, indicative of the relation of the fall in that month to the average. These symbols are :— when within an inch of the average a round dot, when more than an inch above it a +, and when more than an inch below it a —.

It now remains only to describe the broad general features of the rainfall of each month.

JANUARY.

It might be expected that the remarks upon this month would be rendered uncertain and misleading by the great snowstorm which we

have so often mentioned. But that is not the case. Important though the fall was, it chiefly affected only half-a-dozen counties—certainly not one-tenth of the area of the British Isles. It must also be remembered that even two feet of snow will not yield the amount of water deposited in perhaps a couple of hours by an exceptional thunderstorm. Moreover, observers who have perfect averages for ten or more years are, as a rule, sufficiently trained, and interested in the continuity of their records, to exert themselves when such an exceptional phenomenon occurs, and thereby secure a fairly accurate record. For all these reasons, and from internal evidence, we see no reason to doubt the accuracy of our information respecting January. The fall was below the average in almost all parts of the British Isles, the only exception being in the N.E. of Aberdeenshire.

FEBRUARY.

Generally wet, the excess largest in the centre and east of England. In Lancashire and in Roxburghshire, there were stations with less than the average.

MARCH.

Rainfall generally above the average, especially in Lancashire, Yorkshire, and the S. of Scotland. Rather wet also in Cornwall, and the W. of England generally, but R not so heavy as in February.

APRIL.

A dry, or very dry, month at every British station. At many stations, especially in the S.E. of England, the fall was not half, and at some not one quarter, the average.

MAY.

The driest month of the year in most of the eastern counties of England, and rather dry than otherwise in most parts of England, S.E. of Derbyshire. Rather above the average in the N.W. of England, S.W. of Scotland, and N.E. of Ireland.

JUNE.

Rather a wet month, especially in the W. of England, Wales, the West of Scotland, and in Ireland. Dry in the N.E. of England.

MONTHLY MAPS OF RAINFALL in 1881.



For explanation see page [109].

MONTHLY MAPS OF RAINFALL in 1881.



For explanation see page [109].

JULY.

In England the rainfall was generally near the average, in Wales and Ireland below it, and in Scotland above it. At a few stations in Shropshire and Staffordshire the fall was small ; in Lancashire and N.E. Yorkshire there were some stations with large falls produced by the TS of July 5th.

AUGUST.

A very wet month, the wettest month of the year in every English county except Kent, Devon, and Cornwall. Wet in Wales, but not as wet as November. The wettest month in the year at all stations in the S.E. of Scotland, but only the average fall, or even a deficiency, in other parts. Rather wet in Ireland, but the wettest month of the year only in Waterford, Carlow, Dublin, Louth, and adjoining counties.

SEPTEMBER.

The rainfall generally rather below the average than otherwise, but not exceptional in any part of the British Isles.

OCTOBER.

The fall in this usually wet month was generally below the average, although not remarkably so at any station. In two small districts the fall was above the average, viz., in the west of Aberdeenshire and in the S.W. of Ireland.

NOVEMBER.

Generally a wet month, but not excessively so. It was the wettest month in the year in the hilly districts of Devon and Somerset, in most parts of Wales, at the majority of stations in Scotland, and in the S.E., and the extreme W., of Ireland.

DECEMBER.

Rather a wet month, especially in Cornwall, and similarly outlying parts of Wales, Scotland and Ireland. Rainfall below the average in the N.E. of England and of Scotland.

MONTHLY RAINFALL AT 232 STATIONS IN THE BRITISH ISLES DURING 1881.

ENGLAND.

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
I.	Middlesex	London (Camden Sq.)	1.85	3.09	2.30	.46	1.52	1.72	1.85	4.89	2.03	2.99	2.75	2.47	27.92
	"	Uxbridge (Harefield)	2.16	3.51	2.04	.70	1.65	2.04	1.71	4.81	2.06	2.66	2.72	4.22	30.28
II.	Surrey	Guildford (Guildown)	1.29	2.14	1.60	.54	1.24	1.56	1.86	4.24	2.48	1.81	3.02	2.66	24.44
"	Kent	Tenterden	1.29	1.92	2.21	.74	.99	2.79	2.36	3.98	3.01	3.60	4.06	3.69	30.64
"	"	Hythe	1.34	2.79	3.11	.99	1.58	3.07	2.81	6.37	3.99	7.41	3.80	3.89	41.15
"	"	Seven Oaks (River Hill)	2.04	2.60	2.07	.44	1.08	1.97	.91	3.63	2.71	3.08	3.70	2.84	27.07
"	"	Faversham (Ospringe)	1.27	1.47	1.58	.53	1.29	2.35	1.17	3.20	2.48	3.84	3.00	3.61	25.79
"	Sussex	Worthing	1.83	3.51	2.68	.66	1.18	2.76	1.55	4.18	2.43	2.33	3.65	3.65	29.60
"	"	Maresfield (Forest Lodge)	1.73	4.22	2.81	.66	1.08	2.06	1.38	4.92	3.47	2.56	4.48	3.72	33.09
"	"	I. of Wight (St. Lawrence)	2.78	4.06	2.54	1.13	1.21	1.99	1.87	4.11	1.77	1.68	4.10	4.71	31.95
"	"	Droxford	1.39	3.21	2.86	.69	1.23	2.37	1.70	5.15	2.19	1.84	5.17	3.43	31.73
"	"	Basingstoke (Sherborne)	1.59	2.75	2.00	.53	1.63	1.80	1.66	6.33	1.65	1.50	3.76	3.05	28.25
"	Berks	Newbury (Welford)	2.19	3.63	2.18	.78	1.25	1.99	1.67	6.25	1.93	2.00	3.77	3.37	31.01
III.	Herts	Hertford (Bayfordbury)	1.36	3.06	2.02	.98	1.04	1.79	1.96	4.00	1.66	3.00	2.85	3.58	27.30
"	"	Royston	1.35	2.74	1.18	1.03	.66	1.69	1.76	4.61	1.50	1.98	2.06	3.47	24.03
"	"	High Wycombe	1.88	2.74	2.00	.41	.98	2.19	1.92	5.65	2.00	2.38	2.50	3.30	27.95
"	"	Buckingham (Adstock)	1.51	2.47	1.71	.57	1.11	2.11	3.07	4.47	1.60	2.79	3.09	3.45	27.95
"	Oxford	Oxford	1.20	2.68	1.38	.80	1.44	1.78	2.18	4.64	1.39	1.88	3.15	2.89	25.41
"	Northampton	Wellingborough	1.39	3.27	1.95	1.50	.83	2.43	4.07	4.38	1.82	3.31	2.94	3.22	31.11
"	Bedford	Bedford	1.08	2.32	1.37	.80	.63	1.82	2.37	5.50	1.98	2.40	2.10	2.93	25.30
"	Cambridge	Ely (Stretham)	.70	1.30	.92	1.14	.82	2.24	2.09	4.55	2.40	2.42	1.53	2.57	22.68
"	"	Wisbech	1.08	2.22	1.94	1.77	.59	2.78	2.27	3.31	2.77	2.40	2.13	4.50	27.76
IV.	Essex	Waltham Abbey	.94	3.13	2.00	1.14	.86	1.30	2.06	4.13	1.92	2.50	2.55	3.50	26.53
"	"	Chelmsford	1.32	2.36	1.76	.56	.63	1.85	1.72	3.94	1.94	3.03	2.39	3.00	24.50
"	"	Braintree (Bocking Place)	1.14	2.62	1.68	1.45	1.02	1.92	1.57	4.29	2.27	2.21	2.94	3.48	26.59
"	Suffolk	Hadleigh Boxford	.80	2.19	1.63	1.42	.88	2.17	1.60	4.04	2.58	3.19	1.78	3.10	25.38
"	"	Ipswich	1.20	2.53	1.81	1.10	.82	2.06	1.56	3.69	2.24	3.05	1.64	3.30	25.00
"	"	Saxmundham	1.25	2.52	1.81	1.27	.98	2.31	1.54	4.13	3.32	3.53	1.63	3.46	27.75
"	Norfolk	Geldeston [Beccles]	1.06	2.86	1.54	1.09	1.01	1.69	1.07	3.87	2.46	3.33	1.36	2.95	24.29
"	"	Swaffham	1.02	3.28	2.04	1.12	.97	1.89	2.64	4.52	3.26	2.35	2.26	2.67	28.02
"	"	Holt	1.61	3.04	1.92	.81	.69	1.60	1.59	2.76	2.71	2.94	2.40	2.89	24.96

ENGLAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
V.	Wilts	Salisbury	2.35	3.63	2.52	.56	.98	2.02	1.82	5.96	1.59	1.34	4.20	3.35	30.32
"	"	Pewsey	2.77	3.01	2.34	.72	1.24	2.03	1.77	5.96	1.33	1.49	3.22	3.42	29.30
"	"	Trowbridge (Steeple Ashton)	1.56	2.97	1.62	.46	1.58	2.39	1.91	5.20	1.73	1.47	3.30	2.99	27.18
"	Dorset	Weymouth (Osmington)	1.85	4.52	3.16	1.08	1.05	3.01	1.75	5.98	2.54	2.41	5.36	3.45	36.16
"	"	Wimborne (Chalbury)	3.38	3.41	2.59	.80	.75	1.75	1.63	5.84	2.17	1.56	5.19	3.06	32.13
"	"	Shaftesbury	1.68	3.62	2.62	1.26	1.45	2.81	2.27	7.12	2.12	2.21	4.54	4.03	35.73
"	Devon	Kingsbridge	4.85	5.72	4.81	.98	1.18	3.49	2.23	4.12	2.77	3.64	6.70	3.99	44.48
"	"	Dartmoor (Lee Moor)	5.60	8.09	7.63	1.90	2.13	5.90	3.95	8.42	3.93	6.06	9.04	6.78	69.43
"	"	Bovey Tracey	2.55	6.78	5.83	.96	1.91	3.76	2.07	4.71	2.57	5.60	7.48	4.52	48.74
"	"	Cullompton (Bradnich)	2.82	4.77	3.59	1.34	1.15	3.59	2.61	5.52	1.10	2.67	3.75	3.39	36.30
"	"	S. Molton (Rose Ash)	2.31	3.45	3.18	1.32	1.58	2.66	2.88	5.96	2.58	2.99	4.27	4.42	37.60
"	"	Penzance	3.24	5.15	3.90	1.18	1.14	3.94	3.75	4.39	1.96	2.36	4.85	5.35	41.21
"	Cornwall	St. Agnes	1.98	4.00	3.64	1.08	1.05	3.55	3.05	3.43	1.52	3.82	4.27	4.97	36.36
"	"	Stratton (Week St. Mary)	1.87	3.47	3.69	.68	2.11	4.32	3.25	4.64	1.79	2.63	5.01	6.11	39.57
"	"	Ilminster	3.79	5.02	2.44	1.65	1.20	2.89	2.28	4.55	2.26	2.01	4.36	3.41	35.86
"	Somerset	Glastonbury (Street)	1.98	3.70	2.15	1.67	1.52	2.89	2.12	4.41	2.29	1.63	3.62	3.38	31.36
"	"	Dunster	1.00	2.89	1.98	1.46	1.20	2.50	1.64	3.25	2.02	3.58	4.74	3.79	30.05
VI.	Gloucester	Clifton	1.71	3.84	1.94	.61	1.52	3.55	2.47	5.64	2.10	2.26	4.32	4.15	34.11
"	"	Stroud (Upfield)	1.09	3.85	1.29	.60	1.09	3.57	2.26	4.71	1.50	1.91	3.56	2.81	28.24
"	"	Fairford (Hatherop Rec.)	1.39	4.57	1.90	.82	1.24	2.11	3.43	5.30	1.90	1.85	4.18	3.05	31.74
"	Hereford	Ross (Rocklands)	.91	3.42	2.05	.62	2.41	2.94	1.50	4.78	1.71	2.63	3.88	2.95	29.80
"	Salop	Ch. Stretton (Woolstaston)	.64	4.11	2.46	1.12	2.15	3.22	1.14	4.48	1.74	2.82	3.74	4.10	31.72
"	"	Wellington	.44	3.04	2.29	1.04	1.85	2.99	1.56	4.12	1.53	2.68	2.05	3.00	26.59
"	"	Oswestry	.68	5.28	4.08	.95	2.73	2.40	2.40	4.90	2.28	3.05	5.00	3.70	37.45
"	Stafford	Tamworth	.61	3.44	2.42	.65	1.23	2.22	1.12	4.76	2.01	3.04	2.46	2.86	26.82
"	"	Burton (Shobnall)	.41	3.95	2.27	.62	1.30	2.00	.90	4.34	1.47	2.88	2.25	2.46	24.85
"	"	Stoke (Barlaston)	.65	4.59	2.13	1.25	1.94	2.95	2.27	6.07	.74	4.09	3.53	3.11	33.32
"	Worcester	Blockley	1.41	3.33	1.85	.68	.95	2.97	2.52	5.16	1.29	2.21	2.76	3.38	28.51
"	"	Malvern	1.42	3.88	2.26	1.14	2.45	2.85	1.94	5.26	2.19	2.52	3.45	2.66	32.02
"	"	Tenbury (Orleton)	.65	3.46	2.06	.91	1.34	2.53	1.47	3.88	1.95	3.00	3.33	2.59	27.17
"	"	Stourbridge (Longlands)	.65	2.83	1.72	.94	1.55	2.22	1.68	4.45	1.50	2.31	2.88	2.93	25.66
"	Warwick	Leamington (Blackdown)	.63	4.06	1.74	.63	1.30	2.01	2.37	3.85	1.58	2.32	2.86	2.83	26.18
"	"	Willey Rectory	.84	3.84	1.84	.60	1.25	2.33	2.16	5.36	2.29	2.94	2.77	2.69	28.91
VII.	Leicester	Loughborough	.54	3.78	2.02	1.56	.92	2.01	1.80	5.33	1.90	3.41	2.32	2.78	28.37
"	"	Harston [Grantham]	1.52	3.63	2.07	1.08	1.05	1.52	1.60	5.17	3.27	2.78	2.95	2.79	29.43

ENGLAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
VII.	Rutland	Tollethorpe Hall	.89	2.93	1.56	.87	.68	2.23	2.70	4.18	2.41	3.61	2.37	2.44	26.87
"	Lincoln	Horncastle	.46	3.40	1.31	1.42	1.28	2.20	2.64	3.83	2.29	3.09	2.73	2.73	27.38
"	"	Brigg (Appley Vic.)	.59	3.06	2.07	1.75	.74	2.35	1.27	5.26	2.71	2.10	2.65	2.31	26.86
"	Notts	Mansfield	.69	4.44	3.07	1.12	1.57	2.00	1.30	5.72	1.81	3.10	2.81	2.58	30.21
"	Derby	Buxton	.38	8.07	6.22	1.87	4.30	3.13	3.51	6.89	2.42	6.12	6.51	5.78	55.20
VIII.	Cheshire	Congleton (Buglawton Vic.)	.47	4.23	3.63	1.11	2.88	2.37	3.53	5.56	1.75	2.39	3.44	3.48	34.84
"	Lancashire	Manchester (Withington)	.46	4.74	3.96	1.36	3.24	1.99	2.42	4.85	2.33	2.41	3.12	3.73	34.61
"	"	Ormskirk (Rufford)	.64	4.43	3.29	1.27	3.28	2.48	3.46	5.03	1.70	3.52	3.68	4.05	36.83
"	"	Burnley	.33	5.34	4.33	1.52	3.21	1.84	4.60	5.77	1.53	2.36	4.08	4.75	39.66
"	"	Garstang (Vale House)	.72	4.72	4.20	1.90	4.30	3.91	6.01	7.54	2.37	2.90	5.16	4.26	47.99
"	"	Grange (Nutwood)	.59	4.50	5.21	2.17	3.64	4.50	6.95	6.11	2.47	2.93	5.67	4.09	48.83
IX.	York, W.R.	Rotherham	.85	4.11	3.94	.89	1.76	1.95	1.57	4.95	2.37	3.32	2.92	2.51	31.14
"	"	Huddersfield (Dalton)	.28	4.09	4.59	1.16	1.19	1.42	2.48	4.33	2.80	4.47	3.35	2.99	33.15
"	"	South Milford	.66	3.41	2.95	1.30	1.06	1.51	1.87	4.50	3.21	2.52	2.29	2.41	27.69
"	"	Pateley Bridge (Castlestead)	.65	5.72	5.47	1.90	2.70	2.53	5.25	5.69	3.24	5.20	5.60	5.50	49.45
"	"	Malham Tarn	1.26	6.89	7.93	2.61	4.41	4.45	8.21	8.13	2.76	4.74	8.72	5.25	65.36
"	York, E.R.	Patrington	.64	3.04	2.06	1.04	.80	.99	1.62	4.69	3.28	2.44	2.01	2.26	24.87
"	"	Brantinghamthorpe	1.80	3.90	3.02	1.27	.51	2.13	3.25	5.95	3.36	3.50	2.32	2.44	33.45
"	"	Pocklington (Warter)	1.33	4.37	3.35	1.40	1.54	1.79	2.62	4.29	4.06	4.28	2.52	2.80	34.35
"	"	Ganton	.99	3.46	3.34	1.07	1.31	1.43	2.32	6.59	4.23	4.34	2.23	3.21	34.52
"	York, N.R.	Northallerton	1.28	3.31	1.84	.67	.74	1.94	5.19	3.37	3.08	2.20	2.61	3.90	30.13
"	"	Loekwood Beck	1.36	2.68	2.15	1.10	1.28	1.53	5.11	5.90	4.91	4.57	2.51	3.39	36.49
X.	Durham	Darlington (South End)	.90	3.39	2.94	1.18	.96	1.84	3.79	6.27	2.97	2.84	2.39	2.90	32.37
"	"	Hartlepool (Hart Res.)	.79	2.72	1.68	1.27	1.36	1.38	2.73	5.59	2.96	2.44	1.33	2.21	26.46
"	"	Wolsingham	.69	4.66	3.82	1.58	1.69	2.42	3.91	5.28	3.67	5.19	3.57	4.10	40.58
"	Northumberland	Halwhistle (Unthank Hall)	.54	3.28	3.49	1.65	2.52	2.92	4.37	5.42	4.33	5.81	3.87	4.30	42.50
"	"	Stamfordham	1.58	2.30	3.93	1.33	1.17	4.13	3.88	5.08	3.93	3.56	1.49	2.87	35.25
"	"	Alwinton (Biddleston)	1.92	2.57	4.01	2.28	2.90	2.59	4.26	6.79	5.23	4.40	4.06	3.65	44.66
"	"	Howick	1.63	3.15	2.99	1.17	2.38	1.44	3.22	6.29	5.29	3.09	3.01	2.66	36.32
"	Cumberland	Borrowdale (Seathwaite)	1.26	10.27	15.52	3.75	13.31	16.38	13.04	13.53	5.05	6.82	16.73	14.92	130.58
"	"	Scaleby Hall	.95	3.03	2.82	1.00	2.25	4.64	3.80	5.18	2.40	2.54	4.39	2.94	35.94
"	Westmoreland	Kendal	.46	5.31	6.80	2.29	4.76	5.00	7.12	7.56	3.05	3.05	7.41	6.96	59.77
"	"	Kirkby Stephen	.47	2.54	4.12	.76	2.87	3.82	5.94	5.02	2.63	3.07	7.20	4.66	43.10
"	"	Lowther Castle	.14	3.55	3.87	1.35	2.12	2.72	3.71	4.95	3.95	2.25	7.36	5.04	40.99

WALES AND THE ISLANDS.

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XI.	Monmouth.....	Newport (Gold Tops)	1.75	6.15	4.40	.88	3.20	3.67	2.97	6.55	2.16	3.04	5.87	3.67	44.31
"	"	Abergavenny.....	1.57	4.90	3.99	1.03	1.22	3.31	1.61	4.16	1.80	3.44	5.69	3.51	36.23
"	Glamorgan.....	Cardiff.....	1.47	6.22	4.74	2.07	3.32	4.04	3.59	6.76	2.61	3.73	5.81	4.66	49.02
"	"	Ystalyfera.....	1.51	6.87	7.11	2.35	4.47	5.19	3.99	8.66	1.72	4.32	10.05	7.15	63.39
"	Carmarthen	Carmarthen Asylum	1.32	5.38	4.13	2.72	2.78	3.91	2.97	5.69	2.71	3.44	6.92	5.63	47.60
"	"	Llandoverly	1.65	4.34	3.55	1.70	3.71	2.88	3.19	5.81	2.61	3.96	6.35	4.65	44.40
"	Pembroke	Stackpole Court	1.22	4.53	3.09	1.60	1.66	3.56	3.53	4.74	2.78	3.08	5.30	5.51	40.60
"	"	Fishguard (Castle Hill)	1.51	4.42	3.64	2.29	2.25	3.42	1.99	3.97	1.60	3.55	6.81	7.77	43.22
"	Cardigan	Aberystwith (Goginan).....	.87	4.07	2.82	1.50	3.31	3.27	3.42	4.73	1.89	2.50	4.80	3.38	36.56
"	Brecknock.....	Brecknock.....	1.70	5.60	3.66	.89	2.30	3.39	1.22	5.16	3.11	3.07	7.07	4.79	41.96
"	Radnor	Rhayader (Nantgwilt).....	1.46	8.27	6.71	2.46	5.37	3.79	2.52	6.43	3.24	5.54	9.07	7.06	61.92
"	"	Presteign	1.74	5.07	2.89	1.21	2.48	3.25	.87	4.23	2.06	3.00	4.95	5.70	35.45
"	Montgomery	Carno.....	.68	7.27	5.87	1.28	4.91	3.17	3.13	5.66	1.71	5.02	7.45	5.50	51.65
"	"	Flint	1.25	3.14	2.23	.64	1.73	2.84	2.64	5.94	1.32	3.14	2.89	2.33	30.09
"	Denbigh.....	St. Asaph (Nantllys) .....	.56	3.12	2.95	.85	2.16	2.25	1.82	3.90	1.58	2.77	2.59	2.30	26.85
"	"	Rosset (Trevalyn Hall)	1.02	7.38	5.21	2.21	5.14	5.29	2.95	5.41	1.89	2.97	7.82	5.07	52.36
"	Merioneth	Dolgelly.....	.92	8.20	4.48	1.31	4.96	3.69	1.81	5.22	1.52	4.90	9.00	5.32	51.33
"	"	Bala	1.40	4.41	3.28	2.47	4.68	4.62	5.89	5.90	2.20	2.88	6.29	5.22	49.24
"	Carnarvon.....	Port Madoc	1.45	2.43	2.04	1.82	4.11	3.37	3.43	4.83	1.65	2.70	4.64	5.01	37.51
"	Anglesey	Menaifron	1.32	7.37	4.35	1.77	2.97	4.75	2.81	5.31	3.49	3.40	5.22	4.78	47.54
"	Isle of Man	Douglas.....	2.79	3.64	2.03	.98	1.48	2.81	1.69	3.99	1.70	3.63	3.58	4.40	32.72
"	Jersey.....	St. Aubin's School	4.85	4.56	2.70	1.17	1.68	2.27	2.09	4.80	1.98	3.35	6.24	4.16	39.85
"	Guernsey	Grange Road.....													

SCOTLAND.

XII.	Kirkcudbright	Colvend.....	.51	2.05	4.74	1.59	3.47	3.67	4.27	3.41	2.78	2.98	4.83	3.58	37.88
"	"	Dalbeattie.....	.90	4.94	4.24	1.72	3.11	5.16	3.26	3.93	2.66	2.85	7.35	4.98	45.10
"	"	Carsphairn	1.09	5.30	7.75	1.57	3.80	6.54	4.53	4.44	2.47	5.71	12.12	7.62	62.94
"	Dumfries	Annan (Warmanbie) .....	.27	3.16	4.44	1.33	3.36	5.61	3.00	5.18	2.91	2.68	5.14	2.61	39.69
"	"	Moffat (Eristane)	1.00	4.20	4.30	1.80	4.60	5.60	4.20	4.70	3.40	3.00	11.30	6.20	54.80
"	Roxburgh	New Castleton (The Flatt).....	1.40	4.50	5.30	1.50	3.40	6.50	4.00	5.50	3.00	3.10	7.30	4.80	50.30
"	"	Hawick (Branxholme).....	1.49	2.50	2.48	1.54	2.33	2.82	2.40	4.63	2.78	2.59	6.46	3.19	35.21
"	"	Jedburgh	1.49	1.47	1.57	1.35	2.12	2.16	2.40	5.86	3.33	2.10	3.13	2.15	29.13
"	"	Wooplaw [Galashiels]	1.95	3.07	3.16	1.17	2.79	2.58	3.19	5.70	4.21	3.52	3.81	2.13	37.28
XIII.	Peebles	Glenrath	1.65	2.38	4.50	1.03	3.28	2.74	3.39	5.56	2.83	3.77	4.99	2.58	38.70
"	"	N. Esk Res. [Penicuik].....	2.80	3.10	4.45	1.05	2.50	2.85	4.70	6.30	3.55	2.80	3.75	2.85	40.70

SCOTLAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XVII.	Nairn	Nairn (Achareidh)	1.44	2.00	1.95	.63	1.97	1.20	2.25	2.31	1.64	3.04	2.10	.87	21.40
XVIII.	Ross	Loch Alsh (Inverinate)	1.92	9.58	8.08	2.53	4.76	5.05	12.77	3.42	2.90	7.30	12.01	7.00	77.32
"	"	Strathconan	.30	3.91	5.55	2.22	4.10	2.23	4.81	3.15	1.93	5.98	7.17	5.10	46.45
"	"	Strome Ferry	1.28	2.94	5.01	1.04	3.29	5.49	8.40	4.51	1.93	3.40	10.34	8.20	55.83
"	"	Invergordon	.81	2.55	1.42	1.17	2.64	2.11	4.25	2.65	1.81	2.96	3.15	1.79	27.31
"	Inverness	Fort William	1.63	3.82	6.10	2.39	4.11	6.25	11.57	6.90	2.30	5.89	13.33	13.72	78.01
"	"	Skye (Sligachan)	1.12	7.86	7.46	1.93	5.80	11.45	13.73	10.37	9.24	4.73	22.17	19.55	115.41
XIX.	"	Glenstrathfarrar	.37	2.90	4.22	3.80	2.72	3.24	3.25	3.32	3.00	6.09	5.97	6.17	45.05
"	Sutherland	Invershin	.78	1.57	2.91	1.09	1.42	3.54	3.91	3.17	3.07	3.47	3.22	2.75	30.90
"	"	Scourie	3.00	2.30	4.90	2.10	2.50	2.40	3.90	5.30	2.10	3.30	4.30	6.20	42.30
"	"	Forsinard	1.18	3.00	2.77	1.44	2.50	3.35	4.58	2.60	2.09	4.45	3.30	2.92	34.18
"	Caithness	Wick Station	2.93	2.91	3.36	1.32	2.00	2.25	3.27	1.61	1.40	2.96	2.38	2.07	28.46
"	Shetland	East Yell	2.81	3.13	3.50	2.13	1.81	1.50	4.13	2.32	1.24	2.11	4.86	5.33	34.87
IRELAND.															
XX.	Cork	Cork (Black Rock)	1.52	5.95	5.67	1.79	1.92	5.23	2.01	5.40	2.57	6.35	7.58	6.00	51.99
"	"	Ferry (Glenville)	1.48	5.69	6.68	2.31	2.72	5.33	2.90	4.66	2.73	6.47	6.87	6.59	54.93
"	Kerry	Dromore Castle	1.76	7.42	5.79	2.16	3.74	8.26	4.99	6.90	3.06	7.72	7.18	8.12	67.10
"	"	Cara, Lake Side	1.82	4.95	4.75	1.39	2.90	4.70	1.60	4.30	2.28	5.82	7.96	7.62	50.09
"	"	Tralee (Castle Morris)	1.30	3.84	3.51	.94	2.13	5.05	1.68	5.80	2.46	1.89	6.01	6.19	40.80
"	Waterford	Waterford Gas Works	1.99	4.40	3.34	2.40	1.47	4.95	2.93	5.08	3.14	3.52	4.94	4.97	43.13
"	Tipperary	Clonmel	1.05	4.13	4.46	1.80	1.77	5.40	2.32	5.41	2.96	7.91	5.63	5.51	48.35
"	"	Tipperary, Henry Street	.65	4.28	4.80	1.92	1.74	4.28	1.94	5.64	3.15	4.94	4.64	5.05	43.03
"	"	Nenagh (Castle Lough)	.67	4.44	3.16	1.55	3.35	5.00	1.88	5.52	2.62	2.93	4.65	5.70	41.47
"	"	Gurteen	.52	3.78	2.37	1.35	2.80	3.95	2.34	5.19	3.09	2.50	4.28	4.36	36.53
"	Limerick	Janeville	1.12	5.22	3.71	1.51	1.92	3.78	2.32	4.45	2.50	2.55	3.29	7.45	39.82
"	Clare	Ennis	.74	4.24	2.33	1.71	2.43	5.59	2.23	5.20	1.91	2.89	4.48	5.87	39.62
"	"	Miltown Malbay	1.87	2.84	2.69	1.59	2.87	5.26	2.42	5.85	2.86	3.49	5.71	5.20	42.65
XXI.	"	Ballyhyland	2.62	5.25	3.68	2.13	3.08	5.55	2.59	5.04	2.74	3.73	5.56	3.58	45.55
"	Wexford	Gorey (Courtown)	1.67	4.04	2.84	1.28	2.05	3.45	3.20	3.79	1.24	1.75	4.13	3.12	32.56
"	"	Tullagher	3.37	5.50	3.61	2.13	2.61	5.91	2.82	5.28	3.46	3.15	6.98	4.63	49.45
"	Kilkenny	Stoneyford (Inisnag Glebe)	2.61	4.66	2.72	1.50	1.62	4.26	1.47	4.91	3.24	3.26	3.39	3.35	36.99
"	"	Bray	1.41	3.57	5.40	1.44	1.59	2.76	2.61	4.32	1.17	3.69	2.78	2.37	33.11
"	Wicklow	Brown's Hill	2.00	3.66	2.80	1.33	2.19	4.16	2.26	4.40	2.93	4.24	3.92	3.59	37.48
"	Carlow	Abbey Leix, Blandsford	1.35	3.70	2.14	1.09	2.17	4.30	1.84	4.20	2.68	2.51	3.65	4.18	33.81

IRELAND—(continued.)

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XXI.	King's Co.	Clonbrin	.76	3.66	2.26	1.73	2.65	4.27	2.32	4.60	2.17	1.74	3.86	3.81	33.83
"	"	Tullamore	.25	3.91	1.90	.97	2.53	3.47	1.49	3.82	2.02	1.90	3.72	2.44	28.42
"	Dublin	Glassevin Rotanic Gardens	1.24	2.83	1.43	1.32	1.80	2.36	2.00	4.95	1.40	2.82	2.01	1.26	25.42
"	"	Balbriggan	.86	3.47	2.48	1.65	2.33	2.67	1.42	4.74	1.55	2.75	2.89	1.85	28.66
"	Meath	Trim	1.66	3.94	2.18	1.82	2.64	4.50	1.97	5.05	1.35	2.15	3.42	3.99	34.67
"	Westmeath	Athlone	1.13	3.25	2.20	1.56	2.66	4.97	1.79	5.95	4.85	2.08	5.00	3.33	38.77
"	"	Mullingar (Belvedere)	1.06	4.44	2.30	1.47	2.58	4.20	2.40	4.89	2.16	2.62	4.04	3.42	35.58
"	Louth	Stephentown	.49	3.67	2.91	2.70	2.13	3.36	2.28	5.32	1.60	3.29	4.09	2.46	34.30
XXII.	Galway	Cregg Park	1.09	3.46	2.47	1.74	3.05	4.51	1.88	4.77	2.17	3.13	4.39	5.38	38.04
"	"	Ballinasloe	.82	4.20	2.45	1.09	2.53	4.60	2.02	4.44	3.72	2.76	6.17	3.46	38.26
"	"	Clifden (Kylemore)	2.73	7.04	7.30	2.85	4.26	11.40	4.53	8.42	6.01	5.32	16.76	13.67	90.29
"	"	Tuam	.94	3.61	2.91	2.12	2.36	4.96	1.66	4.55	3.43	2.79	7.67	4.94	41.94
"	"	Ballinrobe	1.23	4.51	3.71	2.54	2.26	4.93	2.03	4.77	3.74	2.88	11.10	6.08	49.78
"	Mayo	West Port (Old Head)	2.25	3.50	5.80	1.50	2.50	6.30	3.10	5.50	3.50	4.75	10.70	6.40	55.80
"	"	Crosmolina (Enniscoe)	2.07	4.74	4.63	1.31	2.31	4.97	1.86	5.41	3.44	3.47	8.81	7.30	50.32
"	Sligo	Sligo (Mount Shannon)	.67	3.69	3.34	1.46	1.75	4.41	2.02	3.14	4.66	2.33	5.52	3.68	36.67
"	Leitrim	Carrick-on-Shannon	.88	4.18	3.22	1.06	2.37	4.62	2.65	3.59	2.66	2.72	4.80	3.04	35.79
XXIII.	Cavan	Killishandra (Drummany)	.46	2.87	2.95	1.50	3.05	3.47	1.58	3.31	1.92	1.40	3.53	2.36	28.40
"	"	Lough Allen (Dowra)	.58	3.80	3.78	1.90	2.21	4.22	1.87	4.02	2.77	3.76	3.72	3.24	35.87
"	Fermanagh	Enniskillen (Lisbellaw)	.49	3.63	2.88	1.82	1.88	4.15	2.07	3.34	1.89	2.56	3.81	3.89	31.36
"	Monaghan	Rockcorry	.45	2.79	3.13	1.78	2.07	4.56	1.76	3.82	2.43	3.41	4.27	3.36	36.31
"	Armagh	Armagh	.46	2.79	3.13	1.78	2.07	4.56	1.76	3.82	2.16	2.00	4.09	2.90	31.43
"	Down	Newcastle (Fairleigh)	1.28	10.25	6.17	3.21	3.35	5.47	2.40	4.09	3.72	3.94	8.50	6.31	58.69
"	"	Newtownards	.66	4.11	3.79	1.59	2.31	3.71	3.07	4.01	2.31	3.86	3.17	3.20	35.79
"	Antrim	New Barnsley	.84	4.16	5.04	2.07	4.25	4.46	3.59	5.14	3.13	4.48	2.99	4.60	44.75
"	"	Ballymena	1.34	5.03	4.21	1.81	3.16	4.30	3.09	3.76	3.45	4.27	4.37	4.47	43.26
"	"	Bushmills	1.36	4.25	4.43	1.12	2.09	3.57	3.33	3.21	2.20	4.14	3.44	4.40	37.54
"	"	Newtown Limavady	.77	2.82	3.69	.96	2.33	3.62	2.94	3.53	1.79	3.16	3.57	3.13	32.31
"	Londonderry	Inver Glebe	.93	4.05	5.41	1.62	3.18	5.68	4.92	3.55	3.44	3.59	5.32	5.41	47.10
"	Donegal	Ramelton	1.24	4.27	3.64	2.40	2.13	4.18	2.82	3.50	2.50	3.52	5.08	3.47	38.75
"	"	Carndonagh	1.50	5.18	4.40	1.70	2.11	4.64	2.95	3.28	2.12	3.67	5.92	5.95	43.42

ON THE RELATION OF THE RAINFALL OF 1881 TO
THE AVERAGE 1870-79.

WE explained last year that it was expedient to adopt the period 1870-79 as our standard of comparison, because of the very much greater number of records which are perfect during that decade than there are for any other.

At the same time we pointed out a difficulty inseparable from the use of that average—viz., the fact that the average which is to serve as our standard of comparison is itself too high—higher, that is, than the experience of the previous half century leads us to believe to be correct.

The investigations reported in our last volume led us to regard this average as 5 per cent. too high, and the independent discussion on pages 18 to 34 of the present volume leads to identically the same result.

There of several modes of examining the relation of the rainfall of 1881 to the average 1870-79, and we will take them separately.

To take first the nine stations used on page 24, we find that they give the following results as the difference between the fall in 1881 and the average 1870-79 :—

Chilgrove, Chichester, Sussex	3	per cent below.
Nash Mills, Hemel Hempstead, Herts.....	11	,, above.
Radcliffe Observatory, Oxford	3	,, below.
Devon & Exeter Institution, Exeter!.....	5	,, ,,
Orleton, Tenbury, Worcester	18	,, ,,
Pode Hole, Spalding, Lincoln	5	,, above.
Boston, Lincoln	12	,, ,,
The Folds, Bolton, Lancashire	9	,, ,,
Kendal, Westmoreland	16	,, ,,

Anyone who will take the trouble to plot these values on a map will find that they group themselves with all the excesses on the N.E. side of a line joining Liverpool and Brighton.

In the next place we will take the map. This is based on an investigation which it seems scarcely necessary to print, but which may be briefly described. All the stations of which we have perfect

averages for 1870-79 were plotted on a map, and those which afforded the most equable geographical distribution were selected. For each of these, the relation of the total fall in 1881 to the average, was worked out, and the results were plotted on the map according to the rule stated upon it.

The map is identical in construction with that which formed the frontispiece to *British Rainfall*, 1880, and a comparison of the two maps shows instantly most of the leading features of the total rainfall of the two years.

In England there were, in 1880, ten stations marked with the + inside a ring, indicating an excess above the 1870-79 average of *more than 25 per cent.* There is only one such ringed + in the map for 1881—viz., for Chatsworth. (And here we may parenthetically remark that the records for 1881 from Cheshire and the west of Derbyshire are extremely irregular; whether it be due to storms such as that described on page [100], we cannot say. There does not appear to be any reason for doubting the accuracy of the records, and at present we must leave these irregularities (and those which have occurred also in previous years) in these hilly districts for future explanation.)

In 1880 the stations 10 per cent. below the 1870-79 average (*i.e.*, those marked -) were confined to Devon, Cornwall, Somerset, and the English Lake district. (We will take Scotland and Ireland separately). In 1881 these - signs extend further N.E. wards, and one is even found at the mouth of the Thames. Similarly, the + signs (= 10 per cent. excess), of which there were 22 in 1880, are reduced to 10 in 1881, and most of these are in the North of England, where, in 1880, the fall was near to, or below, the average.

All these considerations tend in one direction—viz., to show that the great excesses of 1880 have not been reproduced in 1881, and excepting only the value for Shoeburyness in Essex, they agree with the conclusion derived from the nine stations—viz., that a line from Liverpool to Brighton would have on its N.E. side all stations where the fall was above the average, and on its S.W. side all those where it was below it.

We now pass to Scotland, where the changes are very different. In 1880 the fall at every station was below the average, and at those near the mouth of the Clyde remarkably so. In 1881 there are many more districts with nearly the average fall; *there is only one station* (Drumlanrig, Dumfriesshire) with an extreme deficiency, and there are

DIFFERENCE OF TOTAL RAINFALL IN 1881 FROM THE
AVERAGE 1870-79.



The round dots indicate a rainfall within 10 per cent. of the average.
The + and - respectively show excess or defect of between 10 and 25 per cent.
The same signs enclosed by a ring indicate a departure from the average of more
than 25 per cent.

two near the Firth of Forth with an excess of more than 10 per cent. The latter year shows, therefore, a general increase in the fall of rain, markedly in the south, still greater in the centre, and slight or nil in the extreme north.

In Ireland the fall has changed irregularly. Near Dublin the fall in 1881 was far less than in 1880, and yet, both in the S.W. and the N.E. of Ireland, there has been a considerable increase. The two - signs at Cork and Waterford being changed in 1881 into two + signs shows at once an increase of *at least* 20 per cent. between the two years, and the same change will be noted at Belfast.

From an examination of the map, it appears that at the majority of stations the fall was within 10 per cent. of the average, and that the stations where the departure was between 10 and 25 per cent. are equally numerous, + and - the average, but the - are chiefly in the S. and W., and the + in the N.

For England, as a whole, this map indicates the fall in 1881 to have been very nearly identical with the average 1870-79.

For Wales, all stations are near the average or below it.

In Scotland two-thirds of the stations are near the average, the others mostly below it.

For Ireland, most returns are near the average, and those which differ from it by more than 10 per cent. are equally numerous + and -.

The following short abstract gives, in the most compact form, a summary of the results of the extensive tables on pages [123] to [126].

ABSTRACT.

COUNTRIES.	No. of Records.	Mean. 1860-9.	Mean, 1870-9.	1881.	Diff. from 1870-9.	
					Amount.	Per cent.
England and Wales ...	133	in. 34·54	in. 35·56	in. 35·81	in. ·25	+ 1
Scotland	33	38·76	40·43	38·09	2·34	- 5
Ireland	5	33·31	35·86	36·11	·25	+ 1
Total, British Isles ...	171	33·52	35·51	36·26	·25	- 0

ABSTRACT.

This shows that in England and Wales the rainfall of 1881 slightly exceeded the high average of 1870-79; in Scotland, it fell

short of it by about 5 per cent. ; and in Ireland, was just as much in excess as in England.

Taking the country as a whole, and working out the means from the gross totals, we find that the fall was about a quarter of an inch below the average, which would correspond to a deficiency of about 1 per cent., but owing to an arithmetical result, which is correct, though it looks as if it could not be so, the mean percentage of departure is less than 1 per cent.

Taking the British Isles as a whole, therefore, we have a rainfall practically just the average of the ten years 1870-79, and, therefore, a year about 5 per cent. above the average of the previous 50 years.

COMPARISON OF THE RAINFALL OF THE YEAR 1881,
WITH THE AVERAGE OF THE YEARS 1870-79.

ENGLAND & WALES.

DIV.	COUNTY.	STATION.	Average.		Depth in 1881.	Difference from average, 1870-9.	
			1860-9.	1870-9.		Amount.	Per. cent.
I.	Middlesex ...	London (Camden Square)	25·68	27·24	27·92	·68	+ 3
II.	Surrey	Weybridge Heath	25·05	26·18	26·70	·52	+ 2
"	"	Seething Wells	26·55	25·73	23·74	1·99	— 8
"	"	Wimbledon	23·48	25·11	24·46	·65	— 3
"	"	Kew Observatory	23·28	24·76	25·49	·73	+ 3
"	Kent	Maidstone (Hunton Ct.)..	26·00	26·06	24·53	1·53	— 6
"	"	Charing (Otterden).....	29·09	31·02	30·90	·12	— 0
"	"	Greenwich (Royal Obser.)	25·18	25·39	25·73	·34	+ 1
"	West Sussex.	Chichester (Westgate) ...	28·16	29·51	29·87	·36	+ 1
"	"	Arundel (Dale Park) ...	33·73	33·81	39·23	5·42	+ 16
"	"	Chichester (Chilgrove) ...	33·22	35·03	34·02	1·01	— 3
"	East Sussex..	Lewes (Glynde Place) ...	33·65	33·75	32·41	1·34	— 4
"	"	Maresfield (Forest Lodge)	31·48	33·37	33·09	·28	— 1
"	Hampshire ..	Isle of Wight (Osborne).	30·73	29·21	28·04	1·17	— 4
"	Berkshire ...	Newbury (Welford)	28·97	31·92	31·01	·91	— 3
"	"	Long Wittenham	27·38	27·24	26·34	·90	— 3
III.	Herts	St. Albans (Gorhambury).	27·85	29·07	33·12	4·05	+ 14
"	"	Berkhamstead	29·28	31·33	32·67	1·34	+ 4
"	"	Hertford (Bayfordbury)..	25·01	27·02	27·30	·28	+ 1
"	"	Tring (Cowroast)	27·59	30·62	31·92	1·30	+ 4
"	"	Hitchin	23·92	25·67	25·16	·51	— 2
"	"	Royston	23·57	23·74	24·03	·29	+ 1
"	Buckingham.	High Wycombe	25·71	25·87	27·95	2·08	+ 8
"	Oxford	Banbury (High Street) ..	26·22	28·51	27·87	·64	— 2
"	Northampton	Northampton (Althorp)..	23·35	26·93	27·06	·39	+ 0
"	"	Wellingborough.....	24·09	25·72	31·11	5·39	+ 21
"	Bedford	Cardington	22·49	25·13	24·56	·57	— 2
"	"	"	21·76	23·69	23·55	·14	— 1
"	Cambridge...	Ely (Stretham)	20·61	23·11	22·68	·43	— 2
IV.	Essex	Braintree (Bocking)	23·98	26·20	27·62	1·42	+ 5
"	Suffolk	Bury S. Edmun. (Westley)	23·52	25·51	26·30	·79	+ 3
"	"	" (Barton)	23·68	25·71	26·64	·93	+ 4
"	"	" (Culford)	24·84	26·20	28·15	1·95	+ 7
"	"	Carlton Colville	24·29	26·42	27·40	·98	+ 4
"	Norfolk	Norwich (Honingham)...	23·98	27·31	26·97	·34	— 1
"	"	" (Cossey)	24·04	27·44	26·05	1·39	— 5
"	"	Holkham.....	23·88	26·21	24·49	1·72	— 7
"	"	Hunstanton	19·56	23·26	22·49	·77	— 3
V.	Wiltshire ...	Heytesbury (Chittern) ...	29·28	30·53	30·31	·22	— 1
"	"	Swindon (Pen Hill)	28·59	29·64	27·55	2·09	— 7
"	"	Thames Hd. [Cirencester]	28·29	33·06	32·05	1·01	— 3
"	Dorset	Cerne Abbas (Melbury)...	39·99	40·92	42·35	1·43	+ 3
"	Devon	Bovey Tracey.....	43·13	46·80	48·74	1·94	+ 4
"	"	Exeter (D. & E. Inst.) ...	31·76	34·69	32·98	1·71	— 5

ENGLAND & WALES.—Continued.

DIV.	COUNTY.	STATION.	Average.		Depth in 1881.	Difference from average, 1870-9.	
			1860-9.	1870-9.		Amount.	Per cent.
			in.	in.	in.	in.	
V.	Devon	S. Molton (Castle Hill)...	47·12	47·62	37·51	10·11	— 21
„	„	Barnstaple	39·91	42·43	38·09	4·34	— 10
„	Cornwall	Penzance	41·51	46·80	41·21	5·59	— 12
„	„	Bodmin (Castle St.)	47·71	52·01	53·11	1·10	+ 2
„	Somerset	Glastonbury (Street)	30·01	33·14	31·36	1·78	— 5
„	„	Sherborne Reservoir	42·10	47·26	42·84	4·42	— 9
VI.	Gloucester	Clifton	34·09	36·36	34·11	2·25	— 6
„	Hereford	Ross (Rocklands)	33·59	35·88	29·80	6·08	— 17
„	„	„ (The Graig)	28·21	31·75	28·78	2·97	— 9
„	Shropshire	Burford	26·74	29·10	24·26	4·84	— 17
„	„	Oswestry (Hengoad)	35·65	39·55	37·45	2·10	— 5
„	Worcester	Northwick Park	28·02	32·34	29·72	2·62	— 8
„	„	Tenbury (Orleton)	30·90	33·26	27·17	6·09	— 18
VII.	Leicester	Thornton Reservoir	25·61	27·59	27·62	·03	+ 0
„	„	Loughborough	27·67	29·54	28·37	1·17	— 4
„	„	Belvoir Castle	24·48	25·75	27·44	1·69	+ 7
„	Lincoln	Spalding (Pode Hole)	25·34	24·82	26·13	1·31	+ 5
„	„	Lincoln	20·87	23·70	23·83	·13	+ 1
„	„	Stockwith	21·35	23·20	24·07	·87	+ 4
„	„	Brigg	24·12	23·31	20·89	2·42	— 10
„	„	Grimsby	21·39	23·04	22·83	·21	— 1
„	„	Barnetby	22·16	25·17	25·03	·14	— 1
„	„	Appleby Vicarage	24·10	26·64	26·86	·22	+ 1
„	„	New Holland	22·66	25·29	23·49	1·80	— 7
„	Nottingham	Worksop	22·47	25·63	23·48	2·15	— 8
„	„	Retford	22·74	23·04	22·22	·82	— 4
„	Derby	Bretby [Burton]	27·41	30·97	30·08	·89	— 3
„	„	Chesterfield	26·93	30·54	26·75	3·79	— 12
„	„	Combs Moss	49·62	45·71	42·52	3·19	— 7
„	„	„ Reservoir	50·01	45·67	39·54	6·13	— 13
„	„	Chapel-en-le-Frith	41·95	42·56	40·12	2·44	— 6
„	„	Kilnarsh (Norwood)	24·59	26·79	28·38	1·59	+ 6
„	„	Woodhead Station	52·19	49·87	49·90	·03	+ 0
VIII.	Cheshire	Bosley Reservoir	32·04	34·10	35·44	1·34	+ 4
„	„	„ Minns	32·85	33·90	42·97	9·07	+ 27
„	„	Macclesfield (Park Green)	36·75	38·03	36·85	1·18	— 3
„	„	Bollington (Spond's Hill)	37·46	35·52	35·78	·26	+ 1
„	„	Whaley	43·89	43·38	39·02	4·36	— 10
„	„	Marple Top Lock	35·25	35·94	36·60	·66	+ 2
„	„	„ Aqueduct	34·81	33·73	36·80	3·07	+ 9
„	„	Godley Reservoir	33·98	34·85	36·17	1·32	+ 4
„	„	Newton	31·63	29·30	34·85	5·55	+ 19
„	„	Mottram (Matley's Field)	37·73	36·32	41·81	5·49	+ 15
„	„	Arnfield Reservoir	37·23	41·38	42·34	·96	+ 2
„	„	Rhodes Wood Reservoir	46·32	44·74	45·59	·85	+ 2
„	„	Woodhead M. C. W. W.	51·83	49·74	50·35	·61	+ 1
„	Lancashire	Denton Reservoir	32·97	33·78	36·44	2·66	+ 8
„	„	Gorton Reservoir	33·71	34·14	34·92	·78	+ 2
„	„	Manchester (Ardwick)	32·60	36·72	39·49	2·77	+ 8
„	„	„ (Piccadilly)	36·78	34·72	40·96	6·24	+ 18
„	„	Fairfield	40·90	37·66	38·11	·45	+ 1

ENGLAND & WALES.—Continued.

DIV.	COUNTY.	STATION.	Average.		Depth in 1881.	Difference from average, 1870-9.	
			1860-9.	1870-9.		Amount.	Per cent.
			in.	in.	in.	in.	
VIII.	Lancashire..	Ashton (Waterhouses) ...	36·13	39·24	40·80	1·56	+ 4
"	"	Bolton (The Folds).....	48·98	47·23	51·56	4·33	+ 9
"	"	" (Heaton).....	44·21	45·11	46·60	1·49	+ 3
"	"	Ormskirk (Rufford)	35·00	36·65	36·83	·18	+ 1
"	"	Bolton (Belmont)	56·61	59·91	68·20	8·29	+ 14
"	"	Heywood (Nayden Dane). 44·13	44·67	43·49	1·18	— 3	
"	"	Blackburn (Guide Res.).. 41·30	44·49	41·23	3·26	— 7	
"	"	Blackpool (South Shore). 32·99	34·43	43·58	9·15	+ 27	
"	"	Stonyhurst College	48·56	48·74	49·56	·82	+ 2
"	"	Cartmel (Holker)	45·63	45·13	50·36	5·23	+ 12
"	"	Monk Coniston Park ...	85·55	74·86	79·20	4·34	+ 6
IX.	York, W.R...	Sheffield (Redmires)	39·68	42·80	42·58	·22	— 1
"	"	" (Broomhall Pk.)	31·28	32·67	33·37	·70	+ 2
"	"	Dunford Bridge Station.. 56·18	52·51	45·26	7·25	— 14	
"	"	Penistone.....	30·57	34·37	36·14	1·77	+ 5
"	"	Leeds (Leventhorpe Hall) 23·26	24·91	24·42	·49	— 2	
"	"	Halifax (Midgeley Moor). 50·00	48·07	56·29	8·22	+ 17	
"	"	" (Warley)	46·33	45·27	55·75	10·48	+ 23
"	"	Leeds (Holbeck).....	22·85	25·02	27·60	2·58	+ 10
"	"	Arncliffe	60·07	60·95	70·77	9·82	+ 16
"	" E.R..	Hull (Beverley Road) ...	25·02	27·30	27·61	·31	+ 1
"	" N.R...	Malton.....	27·46	28·44	30·86	2·42	+ 9
X.	North'mblnd	Allenheads ...	51·16	48·49	51·53	3·04	+ 6
"	"	Bywell.....	28·87	33·99	27·87	6·12	— 18
"	"	N. Shields (Wallsend) ...	26·64	28·41	30·11	1·70	+ 6
"	"	" (Rosella Place)	26·06	28·02	31·96	3·94	+ 14
"	"	Stamfordham	27·64	30·10	35·25	5·15	+ 17
"	"	Whittle Dean	25·42	27·75	30·12	2·37	+ 9
"	"	Ilderton (Lilburn Tower). 28·66	31·33	36·77	5·44	+ 17	
"	Cumberland.	Seathwaite ...	154·05	134·95	130·58	4·37	— 3
"	"	Ullswater (Hallsteads) ...	58·13	55·31	49·80	5·51	— 10
"	"	Keswick Post Office	62·40	59·14	56·51	2·63	— 4
"	"	Bassenthwaite(Mirehouse) 53·76	50·20	45·23	4·97	— 10	
"	"	Cockermouth (Whi. Hall) 57·37	52·15	49·15	3·00	— 6	
"	Westm'relnd	Kendal.....	53·32	51·78	59·77	7·99	+ 15
XI.	Glamorgan ..	Cardiff (Ely)	42·02	46·35	43·04	3·31	— 7
"	Carnarvon ...	Llandudno	31·00	33·63	31·97	1·66	— 5
"	Guernsey ...	Guernsey.....	37·18	39·64	38·88	·76	— 2

SCOTLAND.

DIV.	COUNTY.	STATION.	Average.		Depth in 1881.	Difference from average, 1870-9.	
			1860-9.	1870-9.		Amount.	Per cent.
			in.	in.	in.	in.	
XII.	Kircudbright	Cargen [Dumfries].....	44·37	46·65	44·51	2·14	— 5
„	Dumfries ...	Dumfries (Cri. Asylum)..	39·00	41·84	39·17	2·67	— 6
„	„ ...	Wanlockhead	66·63	65·91	63·35	2·56	— 4
„	Roxburgh ...	Kelso (Springwood Park)	24·66	27·90	30·08	2·18	+ 8
XIII.	Peebles	North Esk Reservoir ..	38·01	38·66	40·70	2·04	+ 5
„	Haddington.	East Linton	23·77	29·36	32·34	2·98	+ 10
„	Edinburgh ..	Glencorse.....	37·52	40·52	42·35	1·83	+ 5
„	„ ...	Harlaw	37·64	38·04	36·50	1·54	— 4
„	„ ...	Inveresk	29·02	30·31	30·58	·27	+ 1
XIV.	Lanark	Hamilton (Bothwell Cas)	28·89	31·72	24·16	7·56	— 24
„	„ ...	Glasgow Observatory.....	44·41	43·29	36·05	7·24	— 17
„	Ayr.....	Kilmarnock (N. Craig) ...	43·29	40·16	34·89	5·27	— 13
„	Renfrew	Ryat Lynn	47·80	50·07	42·30	7·77	— 16
„	„ ...	Waulk Glen	49·85	48·41	39·00	9·41	— 19
XV.	Stirling	Stirling (Kerse)	32·96	33·47	29·30	4·17	— 12
„	Argyll	Lochgilphead(Callton M.)	54·25	56·35	45·54	10·81	— 19
XVI.	Kinross	Loch Leven.....	36·22	38·05	42·20	4·15	+ 11
„	Perth	Aberfoyle.....	61·82	59·39	53·00	6·39	— 11
„	„ ...	Dunblane (Kippenross) ...	36·16	36·00	34·00	2·00	— 6
„	„ ...	Lanrick Castle	48·48	47·46	41·95	5·51	— 12
„	„ ...	Bridge of Turk	61·89	72·32	66·60	5·72	— 8
„	„ ...	Auchterarder(Colquh'lzie)	40·34	40·12	35·97	4·15	— 10
„	Forfar..	Craigton	34·88	41·96	43·31	1·35	+ 3
„	„ ...	Hill Head	35·19	41·82	43·79	1·97	+ 5
„	„ ...	Arbroath	29·05	30·49	30·59	·10	+ 0
„	Kincardine..	The Burn.....	34·91	37·85	35·50	2·35	— 6
XVII.	Aberdeen ...	Braemar	33·40	38·14	36·52	1·62	— 4
„	„ ...	Aberdeen (Rose Street) ..	29·43	31·75	32·46	·71	+ 2
„	Banff	Gordon Castle.....	29·19	32·26	27·19	5·07	— 16
XVIII	Inverness... ..	Culloden	27·08	25·46	23·54	1·92	— 8
XIX.	Sutherland..	Golspie (Dunrobin Castle)	27·69	31·94	32·40	·46	+ 1
„	Orkney	Pomona (Sandwick)	38·85	36·24	36·96	·72	+ 2
„	„ ...	Shapinsay (Balfour Cas.)..	32·41	30·41	30·10	·31	— 1

IRELAND.

XX.	Cork	Queenstown.....	33·01	35·71	35·91	·20	+ 1
XXI.	Kilkenny ...	Inistioge (Woodstock) ...	39·38	46·64	46·34	·30	— 1
„	King's Co....	Tullamore	27·94	31·06	28·42	2·64	— 8
XXIII	Armagh	Armagh Observatory..1ft.	32·01	30·95	31·43	·48	+ 2
„	Antrim	Belfast (Queen's Coll.)....	34·22	34·92	38·47	3·55	+ 10

EXTREMES OF RAINFALL IN 1881.

Largest Rainfall, at The Stye, Cumberland..... 172·56 in.
 Least Rainfall, at Horseway Lock, Chatteris, Cambridge..... 18·41 ,,

ENGLAND.

GREATEST.		LEAST.	
Div.	in.	Div.	in.
X. The Stye	172·56	III. Chatteris (Horseway Lock)...	18·41
„ Taylor's Ghyll	146·60	IV. Shoeburyness	18·83
„ Seathwaite	130·58	IX. Patrington (Spurn Head) ...	19·28
„ Bridge End [Little Langdale] ..	121·12	VI. Shrewsbury	19·58
„ Styehed Tarn ..	118·95	„ Gainsborough	19·77
„ Ullscarf	115·90	IV. Southend	20·82

WALES AND THE ISLANDS.

GREATEST.		LEAST.	
Div.	in.	Div.	in.
XI. Aberdare (Ty Draw Treherbert)	98·83	XI. Rhyl (Sedgley House)	25·47
„ Rhiwbryfdir	96·79	„ Montgomery	25·50
„ Pen-y-gwryd	88·75	„ Rosset (Trevalyn Hall)	26·85
„ Garthbibio (Bwlch Tomlyd)..	87·25	„ Holywell (Bagillt)	28·26
„ Neath (Glyncorrwg)	85·83	„ Churchstoke (Mellington Hall)	28·58
„ Llanbedr-y-Cennin(Llyndulyn)	72·85	„ Prestatyn (Nant).....	28·84

SCOTLAND.

GREATEST.		LEAST.	
Div.	in.	Div.	in.
XVIII. Isle of Skye (Sligachan)	115·41	XVII. Nairn (Acharéidh)	21·40
„ Glenquoich	94·67	„ Burghead (H.R.S.)	22·23
„ Glen Gyle	80·00	XIII. Dalkeith	22·85
„ Fort William (Public School)	78·01	XVII. Nairn	23·13
XV. Arrochar.....	77·57	XVIII. Inverness (Culloden House)..	23·54
XVIII. Loch Alsh (Inverinate House)	77·32	XVII. Forres (H.R.S.)	23·66

IRELAND.

GREATEST.		LEAST.	
Div.	in.	Div.	in.
XXII. Clifden (Kylemore)	90·29	XXI. Glasnevin (Botanic Gardens)	25·42
XX. Kenmare (Derreen)	74·66	„ Dalkey (Bellevue Park)	26·97
„ Dromore Castle.....	67·10	„ Dublin (Fitzwilliam Square)	27·03
„ Lough Eske	59·98	„ Monkstown (Easton Lodge)..	27·58
„ Newcastle (Fairleigh)	58·69	XXIII. Moy (Derrygally).....	27·98
„ Valencia Observatory	58·35	XXI. Dublin Phoenix Park).....	28·35

GENERAL TABLES
OF
TOTAL RAINFALL IN 1881,
AT UPWARDS OF
2000 STATIONS
IN THE
BRITISH ISLES.

EXPLANATION OF THE ARRANGEMENTS OF THE
FOLLOWING GENERAL TABLES.

The divisions are the same as those adopted by the Registrars General of England and Scotland. The boundaries of these divisions are shown on the map facing p. 170 of *British Rainfall*, 1876.

The counties follow the same order as in the reports of the before mentioned officers ; but an alphabetical list of the counties is given, whereby the page or pages on which all returns from each county will be found can be at once ascertained.

The stations in each county are arranged nearly in the order of their latitude from South to North.

In order to facilitate finding the fall in any part of the country, the first name is almost always that of a place given in *Bradshaw*, the *British Postal Guide*, or the *Clergy List* ; the second name is generally added to fix accurately the site of Observation ; but in a very few instances, this second name is in [] instead of () ; it then shows that the nearest town is in an adjoining county. For instance, "Lowestoft (Gisleham)" means Gisleham, near Lowestoft, both being in one county, but "Geldeston [Beccles]" means Geldeston, Norfolk, near Beccles, in another county—Suffolk.

The contents of the columns are sufficiently explained by the headings, except that in the column headed "diameter," figures will occasionally be noticed of a different type from the rest of the tables; these figures indicate the length of the sides of rectangular mouthed gauges. These measurements are all in inches. See also note on page [132].

The letter D denotes that a copy of the daily record has been received, that it is perfect throughout the year, and that the printed amount is the correct total of these daily entries.

An asterisk * denotes that the gauge was tested before erection, and a † that it has been visited and examined since. A note of interrogation (?) implies doubt, not necessarily error. ... indicates the absence of information.

In the column of altitudes several symbols are used, their meaning is as follows :— ∇ , that a series of levels has been taken from the gauge to an Ordnance bench mark ; I, that the height is estimated or ascertained approximately from the same source ; L, that levels have been taken from the gauge to the sea, or to some datum other than Ordnance mean sea level ; B, that the altitude has been taken by the barometer ; and ?, that the height is uncertain.

COUNTY INDEX TO GENERAL TABLES.

E N G L A N D.

Bedford	141	Hereford	150	Oxford.....	140
Berks	138	Hertford	139	Rutland	152
Buckingham	139	Huntingdon	141	Shropshire	150
Cambridge	141	Kent	134	Somerset.....	148
Cheshire	155	Lancashire	156	Stafford	150
Cornwall.....	147	Leicester.....	152	Suffolk	143
Cumberland	165	Lincoln	153	Surrey	133
Derby	154	Middlesex	132	Sussex	136
Devon	146	Monmouth	167	Warwick.....	151
Dorset	145	Norfolk	143	Westmoreland	166
Durham	163	Northampton	140	Wiltshire	145
Essex	142	Northumberland.....	164	Worcester	151
Gloucester	149	Nottingham	154	Yorkshire	159
Hampshire	137				

W A L E S.

Anglesea	170	Carnarvon	170	Merioneth ..	169
Brecknock	168	Denbigh	169	Montgomery	168
Cardigan	168	Flint	169	Pembroke	168
Carmarthen	168	Glamorgan	167	Radnor	168

I S L A N D S. -

Isles of Scilly	170	Guernsey	170	Isle of Man.....	170
Alderney .....	...	Jersey	170	Sark .....	...

S C O T L A N D.

Aberdeen.....	177	Elgin (or Moray) ...	177	Orkney	179
Argyll	174	Fife	175	Peebles	172
Ayr	173	Forfar	176	Perth	176
Banff	177	Haddington	172	Renfrew	173
Berwick	172	Inverness.....	178	Ross.....	178
Bute	174	Kincardine	177	Roxburgh	171
Caithness	179	Kinross	175	Selkirk	172
Clackmannan	175	Kirdeudbright	171	Shetland	179
Cromarty.....	178	Lanark	173	Stirling	174
Dumbarton.....	174	Linlithgow ..	173	Sutherland	179
Dumfries	171	Nairn	177	Wigton	171
Edinburgh	172				

I R E L A N D.

Antrim	183	Kerry	180	Monaghan	183
Armagh	183	Kildare .....	...	Queen's County ...	181
Carlow.....	181	Kilkenny	181	Roscommon .....	...
Cavan	183	King's County	181	Sligo	182
Clare	181	Leitrim	182	Tipperary	180
Cork	180	Limerick.....	180	Tyrone.....	184
Donegal	184	Londonderry	183	Waterford	180
Down	183	Longford	182	Westmeath.....	182
Dublin	181	Louth	182	Wexford	181
Fermanagh	183	Mayo	182	Wicklow	181
Galway	182	Meath	182		

ENGLAND AND WALES.

[For a statement of the reason for printing some totals in Italics, e.g., Isleworth (Spring Grove) 24.76, see page 35.]

DIVISION I.—MIDDLESEX.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which .01 or more fell.
		Diameter	Height Above Ground	Height Above SeaLevel	1881	
			ft. in.	feet.	inches.	
MIDDLESEX.						
Hampton Wick (The Grove).....	Sir T. J. Nelson	5	1 1	27 ∇	21.58	123
Teddington (Gomer House)	R. D. Blackmore, Esq..	5	0 10	26 ∇	24.34	146
Staines (Knowle Green)	Miss Pellatt	5	5 2	...	27.41	140
Hanworth (Riversdale)	G. Anderson, Esq.	5	1 0	40 \uparrow	23.92	...
D† Isleworth (Spring Grove)	R. W. Peake, Esq. ...	5	1 0	69 \uparrow	<i>24.76</i>	115
D† " (Dunster Lodge)	Miss Ormerod.....	5	1 0	69 ∇	<i>25.57</i>	160
" " " } <i>mntly</i>	" " "	5	1 0	69 ∇	<i>25.55</i>	...
D Ealing (Local Board Office)	C. Jones, Esq.....	5	27 0	134 ∇	25.11	160
D Westminster (Spring Grdns), S.W.	Sir J. W. Bazalgette, C.E.	8	6 0	35 ∇	25.14	114
" " " }	" " " ..	12	65 11	95 ∇	23.19	114
" " " }	" " " ..	8	66 4	95 ∇	21.73	114
London (Guildhall), E.C.	Col. Haywood, C.E. ...	8	2 6	49 \uparrow	21.88	130
" " " }	" " " ..	8	51 0	98 \uparrow	22.08	130
D " (Regent's Pk. Roy. Bot. Soc.)	W. Sowerby, Esq.	8	1 0	126 ∇	<i>27.04</i>	150
D " (Hamilton Terrace), N.W...	Miss Cobb	5	0 11	125 \uparrow	<i>28.34</i>	168
D " (Springfield Road), N.W...	H. S. Wallis, Esq. ...	8	1 3	118 \uparrow	26.87	149
" " " } <i>monthly</i>	" " "	5	5 9	123 \uparrow	<i>27.18</i>	...
D† " (Camden Square), N.W. ...	G. J. Symons, Esq. F.R.S	8	0 8	111 ∇	27.92	152
" " " } <i>monthly</i>	" " " ..	8	0 8	111 ∇	27.91	...
" " " }	" " " ..	5	1 0	111 ∇	27.54	...
+ " (235, Camden Road), N. ...	W. B. Butler, Esq. ...	5	3 0	160 \uparrow	27.09	159
† " " " }	" " " ..	5	1 1	160 \uparrow	27.02	...
Hackney (Richmond Road)	J. W. Tripe, Esq. M.D.	5	7 0	65 ∇	<i>26.27</i>	166
Kilburn (Netherwood Street) ...	Mr. W. Searle	5	0 6	...	27.59	...
D Holloway (Manor Road)	Miss Varty	5	1 2	100	<i>27.35</i>	...
Hampstead (Rosslyn House).....	C. H. L. Woodd, Esq..	8	1 4	330 \uparrow	<i>27.54</i>	149

DIVISION II.—SOUTH-EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which .01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
SURREY—(con.)						
D Reigate Hill	Baldwin Latham Esq CE	5	1 0	687 $\bar{\pi}$	35.52	184
D Godstone (Tyler's Green)	" " "	5	1 0	366 $\bar{\pi}$	30.42	144
D Guildford (Wern)	Major Mathew	5	4 0	170	24.48	130
D Titsey [Westerham]	Baldwin Latham Esq CE	5	1 0	448 $\bar{\pi}$	33.02	196
D " (Botley Hill) [Westerham]	" " "	5	1 0	870 $\bar{\pi}$	34.69	181
D " (" " Farm)	" " "	5	1 0	864 $\bar{\pi}$	33.70	181
D Chipstead (Parson's Green)	" " "	5	1 0	506 $\bar{\pi}$	34.66	156
D† Godstone (Birchwood House) ...	Messrs. C. & F. Rutley	5	1 0	471 $\bar{\pi}$	31.17	171
D† Chelsham (Henley)	W. Foster, Esq.	5	1 0	607 $\bar{\pi}$	34.52	189
D Kenley	Baldwin Latham Esq CE	5	1 0	501 $\bar{\pi}$	31.17	185
† Weybridge Heath (Bartrops) ...	Mrs. Harrison	8	0 6	150 $\bar{\pi}$	26.70	...
D " (Oakfield)	H. Yool, Esq.	5	1 0	107 $\bar{\pi}$	25.58	152
" (Church Street)	" " "	5	1 0	55 $\bar{\pi}$	25.89	...
Walton-on-Thames (Hersham)..	G. Dines, Esq.	8	4 0	55 $\bar{\pi}$	24.74	...
" " { " } ..	" " "	24	50 0	101 $\bar{\pi}$	22.88	...
" " { " } ..	" " "	5	50 0	101 $\bar{\pi}$	21.10	...
D Addington	Baldwin Latham Esq CE	5	1 0	268 $\bar{\pi}$	27.54	139
Sutton (Mulgrave Road)	W. Goode, Esq.	5	7 3	230 $\bar{\pi}$	25.34	...
D Beddington	S. Rostron, Esq.	5	1 0	102	24.58	162
D Croydon (Beechholme Bramley Hill)	W. T. Reynolds, Esq. ...	5	1 0	179 $\bar{\pi}$	26.84	158
D " (Church Street)	Mr. C. A. Blogg	5	20 8	169 $\bar{\pi}$	26.97	129
D† " (Nantwich House)	Baldwin Latham Esq CE	8	4 0	259 $\bar{\pi}$	25.17	172
D " { " " }	" " "	8	1 0	253 $\bar{\pi}$	25.67	172
D " (Brinstone Sew. Works)	" " "	5	1 0	130 $\bar{\pi}$	24.39	162
D*† " (Addiscombe)	E. Mawley, Esq.	8	0 9	202 $\bar{\pi}$	26.15	178
*† " (") <i>monthly</i>	" " "	8	0 9	202 $\bar{\pi}$	26.26	...
Chertsey (Burley Orchard)	W. Herring, Esq.	5	1 0	47 $\bar{\pi}$	26.68	...
Surbiton (Seething Wells)	G. Lott, Esq.	10	0 6	25	23.74	162
D Mitcham (Woodburn House) ...	Baldwin Latham Esq CE	5	1 0	50 $\bar{\pi}$	22.86	148
Norwood (South)	W. F. Stanley, Esq. ...	...	1 0	190	22.30	...
" (Beulah Hill)	S. R. Scott, Esq.	5	0 9	350 ?	24.59	131
D Wimbledon	T. Devas, Esq.	12	3 0	157 $\bar{\pi}$	24.46	184
D† Lower Norwood	W. Marriott, Esq.	8	1 0	185 $\bar{\pi}$	25.26	166
Egham (Cooper's Hill)	The Meteor. Council ...	8	1 1	280	27.97	141
D Richmond (Ormond Lodge)	J. F. Billett, Jun., Esq.	5	0 9	50	25.31	153
D Kew Observatory	The Kew Committee ...	11	1 9	19 $\bar{\pi}$	25.49	157
Brixton (Acre Lane)	The Meteor. Council ...	8	1 0	77 $\bar{\pi}$	24.67	165
D Battersea Creek	Sir J. W. Bazalgette, CE	8	27 2	41 $\bar{\pi}$	22.86	109
D Vauxhall (Effra Creek)	" " " "	8	30 9	48 $\bar{\pi}$	21.58	143
KENT.						
D Hawkhurst (Sandhurst Rectory)	Rev. G. Ridout	5	1 3	208 $\bar{\pi}$	29.00	152
D Dymchurch (New Hall)	H. D. Good, Esq., C.E.	8	1 0	12 $\bar{\pi}$	26.04	...
Tenterden (Summerhill)	Rev. A. Wilkin	12	1 0	145 $\bar{\pi}$	27.34	123
Benenden (East End)	J. Ellis Mace, Jun. Esq.	8	1 9	193 $\bar{\pi}$	30.87	...
" (") <i>Snowdon</i>	" " "	5	1 0	193 $\bar{\pi}$	30.19	...
D Tenterden	" " "	8	1 5	190 $\bar{\pi}$	30.64	184
"	" " "	8	1 5	190 $\bar{\pi}$	30.12	171

DIVISION II.—SOUTH-EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
KENT—(con.)						
Tenterden (Ashbourne)	A. Pinyon, Esq.	5	2 8	45 T	29·88	...
d† Hythe	H. B. Mackeson, Esq.	8	0 6	12 T	41·15	191
† Cranbrook (Swattenden)	R. Appach, Esq.	8	1 4	350 T	29·80	157
„ (Hartley)	G. Pile, Jun., Esq.	5	4 0	405 T	32·18	193
Hythe (Paddlesworth)	Mr. R. Dixon	8	1 0	608 T	42·89	...
D Gowdhurst Vicarage	Rev. J. S. Clarke	5	1 1	412	26·20	163
Dover Station	The Meteor. Council	8	23 0	46	27·20	184
d† „ (Pincester Street)	H. J. Poulter, Esq.	5	1 6	32	31·14	153
Tunbridge Wells	The Meteor. Society	5	1 0	500	31·14	...
D „ „ (Sherwood)	Dr. C. W. Siemens, FRS	5	4 3	490 T	30·14	142
D Ashford (Bethersden)	W. H. Mold, Esq.	5	3 0	112 T	28·28	161
D „ (Beavor Green)	T. Nickalls, Esq.	5	1 0	155 T	32·67	192
D Acrise	C. Woollett, Esq.	8	1 0	484 T	41·13	196
Ashford (Kennington)	J. S. Burra, Esq.	8	...	...	29·14	...
Tunbridge Wells (Etherton Hill)	E. W. Winton, Esq.	5	1 5	276 T	25·44	...
D „ „ (Pembury)	W. Brentnall, Esq. C.E.	8	1 8	181 T	27·00	150
Tunbridge (St. Mary's)	W. C. Punnett, Esq.	5	1 6	96 T	25·55	152
„ „ „	„	5	1 0	96 T	25·53	...
D Ashford (Westwell)	Rev. H. H. D'Ombraïn	5	1 0	293 T	29·83	150
Edenbridge (Falconhurst)	J. G. Talbot, Esq., M.P.	5	1 0	400 L	32·66	162
Tunbridge (Hadlow Park)	Lady Yardley	8	3 0	...	24·97	...
d† Maidstone (Hunton Court)	Mr. P. Goddard	8	0 6	80 T	24·53	165
Sevenoaks (Ide Hill)	J. Frost, Esq.	5	1 0	700 T	30·61	184
Maidstone (Tovil House)	J. Barcham Green, Esq.	5	1 0	80	24·44	162
D „ (Lower Tovil)	L. Green, Esq.	5	1 0	30	23·04	162
D „ (Museum)	M. A. Adams, Esq.	5	0 6	46	24·06	122
D Canterbury (Chilham)	J. Marten, Esq.	5	1 0	330 T	31·67	166
Charing (Otterden)	Rev. W. A. Paxton	5	1 0	507 T	30·90	...
† Sandwich (Walton House, Eastry)	Colonel Rae	5	2 10	55 T	27·85	...
d† Selling (Harefield)	E. Neame, Esq.	5	2 6	217 T	30·92	188
D „ (Gosmere)	W. Butcher, Esq.	5	1 0	255 P	28·23	181
Canterbury (Harbledown)	Miss Metcalfe	5	1 6	262	28·60	166
D „ (Old Tree, Hoath)	G. Rammell, Esq.	8	2 0	113	24·14	129
† Seven Oaks (River Hill)	J. T. Rogers, Esq.	8	4 0	535 T	27·07	116
„ „ (Rockdale)	N. Clode, Esq.	5	3 0	470	26·64	183
D „ „ (Clare Bank)	J. M. Clabon, Esq.	5	4 0	540 T	28·20	146
d† „ „ (Riverhead Vic.)	Rev. J. M. B. Murdoch	5	0 6	300 T	28·46	135
D Westerham (Betsom's Hill)	Baldwin Latham Esq CE	5	1 0	811 T	31·50	177
D Faversham (Hernhill)	A. J. Alexander, Esq.	5	0 4	...	27·88	142
Ospringe (Lorenden)	W. C. Stunt, Esq.	5	1 2	...	25·79	124
D Stourmouth	Rev. R. Drake	5	1 0	12 T	25·76	115
D Farnborough (Leaves Green)	Baldwin Latham Esq CE	5	1 0	534 T	28·33	139
Ramsgate (St. Augustine's)	The Meteor. Society	8	0 6	105	28·29	...
† „ (The Vale)	M. Jackson, Esq.	5	1 0	90 T	26·35	153
Birchington (Thor)	Major Bell	5	1 0	70	23·34	...
d† Margate (Renfrew Villa)	T. Twyman, Esq.	5	1 0	50 T	26·99	179
D „ (Apsley House)	J. Stokes, Esq.	5	1 0	84 L	26·75	177
D Beckenham (West Wickham)	Baldwin Latham Esq CE	5	1 0	230 P	24·86	167

DIVISION II.—SOUTH-EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which .01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1881	
			ft. in.	feet.	inches.	
KENT—(con.)						
D† Bromley Common, S.E.	Rev. A. Rawson... ..	8	1 0	250 T	27·37	162
Bickley (Highfield)	J. Batten, Esq.	5	1 2	285	29·23	...
D† Beckenham (Foxgrove)	Percy Bicknell, Esq. ...	5	0 5	142 T	24·51	154
D† " (")	" " " "	5	4 0	145 T	23·76	148
D† Eltham Green	E. J. C. Smith, Esq. ...	5	1 0	80 T	23·85	161
" " " "	" " " "	5	1 0	80 T	23·55	...
D Lee (Blessington Road)	J. Grant, Esq., C.E. ...	10	4 9	49 T	27·20	157
Blackheath	J. Glaisher, Esq., F.R.S.	8	0 5	150	27·72	153
Greenwich (Royal Observatory)..	W. H. Christie, Esq. FRS	8	0 5	155 T	25·73	156
D Deptford (Pumping Station)	Sir J. W. Bazalgette, CE	10	0 4	18 T	28·69	156
Erith (Crossness)	" " " "	14	1 0	16 T	22·69	157
" (")	" " " "	14	1 0	24 T	24·48	157
" (")	" " " "	11	0 6	6 T	25·74	157
WEST SUSSEX.						
D Littlehampton (Surrey House)...	G. Neame, Esq.	5	1 8	20 T	30·00	127
D† Worthing (Bedford Row)	W. J. Harris, Esq. ...	8	1 0	18 T	29·60	142
" (" ") <i>monthly</i>	" " " "	5	1 0	18 T	30·51	...
D " (Broadwater Road) ...	C. Kelly, Esq., M.D. ...	5	1 0	25 T	30·77	161
D Arundel (Yapton)	W. A. Hounsom, Esq. ..	5	1 0	24 T	29·34	158
" (" Drove Farm)	" " " "	5	1 0	14 T	27·30	166
D West Thorney	F. Padwick, Esq.	5	0 10	10	26·73	105
† Chichester (Westgate)	Dr. Tyacke	5	0 6	40 T	29·87	...
" (")	" " " "	8	...	...	30·08	...
Arundel (Patching)	J. Drewitt, Jun., Esq. ..	5	1 0	180	32·30	141
D "	R. Holmes, Esq.	8	3 1	75	29·87	105
" (Dale Park)	Mr. E. Sandford	11	3 5	316 T	39·23	119
D† Steyning	Col. Ingram	5	1 0	80 T	35·80	...
Chichester (Eartham House) ...	Sir P. Milbanke, Bt. ...	3	4 6	230 T	30·51	...
" (West Dean)	F. Bower, Esq.	5	3 6	180 T	34·94	135
" (Singleton Rectory)	Rev. F. A. Bowles	5	1 0	240	39·64	...
† " (Chilgrove)	J. W. Woods, Esq. ...	5	0 6	284 T	34·02	...
† Petworth Rectory	Rev. C. Holland	5	3 0	190 T	34·89	115
† Horsham (Leonardslee)	Mr. Ford	5	1 6	273 T	33·87	...
D Midhurst (Lynch)	F. Eames, Esq.	5	0 6	160 ?	39·02	110
† Fernhurst [Haslemere]	Miss E. A. Salvin	8	0 10	288 T	31·24	...
Horsham (Albion Terrace)	R. Sheppard, Esq.	6	5 0	150 T	27·73	164
" (Compton's Lea)	T. W. Cowan, Esq. ...	5	4 0	253 T	30·33	163
EAST SUSSEX.						
Beachy Head	Miss W. L. Hall	5	1 0	515 T	23·80	...
" "	" " " "	5	1 0	495 T	25·75	...
D† Eastbourne (The Gore)	" " " "	5	1 0	85 T	26·87	158
" (Osborne House)	" " " "	5	4 0	15 B	31·01	172
D† " (Cemetery)	" " " "	5	4 0	160 T	29·71	146
Pevensay (Walls End Cottage) ...	A. Vidler, Esq.	8	1 0	0	29·11	...
† Brighton (The Steyne)	Dr. R. P. B. Taafe ...	5	1 0	39 T	31·85	153
† " (St. James' Street)	E. Rowley, Esq.	5	1 0	37 T	33·14	156

DIVISION II.—SOUTH-EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fall.
		Diameter	Height Above Ground	Height Above SeaLevel	1881	
			ft. in.	feet.	inches.	
EAST SUSSEX—(con.)						
Brighton (West)	Rev. E. W. Holland ...	5	1 9	105	31·79	...
D " (Buckingham Place) ...	F. E. Sawyer, Esq. ...	5	5 0	206 ∇	29·17	153
D " (Blatchington Road) ...	J. Park, Esq.	8	0 6	...	33·24	160
D† " (W. W., Lewes Road) ...	Mr. W. Insell	5	3 8	...	33·10	176
D " (" Goldstone Bottom)	" "	5	0 10	140 ∇	32·80	...
D St. Leonard's (Carisbrooke Road)	H. Colborne, Esq.	5	1 0	117 ∇	30·73	182
D " (The Grove)	W. B. Young, Esq. ...	5	1 1	110 ∇	31·47	159
D† Hastings (The Hollies)	A. H. Wood, Esq. C.E.	8	3 0	100 ∇	34·39	198
D " (Buckshole)	W. Andrews, Esq.	8	0 8	106	28·86	154
D Hailsham	Rev. F. Clyde Harvey..	5	1 0	105	30·82	135
D† Falmer	R. R. Verrall, Esq. ...	5	1 6	312 ∇	36·67	105
D Lewes (Iford)	A. Hillman, Esq.	5	1 0	33 ∇	33·52	162
† " (Glynde Place)	Mr. J. McLeod	5	2 9	49 ∇	32·41	149
† Hastings (High Beech Hollington)	Col. Lewis	5	1 0	320 ∇	29·65	157
D " (The Firs, Ore)	C. M. Murray, Esq. ...	8	1 0	408 ∇	33·22	...
† Poyning (Dyke House)	Mr. W. Thacker	5	1 6	680	39·17	171
D Winchelsea	Mr. Budden	5	1 0	110 ∇	35·61	164
D " (The Friars)	Miss Stileman	5	1 1	115 ∇	31·05	163
D Warbleton Rectory	Rev. G. E. Haviland..	5	1 1	182 ∇	35·38	176
D Newick (Ketches)	Capt. G. Ruck Keene, RN	8	0 7	192 ∇	26·47	130
D† Uckfield	C. L. Prince, Esq.	8	1 0	200 ∇	33·05	202
Rye (Peasmarsh)	Hon. R. Henley Eden..	5	1 0	180	35·62	...
† Buxted Park	Hon. W. H. B. Portman MP	8	0 10	193 ∇	33·44	...
D† Hayward's Heath Asylum	Rev. T. E. Crallan.....	5	1 0	250 ∇	28·45	172
D† Maresfield (Forest Lodge)	Capt. W. Noble	8	1 2	247 ∇	33·09	188
D Cuckfield (Borde Hill House) ...	Mr. R. Inglis	5	3 0	270 ∇	30·88	158
D† Crowborough (The Observatory)	C. L. Prince, Esq.	8	0 6	777 ∇	39·20	165
Lamberhurst (Scotney Castle) ...	E. Hussey, Esq.	5	4 3	202 ∇	28·68	...
Frant (Eridge Castle)	Mr. J. Rust	8	1 0	400	39·86	...
Forest Row (Ashdown Cottage)..	H. J. Slack, Esq.	8	3 7	386 ∇	31·24	...
Crawley (Worth Rectory)	Rev. G. W. Banks ...	5	4 6	300 ∇	32·59	...
East Grinstead	W. V. K. Stenning, Esq.	5	1 3	356 ∇	32·61	153
HAMPSHIRE.						
ISLE OF WIGHT.						
D† St. Lawrence	Rev. C. Malden	5	1 0	75 ∇	31·95	155
Ventnor (Consumption Hospital)	Mr. H. Sagar	5	1 0	75 ∇	32·25	163
Ryde	Mr. T. S. Flower	12	7 6	17 ∇	30·78	128
D† Osborne	J. R. Mann, Esq.	8	0 8	172 ∇	28·04	134
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Hurst Castle	The Meteor. Council ...	8	0 11	9	27·56	158
Bournemouth (Tregen)	Adl. Sir B. J. Sullivan..	5	1 0	134	33·05	...
Christchurch (South Bourne) ...	Dr. Compton	5	0 6	90	27·55	...
D " (Mudford)	F. H. D. Eyre, Esq. ...	5	0 3	15 ∇	26·13	170
Lymington (Wainsford)	H. Fawcett, Esq.	5	1 0	58 ∇	27·07	136
Portsmouth	The Meteor. Society ...	5	1 0	20	29·03	...

DIVISION II.—SOUTH-EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which >.01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
HAMPSHIRE—(con.)						
D Portsmouth (Closewood, Cosham)	Rev. O. Philpott	5	0 9	125 T	31.15	148
D Southampton (Cadland)	J. Laurie, Esq.	8	4 6	52 T	35.13	173
D " (Woolston Lodge)	F. Ekless, Esq.	5	1 0	79	29.24	...
D " (Eling House)	W. C. Spooner, Esq.	5	1 3	15	28.57	...
D Botley (Moorhill, Shedfield)	Adl. Sir T. S. Pasley, Bt.	8	1 2	160 T	30.95	160
Southampton (Millbrook)	Rev. C. Parkin	5	4 0	22 P	31.20	144
D* " (Highfield) <i>Snowdon</i>	Rev. H. Garrett	5	1 0	130 T	30.57	187
D† " (Red Lodge) <i>mithly.</i>	R. C. Hankinson, Esq.	5	0 6	217 T	28.27	...
D " (" ") <i>mithly.</i>	" " " "	5	0 6	200 T	31.72	...
D Fordingbridge	T. Westlake, Esq.	8	1 0	135 T	31.29	137
D Droxford Rectory	Rev. S. Bridge	5	0 8	180	31.73	131
Fordingbridge (Wood Green)	H. Hinxman, Esq.	5	1 2	140 T	32.66	...
Petersfield (Liss Place)	G. E. Coryton, Esq.	7	0 7	250 T	36.54	...
D Romsey (Michelmersh Rectory)	Rev. Dr. Merriman	5	1 6	273 T	29.72	140
D Alresford (Cheriton Rectory)	Rev. A. Orr	5	2 6	240	31.84	142
D " (Ovington)	Rev. W. H. B. Stocker	5	5 1	225 T	30.47	165
D Alton (East Tisted Rectory)	Rev. F. Howlett	5	1 1	420 T	35.54	145
D Winchester (Harestock)	Col. Knight	5	1 0	302 T	32.50	146
Alresford (Swarraton Rectory)	Rev. W. L. W. Eyre	5	1 0	310 T	29.85	132
† Alton (Ashdell)	F. Crowley, Esq.	8	3 6	396 T	32.11	...
Micheldever (Northbrook)	J. A. Caird, Esq.	5	1 1	270 T	29.14	...
Andover (Red Rice)	Mr. C. W. Learman	5	0 7	277 T	29.76	115
Whitechurch (North Litchfield)	T. W. Styring, Esq.	5	0 10	...	32.79	136
D Odiham Priory	Rt. Hon. G. S. Booth, M.P.	5	4 4	...	27.41	130
Dogmersfield Park	Sir H. B. Mildmay, Bt.	5	2 6	...	24.86	...
D Basingstoke (Chapel Hill)	G. Stephens, Esq.	5	1 0	328 T	26.85	161
† Rotherwick (Tylney Hall)	C. E. Harris, Esq.	5	0 8	330 T	25.86	...
D† Basingstoke (Sherborne St. John)	Rev. D. W. Chute	5	1 3	260 T	28.25	156
Kingsclere (Ramsdale)	Miss A. F. R. Fuller	5	1 0	341 T	28.69	160
Hartley Wespall	Rev. J. C. Keate	8	0 9	233 T	25.28	...
D Blackwater (Hurstleigh)	Miss Gibson	5	1 0	220 T	27.20	187
† Strathfield Turgiss	Rev. C. H. Griffith	5	1 0	196 T	25.77	...
D† " " "	" " " "	5	3 0	200 T	24.16	148
† Strathfieldsaye	Mr. J. Bell	8	1 0	160 T	25.82	110
† Heckfield (Park Corner)	J. Martineau, Esq.	5	1 3	258 T	23.74	...
BERKS.						
D Reading (Beech Hill)	Rev. C. S. Turner	5	1 0	226 T	26.84	153
Newbury (Greenham)	Capt. J. Ward, R.N.	5	1 0	260 L	29.80	165
" " "	W. J. Cowper, Esq.	5	4 6	...	30.57	160
Hungerford (Denford Park)	G. C. Cherry, Esq.	5	1 2	430 T	28.42	164
Reading (Englefield)	R. Benyon, Esq.	5	1 1	...	32.75	150
† " (Russell Street)	Dr. Workman	5	2 0	154 T	28.18	156
D Newbury (Welford Park)	Mr. C. Ross	5	1 0	335 T	31.01	174
" " " "	" " " "	5	1 0	341 T	30.84	174
East Ilsley	R. Osmond, Esq.	5	3 6	...	30.46	143
Maidenhead (Kimbers Cottage)	Mr. J. Silver	8	1 2	92 T	34.80	...

DIVISION II.—SOUTH-EASTERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1881	
			ft in.	feet.	inches.	
BERKSHIRE—(con.)						
D Maidenhead (Cookham Vic.) ...	Rev. R. W. Rogers ...	5	1 3	90 T	30·64	167
Shrivenham (Ashbury Vic.)	Rev. H. Miller	5	1 0	479 A	28·02	...
D Wantage (Letcombe Regis)	S. W. Silver, Esq.	5	1 0	...	28·37	155
Wallingford (The Castle)	J. Kirby Hedges, Esq..	5	0 9	175 A	26·03	106
D† Long Wittenham	Rev. J. C. Clutterbuck.	12	1 3	165 A	26·34	137
Faringdon (The Elms)	W. Dundas, Esq.	5	1 0	340 T	28·15	153

DIVISION III.—SOUTH MIDLAND COUNTIES.

HERTS.

D Southgate (The Lawns).....	H. P. Church, Esq. ...	6	0 6	240 T	30·02	184
Bushey Heath (The Laurels) ...	Forrester Scott, Esq....	5	0 10	480	31·40	184
" Station	Mr. R. Savill	5	0 6	...	29·86	...
D Watford (Wansford House).....	J. Hopkinson, Esq. ...	5	1 0	225 A	30·15	185
" (Watford House)	A. T. Brett, Esq., M.D.	8	1 2	...	30·95	171
D " (Oaklands)	E. Harrison, Esq.	5	5 6	273 T	29·32	162
† St. Albans (Gorhambury).....	Mr. J. Thompson	6	2 6	375 T	33·12	...
D Hoddesdon	A. C. McKenzie, Esq... 8	1 6	147	28·91	160	
D Hemel Hempstead (Nash Mills)..	Messrs. J. Dickinson & Co.	12	3 9	237 T	31·72	174
D Gt. Berkhamstead (High Street)	W. Squire, Esq.	8	1 5	370 B	32·67	157
Hertford (Bayfordbury)	W. C. Baker, Esq.	8	0 4	250	27·30	148
Tring (Cowroast)	H. Thomas, Esq., C.E..	10	4 2	345 L	31·92	137
Harpenden (Rothamstead)	Messrs. Lawes & Gilbert	5	0 9	420 T	30·76	186
" { " }	" " " " " "	8	0 9	420 T	29·58	184
" { " }	" " " " " "	72x87	0 9	420 T	31·66	190
Hatfield (Brockett Hall)	Mr. W. Gurney	8	1 0	...	26·58	135
D Ware	J. Muir, Esq., C.E. ...	12	3 0	114 T	26·29	132
D Welwyn Rectory	Rev. C. L. Wingfield... 5	0 4	228 T	28·73	186	
D Kensworth [Dunstable]	Miss Jones	5	1 0	630 B	29·49	170
Ware (Much Hadham)	Rev. H. S. Mott	5	1 0	222 B	29·15	194
D Welwyn (Datchworth Rectory)..	Rev. J. Wardale	6	1 0	386 T	26·42	161
Stevenage (Knebworth Rectory).	Rev. F. G. Jenyns	5	1 0	391 A	30·09	167
" 	Rev. J. O. Seager	8	2 0	319 L	28·43	202
D† Hitchin	W. Lucas, Esq.	5	2 1	238 A	25·16	183
" (High Down)	J. Pollard, Esq.	5	1 1	422 T	25·38	144
D Buntingford (Throcking Rectory)	Rev. C. W. Harvey ...	5	1 0	484 T	27·32	186
Royston (Therfield Rectory).....	Rev. J. G. Hale	5	4 3	500 ?	26·98	151
D† " 	H. Wortham, Esq.	8	0 6	269 A	24·03	148

BUCKINGHAMSHIRE.

D Slough (Langley)	R. H. Major, Esq.	8	0 10	85 T	27·04	156
" (Upton)	G. Bentley, Esq.	5	3 0	94	29·35	...
High Wycombe	H. S. Wheeler, Esq. ...	8	0 9	225 A	27·95	...
Great Missenden	Mr. J. Begbie	6	1 0	600 T	33·85	...
Aylesbury (Serena Terrace)	J. Copcutt, Esq.	12	1 0	280 T	26·95	...
" (Mentmore)	Mr. J. Smith	5	1 6	...	26·69	...
D† Winslow (Addington Manor) ...	E. Hubbard, Esq.	8	1 0	309 A	29·74	163

DIVISION III.—SOUTH MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which 0.1 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1881	
			ft. in.	feet.	inches.	
NORTHAMPTON—(con.)						
Oundle (Pilton Rectory)	Rev. F. G. Hodgson ...	5	1 0	...	28.40	...
D "	Baldwin Latham Esq CE	5	1 0	...	27.73	167
" (Bramston House)	J. S. Clarke, Esq.	5	1 0	103 N	27.19	147
Rockingham Castle	Mr. H. Watt	5	3 0	400 L	29.92	105
D Peterborough (Springfield Ho.)..	J. Whitwell, Esq.	8	2 6	50 L	24.02	128
D Easton [Stamford].....	C. Day, Esq.	5	1 0	278 T	28.44	183
HUNTS.						
D St. Neots (Tetworth Hall)	Mrs. Kaye	5	0 8	114 T	27.35	166
D " (Waresley Vicarage)..	Rev. W. M. H. Elwyn	8	1 0	193 N	24.88	140
Godmanchester (Farm Hall).....	G. I. Bevan, Esq.	8	0 8	30 P	24.41	151
Huntingdon	Mrs. C. Margetts	5	0 4	52 T	27.30	176
* " (Wistow)	Rev. T. Woodruff	6	1 6	...	24.51	134
Whittlesea Mere	R. Lunn, Esq.	8	1 0	...	25.07	187
BEDFORD.						
Amphill (Silsoe)	H. Trethewy, Jun., Esq.	5	1 2	214 T	27.16	184
" (Wrest Park)	Mr. G. Ford	5	1 1	...	27.60	...
D†Aspley Guise (Oaklands)	E. E. Dymond, Esq. ...	5	1 0	433 T	25.38	159
D Stotfold [Baldoek].....	Dr. Swaine	5	0 9	220	22.25	178
Amphill.....	Mr. J. Brown	5	1 0	...	27.15	154
D Woburn (Hulcote Rectory)	Rev. B. Chernocke Smith	5	1 0	310 T	25.89	157
Biggleswade (Old Warden)	Mr. G. R. Allis	8	1 2	...	25.99	140
"	C. T. Newbery, Esq. ...	5	28 0	...	23.75	...
D Potton (Wrestlingworth)	H. J. King, Esq.	5	1 0	...	23.62	175
Cardington	Mr. J. McLaren	8	0 0	106	24.56	...
D "	" "	12	3 6	109	23.55	152
D Sandy Rectory	Rev. J. Richardson ...	5	0 7	...	23.89	130
D " (The Lodge)	A. W. Peel, Esq., M.P.	5	1 0	...	24.47	167
Bedford	D. Robie, Esq.	5	0 4	115 T	25.30	138
" (Clapham Park)	J. Howard, Esq., M.P..	8	1 0	220 N	24.38	...
Tempsford Hall	Col. W. Stuart	5	0 9	140 B	23.18	...
Bedford (Milton Ernest)	F. Newbery, Esq.	5	5 0	130 P	24.31	109
CAMBRIDGE.						
D†Odsey Grange [Royston]	H. G. Fordham, Esq....	5	1 0	264 N	21.81	171
" " ["]	E. O. Fordham, Esq....	5	0 10	257 N	21.29	174
D†Guilden Morden ["]	J. G. Johnson, Esq. ...	5	1 2	106 N	24.08	167
†Abington Pigotts ["]	Miss Foster	8	0 6	130 B	23.38	170
D Pampisford Hall.....	Mr. Morley	5	1 0	113 N	25.75	200
D Granchester Mill	J. Nutter, Esq.	5	5 0	31 N	25.27	181
D Cambridge (Fulbourn Asylum) ..	Dr. Bacon	8	1 0	68 N	31.37	158
D " (W. W. Cherryhinton)	H. Tomlison, Esq., C.E.	5	1 0	35 N	25.08	194
D " (Beech House)	J. Nutter, Esq.	8	4 0	40 N	24.51	169
D " (Sidney Street)	Mr. W. E. Pain	8	60 0	92 N	24.95	194
" (Trinity College) ...	J. W. Glaisher, Esq. FRS	8	0 6	40	27.29	197
Hardwicke	Rev. J. S. Brown	5	0 7	...	20.92	...
D†Cambridge Observatory.....	Professor Adams, F.R.S.	5	1 0	85 N	26.49	165

DIVISION III.—SOUTH MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
CAMBRIDGE—(con.)						
Cambridge Observatory	Prof. Adams, F.R.S. . . .	8	1 0	84 $\bar{\pi}$	26·50	165
Quy Hall	Mrs. Clement Francis . .	5	0 5	...	25·08	166
Caxton (Papworth Everard).....	B. Ding, Esq.	5	1 0	127 $\bar{\pi}$	27·84	124
^D Ely (Stretham)	Mr. H. Walters	9	4 9	...	22·68	149
^D „ (Littleport Vicarage).....	Rev. Canon Hopkins ...	5	1 0	50 $\bar{?}$	23·80	184
„ („ Audley House)...	J. L. Luddington, Esq. .	5	1 0	5 $\bar{?}$	25·97	174
Chatteris (Aylesby House)	A. A. Ruston, Esq. ...	8	0 6	...	24·30	167
„ (Horseway Lock)	R. Lunn, Esq.	8	1 0	...	18·41	203
^D March	R. Dawbarn, Jun., Esq. .	5	1 0	...	22·31	125
„	R. Lunn, Esq. ....	...	...	...	22·54	...
„	A. Grounds, Esq. ....	...	2 0	...	22·69	...
Stanground Sluice	R. Lunn, Esq.	8	1 0	..	23·52	118
* March (Stags Holt)	W. C. Little, Esq.	5	1 0	15 $\bar{?}$	24·05	...
Upwell (Marmont Priory Lock)..	R. Lunn, Esq.	8	1 0	...	23·10	200
^D „ (Euximoor House).....	H. West, Esq.	5	0 8	15 $\bar{?}$	24·20	166
Wisbech (Coldham Hall, Elm)...	H. J. Little, Esq.	5	1 0	15	23·92	176
^D „ (Bank House)	A. Peckover, Esq.	8	0 8	6	25·18	179
[†] „ (Observatory).....	Mr. W. J. D. Ward ...	8	0 6	10 $\bar{\tau}$	27·76	143

DIVISION IV.—EASTERN COUNTIES.

ESSEX.						
Canning Town [London]	Lewis Angell, Esq., C.E. .	24	31 6	40 $\bar{\pi}$	21·02	134
^D Shoeburyness	Capt. O'Callaghan, R.A. .	5	4 7	18	18·83	114
[†] Barking (Loxford Hall)	Mr. J. Douglas	5	1 0	...	23·62	150
^D Southend	G. Lingwood, Esq. ...	8	1 0	112 $\bar{\pi}$	20·82	145
Romford (North Oekendon Rect.)	Rev. R. T. Crawley ...	5	1 2	...	23·34	122
^D Barking (Little Ilford).....	Rev. A. Shadwell	10	1 0	30 $\bar{\tau}$	21·61	111
^D Leyton Observatory	C. G. Talmage, Esq. ...	8	1 3	97 \bar{B}	26·13	115
Romford (Normanhunt)	E. C. Allam, Esq., C.E. .	8	1 6	93 $\bar{\pi}$	22·26	...
^D Woodford (The Harts) ...	Miss Spicer.....	5	3 0	200 $\bar{\tau}$	27·53	162
Chigwell Row	The Meteor. Council ...	8	1 0	188	25·97	178
Buckhurst Hill (The Elms)	F. W. Cory, Esq.	8	0 10	228 \bar{B}	25·80	148
^D Brentwood (Sawyer's Hall Farm)	Rogers Field, Esq., C.E. .	5	1 0	270 $\bar{\tau}$	25·68	104
Maldon (Norton Hall)	C. Clarke, Esq.	5	2 6	130 $\bar{\tau}$	21·72	...
^D Waltham Abbey (Gunpdr. Faetry)	The Superintendent ...	8	4 0	82 \bar{L}	26·53	144
Epping (The Hemnalls)	J. Nicholl, Esq.	8	0 8	345	31·66	142
Bradwell-on-Sea (Down Hall)...	R. Page, Esq.	5	1 2	20	24·33	...
Chelmsford (Writtle)	E. Rosling, Esq.	5	0 9	140 $\bar{\tau}$	22·67	...
„	F. Chancellor, Esq. ...	8	1 0	86 $\bar{\pi}$	24·50	138
^D Harlow (Moor Hall)	Mr. Huntley	8	1 6	273 $\bar{\pi}$	26·81	161
^D „ (Sheering).....	Rev. Canon Hill.....	5	1 0	214 $\bar{\pi}$	27·56	176
^D Dunmow (High Roding)	Rev. E. Maxwell	5	1 0	252 $\bar{\tau}$	27·67	186
Stanstead [Bishops Stortford] ...	Harford Green, Esq. ...	5	1 0	240 $\bar{\tau}$	27·80	120
Braintree (Bocking)	S. Tabor, Esq.	4	4 0	200 $\bar{\tau}$	27·62	...
„ („ Place).....	S. Courtauld, Esq. . . .	5	2 0	212 $\bar{\pi}$	26·59	164
Earls Colne (Chalkney House)...	H. F. Hills, Esq.	5	1 0	180 $\bar{\tau}$	22·66	135

DIVISION IV.—EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which .01 or more fell.
		Diameter	Height Above Ground	Height Above SeaLevel	1881	
			ft. in.	feet.	inches.	
ESSEX—(con.)						
D Manningtree (Lawford)	O. Bendall, Esq.	5	1 0	...	24.47	173
D Saffron Walden (Newport)	Rev. G. F. Tamplin ...	5	4 0	80 P	27.34	149
D " "	J. G. Bellingham, Esq.	5	1 0	180 A	26.99	184
SUFFOLK.						
D Nayland (Tendring Hall)	Mr. G. L. Rushmore ...	8	0 8	135 A	25.11	...
D Stutton (Alton Hall)	J. South, Esq.	5	0 6	...	25.82	...
D Ipswich (Orwell Park)	Mr. J. Wallis	8	1 0	60 A	26.98	178
D Hadleigh (Boxford)	Rev. J. Byng	8	0 8	...	25.38	159
" " (")	" " " "	8	0 10	...	25.76	...
Ipswich (Belstead Hall)	A. Harwood, Esq.	8	9 0	120 A	24.49	137
" " (")	" " " "	5	9 0	120 A	24.34	...
" " (Bishop's Hill)	G. A. Biddell, Esq., C.E.	5	1 0	104 A	25.00	...
D Woodbridge (Bank House)	S. Alexander, Esq. ...	5	1 0	...	25.93	171
D " (Rendlesham Hall)	RtHonLrd. Rendlesham	5	1 9	88 A	28.33	150
Ash Bocking Vicarage	Rev. M. B. Cowell	5	7 3	231 T	24.96	138
D Stowmarket (Violet Hill)	F. Lang, Esq. ....	...	2 0	...	22.81	111
D " (Wetherden Rec.)	Rev. C. J. Goodhart ...	8	0 6	185 A	23.63	167
D BurySt.Edmunds(DrinkstonePk)	Mr. G. Palmer	8	1 2	...	24.91	163
Framlingham (Mount Pleasant) ..	Mr. R. Whitehead .....	...	...	...	27.71	139
Saxmundham (Carleton Hall)	Mr. Briggs	8	5 0	50 T	27.75	190
D BurySt.Edmunds(AbbeygateSt.)	T. C. Hinnell, Esq. ...	5	45 0	...	21.37	...
† " " (Westley)	R. Burrell, Esq.	5	1 0	...	26.30	...
D† " " (Barton Hall)	Mr. W. Allan	5	1 0	...	26.64	180
D† " " (Culford)	Mr. J. Smith	5	1 6	...	28.15	184
D Ixworth (Walsham-le-Willows) ..	Miss M. C. Martineau..	5	1 0	...	26.70	172
D Stradbroke	J. T. Catchpole, Esq. ...	5	1 6	...	29.65	179
†Ixworth (Barningham)	W. Lingwood, Esq. ...	8	1 0	25 P	24.58	...
D Halesworth	R. W. Burleigh, Esq. ...	5	1 6	60 L	26.86	133
D Beccles (Sotterley Hall)	Col. St. J. Barne, M.P.	5	0 11	...	27.42	146
" (Ellough Rectory)	Rev. S. W. Earnshaw..	5	1 1	...	26.42	179
†Lowestoft (Gisleham)	Rev. H. Jodrell	5	1 4	36 T	25.18	...
† " (Carlton Colville)	G. Edwards, Esq., C.E.	8	0 9	6 T	27.40	...
D " (Kirkley)	H. E. Miller, Esq.	5	2 0	58 A	23.88	166
D " (Belle Vue Park)	S. H. Miller, Esq.	5	1 0	86	24.63	175
† " (Somerleyton Hall)	Mr. Rix	8	0 9	60 T	25.44	177
" (" Rect.)	The Meteor. Society ...	8	1 0	50	26.62	...
NORFOLK.						
D Diss	T. E. Amyot, Esq.	5	1 0	96	28.96	173
D Harleston (Rushall Vicarage) ...	Rev. C. Gape	5	1 1	123 T	27.90	185
D†Geldeston [Beccles]	E. T. Dowson, Esq. ...	5	1 0	38 A	24.29	206
" ["]	" " " "	8	1 0	38 A	24.43	...
D " ["]	R. Dashwood, Esq.	5	1 0	49 B	25.69	166
D " Rectory [Beccles]	Rev. D. Gillett	5	1 0	61 A	26.33	173
Long Stratton (Hapton)	Rev. J. M. Du Port ...	...	...	...	25.20	...
Wymondham (Mulbarton) .....	" " " " .....	...	...	...	25.62	...
Watton .....	" " " " .....	...	...	...	26.71	...

DIVISION IV.—EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge			Depth of Rain. 1881	Days on which ".01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
NORFOLK—(con.)						
Watton (Ovington)	Rev. C. J. Evans	5	0 4	...	24.46	168
Swaffham (Pickenham Hall) ...	E. A. Applewhaite Esq.	5	1 0	160 T	27.65	183
Outwell Sluice	R. Lunn, Esq.	9	...	...	24.30	148
Yarmouth (Sailors' Home)	The Meteor. Council ...	8	4 0	12	23.85	186
„ (Halvergate Hall) ...	Rev. J. M. Du Port ...	5	3 3	48 T	23.54	...
Norwich (Eaton).....	J. Pymar, Esq.	6	1 0	84 T	25.85	...
D „ (Postwick)	Rev. W. Vincent	5	1 0	20 ?	25.04	163
D „ (Carrow House)	Mr. H. Jones	5	4 0	30	26.60	142
† „ (Thorpe St. Andrews) ..	Rev. J. M. Du Port ...	5	1 0	137 T	27.95	...
„ (St. Catherine's Close) ..	Mrs. Evans	5	2 3	120	26.46	...
D „ (Essex Street)	F. Dix, Esq.	9	2 6	85 T	26.85	146
Acle.....	Rev. R. W. Kennion... ..	8	0 9	40 T	24.19	...
D*Swaffham (Grammar School) ..	C. J. Drury, Esq.	5	1 10	242 T	28.02	174
D „	W. H. Plowright, Esq.	5	5 0	250 T	27.38	168
†Mattishall	Rev. J. M. Du Port ...	8	1 2	165 T	26.78	199
D†Norwich (Honingham Hall)	Lady Bayning	5	0 6	110 T	26.97	193
D „ (Cossey)	H. Culley, Esq.	5	1 0	...	26.05	191
D Sprowston (Oak Lodge).....	T. C. Hardy, Esq.	5	1 0	...	26.69	186
D†Filby	Mr. Crisp	5	2 4	11	25.18	145
East Dereham.....	G. H. Cooper, Esq.	8	3 0	161	27.34	162
„	Rev. J. M. DuPort .....	...	...	...	27.08	...
Drayton	„ „ „	5	1 2	...	27.16	...
Swaffham (Dunham).....	„ „ „ .....	...	...	...	28.88	...
St. Germans (Outlet Syphons) ...	R. Lunn, Esq.	8	...	...	23.12	154
D Terrington	J. T. Seccombe, Esq., M.D.	5	1 0	15 T	25.85	153
Felthorpe	Major Bouchier.....	5	2 0	75	28.34	167
D Reepham (Hackford).....	W. D. Bircham, Esq. ...	5	1 0	...	27.36	191
Cawston	Rev. T. H. Marsh	5	1 0	120 T	27.30	...
North Walsham (Worstead).....	Mrs. Cooke	5	0 9	...	27.29	146
„ „ (Dilham)	Rev. J. M. Du Port .....	...	...	...	27.62	...
Fakenham (Colkirk).....	„ „ „	5	1 2	200 ?	26.42	...
†Lynn (Hillington Rectory)	Rev. H. Ffolkes.....	8	1 0	89 T	26.97	201
D† „ „ School)	„ „ „	5	3 6	94 T	26.90	200
North Walsham (Knapton)	Rev. J. M. Du Port .....	...	...	...	27.26	...
D Hindringham	S. Cushing, Esq.	5	1 0	...	26.39	178
Holt (Letheringsett Hall).....	W. H. C. Hardy, Esq. ..	8	1 0	...	24.96	127
Cromer (Colne Lodge)	J. Cooper, Esq., M.D. ...	5	1 0	100	25.98	157
Holkham.....	J. Davidson, Esq.	8	0 0	35	24.49	146
D „	„ „ „	12	4 0	39 L	22.65	146
D Hunstanton Hall	Mr. Nisbet	11	3 8	60 T	22.49	...
D Wells-next-the-Sea	H. R. Rump, Esq.	5	1 0	16 T	23.69	191

DIVISION V.—SOUTH-WESTERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
WILTS.						
D Landford	J. R. Wigram, Esq. ...	5	1 10	165 ∇	32·56	176
Broad Chalke Vicarage	Rev. C. G. Moore	8	0 8	...	31·52	163
†Salisbury (Alderbury)	Rev. R. S. Hutchings...	5	0 8	263 ∇	30·32	144
D† „ (West Dean)	Rev. W. L. W. Eyre...	5	1 0	137 B	35·60	150
D „ (Wilton House)	Mr. Challis	8	0 5	180 ∇	33·34	159
Codford (Bapton)	Rev. T. A. Preston ...	5	1 0	301 T	34·62	147
Warminster (Rye Hill)	„ „ „	8	2 0	450	38·82	166
Salisbury Plain (Chitterne House)	R. Hayward, Esq.	11	4 0	380 ?	30·31	168
Warminster	E. Cruse, Esq.	5	1 0	387 ∇	35·88	181
Ludgershall [Andover]	Rev. W. H. Awdry ...	8	0 8	422 ∇	32·18	151
D „ (Collingbourne Kingston).	Baldwin Latham Esq CE	5	1 0	400 ?	33·07	153
D Trowbridge (Steeple Ashton Vic.)	Rev. A. O. Hartley ...	5	1 0	240 T	27·18	162
D „ (Rodney House)	W. J. Mann, Esq.	5	1 1	140 ∇	30·06	167
D Pewsey	Mr. J. P. Robins	5	1 0	...	29·30	164
D Trowbridge (Holt)	Major F. B. Gritton ...	5	1 2	120 T	30·45	176
Devizes (Southgate House)	B. H. Cunnington, Esq.	8	0 10	436 T	30·51	175
D „ (Bishop's Cannings)	Rev. C. W. Hony	5	1 0	446 ∇	31·71	168
D Chippenham (Lacock)	Miss Awdry	5	0 11	250 ?	31·98	181
D† Marlborough (The Green)	Rev. T. A. Preston ...	5	1 0	472 ∇	32·59	166
„ „ (Mildenhall)	„ „ „	5	1 0	472 ∇	32·34	...
„ „ (Mildenhall)	Rev. C. Soames	5	1 0	456 ∇	30·77	152
Corsham	Rev. T. A. Preston ...	5	1 0	350 ?	35·88	170
Calne (High Street)	Mr. H. Wilkins, Junr.	5	3 6	...	30·65	169
D „ (Compton Bassett)	Mr. J. Allen	8	1 0	400 T	30·29	161
D Swindon, New	J. H. Preece, Esq.	8	0 4	378	27·68	161
„ „ (Pen Hill)	H. Arkell, Esq.	5	0 10	400	27·55	...
Malmesbury (Charlton Park) ...	Earl of Suffolk & Berks	5	0 11	...	32·43	...
D „ „ (Minety House) ...	Hon. R. Henley Eden..	...	1 6	...	31·27	148
Thames' Head [Cirencester]	J. H. Taunton, Esq., C.E.	8	4 0	350 ∇	32·05	135
DORSET.						
Swanage	The Meteor. Society ...	...	1 0	178	30·37	...
D Weymouth (Langton Herring)...	Rev. C. H. Gosset	8	1 0	200 ?	36·13	166
D† „ (Osmington Lodge) ..	Col. Hall	5	1 0	225 B	36·16	155
†Abbotsbury	Mr. A. Dight	5	3 6	150	35·92	...
Poole	F. Styring, Esq.	5	1 0	6	31·67	118
Bridport (West Street)	G. M. Evans, Esq.	8	1 3	...	37·59	...
D Bere Regis (Bloxworth)	Col. Cambridge	5	2 0	150 ?	30·03	...
D Beaminster Vicarage	Rev. Canon Codd	5	0 9	...	45·02	157
Blandford (Whatcombe)	J. Mansel-Pleydell, Esq.	5	0 4	320 B	41·39	...
Cerne Abbas (Minterne Rectory)	Rev. H. Pix	5	2 0	566 T	46·52	144
D „ „ (Melbury)	Mr. T. C. Elliott	12	2 9	...	42·35	111
D*Wimborne Minster (Chalbury)...	Rev. G. H. Billington..	5	2 0	338 ∇	32·13	155
D Sherborne School	E. Cleminshaw, Esq. ...	5	1 0	200 ∇	34·62	159
D Shaftesbury	T. Ackland, Esq.	5	1 1	722 ∇	35·73	146
D Gillingham	I. Stephens, Esq.	5	1 0	300	35·52	164

DIVISION V.—SOUTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground.	Height Above Sea Level	1881	
			ft. in.	feet.	inches.	
DEVON.						
Salcombe (Prawle Point)	The Meteor. Council ...	8	1 9	350	25·71	155
„ (The Molt)	J. Drew, Esq.	8	1 2	61 L	32·21	..
† „ (Bolt Tail)	G. Balkwill, Jun., Esq.	5	2 0	297 L	34·22	...
† Kingsbridge (Fore St. Hill) ..	G. Fox, Esq.	5	1 0	63 B	44·48	139
D Dartmouth (Strete)	Dr. Madden	8	1 0	200 B	33·98	127
D Plymouth (Navigation School) ..	J. Merrifield, Esq. LL.D.	8	9 2	75 A	33·29	181
D Devonport (Rowdens Res.)	H. Francis, Esq.	5	1 0	202 A	37·08	202
† Ivybridge	Dr. Liddell	10	3 0	175 B	53·70	191
Brixham (Lupton)	Mr. J. Gibson	5	2 6	...	43·59	146
Plympton (Hemerdon)	Rev. G. L. Woollcombe	5	1 0	360	60·38	...
D Totnes	J. H. Edmonds, Esq. ...	5	1 0	94 L	49·16	186
Paignton (Hollacombe)	J. Greenfield, Esq.	5	7 0	70 P	35·81	192
D „ (Madeira Cottage)	P. Symons, Esq.	5	6 0	20 T	37·50	159
† Dartmoor (Lee Moor)	W. L. Martin, Esq. ...	5	0 9	860 A	69·43	...
Bere Ferrers	Rev. F. T. W. Wintle.	5	1 0	100	49·56	191
† Torquay (Lamorna)	W. Pengelly, Esq. F.R.S	5	1 0	200 A	36·67	173
D „ (Rocombe House)	H. Hearder, Esq.	5	1 0	400 T	35·55	166
D* „ (Castle College)	C. J. Harland, Esq. ...	5	1 0	167 A	36·15	163
† „ (Babbacombe) <i>Snowdon</i>	E. E. Glyde, Esq.	5	1 0	294 A	38·11	178
Buckfastleigh (Bossel Park) ...	J. Hamlyn, Esq.	5	2 0	150	69·08	138
Walkhampton (Lowery)	H. Francis, Esq.	8	1 0	900	67·60	...
D Ashburton (Holne Vicarage) (33)	Rev. J. Gill	5	1 0	650 B	73·50	202
† „ (Druid House) ... (32)	Fabyan Amery, Esq. ...	5	1 0	572 T	61·27	198
D „ (Leusden Vicarage) ...	Rev. F. Gilbert White	5	1 0	800	51·92	166
D Kingsteignton (Teignbridge Ho.)	F. H. Plumtre, Esq. ...	5	1 0	27 A	39·26	145
Teignmouth (Bitton)	W. C. Lake, Esq. M.D.	5	1 0	50	37·15	174
† „ (Lower Reservoir) ...	„ „ „	5	1 0	138 L	45·42	191
D „ (Woodway)	G. W. Ormerod, Esq. ...	5	1 0	235	38·92	179
† Tavistock (Public Library) ... (38)	Mr. R. Westington ...	8	20 0	283 T	49·65	182
*† „ (Mount Tavy)	H. Clark, Esq.	5	1 0	316 T	52·17	...
† „ (Kilworthy Lane) (67)	Mr. W. Merrifield	5	1 0	362 T	53·68	175
† Ilington (Middlecott House) (23)	Alfred Lyon, Esq.	9	3 6	649 T	60·09	164
Princetown (Cowsie Valley)	H. Francis, Esq.	8	1 6	1398 A	78·52	...
Ashburton (Widecombe Vic.) (24)	Rev. J. Williams	5	1 0	810	64·20	...
D „ (Cator Court)	F. H. Firth, Esq.	5	1 0	1060 T	65·65	204
D Dawlish	Capt. Strangways, R.N.	5	1 0	120 B	39·98	164
† Milton Abbot (Endsleigh) ... (26)	Mr. W. Prout	5	0 8	180 P	51·61	...
† Bovey Tracey	J. Divett, Esq.	5	0 6	94 A	48·74	212
† Exmouth (Southbrook, Starcross)	E. H. Clark, Esq., C.E.	5	9 0	20	32·49	...
D „ (Budleigh Salterton) ...	Dr. R. Walker	5	4 0	33	36·55	164
„ (East Budleigh)	R. H. Lipscomb, Esq. ...	5	1 0	70 A	36·50	153
„ (Powderham Castle) ...	J. Drew, Esq.	5	2 6	57 L	35·85	130
Coryton (Lew Down)	Mr. T. M. Symons	5	4 0	445	51·50	187
D Polapit Tamar [Launceston] (76)	E. Coode, Esq.	12	3 0	...	36·59	203
† Sidmouth (Sidmount)	Dr. Radford	5	1 0	149 A	34·67	180
† Topsham (Clyst St. George)	Rev. H. T. Ellacombe..	5	1 3	76 T	29·63	...

NOTE.—The numbers in parentheses in this and the three following pages refer to a Map inserted between pages 148 and 149 of *British Rainfall*, 1872.

DIVISION V.—SOUTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
DEVON—(con.)						
†Seaton (White Cliff Glen).....	T. F. A. Byles, Esq.	5	3 6	126 B	37·71	...
D†Clevelands [Lyme Regis]	E. L. Ames, Esq.	5	1 11	465 N	38·87	162
D†Exeter (Devon & Exet. Inst.) (17)	Mr. E. Parfitt.....	6	13 7	155 N	32·98	147
D „ (Manston Terrace) ... (18)	Miss Dymond	5	1 0	166 N	32·76	180
D Uplyme [Lyme Regis]	H. Tucker, Esq.....	5	1 0	120 B	38·59	166
Colyton	W. R. Fox, Esq., R.N.	5	0 9	100	40·83	...
D†Okehampton (Oaklands)..... (19)	W. H. Holley, Esq. ...	5	1 0	521 T	46·95	184
D†Exeter (Bramford Speke) ... (13)	W. H. Gamlen, Esq. ...	5	1 0	140 T	32·95	179
„ { „ „ } ... (13)	„ „ „	8	0 3	140 T	33·38	...
„ { „ „ } ... (13)	„ „ „	5	1 0	140 B	30·73	...
D Holsworthy (Clawton)	W. W. Melhuish, Esq..	5	1 1	400	40·91	180
D Honiton (Gittisham)	C. Hardy, Esq.	5	1 0	...	41·59	145
D Hele (Strath Culm)	C. R. Collins, Esq. ...	8	0 6	159 N	33·27	133
D Bradninch Vicarage	Rev. W. A. Strong ...	5	1 0	316 B	36·30	192
D Hatherleigh (Winsford)	Mr. A. Muirhead	5	...	...	40·16	...
D Cullompton	T. Turner, Esq.	5	1 1	202 N	37·29	173
Tiverton (Cove)..... (9)	W. N. Row, Esq.	11	1 0	450 P	41·51	...
D „ (Rose Bank)	H. B. Sharland, Esq. ...	5	1 0	280	40·93	187
„ (Ivy Place)	H. S. Gill, Esq.....	5	6 0	270	38·64	176
D†Torrington (Langtree Wick) (72)	E. A. Bazely, Esq.....	5	1 0	451 T	43·69	...
D† „ Vicarage	Rev. S. Buckland	5	1 0	323 T	40·23	176
„ (Stevenstone)	R. H. Lipscomb, Esq. ...	5	1 0	400	44·42	...
„ (Little Silver).....	„ „ „	5	1 0	400 T	41·13	204
D Bampton (Huntsham)	C. A. W. Troyte, Esq..	8	0 6	600 B	44·38	191
South Molton (Rose Ash) ... (60)	Lieut. Col. Davy	8	1 0	650 T	37·60	174
D Bideford (Heale House Littleham)	R. Sanders, Esq.	8	1 0	280 B	36·31	167
D South Molton (East Street) (59)	N. C. Hatherly, Esq. M. D	5	1 0	430 B	44·40	185
„ „ (Castle Hill) ... (4)	Mr. D. Wilson	12	3 1	300	37·51	...
*†Bideford (Horwood)	Rev. J. Dene	5	1 0	288 T	31·83	186
*† „ (Northam)	Rev. M. D. Churchward	5	1 0	173 N	34·75	184
D†Barnstaple	Mr. Knill	8	1 0	31 N	38·09	171
„ (Arlington Court) ...	Lady Chichester.....	8	1 1	613 B	50·99	222
D†Ilfracombe Hotel	Mr. W. Tattam	12	9 0	34	31·23	180
†Lynton (Lee Abbey)	C. F. Bailey, Esq.	5	0 6	320	37·23	...
D†Lynmouth (Glenthorpe)	Mrs. Halliday.....	5	0 9	93	42·89	165
CORNWALL.						
†Penzance (South Parade)	W. H. Richards, Esq. ...	12	3 0	94 T	41·21	...
D „ (St. Clare)	Rev. Preben. Hedgeland	5	1 0	211 T	39·08	226
D „ (Poltair)	Col. Trelawny	5	1 0	243 B	42·64	213
Marazion	T. W. Field, Esq.	5	2 0	30 P	34·90	184
D Camborne (Crowan)	J. T. Rodda, Esq.	5	0 5	522	46·31	117
Falmouth (Carlew)	Mr. J. Simmons	5	0 9	...	42·55	148
D Redruth (Trewirgie)	A. H. Jenkin, Esq. ...	5	1 0	400 T	48·04	216
D†Truro (Royal Institution).....	Mr. Newcombe	5	40 0	56 N	37·60	166
D Probus (Lamellyn).....	H. Tresawna, Esq.	5	0 6	...	42·23	...
St. Agnes	Mr. Opie	5	1 3	278 B	36·36	140
D Rame Rectory [Plymouth]	Rev. W. C. Evans	5	1 0	300 T	34·69	181

DIVISION V.—SOUTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which 01 or more fell.
		Diameter	Height Above Ground	Height Above SeaLevel		
			ft. in.	feet.	inches.	
CORNWALL—(con.)						
St Austell (St. Mewan).....	Rev. G. L. Woolcombe.	5	1 0	275 T	48·94	170
* „ (Cosgarne)	C. Truscott, Jun., Esq.	5	1 0	194 N	46·54	...
„ (Polcarne).....	J. Coode, Esq.	5	1 0	244 N	50·13	137
d†* „ (Trevarna)	W. Coode, Esq.	5	0 6	300 N	47·24	209
Par Station (Penellick)	W. E. Geach, Esq.	5	0 9	240 B	30·95	...
d Maker Vicarage [Devonport] ..	Rev. P. H. Newnham...	5	1 0	290 T	37·56	199
Empacombe [Devonport]	S. Harvey, Esq.	5	2 0	20	38·86	185
d St. Johns [Devonport]	Rev. J. H. Kirwan.....	5	1 0	20	37·65	188
d†Newquay	Mr. W. H. Tregidgo...	6	1 9	90 B	40·82	143
d†Liskeard (Dean Terrace) ... (47)	S. W. Jenkin, Esq., C.E.	5	1 1	375 N	52·80	201
d†Saltash (Pentillie Castle) ... (46)	Mr. C. Edwards	5	1 3	150 B	54·32	164
†Bodmin (Castle Street) ... weekly	Capt. Liddell, R.N. ...	5	0 1	315 T	55·83	...
† „ { „ „ }	„ „ „	5	1 0	316 T	54·66	213
d† „ { „ „ }	„ „ „	8	2 6	318 T	53·11	213
d† „ (Fore Street)	Mr. A. Hambly	8	2 6	336 T	55·03	217
Liskeard (St. Cleer)	(68) S. W. Jenkin, Esq., C.E.	5	1 1	620 N	50·24	...
d†Callington (Hingston Down) (39)	Capt. Richards	5	3 0	850 T	49·74	213
d†Launceston (Altarnun)	(28) Rev. J. Power	5	1 0	570 B	56·29	188
Camelford	Rev. G. B. Gibbons ...	5	1 6	600 T	53·04	...
†Launceston (Hexworthy) ... (27)	H. M. Harvey, Esq. ...	5	2 7	410 T	42·65	175
d „ (South Petherwin)...	Rev. H. T. May	5	0 4	470 B	52·75	201
Tintagel (St. Nectaus Glen).....	T. F. A. Byles, Esq. ...	5	1 6	150 B	50·29	...
d Bude	J. Arthur, Esq.	5	1 0	16 B	33·75	145
d Stratton (Week St. Mary)	Rev. G. H. Hopkins ...	8	1 3	510 T	39·57	174
SOMERSET.						
Crewkerne (Seaborough)	J. T. Stevens, Esq. ...	5	1 0	240 ?	38·99	135
Chard (Cricket St. Thomas)	RtHn. Viscount Bridport	5	1 0	400 B	44·02	141
d Crewkerne (Bincombe House) ...	F. J. Sparks, Esq.	5	1 2	250 T	38·16	129
d Yeovil (West Coker)	Mr. A. Spurr	5	1 0	236 N	32·24	152
„	J. Curtis, Esq.	5	1 0	...	33·20	150
d Ilminster (White Lackington) ...	Rev. Prebendry Gowring	5	1 0	136 N	35·86	182
d South Petherton	W. Blake, Esq.	8	0 8	150 ?	30·11	168
d*Taunton (Fullands School)	Rev. W. Reed	5	1 4	...	28·00	128
d Milverton	J. H. Bere, Esq.	5	1 0	335 ?	34·22	169
d „ (Halse Rectory)	Rev. W. S. Thomas ...	5	1 0	245	33·34	171
d „ (Fitzhead)	E. H. Knollys, Esq. ...	5	1 0	200 ?	35·11	170
d Wiveliscombe	Mrs. B. Boucher	5	1 2	...	31·54	149
„ (Withycombe Ho.)	R. P. Mogridge, Esq. ...	5	1 0	800 B	37·96	...
d Taunton (Bishops Lydeard)	C. Smith, Esq.	5	1 0	...	32·27	156
Cothelston House	C. E. J. Esdaile, Esq. ...	5	1 0	500	32·57	145
d Glastonbury (Street)	W. S. Clark, Esq.	8	1 0	70	31·36	170
„ { „ „ }	J. Clark, Esq.	8	1 3	60	29·70	...
d Exford Rectory	Rev. J. G. Howes	5	1 0	905 B	50·07	205
Dunster (The Rectory)	Rev. J. Utten Todd ...	5	1 0	150 B	30·05	...
Wells	Mr. R. S. Manning ...	...	35 0 ?	...	34·86	...
d Frome (Mells Rectory)	Rev. G. Horner	5	1 0	344 N	42·17	183
Radstock (Downside)	The Meteor. Society ...	8	0 6	592	47·85	...

DIVISION VI.—WEST MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain, 1881	Days on which 61 or more fell.	
		Diameter	Height above Ground.				Height above Sea Level
			ft.	in.	feet.	inches.	
HEREFORD.							
D Ross (Rocklands)	J. M. Herbert, Esq.	8	1	11	108 ∇	29·80	149
D† „ (The Graig)	H. Southall, Esq.	5	1	0	213 ∇	28·78	184
Longtown Vic. [Abergavenny]...	Rev. C. L. Eagles	5	1	0	...	41·88	137
Bryngwyn	J. Rankin, Esq., M.P..	5	0	10	420 B	28·41	159
D Much Marcle (Caerswall)	T. Charles, Esq.....	5	2	0	423 B	27·27	164
D Hereford (Fownhope Vicarage)...	Rev. T. West.....	5	1	0	192 B	24·75	124
D Ledbury (West Bank)	T. E. Wheatley, Esq... D† Hereford (Richmond Place)	5	1	6	350	27·69	138
„ (Hagley Park)	F. Anderson, Esq.....	8	4	9	188 ∇	23·71	157
D Ledbury (Colwall)	A. Hutchinson, Esq. ...	5	0	6	300 B	25·26	...
D „ (Canon Frome Vic.) ...	Mrs. Devas.....	5	1	0	640 ?	28·33	155
D Hereford (Burghill)	Rev. M. Hopton.....	8	1	3	163	26·90	151
D „ (Thinghill, Withington)	T.A. Chapman, Esq.M.D	5	1	0	275	23·70	159
D Staunton-on-Wye	H. Higgins, Esq.	5	1	0	200 ?	24·26	156
Hope-u-Dinmore (Hampton C.)	Rev. H. W. Phillott ...	8	1	1	255 B	27·59	174
D Kington (Lynhales) ...	J. H. Arkwright, Esq..	8	1	3	220 B	25·00	122
D Pembridge (Marston).....	S. Robinson, Esq.	8	1	0	...	37·49	180
D Leominster (Farm)	H. Langston, Esq.....	5	1	5	345	28·15	170
D Stoke Bliss	J. Southall, Esq.	5	1	2	250	25·59	157
	Rev. G. E. Alexander..	5	1	0	400 B	26·01	165
SHROPSHIRE.							
Burford House [Tenbury].....	Rt. Hon. Lord Northwick	5	1	2	193 ∇	24·26	...
D Ludlow (Bromfield Vicarage) ...	Rev. W. Selwyn ...	5	1	0	300 ∇	27·43	147
Craven Arms (Stokesay Vic.) ...	Rev. J. D. La Touche..	5	1	0	371 ∇	29·56	187
Bishop's Castle (Castle Street)...	E. Griffiths, Esq.	5	4	0	750 ∇	33·13	187
D „ „ (More Rectory)...	Rev. A. S. Male.....	5	1	0	640 ∇	31·13	207
D Much Wenlock (Larden Hall) ...	Miss F. Rouse Boughton	8	1	3	658 ∇	29·61	188
Church Stretton (Cardington) ...	Rev. W. Elliot	5	1	0	700 ∇	31·23	178
„ „ (Preen Manor)...	A. Sparrow, Esq.	5	1	0	700 ∇	29·56	196
„ „ (Woolstaston)...	Rev. E. D. Carr.	5	1	0	807 ∇	31·72	198
D Middleton in Chirbury	Rev. W. Brewster.....	5	1	2	625 B	25·75	192
Coalbrookdale (Horsehay).....	G. Room, Esq.....	5	3	0	...	23·24	...
Wellington (Old Hall School) ...	Dr. J. E. Cranage	5	1	6	...	26·59	130
Shrewsbury..... <i>old gauge</i>	Marshall & Co.	10	5	6	240	19·31	149
„ „..... <i>new gauge</i>	„	5	2	6	287 B	19·58	150
D „ (Leaton Vicarage) ...	Rev. E. V. Pigott	5	1	0	267 ∇	23·92	180
D Wem (Sansaw Hall)	F. G. Tippinge, Esq....	5	1	0	310 ∇	25·53	163
Oswestry (Hengoed)	Rev. A. R. Lloyd	5	6	0	470 ∇	37·45	...
Market Drayton (Buntingsdale).	Mrs. Tayleur	5	1	0	276 ∇	26·77	162
D „ „ (Adderley).....	Rev. Athelstan Corbet..	5	0	9	245 B	26·47	174
STAFFORD.							
Kinver Gram. Schl. [Stourbridge]	E. B. Marten, Esq., C.E.	8	0	6	180 L	25·05	177
Dennis [Stourbridge]	Mr. C. Webb	8	6	6	270 B	25·11	162
Walsall	E. B. Marten, Esq., C.E.	8	4	0	463 ∇	30·47	179
Wolverhampton (Town Hall) ...	G. E. Thoms, Esq., C.E.	...	15	6	481	26·63	157
Patshull Gardens	Mr. Phillips	8	1	5	400	23·75	155
Wolverhampton (Thorganby Vil.)	G. C. Broom, Esq., C.E.	8	3	4	459 ∇	25·82	169

DIVISION VI.—WEST MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
STAFFORD—(con.)						
D Wolverhampton (Wrottesley) ..	Mr. E. Simpson	8	1 0	500	25·70	155
D Tamworth (Lichfield Street).....	W. Arnold, Esq.	5	1 0	160 ?	26·82	150
Lichfield Museum	Mr. J. P. Roberts	5	5 8	220 N	27·76	153
„ (St. Michael's Rect.)..	Rev. J. J. Serjeantson..	5	0 6	320 N	27·91	...
D Weston-under-Lyziard[Shiffnal]	Hon. Rev. J. Bridgeman	3	0 10	..	26·97	194
D Penkridge (Rodbaston)	H. Ward, Esq.	5	1 0	260 ?	29·78	174
D Church Eaton (Shushions Manor)	T. James, Esq.	5	1 0	325 L	26·63	198
Alrewas (The Cottage)	E. Sellick, Esq.	5	1 6	...	26·73	142
D Burton-on-Trent(Grammar Schl)	C. U. Tripp, Esq.	5	1 0	160 T	27·31	208
D „ „ (Shobnall)	R. W. Abbotts, Esq....	5	6 0	150 T	24·85	156
D Uttoxeter (Leigh)	J. B. Piercy, Esq.	5	1 0	494 N	35·24	181
Stoke (Barlaston)	W. Scott, Esq. ...	5	1 0	520 T	33·32	146
D†Cheadle (The Heath House)	J. C. Philips, Esq.....	5	1 0	647 N	34·40	187
D† „ (Tean Vicarage)	Rev. G. T. Ryves	5	1 0	470 T	35·58	183
„ (Oakamoor)	Mr. E. Kettle.....	5	1 0	346 N	37·14	181
Weaver Hills (Beacon Stoop) ..	C. L. Wragge, Esq. ..	5	1 0	1216	36·04	...
Stoke (Stanley Reservoir).....	W.H.Stubbs, Esq., C.E.	5	3 1	550 T	25·58	112
Etruria	„ „ „	5	4 2	440	28·26	169
Alstonfield Vicarage	Rev. W. H. Purchas ..	5	1 0	910 T	44·19	165
Knypersley [Congleton].....	W.H.Stubbs, Esq., C.E.	5	14 0	500 T	38·58	175
D Leek	S. Eyre, Esq.	3	6 0	538 T	40·20	173
„ (Rudyard)	W.H.Stubbs, Esq., C.E.	5	12 7	500 T	31·44	112
WORCESTER.						
Blockley	R. B. Belcher, Esq. ..	5	1 0	350	28·51	130
Northwick Park.....	Rt Hon Lord Northwick	8	1 3	292 N	29·72	...
D Evesham (Lansdowne)	R. Burlingham, Esq....	6	5 6	124 B	22·44	113
West Malvern	A. H. Hartland, Esq...	8	1 6	850 B	30·38	177
D Great Malvern (Hornyold Ter.)..	W. Sandoe, Esq.	5	0 7	550 L	32·02	160
„ „	J. E. Palmer, Esq.....	5	1 0	357 N	27·32	...
„ „ (Madresfield) ..	Rev. G. S. Munn	5	1 4	120 ?	30·05	...
D Worcester (Diglis Lock)	H. J. Marten, Esq., C.E.	5	1 0	49 N	24·55	153
D „ (St. John's)	G. B. Wetherall, Esq..	5	1 0	...	26·52	155
D „ (Bevere Lock)	H. J. Marten, Esq., C.E.	5	1 1	52 N	25·02	161
D Droitwich (Holt Lock)	„ „ „	5	1 1	55 N	25·67	138
D Tenbury (Orleton)	T. H. Davis, Esq.	5	0 9	200 ?	27·17	191
D Bromsgrove (Stoke Reformatory)	Mr. J. Salter	5	1 3	225 L	26·47	123
D „ (Tardebidge Res.)..	W. B. Clegram, Esq. C.E.	5	3 0	433 T	28·94	178
D Stourport (Lincombe Lock).....	H. J. Marten, Esq., C.E.	5	1 0	62 N	25·63	194
„ (Hartlebury)	J. Watson, Esq.....	5	1 0	300	27·36	...
D Bromsgrove (Upper Bittal Res.)..	W. B. Clegram, Esq. C.E.	5	3 0	518 T	29·35	144
D Bewdley (High Street).....	Mr. W. Wrather ...	8	2 0	...	25·12	138
Stourbridge (Pedmore)	E. B. Marten, Esq., C.E.	8	0 11	350 N	27·02	165
„ (Longlands)	„ „ „	8	1 0	260 N	25·66	149
WARWICK.						
D Shipston (Compton Wynyates)...	J. Sargent, Esq.....	5	2 6	...	26·96	172
Radway (Ivy Lodge).....	Rev. G. Miller	5	1 1	530 T	30·48	171

DIVISION VI.—WEST MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above SeaLevel		
			ft. in.	feet.	inches.	
WARWICK—(con.)						
Kineton (Fenny Compton)	E. Knott, Esq.	5	4 0	430	27·87	...
Stratford-on-Avon (Avonside) ..	C. Lucy, Esq.	8	0 8	123 T	26·23	...
D Southam (Stockton)	Rev. W. Tuckwell.....	5	1 0	289 B	25·01	155
Leamington (Upper Parade).....	J. Barnitt, Esq.	5	0 8	195 A	27·10	163
D Henley-in-Arden (Barrells Park)	T. H. G. Newton, Esq.	5	1 0	300 A	30·33	187
D Leamington (Blackdown Hill) ...	A. S. Field, Esq.	5	0 7	270 T	26·18	170
D Kenilworth (Lynton Villa).....	F. Slade, Esq., C.E. ...	8	1 0	290 A	28·73	189
Rugby School	W. G. Michell, Esq. ...	5	1 3	383 T	30·76	183
D Coventry (Ryton on Dunsmore)..	C. Twamley, Esq.	5	0 8	260 T	27·63	191
D „ (Priory Row)	J. Gulson, Esq.	8	1 2	279 A	29·25	180
D „ (Middlesboro' Terrace).	Miss Merry	5	1 0	345 A	29·50	193
D „ (Walsgrave-on-Sowe)..	J. S. Whitem, Esq.	8	1 0	296	27·88	153
D „ (Coundon)	Colonel Caldicott	5	1 0	350 T	30·86	182
D Willey Rectory [Lutterworth]..	B. P. M. Payler, Esq. ..	8	1 0	350 T	28·91	175
D Birmingham (Botanic Gardens)..	Mr. Latham	5	5 2	...	23·80	167
D†Oscott (St. Mary's College)	Rev. J. MacElmail.....	5	0 6	461 T	23·72	134
D Nuneaton (Caldecote House) ...	Rev. Dr. Parker	5	1 0	340	28·53	192
D Atherstone	Baldwin Latham EsqCE	5	1 0	298 A	27·87	160

DIVISION VII.—NORTH MIDLAND COUNTIES.

LEICESTER.

Market Harboro' (The Hutch)...	R. Symington, Esq.	8	4 0	...	23·57	...
„ „ (Foxton Locks)	J. F. Bentley, Esq. ...	12	17 2	...	23·98	119
Bruntingthorpe	Rev. F. H. Bridges ...	5	0 10	440 B	28·22	...
Ashby Magna	Rev. Canon Willes.....	5	1 6	438 T	26·41	172
†Arnesby Vicarage	Rev. W. P. Orton	8	1 2	400 ?	28·09	116
†Fleckney	J. B. Putt, Esq.	5	0 10	411 T	30·25	...
D†Kibworth Beauchamp	T. Macaulay, Esq.	5	2 6	355 T	28·71	181
D†Leicester (Town Museum)	J. C. Smith, Esq.	5	1 0	238 T	27·56	180
„ (Belmont Villas)	H. Billson, Esq.	8	1 3	240	27·62	...
D†Thornton Reservoir	F. Griffith, Esq., C.E..	10	2 8	420 ?	27·62	135
Barkby	Rev. E. N. Pochin.....	5	0 1	212	26·54	157
D Thurcaston (Cropston)	F. Griffith, Esq., C.E..	8	1 0	...	29·16	180
D Syston (Grove House)	J. Hames, Esq.	5	5 0	...	25·43	194
D Melton Mowbray (Dalby Hall)...	Mr. G. Jones	8	2 6	480 B	25·83	171
D „ „ (Thorpe Arnold)	Rev. J. S. Swift.....	8	2 3	320 ?	26·29	167
Loughborough (Cedar Cottage)...	J. Giles, Esq.	5	0 9	400 ?	28·37	...
D „ „ (Victoria Street)..	W. Berridge, Esq.	5	0 10	169 B	25·98	179
D Melton Mowbray (Coston Rect.)	Rev. A. M. Rendell ...	5	1 0	300 ?	27·31	182
D Waltham-le-Wolds	Mr. E. Ball.....	5	1 6	500 T	31·41	164
D Harston [Grantham].....	F. Beasley, Esq. ....	...	1 3	...	29·43	157
D†Belvoir Castle	W. Ingram, Esq.	8	1 0	237 T	27·44	192

RUTLAND.

D Uppingham (West Deyne)	Rev. G. H. Mullins ...	8	1 9	485	26·74	177
„ (Ayston)	Mr. Hull	5	1 0	...	30·81	...

DIVISION VII.—NORTH MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which 1" or more fell.	
		Diameter	Height above Ground.				Height above Sea Level
			ft.	in.	feet.	inches.	
RUTLAND—(con.)							
D Ketton Hall [Stamford]	F. Coventry, Esq.	5	1	0	130 B	28·47	165
D Tolethorpe Hall [Stamford].....	C. O. Eaton, Esq.	8	0	8	95	26·87	164
Ryhall.....	Rev. C. Potchett	5	1	0	...	27 30	125
D Oakham (Greetham)	Rev. C. A. Holmes ...	5	0	8	...	28·06	150
D Market Overton	Miss H. E. G. Wingfield	8	0	11	...	30·18	229
LINCOLN.							
Stamford (Barn Hill Ho.).....	Dr. Newman	5	1	0	116 I	26·04	...
D ,, (Northfields)	Mr. W. Hayes	5	1	0	160 N	28·53	153
D*Bourne (Wytham-on-the-Hill)..	A. C. Johnson, Esq. ...	5	1	0	167 P	24·91	114
Long Sutton (Tydd Gote).....	Mr. J. Tilson	5	4	0	...	24·02	169
Spalding (Pode Hole)	Mr. A. Harrison.	12	0	3	20 N	26·13	...
Grantham (Heydour Vicarage)..	Rev. G. F. Deedes.....	5	1	2	...	24·68	...
D Boston (High Street).....	W.H. Wheeler, Esq. C.E	5	6	6	24 N	28·25	156
D ,, (Grand Sluice)	J.E. Williams, Esq. C.E.	8	6	0	22	26·36	184
D ,, (Churchyard).....	Mr. E. C. Hackford ...	5	3	0	22	27·45	162
D Stubton [Newark].....	G. Nevile, Esq.	5	4	6	...	26·75	171
Sleaford (Bloxholm)	Mr. D. Lumsden	5	1	0	20	25·36	139
D Navenby.....	Rev. J. Hays	8	0	6	...	26·55	183
D Wainfleet (Skegness).....	H. V. Tippet, Esq. ...	8	1	6	10	25·78	118
D Spilsby	Dr. West Walker	5	1	0	...	28 94	177
Horncastle (Miningsby)	W.H. Wheeler, Esq. C.E	5	0	6	135 N	26·23	129
D Lincoln (Longhills)	A.S. Leslie Melville, Esq.	5	0	6	110 P	27·08	172
Spilsby (Partney)	Rev. T. Owston	5	1	0	73	28·40	196
D Horncastle (Bucknall)	W. Carter, Esq.....	5	1	6	50	26·50	138
,, (Queen Street)	H. George, Esq., M.D..	5	1	0	100	27·38	...
D†Lincoln (Boultham)	Mr. F. Terrill.....	5	1	0	18 N	25·69	148
† ,, (St. Botolphs)	H. Teague, Esq.....	5	1	3	25 N	24·91	...
D ,, (Doddington)	Rev. R. E. Cole	5	1	2	...	24·07	156
,,	M. S. & L. R. Co.† ...	9	3	6	26	23·83	...
,, (The Quarry)	R. Swan, Esq.	8	0	8	130	23·97	125
† ,, (Carholme Villa).....	J. Norton, Esq.	8	1	0	25	25·91	...
,, (Skellingthorpe Hall) ...	R. C. B. Coupland, Esq.	5	1	1	...	24·27	138
Gate Burton	M. S. & L. R. Co.	9	3	6	96	23·61	...
D†Louth	T. W. Wallis, Esq. ...	5	6	0	111 N	28·73	182
† ,, (Westgate)	Dr. F. Fawssett	5	0	9	110 N	29·31	203
Market Rasen.....	M. S. & L. R. Co.	9	...	...	100	23·47	...
Gainsborough.....	,, ,, ,,	9	...	...	76	19·77	...
Stockwith	,, ,, ,,	9	3	6	21	24·07	...
D Caistor	Rev. R. Thomas	5	0	9	...	28·93	168
Brigg	M. S. & L. R. Co.	9	3	6	16	20·89	...
D ,,	A. Atkinson, Esq.	8	1	2	10	26·25	196
Grimsby (Aylesby)	S. McAulay, Esq.	5	2	0	...	27·33	182
,,	M. S. & L. R. Co.	9	15	0	42	22·83	...
Barnetby.....	,, ,, ,,	9	3	6	51	25·03	...
D NLevel Engine [Thorne Donc'st'r]	Mr. J. Turner.....	5	2	3	...	22·90	169
Crowle (Keadby)	M. S. & L. R. Co.	9	...	...	10	21·58	...

† Kept for the Canals Department of the Manchester, Sheffield, and Lincolnshire Railway Company. Returns supplied by R. D. Heathcott, Esq.

DIVISION VII.—NORTH-MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.	
		Diameter.	Height Above Ground.		1881		
			ft.	in.	feet.	inches.	
LINCOLN—(con.)							
Appleby	Rev. J. E. Cross.....	5	0	9	60 L	26·86	...
D Ulceby (Killingholme)	Rev. J. Byron.....	5	1	4	60 N	25·32	194
Ferriby Sluice	Rev. J. E. Cross.....	5	0	9	10	25·97	...
New Holland	M. S. & L. R. Co.	9	3	6	18	23·49	...
NOTTS.							
Normanton on Soar [Loughboro']	T. W. Rowland, Esq....	5	...	...	...	24·81	...
Kingston Hall [Loughborough]..	Mr. J. W. Bayne	5	...	...	...	24·57	152
D Nottingham (Beeston Fields) ...	G. Fellows, Esq.	5	1	2	215 B	28·14	170
D " (Highfield House) ...	E. J. Lowe, Esq., F.R.S.	8	0	6	162 N	27·12	181
D " (The Park)	M. O. Tarbotton, Esq. C.E.	8	1	0	183 N	27·49	170
" (")	" " " " " " " " " "	8	39	0	222 N	24·69	167
" (Woodborough Road)	A. S. Rogers, Esq.....	5	1	0	257 T	28·52	153
D " (Cavendish Crescent N)	J. D. Walker, Esq	5	1	2	200 P	27·08	188
" (Stoke Bardolph Sew Frm)	Mr. J. Airs	8	6	7	...	22·88	...
" (Strelley Hall)	T. L. K. Edge, Esq. ...	5	1	0	396 N	31·75	...
D " (")	" " " " " " " " " "	8	1	0	396 N	31·74	177
D " (Gedling)	Hon & Rv O. W. Forrester	6	3	0	130 P	25·13	158
D Eastwood Colliery	Mr. W. Weston.....	5	38	0	280	27·20	178
D Hucknall Torkard (Forge Mills)	J. D. Walker, Esq.....	5	1	0	...	31·92	208
Southwell (Oxton).....	H. Sherbrooke, Esq. ...	2	0	9	...	29·10	...
D "	Miss Gaster.....	5	0	6	200 T	26·04	140
D† Mansfield (Grove House)	W. Tyrer, Esq.	5	1	0	350 N	30·21	190
Ollerton (Whitemoor Ho.)	H. Horncastle, Esq. ...	5	1	0	175 P	24·68	119
" (Thoresby Gardens) ...	Mr. A. Henderson	8	3	0	175	25·34	...
D Tuxford (Grammar School).....	J. N. Dufty Esq.	5	1	0	220 T	28·09	173
Worksop	M. S. & L. R. Co.	9	3	6	127	23·48	...
D " (Osberton)	Mr. S. A. Woods	5	3	7	...	27·31	...
Retford	M. S. & L. R. Co.	9	3	6	52	22·22	...
" (Babworth)	Mr. J. Douglas	5	1	0	...	22·67	159
D Worksop (Hodsock Priory)	H. Mellish, Esq.	8	1	0	56 N	25·84	192
" (")	" " " " " " " " " "	5	1	0	56 N	23·94	...
D Hesley Hall [Tickhill]	B. J. Whitaker, Esq....	8	0	7	60 T	25·63	167
DERBY.							
D Stapenhill [Burton]	R. W. Abbotts, Esq....	5	4	0	170	25·33	170
Bretby Park ["]	Mr. W. Brown	5	4	6	340	30·08	179
Winshill ["]	J. Matthews, Esq.	5	1	0	272 T	25·69	177
D Melbourne	W. B. G. Tasker, Esq.	5	0	6	...	29·02	149
Derby (Findern)	Rev. B. W. Spilsbury..	5	0	9	192 B	25·52	...
D " (Mickleover Manor)	Mr. J. Campbell.....	5	2	0	200	29·59	149
D " (Christ Church Vic.)	Rev. W. H. Askwith...	5	1	0	265 N	29·21	147
" (Spondon)	J. T. Barber, Esq.....	5	0	7	272 T	29·60	169
" (Duffield).....	Mr. W. Bland	5	1	6	250 T	34·34	168
D Milford	B. Cooper, Esq.	5	6	0	210 P	38·40	186
D Belper (Fernslope).....	F. J. Jackson, Esq. ...	5	0	8	353 N	35·60	173
D " (Field Head House)	J. Hunter, Jun., Esq. CE.	8	0	8	355 N	36·66	178
Ripley (Aldercar Hall)	F. B. Wright, Esq. ...	5	4	3	...	30·00	183

DIVISION VII.—NORTH MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above SeaLevel		
			ft. in.	feet.	inches.	
DERBY—(con.)						
D Wirksworth (Holloway)	R. Wildgoose, Esq. ...	5	1 0	450 T	40·73	192
†Matlock (Willersley Gardens) ...	Mr. J. Tissington	6	1 3	440 T	35·17	...
† „ Bath.....	Mrs. Chadwick	5	1 6	500 T	40·51	180
D Stuffywood Hall [Mansfield]... Chesterfield (Hardwick Hall) ...	J. Paget, Esq. Mr. Wilson.....	5 8	1 3 1 6	196 T 594 T	30·11 29·43	183 168
D „ (Grassmoor Colliery)	E. Bromley, Esq.	5	19 10	370 T	31·92	203
D Chatsworth Gardens	T. Speed, Esq. ...	8	6 0	404	46·94	190
D Chesterfield(Brampt'nS.Thomas)	Rev. J. M. Mello	5	3 0	314 T	27·17	120
„	M. S. & L. R. Co.	9	3 6	248	26·75	...
†Buxton (Axe Edge)	Dr. E. J. Sykes	8	1 0	1620 B	44·31	...
D Chesterfield (Linacre Reservoir). „ (Brimington Hall).	C. E. Jones, Esq. R. G. Coke, Esq., C.E.	8 5	5 6 1 4	490 T 408 T	32·16 34·06	177 187
†Buxton (Devonshire Hospital)...	Dr. E. J. Sykes	8	5 0	989 T	55·20	183
† „ „ „ „	„ „ „ „	5	1 0	995 T	57·49	...
†Stony Middleton	Rev. U. Smith	5	4 0	692 B	34·44	141
Barlow Reservoir	R. G. Coke, Esq., C.E.	5	4 3	612 T	33·09	161
†Comb's Moss	M. S. & L. R. Co.	9	3 6	1669 T	42·52	...
† „ Reservoir	„ „ „	9	3 6	710 T	39·54	...
†Chapel-en-le-Frith	„ „ „	9	3 6	965 T	40·12	...
†Burbage House	Mr. J. Farrer	5	2 10	1277 T	36·71	...
Kilnarsh (Norwood)	M. S. & L. R. Co.	9	3 6	238 T	28·38	...
†Castleton	Miss Hall	5	1 0	700	52·04	...
Hathersage (Bamford)	W. C. Moore, jun., Esq.	5	1 0	530 T	42·89	186
†Glossop (Spire Hollin)	F. Hawke, Esq.	10	0 10	612 T	42·48	...
†Woodhead	M. S. & L. R. Co.	9	3 6	878 T	49·90	...

DIVISION VIII.—NORTH-WESTERN COUNTIES.

CHESHIRE.

D Nantwich (Cholmondely Castle)	Mr. J. Malcolm	8	1 0	42	33·16	187
Chester (Pulford Hall)	R. Massie, Esq.	5	3 0	60 T	25·34	191
D Congleton (Buglawton Vic.)... ..	Rev. W. Besant	8	5 0	347 T	34·84	173
Macclesfield (Windle)	W.H.Stubbs, Esq., C.E.	5	3 0	500	40·55	153
Bosley Reservoir	M. S. & L. R. Co.	9	3 6	590 T	35·44	...
„ Minns	„ „ „	9	3 6	1210 T	42·97	...
†Chester (Lead Works)	A. O. Walker, Esq. ...	5	1 0	65 T	25·28	188
„ („ „ Field) ...	„ „ „	5	1 0	67 T	25·19	195
D† „ (Newton Nurseries).....	J. Dickson & Sons	8	0 8	62 T	26·25	204
Middlewich (Bostock Hall)	Col. France Hayhurst..	5	2 9	157 T	32·19	132
D Siddington (Thornycroft Hall)...	Mr. E. Evans	5	3 0	377	33·38	158
D Macclesfield (The Park)	Mr. J. Dale.....	5	1 0	501 T	37·04	185
D „ (Park Green)	„ „	8	2 1	449 T	36·85	187
D Chelford (Astle Hall)	G. Dixon, Esq.	5	1 0	250 T	32·54	182
„ „ „	„ „ „	8	1 0	250 T	32·54	...
D Northwich (Highfield)	L. B. Wells, Esq., C.E.	8	3 4	118 T	33·24	190
„ (Winnington).....	H. Neumann, Esq.....	8	1 6	120 T	31·42	171
*Neston (Oakhill)	Reginald Bushell, Esq.	5	1 0	97 T	27·02	...

DIVISION VIII.—NORTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ".01 or more fell
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
CHESHIRE—(con.)						
D*Neston (Hinderton)	Reginald Bushell, Esq.	5	1 0	215 π	28.30	204
* " (")	" " " "	8	1 0	215 π	28.45	...
D Frodsham (Foxhill)	J. Reynolds, Esq.	5	0 10	230 \uparrow	32.74	191
Pollington (Spond's Hill)	M. S. & L. R. Co.	9	3 6	1279 \uparrow	35.78	...
†Whaley	" " " "	9	3 6	602 \uparrow	39.02	...
D Runcorn (Weston Point)	L. B. Wells, Esq., C.E.	4	2 4	18	37.96	157
Bowdon (Erlesdene)	J. Sidebotham, Esq. ...	8	0 6	211 π	34.81	..
" (The Firs)	R. Swindells, Esq., C.E.	5	0 8	215 π	35.53	...
D Thelwall (Highfields)	T. G. Rylands, Esq. ...	5	1 0	118 π	32.72	175
" (")	" " " "	5	1 0	118 π	32.84	...
D Lymm (Statham Lodge)	P. Stubs, Esq.	5	1 0	42 π	32.95	191
Altrincham (Barrington House)	J. Newton, Esq., C.E..	8	3 0	105 π	37.60	...
†Birkenhead (Bidstone Obs.)	J. Hartnup, Esq. . . .	8	0 6	182 \uparrow	30.67	182
Northenden (Wythenshawe)	T. W. Tatton, Esq. ...	5	1 0	100 \uparrow	34.61	163
Marple Top Lock	M. S. & L. R. Co.	9	3 6	543 \uparrow	36.60	...
" Aqueduct	" " " "	9	3 6	321 \uparrow	36.80	...
Godley Reservoir	J. F. Bateman, Esq. FRS.	...	...	500	36.17	...
Newton	M. S. & L. R. Co.	9	3 6	396 \uparrow	34.85	...
Mottram (Hill End)	" " " "	9	3 6	680 \uparrow	41.90	...
" (Matley's Field)	" " " "	9	3 6	399 \uparrow	41.81	...
Arnfield Reservoir	J. F. Bateman, Esq. FRS.	...	...	575	42.34	...
†Rhodes Wood Reservoir	" " " "	12	1 0	520	45.59	...
†Torrside Reservoir	" " " "	12	1 6	600	44.90	...
Staleybridge (Swineshaw)	" " " "	8	3 0	884 π	46.08	...
†Woodhead Reservoir	" " " "	12	0 10	680	50.35	...
LANCASHIRE.						
D Garston (Grassendale)	Miss E. C. Abraham ...	5	1 0	35 \uparrow	32.38	208
D Kelton (Aigburth)	J. Sing, Esq.	5	1 0	135 \uparrow	34.77	215
D Liverpool (St. Michael's Hamlet)	G. W. Jevons, Esq. ...	5	1 0	74 \uparrow	32.92	176
D Warrington (Arpley)	T. Longdin, Esq.	10	10 3	33 π	33.67	194
" (Cemetery)	" " " "	10	1 0	32 π	35.26	...
Liverpool (Grove Park)	J. R. Darsie, Esq.	3	6 0	160	32.41	174
D " (Walton-on-the-Hill)	A. R. Andersson, Esq..	5	1 11	119 π	35.46	197
" (" " " ")	" " " "	8	1 2	119 π	35.89	197
D Manchester (Withington)	J. King, Jun., Esq. ...	5	1 0	110 \uparrow	34.61	191
D " (" " " ")	" " " "	5	1 0	110 \uparrow	34.78	191
D " (Urmston)	T. Armstrong, Esq. ...	5	1 0	80 \uparrow	37.64	206
Denton Reservoir	J. F. Bateman, Esq. FRS.	...	...	324 \uparrow	36.44	...
Gorton .. .. .	" " " "	...	...	263 \uparrow	34.92	...
D Manchester (Plymouth Grove)	J. F. Roberts, Esq. ...	5	4 2	150 π	37.41	192
D " (Ardwick)	J. Casartelli, Esq.	9	3 0	140 π	39.49	187
† " (Piccadilly)	M. S. & L. R. Co.	9	40 0	194 \uparrow	40.96	...
" (Fairfield)	" " " "	9	6 0	312 \uparrow	38.11	...
D " (Alexandra Park)	Rev. L. C. Casartelli...	8	82 11	176 π	32.07	194
D Eccles (Monton Green)	W. G. Birchley, Esq. ...	5	4 0	100 \uparrow	41.00	141
Blundellsands (Park Corner)	T. M. Reade, Esq. C.E.	5	1 0	35 π	31.46	208
D Manchester (Newton Heath)	J. Warren, Esq.	5	1 0	288 \uparrow	41.60	209

DIVISION VIII.—NORTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which :01 or more fell.
		Diameter	Height Above Ground				1881
			ft.	in.	feet.			inches.
LANCASHIRE—(con.)						
Huncoat (Burnley Road Res.) ...	C. Harrison, Esq.	9	1 6	620	45·63	...
Burnley (Rosegrove Cemetery)...	W. B. Bryan, Esq., C.E.	8	1 0	493	41·00	183
„ (Yorkshire Street)	W. Williamson, Esq...	8	20 0	420	42·50	242
„ (Palace House)	W. B. Bryan, Esq., C.E.	8	4 0	450	39·66	208
„ (Simonstone)	„ „ „	5	1 0	366	42·12	192
„ (Swinden)	W. Williamson, Esq...	8	2 0	740	49·76	233
D „ (Gawthorpe Hall)	Sir U.K. Shuttleworth Bt	8	1 0	316	39·96	132
„ (Briercliffe Vicarage) ...	Rev. R. D. H. Gray ...	5	1 0	680	46·37	230
Alston	H. Reah, Esq.	8	1 2	320	51·12	...
Blackpool (South Shore)	G. Sharples, Esq.	10	1 8	29	43·58	...
D „ (Arnold House)	T. Ward, Esq.	5	1 0	32	43·29	198
Kirkham (Weeton)	J. Bradley, Esq.	10	1 0	95	46·26	...
D Eccleston (Elswick Lodge)	S. King, Esq.	10	1 4	55	42·19	195
„ „ „	„ „ „	5	1 0	55	41·59	...
D Stonyhurst College	Rev. S. J. Perry, F.R.S.	11	1 0	376	49·56	194
„ „ „	„ „ „	11	2 0	377	49·05	192
„ „ „ <i>monthly</i>	„ „ „	11	1 0	376	50·53	...
Preston W. Works. Knowl Green	H. Reah, Esq.	8	1 2	400	49·94	...
„ Loud-scales	„ „ „	8	1 2	400	50·89	...
„ Spade Mill	„ „ „	8	1 2	400	50·10	...
„ Jeffrey Hill	„ „ „	8	1 2	900	54·82	...
D St. Michael's-on-Wyre	Rev. P. J. Hornby	5	0 11	26	43·21	200
D „ „ „	„ „ „	5	1 0	26	45·06	196
D Garstang (Calder Mount)	C. Wilson, Esq.	5	10 0	100	58·45	185
Clitheroe (Downham Hall)	R. Assheton, Esq.	10	1 6	464	49·27	...
D Garstang (Vale House)	J. Jackson, Jun., Esq..	6	4 3	455	47·99	189
„ (Winmarleigh Vic.) ...	Rev. T. B. Armitstead..	5	1 0	53	39·00	...
„ (Barnacre Reservoir)...	J. Bradley, Esq.	10	1 0	617	54·09	...
„ (Grizedale)	„ „ „	10	1 0	519	52·87	...
Galgate	“Preston Guardian” ...	...	...	...	42·98	...
D Lancaster (South Road)	W. Roper, Esq.	12	3 6	114	46·10	187
„ (Escowbeck, Caton)...	J. Greg, Esq.	12	2 0	150	47·00	...
„ (Halton Park)	A. Greg, Esq.	8	2 6	240	43·60	131
„ (Hest Bank)	T. Ransome, Esq.	5	2 0	58	43·39	191
D Melling (Hornby Castle)	J. Jowett, Esq.	8	2 2	100	50·00	207
Barrow-in-Furness	W. Fergusson, Esq. ...	11	1 6	30	42·42	229
D „ (Cavendish Park)	W. S. Whitworth, Esq.	8	1 0	60	42·65	201
Arkholve (Storr's Hall)	F. F. Pearson, Esq. ...	5	1 0	220	51·23	...
Cartmel (Flookburgh)	T. R. Croasdale, Esq...	5	2 7	70	48·77	136
† „ (Holker)	Mr. F. Fox	8	4 8	155	50·36	184
Grange (Nutwood)	Rev. E. Massie	5	2 5	100	48·83	204
D Ulverston (Powka Beck)	Mr. W. Fergusson	11	1 6	500	60·65	201
D Cartmel (Pit Farm)	Mr. W. R. Nash	5	1 0	122	54·05	192
„ (Broughton Hall)	Col. Ainsworth	5	2 8	210	56·23	191
D Ulverston (Colton)	Rev. A. Christopherson	5	1 0	226	62·47	186
D Broughton-in-Furness	Rev. F. A. Malleeson ...	5	1 3	40	65·21	177
D „ „ (Woodland Rect.)	Rev. E. C. Shawfield...	5	3 9	100	65·04	160
Coniston (Torver Rectory)	Rev. T. Ellwood	5	0 6	400	73·27	...

DIVISION VIII.—NORTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which "01 or more fell.	
		Diameter.	Height Above Ground.				Height Above Sea Level
			ft.	in.	feet.	inches.	
LANCASHIRE—(con.)							
† Monk Coniston Park	V. Marshall, Esq.	10	4	11	150 π	79.20	...
^D " " "	" " "	5	1	0	305	90.81	219
Hawkshead	W. Lane, Esq.	5	1	2	280 \uparrow	72.69	168
^D Bridge End [Little Langdale] (49)	E. B. W. Balme, Esq..	8	0	9	385	121.12	196
Brathay Hall [Ambleside]	G. Redmayne, Esq. ...	5	1	6	140	85.11	180

DIVISION IX.—YORKSHIRE.

WEST RIDING.

Rotherham (Dinnington Hall) ...	Rev. G. M. Athorpe....	5	0	5	...	23.92	...
Sheffield (Brincliffe Rise)	A. W. Chadburn, Esq..	5	1	0	500 \uparrow	35.98	182
" (Edge)	M. S. & L. R. Co.	9	3	6	336 \uparrow	38.74	...
† " (Redmires)	J. Gunson, Esq.	10	5	0	1100 \uparrow	42.58	206
" " "	" " "	8	4	0	1100 \uparrow	43.02	...
" (Broomhall Park)	D. Doncaster, Jun. Esq	10	2	0	330 π	33.37	173
" (Rivelin)	J. Gunson, Esq.	10	4	0	564 π	39.53	194
" " "	" " "	8	4	0	564 π	40.05	...
" (Crookes)	" " "	10	2	0	629 π	32.32	183
" " "	" " "	8	2	0	629 π	32.83	...
^D † Rotherham (Ulley Reservoir) ...	Mr. L. Berry	5	1	0	184 π	23.25	152
Sheffield (New Shoreham Street).	The Meteor. Council ..	5	10	0	269	27.43	182
† " Station	M. S. & L. R. Co.	9	3	6	188 \uparrow	27.90	...
" (Tinsley Locks)	" " "	9	...	...	143 \uparrow	26.21	...
Tickhill (Sandbeck Park) ...	The Earl of Scarborough	5	1	0	150 \uparrow	27.30	171
† Rotherham (Moorgate Grove) ...	R. Chrimes, Esq.	5	1	0	262 π	31.14	144
" (Thrybergh)	B. S. Brundell, Esq., C.E.	8	1	1	188 π	23.20	142
^D Tickhill	G. G. Phillips, Esq. ...	8	1	0	61 π	26.81	168
^D Sheffield (Chapelton)	Mr. D. Bell	8	5	0	582 \uparrow	30.17	180
Doncaster (Firsby)	B. S. Brundell, Esq., C.E.	8	1	3	189 π	26.93	142
Elsecar	M. S. & L. R. Co.	9	...	...	175 \uparrow	28.52	...
^D Wath-upon-Dearne (Chapel St).	W. M. Burman, Esq...	8	1	0	185 π	30.48	189
" (West Melton)	W. Jackson, Esq.	6	0	10	172 \uparrow	30.22	...
^D " "	J. N. Baxter, Esq.	5	1	0	100 π	29.41	185
Worsborough	M. S. & L. R. Co.	9	...	...	225 \uparrow	25.94	...
^D Stainborough (Wentworth Castle)	W. Fisher, Esq.	8	2	6	520 \uparrow	31.74	181
Doncaster	M. S. & L. R. Co.	9	...	...	35 \uparrow	21.75	...
^D " (Magdalens)	Mr. J. Howorth	5	4	6	46 \uparrow	25.09	160
† Dunford Bridge Station	M. S. & L. R. Co.	9	3	6	954 \uparrow	45.26	...
^D † " " (Reservoir)	Mr. G. Whitfield	12	2	0	1100 \uparrow	53.81	235
† " " "	" " "	8	2	1	1100 \uparrow	55.57	...
† Penistone (Carlcoates)	M. S. & L. R. Co.	9	3	6	1075 \uparrow	47.31	...
† " " "	" " "	9	3	6	717 \uparrow	36.14	...
" (Hazlehead)	" " "	9	...	...	868 \uparrow	49.01	...
Holmbridge (Batley W. W.) ...	J. F. Bateman, Esq. FRS	...	...	...	917 \uparrow	61.50	...
^D Barnsley (Church Street)	Dr. Sadler	5	5	2	350 π	25.81	181
" " "	M. S. & L. R. Co.	9	...	...	175 \uparrow	22.31	...
Saddleworth Station	E. B. Smith, Esq., C.E.	9	4	0	610 \uparrow	42.16	...

DIVISION IX.—YORKSHIRE—(continued.)

STATIONS.	AUTHORITIES	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height above Ground	Height above Sea Level		
			ft. in.	feet.	inches.	
WEST RIDING—(con.)						
Strinesdale [Oldham]	J.F. Bateman, Esq. FRS	5	4 0	800 T	34·84	...
† Meltham (Harden Moss)	J. Stanway, Esq.	8	1 2	1200 T	48·58	...
Denshaw	J.F. Bateman, Esq. FRS	5	4 0	1050 T	43·74	...
† Meltham Grange	J. Stanway, Esq.	8	1 2	925 T	42·35	...
Doncaster (Hatfield)	Mr. T. Askren .....	...	...	...	20·90	137
„ (Kirk Bramwith)	B.S. Brundell, Esq. C.E.	5	1 0	17 A	26·17	167
D Slaithwaite (Blackmoorfoot)	J. Stanway, Esq.	8	1 0	800 T	39·71	196
D † Huddersfield (Dalton)	J. W. Robson, Esq.	8	1 0	350 A	33·15	177
Longwood (Bilberry Edge)	J. Stanway, Esq.	8	1 2	1100 T	40·01	...
D Mirfield (Cote Wall)	E. B. W. Balme, Esq. .	8	0 9	200	29·79	155
Wakefield (Thornes)	E.B. Wrigglesworth Esq	8	1 0	90 T	28·01	180
„ (Hardy Croft)	J. Sykes, Esq.	8	1 0	100 T	27·67	183
D † „ (Prison)	Dr. H. Clarke	8	1 0	96 A	29·32	189
„ (Alverthorpe Hall)	H. Clarkson, Esq.	5	1 0	150 T	26·78	170
D Rastrick	A. Clay, Esq.	5	1 3	410 T	34·37	215
D Wakefield (Stanley Vicarage)	Rev. R. Burrell	5	1 0	100 T	24·51	170
D „ (Field Head)	J. Parkinson, Esq.	8	1 0	250 T	25·52	176
Goole	R. G. Boyd, Esq.	11	3 4	21 T	22·12	164
„ (Tillage Works)	Mr. J. Harrison	5	1 3	19	25·29	172
Todmorden (Stansfield Hall)	J. Fielden, Esq.	8	1 9	582	57·38	220
Halifax (Bermerside Observatory)	J. Gledhill, Esq.	8	0 6	500	44·27	183
„ (Thorpe)	F. G. S. Rawson, Esq. .	8	0 8	365 T	49·28	190
† „ (Albert)	J. A. Paskin, Esq., C.E.	5	1 0	795 T	42·98	...
† „ (Gibbet)	„ „ „	5	6 0	568 T	42·09	...
† „ (Ramsden Wood)	„ „ „	8	1 2	816 T	45·21	...
Leeds (Leventhorpe Hall)	J. T. Leather, Esq., C.E.	10	3 0	94 A	24·42	...
Halifax (Castle Carr)	J. A. Paskin, Esq., C.E.	...	...	900 T	43·57	...
† „ (Midgley Moor)	„ „ „	7	0 6	1350 T	56·29	...
† „ (Warley Moor)	„ „ „	7	0 6	1425 T	55·75	...
† „ (Ogden)	„ „ „	8	1 3	990 T	51·27	...
„ (Ovenden) .....	„ „ „ .....	...	...	1375	50·68	...
„ (Widdop) .....	„ „ „ .....	...	...	1050	52·66	...
† „ (Walshaw Dean)	„ „ „	8	0 3	1380 T	53·03	...
D South Milford Rectory	Rev. F. J. Young	5	1 4	60 T	27·69	189
Leeds (Wortley Res.)	E. Filliter, Esq., C.E. .	8	0 9	307 A	35·50	194
Bradford (Queensbury)	W. Foster, Esq.	8	2 2	1050 A	48·05	159
„ (Brayshaw Reservoir)	A. R. Binnie, Esq., C.E.	5	1 0	982 A	39·33	187
„ (Town Hall)	J. McLandsborough, Esq	5	1 0	326 A	39·99	...
„ (The Exchange)	„ „ „	8	65 6	395 A	35·43	...
„ (Midland Station)	„ „ „	5	0 10	319 A	39·80	...
„ (Farecliffe)	E. Milnes, Esq.	5	0 0	575 T	45·77	184
„ (Stubden) <i>old gauge</i>	A. R. Binnie, Esq., C.E. .	8	1 0	1075 A	53·08	232
„ („)	„ „ „	5	1 0	1071 A	51·50	232
„ (Brown Royd Res.)	„ „ „	5	1 0	385 T	37·31	184
„ (Nan's Scar)	„ „ „	5	1 0	1101 T	44·35	...
„ (Doe Park) <i>old gauge</i>	„ „ „	8	1 0	810 A	49·81	226

The figures in this type **a6** refer to the Map facing page 50 of *British Rainfall, 1876*.

DIVISION IX.—YORKSHIRE—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1881	
			ft. in.	feet.	inches.	
WEST RIDING—(con.)						
D Otterburn-in-Craven.....	W. Gomersall, Esq.	5	1 0	510 $\bar{\pi}$	50.77	173
Skipton (Upper Res., Barden) 21	A. R. Binnie, Esq., C.E.	5	1 0	1250 $\bar{\pi}$	46.50	211
„ (Thorpe Fell „) 22	„ „ „	5	1 0	1661 $\bar{\pi}$	46.70	...
Pateley Bdg (Grimwith Res) oldg 24	„ „ „	8	1 0	890 $\bar{\pi}$	56.01	226
„ „ { „ „ } 24	„ „ „	5	1 0	893 $\bar{\pi}$	54.98	226
„ „ { „ „ Trunla Hill } 25	„ „ „	5	1 0	1201 $\bar{\pi}$	45.65	...
D „ „ (Castle Stead)..... 39	Mr. A. C. Young	5	1 0	410 $\bar{\pi}$	49.45	195
Settle	T. Green, Esq.	5	10 0	483	50.39	171
D Boroughbridge (Aldborough) ...	Rev. R. W. Marriott...	5	2 6	80 $\bar{\pi}$	31.69	...
D Malham Tarn	Mr. Coulthard	5	1 0	1296 $\bar{\pi}$	65.36	256
Settle (Austwick)	T. Clapham, Esq.	12	4 0	547	41.70	...
D Ripon (The Red House)	F. D. Wise, Esq.	5	1 0	120	35.80	...
Thornton-in-Lonsdale (Halsteads)	R. Chapman, Esq.	9	2 0	214	50.93	184
D Arncliffe	Ven. Archdeacon Boyd	8	1 6	750 $\bar{\pi}$	70.77	227
„ (Halton Gill)	Mr. S. Clarke	5	5 0	1010	60.55	...
D Ripon (High Bank, Mickley) ...	Miss Harrison	5	1 0	225 $\bar{\pi}$	42.49	147
D† Sedbergh (Brig Flatts).....	J. Handley, Esq.	5	1 0	300 $\bar{\pi}$	56.06	198
† „ (Thorne Hall)	Miss Elam	5	1 0	400 $\bar{\pi}$	55.73	199
EAST RIDING.						
Patrington (Spurn Head)	The Meteor. Council ...	8	1 0	27	19.28	182
D „	W. B. Pugh, Esq.	5	0 3	10 $\bar{\pi}$	24.87	207
D† Hull „ (Beverley Road)	H. Smith, Esq.	8	4 6	11 $\bar{\pi}$	27.61	194
D „ (Derringham)	W. Lawton, Esq.	5	2 2	10 $\bar{\pi}$	25.96	202
D „ (People's Park).....	Mr. E. Peak	5	0 6	6	31.34	205
Brough (Brantinghamthorpe) ...	Mr. R. C. Kingston ...	5	2 0	200 $\bar{\pi}$	33.45	...
D Cottingham	J. H. Hill, Esq.	8	1 3	26 $\bar{\pi}$	26.75	220
Beverley (Alexandra Terrace) ...	T. Dyson, Esq.	12	8 0	62 $\bar{\pi}$	28.56	152
D Market Weighton (Dalton Hall)	Mr. J. Allsop	8	1 4	150	30.83	155
D „ „ (Holme on the Wolds)	Mrs. Harland	5	4 0	154 $\bar{\pi}$	27.68	...
D Hornsea	J. A. Wade, Esq.	5	3 0	40 ?	26.32	104
D Middleton-in-the-Wolds	Rev. H. D. Blanchard..	5	1 0	150 $\bar{\pi}$	34.03	178
D Pocklington (Warter)	J. Coxon, Esq.	5	1 10	230 $\bar{\pi}$	34.35	181
D Thixendale	Rev. W. H. Fox	10	0 9	425 $\bar{\pi}$	41.35	213
Lowthorpe (The Elms)	H. Onslow Piercy, Esq.	5	1 0	63 $\bar{\pi}$	31.30	173
D Hunmanby (Foxholes Rectory)..	Rev. R. H. Foord	5	1 0	234 $\bar{\pi}$	38.07	201
Ganton Hall [Scarborough]	Mr. J. Shields	5	1 0	200 $\bar{\pi}$	34.52	167
NORTH RIDING.						
† Malton	H. Hurtle, Esq.	10	1 0	75 $\bar{\pi}$	30.86	...
Bishopdale (Kidstones)	Rev. F. W. Stow	3	1 0	990 $\bar{\pi}$	62.80	...
D Thirsk (Sowerby)	C. M. Swarbreck, Esq..	5	1 0	105	31.19	176
„ („)	A. C. Bamlett, Esq. ...	5	1 0	118	30.96	170
„	„ „ „	5	1 0	116	31.69	184
D Bedale (Thorpe Perrow)	Mr. W. Culverwell ...	5	1 6	170	34.34	161
D Bishopdale (The Rookery)	Mr. J. Loving	5	1 0	605	57.52	254
Aysgarth (Nell Bank, Walden)..	Rev. F. W. Stow	3	1 0	1100 $\bar{\pi}$	55.91	...
Hawes Junction.....	The Meteor. Council ...	8	1 0	1115	74.71	238

DIVISION X.—NORTHERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
DURHAM—(con.)						
D Durham Observatory	G. A. Goldney, Esq. ...	8	4 3	340 π	28·09	172
D " (Ushaw College)	Rev. J. Corbishley	5	0 10	600 β	36·46	212
Seaham (Vicarage)	Rev. A. Bethune	5	0 4	80 Γ	34·78	115
D " (Hall)	Mr. R. Draper	5	1 0	100 π	35·54	...
D Chester-le-Street (Birtley)	R. C. Clephan, Esq. ...	5	1 0	205 π	33·09	210
D Sunderland (W. Hendon House)	T. W. Backhouse, Esq.	5	1 0	132 π	29·45	...
" " (The Limes) "	J. W. Mounsey, Esq. ...	5	0 6	120	28·54	...
D Gateshead (Eighton Cottage) ..	T. M. Favell, Esq., C.E.	5	0 10	515 Γ	36·21	163
NORTHUMBERLAND.						
† Allenheads	[22] Mr. J. Charlton	8	0 4	1353 π	51·53	...
Shotley Hall	Mr. J. Coulson	5	3 0	315 Γ	38·68	...
D Haltwhistle (Shaft Hill)	Mr. R. Hetherington ...	5	0 8	626 Γ	42·31	165
D Bywell	Mr. W. J. Tone	8	0 6	87 Γ	27·87	137
D Haltwhistle (Unthank Hall) ...	Rev. Dixon Brown	5	0 9	380 Γ	42·50	175
D Corbridge-on-Tyne (Lauder Gnge)	T. G. Hurst, Esq.	5	0 10	275 Γ	32·17	164
D Wylam (Holeyn Hall)	Mr. W. McCombie	5	1 0	...	34·62	181
D Newcastle (Clifton Road)	R. Foster, Esq.	8	1 6	314 π	31·43	179
" (Philos. Society)	W. Lyall, Esq.	8	1 7	105 Γ	29·92	...
" (Portland Road)	Mr. T. Bone	4	9 6	...	34·87	174
" (Gladstone Terrace) ..	W. Smurthwaite, Esq. ..	2	6 0	150 Γ	31·11	169
D " (Town Moor)	Mr. W. Neill	5	0 6	201 π	33·40	196
" (Wellburn Jesmond) ..	W. H. Holmes, Esq. ...	5	1 0	161 Γ	31·73	179
D Haydon Bridge	T. J. Bewick, Esq., C. E.	8	1 0	291 π	35·38	196
North Shields (Wallsend)	J. W. Dees, Esq.	10	0 6	100 Γ	30·11	...
" (Post Office)	The Meteor. Council ...	8	1 4	100	28·78	197
D† " (Rosella Place) ...	R. Spence, Esq.	8	1 6	121 π	31·96	189
" (Low Lights)	J. R. Procter, Esq. ...	8	3 4	22 π	29·48	175
D " (Tynemouth)	P. J. Messent, Esq., C.E.	5	2 8	65 π	29·12	195
" (Clementhorpe) ...	J. R. Procter, Esq. ...	5	1 0	150 π	30·34	171
D " (Whitley Convales. Ho.) ..	C. Roope, Esq.	5	0 6	38	28·56	125
Humshaugh	Rev. H. Taylor	8	1 6	286 Γ	33·12	...
Stamfordham	Rev. J. F. Bigge	5	1 0	400 Γ	35·25	...
Bingfield House	J. Coppin, Esq.	5	1 0	445 Γ	38 00	...
Newcastle and Gateshead W. Works { Whittle Dean	J. Mangham, Esq.	10	...	...	30·12	...
{ Swinburn (Woodford)	" " "	10	0 6	500 π	38·65	...
{ North Tyne (Green Crag) ...	" " "	10	0 6	800 π	40·30	...
{ " " (Valley)	" " "	10	0 6	300	34·71	...
{ Hallington	" " "	10	0 6	469 π	41·77	...
{ " (Fawcett)	" " "	10	0 6	563 π	36·73	...
{ Gunnerton Burn (Camphill) ..	" " "	10	0 6	676 π	37·22	...
Bellingham (Hesleyside)	W. O. Charlton, Esq. ...	5	1 0	373 π	41·76	165
D Morpeth (Meldon Park)	Mr. J. Finlay	5	1 0	...	39·60	179
" (Bothalhaugh)	Hon. & Rev. W. C. Ellis	5	0 10	35 ρ	36·30	160
Rothbury (Brenckburn Priory) ..	C. H. Cadogan, Esq. ...	8	1 0	300 Γ	41·97	154
D " (Whitton Tower)	Rev. Dr. Ainger	5	1 0	410 Γ	43·31	185
" (Cragside)	Sir W. G. Armstrong, CB	8	1 0	400 π	43·13	157

DIVISION X.—NORTHERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above SeaLevel	1881	
			ft. in.	feet.	inches.	
NORTHUMBERLAND—(con.)						
Rochester (Byrness)	Mr. D. B. Nicholson ...	5	0 9	700	44·32	...
D Alwinton (Biddleston)	Mr. P. Dodds	5	1 0	820 T	44·66	157
Alnwick (Bondgate)	J. Lingwood, Esq.	8	1 0	214 T	40·62	201
D Howick Hall	Rt. Hon. Earl Grey, K.G.	8	0 10	121 T	36·32	204
Ilderton (Lilburn Tower)	E. J. Collingwood, Esq.	10	6 0	300 T	36·77	...
Cheviot (Broadstruther)	G. P. Hughes, Esq. ...	8	4 0	1692 T	72·75	...
D Pawston [Coldstream]	B. P. Selby, Esq.	8	1 0	328 T	35·74	212
*Wooler (Milfield)	G. A. Grey, Esq.	5	0 8	200 T	31·56	...
Belford (Middleton Hall)	J. T. Leather, Esq., C.E.	10	3 0	240 T	31·07	...
CUMBERLAND.						
Ravenglass (The Grove)	J. Ross, Esq.	5	2 6	80 T	41·97	144
Braystones	J. D. Watson, Esq. ...	10	3 8	36 T	35·42	...
Scafel Pike	J. Maitland, Esq.	8	0 6	3200 T	95·60	...
Esk Hause	" " "	4	0 6	2550 T	91·90	...
Sprinkling Tarn	" " "	4	0 6	1985 T	106·81	...
Wastdale Head	" " "	4	0 6	204 T	86·55	...
Styehead Tarn	" " "	4	0 6	1472 T	118·95	...
†The Stye	" " "	4	0 6	1077 T	172·56	...
Gabel Hawes	" " "	4	0 6	1077 T	95·36	...
Taylor's Gill	" " "	4	0 6	1077 T	146·60	...
St. Bees (Abbot's Court)	A. Hodgetts, Esq.	5	1 1	20 L	39·13	175
†Seathwaite	Mr. Dixon	4	0 6	422 T	129·33	...
D† "	" "	5	1 0	422 T	130·58	232
"	The Meteor. Society ...	5	i 0	422 T	127·43	...
* "	H. C. Marshall, Esq. ...	5	1 0	420 T	124·18	...
Ullscarf	J. F. Bateman, Esq. FRS	7	1 0	2100 T	115·90	...
†Wythburn Vicarage	Rev. Basil Lawson	5	1 0	574 T	102·45	148
†Helvellyn (Birkside)	J. F. Bateman, Esq., FRS	7	1 0	1900 T	81·20	...
†Wythburn	" " "	7	1 0	580 T	89·50	...
Rosthwaite (Castle Lodge)	G. J. Symons, Esq., FRS.	8	1 0	305 T	98·75	...
†Watendlath	" " "	8	1 0	867 T	83·50	...
Armboth	J. F. Bateman, Esq., FRS	7	1 0	550 T	77·60	...
" Fells (The Pewitts) ...	" " "	7	1 0	1650 T	82·80	...
Helvellyn (Whiteside)	" " "	7	1 0	2100 T	67·70	...
†Whitehaven (Irish Street)	Dr. P'Anson	5	1 1	21 T	38·87	142
D†Keswick (Barrow House) ...	S. Z. Langton, Esq. ...	8	0 6	282 T	71·34	202
Loweswater (Godferhead)	A. H. Smith, Esq.	5	0 10	360 T	60·06	...
" (Waterend)	Mrs. Jackson	5	1 0	432 T	48·92	204
†Ullswater (Hallsteads)	A. Marshall, Esq.	10	4 0	490 T	49·80	...
D†Keswick (Deer Close)	H. C. Marshall, Esq. ...	7	1 9	300 T	59·15	...
D† " (Derwent Island) ...	" " "	5	0 7	280 T	51·42	216
D† " (Post Office)	J. F. Crosthwaite, Esq.	8	6 4	270 T	56·51	169
†* " (")	" " "	5	1 0	265 T	55·36	169
Whitehaven (Gilgarron Hall) ...	Mr. D. Galloway	5	4 9	470 T	47·98	219
D " (Distington)	Baldwin Latham Esq CE	5	1 0	...	35·76	160

NOTE.—The numbers marked thus (11) on this and the next page refer to the Map facing p. [144] of *British Rainfall, 1877.*

DIVISION X.—NORTHERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
CUMBERLAND —(con.)						
D Cockermouth (Whinfell Hall) ...	W. Robinson, Esq. ...	5	2 0	265 N	49·15	218
D " (Brandlingill).....	Capt. F. R. Sewell.....	5	1 0	320 T	49·33	204
† Bassenthwaite (Mirehouse)	Mrs. Spedding	5	0 6	310 T	45·23	188
D Cockermouth (Derwent House)...	Dr. Dodgson	5	0 6	144 N	40·58	186
D† " (Higham)	T. A. Hoskins, Esq. ...	5	1 0	478 N	41·68	202
D " (Broughton Grange).....	G. S. Wilson, Esq. ...	5	1 6	209 N	38·99	205
† Penrith (Fell Lane, Fir Bank)...	T. Lester, Esq.	5	1 0	575 T	34·30	152
D " (The Luham, Edenhall)..	G. Varty Smith, Esq...	5	1 1	270 T	31·85	188
D Blencowe School.....	T. Fawcett, Esq.	8	0 9	601 B	39·54	201
Maryport (Netherhall)	H. P. Senhouse, Esq...	8	0 6	27 N	33·09	...
Aspatria (Brayton Hall)	Mr. J. Hammond	8	1 6	220	33·35	...
D " (Brookfield)	M. Lidbetter, Esq.....	5	0 9	124 N	32·94	177
D Alston (Love Lady Shield)..[21]	T. W. Dickinson, Esq..	5	1 0	1145 N	49·38	245
Carlisle (Wreay Vicarage)	Rev. T. Lees	5	2 0	310 T	32·82	207
D Silloth (The Rectory)	Rev. F. Redford.....	8	3 0	28 N	37·21	179
D† Carlisle (Cemetery).....	I. Cartmell, Esq.	8	4 0	114 N	31·90	159
D " (St. James's Road)	T. G. Benn, Esq.	8	1 0	...	33·31	184
D† " (Scaleby Hall)	R. A. Allison, Esq. ...	5	1 0	112 N	35·94	195
D Stapleton (Westfield House).....	T. H. Walker, Esq. ...	5	1 0	400	45·82	193
Kirkandrews-on-Esk Rectory ...	Rev. F. Taylor	5	0 6	100 N	37·67	...
WESTMORELAND						
Kirkby Lonsdale	Mr. W. Harrison	5	1 2	209	54·47	...
D " " (Casterton).....	R. A. Clarke, Esq.....	8	1 0	305 N	55·18	199
" " (Biggins House).....	Miss Tomlinson	12	3 6	400 T	52·87	...
" " (Whelprigg) ..	Mrs. Gibson	5	2 0	475 N	54·11	...
D Kendal (Kent Terrace)	R. J. Nelson, Esq.....	5	1 6	146 T	59·77	176
D " (Underfell)	F. Wilson, Esq.....	8	3 0	300 B	57·91	198
D " { " }	" " " " ..	8	1 0	300 B	62·15	198
" { " }	" " " " ..	8	1 0	300 T	60·99	...
D " (Hawesmead)	G. Braithwaite, jun. Esq.	8	0 6	175 N	58·94	225
Bowness (Matson's Grounds) ...	G. Healey, Esq.....	12	0 8	451 N	69·77	200
D Windermere (The Wood)	Rev. G. Crewdson	8	3 2	322 N	75·22	204
D Ambleside (Brathay Vic.) ... (56)	Rev. H. S. Callender...	5	1 0	150 N	81·86	201
D Elterwater (Woodlands)..... (50)	E. Tucker, junr., Esq..	5	0 9	244 N	92·79	213
† Ambleside (Nook Cottage)... (51)	Mr. E. Hird	5	1 0	227 N	79·97	215
† " (Lesketh Howe) (26)	F. M. T. Jones, Esq. ...	5	2 6	175 T	82·77	205
D† Grasmere (High Close)	E. B. W. Balme, Esq...	8	0 9	553	85·10	212
† Tebay	Rev. E. Holme	5	3 6	666 B	59·20	145
D Ravenstonedale (Brownber)	J. Fothergill, Esq.....	5	3 0	826 T	43·57	191
D*† Kirkby Stephen	T. Mason, Esq.	5	1 0	574 T	43·10	173
† Shap (Sleddale)	Mr. W. Hoggarth	5	1 0	1560 T	85·95	...
† " (Swindale)	" " " " ..	5	1 0	1610 T	94·75	...
† Haweswater (Mardale Green) ...	G. J. Symons, Esq., FRS	5	1 0	780 T	105·90	...
† " { " " } ...	" " " " ..	8	1 0	780 T	101·50	...
" { " " } ...	H. P. Holme, Esq.....	5	1 0	747 N	93·71	...
† Shap (Tailbert Beck)	Mr. W. Hoggarth	5	1 0	900 T	79·10	...
D† " (Copy Hill)..... (58)	" " " " ..	5	1 0	852 N	59·12	220

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground.	Height Above Sea level		
			ft. in.	feet.	inches.	
GLAMORGAN—(con.)						
Aberdare (Mardy)	W. T. Lewis, Esq., C.E.	5	2 0	431 ∇	57·73	129
^D „ (Abernant)	E. Jones, Esq. ..	5	1 0	425	62·85	166
^D Ystalyfera	Dr. D. Thomas	8	1 2	250 \perp	63·39	183
CARMARTHEN.						
Llanelly Water Works	G. Watkeys, Esq.	4	4 6	216 ∇	38·03	125
Tegfynydd [Narberth]	H. S. Morgan, Esq. ...	5	1 0	158 ∇	47·21	141
^D † Carmarthen (Joint Co. Asylum) ..	Dr. Hearder	8	1 0	189 ∇	47·60	198
Llandilo (Golden Grove)	Rt. Hn. Viscount Emlyn	5	0 6	...	50·25	...
„ (Dynevor Castle)	Rt. Hon. Lord Dynevor	8	1 0	236 \uparrow	50·01	204
^D Llandoverly	J. Watkins, Esq.	5	1 0	217 \uparrow	44·40	216
PEMBROKE.						
Pembroke (Stackpole Court)	Rt. Hon. Earl of Cawdor	5	1 6	60 \uparrow	40·60	166
„ (St. Ann's Head)	The Meteor. Council ...	8	0 8	150	34·05	202
^D Narberth Rectory	Rev. W. Wilson	8	1 4	...	49·72	192
^D * Haverfordwest (High Street) ...	E. P. Phillips, Esq. ...	5	1 0	95 \uparrow	45·18	164
^D Narberth (Clynderwen)	Mr. W. T. Mills	6	1 0	...	50·30	194
^D Solva	E. Robinson, Esq.	5	1 0	90 B	28·95	183
^D St. David's	Dr. W. P. Propert	5	1 0	189 B	35·27	185
Rosebush	Mr. W. T. Mills .....	...	...	...	60·34	194
^D Fishguard (Castle Hill)	W. D. Wathen, Esq.	5	0 10	200 B	43·22	160
^D Llechryd (Castle Malgwyn)	Mr. H. Howard	5	1 0	...	45·82	189
CARDIGAN.						
^D Lampeter (St. David's Coll.) (63)	Prof. A. W. Scott	8	4 0	420	37·65	...
Aberystwith (Goginan)	Capt. Paull	5	2 6	290	36·56	212
^D † „ (Gogerddan) ... (93)	Sir Pryse Pryse, Bart. ..	5	1 0	80 B	38·37	184
^D „ (Cwmsymlog)	H. Trenwith, Esq.	5	3 0	800 ?	42·90	210
BRECKNOCK.						
Nanthir Reservoir [Aberdare] ..	T. L. Edwards, Esq.	5	1 0	860 \uparrow	61·64	...
^D „ „ [„]	„ „ „	5	1 0	860 \uparrow	61·11	218
^D Brecknock	J. Kirk, Esq.	8	2 0	437 ∇	41·96	159
„ (Christ College)	W. S. Rawson, Esq.	5	1 0	430 \uparrow	39·54	145
^D „ (Watton Mount)	G. Overton, Esq.	5	4 6	400 \uparrow	40·04	...
^D Builth (Llanwrtyd Wells)	Mr. B. Jones ...	5	1 0	800	64·14	216
^D „ (Abergwessin Vic.)	Rev. J. Jones	5	1 0	1003 \perp	61·47	217
RADNOR.						
^D Rhayader (Nantgwilt)	R. L. Lloyd, Esq.	5	1 0	767 B	61·92	209
^D * Presteign (Hereford Street)	Mr. W. White	5	1 9	550	35·45	176
MONTGOMERY.						
Llangwrig (Esgair Clochfan) ...	G. J. Symons, Esq., FRS	5	1 2	...	61·80	...
† „ (Ystrad-olwyn-fawr) 59	Mr. J. Jones ...	8	1 0	950	47·70	...
† Llanidloes (Dolenog)	T. F. Roberts, Esq. ...	5	1 6	550	35·09	154

The numbers in parenthesis refer to the Map facing page 196 of *British Rainfall, 1875.*

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which '01 or more fell.
		Diameter	Height Above Ground.	Height Above Sea level	1881	
			ft. in.	feet.	inches.	
MONTGOMERY—(con.)						
D Newtown (Dolfor) .....(92)	W. B. Pugh, Esq.....	5	0 3	1027	38·48	208
D Churchstoke (Mellington Hall) ..	P. Wright, Esq.	5	1 6	540 N	28·58	166
Dylife Lead Mine .....(55)	G. J. Symons, Esq., FRS	5	1 2	1400	69·30	...
D Newtown (Llanwnog)	Rev. Dr. Parry	5	3 2	...	35·05	188
Montgomery	Rev. F. W. Parker ...	5	...	550 T	25·50	...
D†Carno (Tybrite) .....(90)	Miss Marsh.....	5	1 0	595 T	51·65	206
D Welshpool (Buttington Vic.) ...	Rev. R. J. Roberts ...	5	1 0	300 T	30·30	204
D Garthbibio (Rhoys-y-perfedd)...	G. J. Symons, Esq., FRS.	8	1 2	...	60·96	169
† „ (Bwlch Tomlyd)	„ „ „	5	1 2	...	87·25	...
† „ (Lluest fawr) ... (49)	„ „ „	8	1 0	990 T	52·00	...
D†Llanwddyn (Daffrn-newydd) ...	„ „ „	8	1 0	750 B	49·01	126
FLINT						
Mold (Bryn Alyn)	Rev. R. B. Cooke	5	1 2	483 N	32·19	...
Flint (Soughton Hall, Northop).	J. Scott Bankes, Esq...	5	0 8	418	32·64	194
†St. Asaph (Nantllys) .....(33)	P. P. Pennant, Esq. ...	5	1 0	173 N	30·09	...
Holywell (Bagillt).....	A. O. Walker, Esq. ...	5	2 0	20 T	28·26	177
D Rhyl (Sedgley House)	W. T. Girdlestone, Esq.	5	2 6	21 N	25·47	154
†Prestatyn (Nant).....(77)	T. G. Dixon, Esq. ...	5	1 2	30 P	28·84	192
DENBIGH.						
Chirk (Cefn-y-wern).....	T. E. Tatton, Esq.....	5	1 0	415 T	36·30	204
D†Ruabon (Wynnstay).....	Mr. Middleton	12	3 0	484 T	33·21	204
D Llangollen (Plas Berwyn).....	Major Tottenham	5	0 5	440	42·81	173
D Wrexham (Pack Saddle Res.) ...	F. W. Storr, Esq.	5	0 9	370 N	31·61	199
D „ (Cae Llwyd Res.) ...	„ „ „	8	0 9	918 N	44·60	171
„ „ „ „ „ .....	„ „ „ .....	...	...	...	43·98	171
„ „ „ „ „	C. E. Darby, Esq.	6	6 9	632 N	28·50	...
D Rosset (Trevalyn Hall).....	Capt. Griffith Boscawen.	5	1 0	58 N	26·85	194
D Denbigh (Vale Street)	J. Lloyd Roberts, Esq..	5	1 0	230 N	32·92	168
„ (Dyffryn Aled).....(82)	P. W. Yorke, Esq.....	5	1 2	650 T	40·78	179
D Nannerch (Penbedw Hall)	Mr. W. McMurray ...	8	0 6	650 T	35·16	197
Eglwys-Fach (Bodnant)	A. Stewart, Esq.	8	2 6	102 N	36·08	132
Abergele (Kimmel Park).....(80)	Lady F. Hughes	5	0 8	250	34·09	...
Colwyn Bay (Nant-y-Glyn) ..	A. O. Walker, Esq. ...	5	2 0	180 N	31·80	172
„ (Bryn Euryn)...(76)	Mr. T. Hutchings	5	1 0	125 T	31·93	170
MERIONETH.						
D†Towyn (Peniarth) .....(89)	Mr. G. Murray	5	2 0	12	37·59	168
D†*Dolgelly (National School) (21)	Mr. Williams	5	1 6	43 T	52·36	188
D „ (Hengwrt)	Mrs. Lloyd	5	0 6	90 B	57·80	214
† „ (Brithdir) .....(28)	J. Hill, Esq.	5	1 6	465 T	67·73	...
† „ „ „(28)	„ „ „	5	5 3	474 T	48·76	...
Trawsfynydd.....(4)	Major Mathew	5	0 7	700	64·21	175
Bala (Henblas) .....(20)	„ „ „	5	1 0	544	51·33	152
D Llanderfel (Palé Gardens) ... (88)	Mr. T. Ruddy.....	8	1 0	606 N	48·58	214
†Rhiwbryfdir .....(15)	Major Mathew	5	10 0	1100	96·79	189
D Corwen (Rhug Gardens)	Mr. J. Bennett	5	1 0	500	35·45	149

DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above SeaLevel	1881	
			ft. in.	feet.	inches.	
CARNARVON.						
Pwllheli (Bodfaen) .....(17)	Major Mathew	5	1 0	80	45·24	156
*Llanystumdwy (Talarvor) ... (16)	„ „	5	3 0	50	33·53	162
D†*Port Madoc .....(1)	„ „	5	3 0	10	49·24	179
*Llangybi (Cefn) .....(6)	„ „	5	1 0	200	49·89	147
Pen-y-gwryd .....(85)	Mr. H. Owen .....(85)	8	...	800	88·75	171
Carnarvon (Cocksidia) .....(39)	Major Mathew	5	1 1	120	39·15	203
D Llanbedr-y-Cennin (Llyndulyn)	T. F. Marks, Esq., C.E.	8	1 6	1622 L	72·85	154
Llanfairfechan	R. Luck, Esq.	5	0 8	150 B	39·26	130
D†Llandudno (Warwick House)(29)	Dr. Nicol	8	0 8	99 A	31·97	175
ANGLESEA.						
D Menaifron.....(23)	Rev. W. W. Williams.	5	1 0	14 A	37·51	216
D Llangadwaladr (Bodorgan)	Mr. J. Ellam	8	4 0	...	36·13	185
D Holyhead (Plas Rhos-celyn).....	Capt. E. H. Verney, R.N.	8	1 5	100 A	29·86	173
„	The Meteor. Council ...	8	1 2	44	32·76	205
LlanerchymeddLlwydiarthEsgob	T. Prichard, Esq.	5	1 6	112 L	36·72	183
ISLE OF MAN.						
D Douglas (Derby Square)	P. Killey, Esq.	5	1 1	78	38·92	191
D „ (Victoria Road)	H. Story, Esq.	8	1 0	120 L	47·54	217
„ (Cronkbourne)	The Meteor. Council ...	...	0 10	138	47·81	205
Point of Ayre.....	Bd. of Northern Lights	...	...	...	26·77	139
ISLES OF SCILLY.						
St. Mary's	The Meteor. Council ...	8	1 6	77 L	33·81	217
JERSEY.						
St. Aubins (Noirmont)	The Meteor. Council ...	8	1 0	270	33·44	188
D „ School	J. E. Vibert, Esq.	8	1 0	140 B	32·72	166
„ „	„ „ „	8	18 4	155	26·85	...
GUERNSEY.						
Guernsey (Villa Carey).....	The Meteor. Society ...	8	1 3	180	33·27	...
D „ (Grange Road)	Mrs. Mansell	5	1 0	174 B	39·85	197
„ (York Place)	Dr. Hoskins, F.R.S. ...	12	12 0	204 B	38·88	170

SCOTLAND.

DIVISION XII.—SOUTHERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above SeaLevel		
			ft. in.	feet.	inches.	
WIGTON.						
Mull of Galloway	Bd. of Northern Lights ...	...	...	...	30·37	148
Stoneykirk (Ardwell House).....	M. J. Stewart, Esq. ...	8	0 9	125	40·03	116
Corsewall	Bd. of Northern Lights ...	...	3 4	22 ?	40·39	141
KIRKCUDBRIGHT.						
Little Ross	Bd. of Northern Lights ...	...	3 3	130 ?	29·13	119
Kirkcudbright (Auchencairn) ...	A. Buchan, Esq. ....	...	...	20	45·45	...
Dalbeattie (Colvend Manse).....	Rev. J. Fraser	5	1 3	120 †	37·88	...
Twynholm (Cally).....	A. Buchan, Esq.....	5	1 0	87	52·57	170
Kirkbean (Woodside Cottage) ..	Mr. J. Foulds.....	5	3 0	33 †	44·78	177
*Dalbeattie	R. W. Macnab, Esq....	5	0 8	30 ?	45·10	162
^D New Abbey (St. Mary's)	Rev. W. Downie	3	0 4	54 †	48·13	...
^D Cargen [Dumfries]	P. Dudgeon, Esq.	5	0 4	80 †	44·51	180
^D New Galloway	R. McKay, Esq.....	8	20 0	220 †	51·38	188
Irongray (Drum Park)	D. J. Kay, Esq.	3	0 6	230	56·25	...
^D *Carsphairn	J. Hannah, Esq.....	5	3 10	574 †	62·94	151
DUMFRIES.						
^D Annan (Warmanbie).....	Mr. Elliot	8	3 0	100 †	39·69	160
^D Dumfries (Crichton Inst.).....	Mr. A. Bruce.....	8	0 6	159 †	39·17	160
Canobie (Byreburnfoot)	W. Doughty, Esq.....	3	0 9	160	44·38	...
Langholm (Westwater).....	Mr. W. Elliot.....	5	2 0	550 †	57·29	...
„ (Ewes School)	J. C. Little, Esq.	3	0 6	500 †	50·30	...
Thornhill (Capenock)	The late T. Gladstone Esq.	5	1 0	300	48·79	143
Durrisdeer (Drumlanrig Castle)	A. Buchan, Esq.	3	0 6	191	38·60	...
Moffat (Ericstane)	Mr. Welsh .....	...	...	550	54·30	...
Sanquhar (Wanlockhead).....	Mr. G. Dawson	3	0 5	1330 †	63·35	...
ROXBURGH.						
New Castleton (The Flatt)	J. Elliot, Esq.	3	0 9	350 †	50·30	...
„ „ (Kirndeane)	Miss Elliot	3	0 9	400 †	51·70	...
^D Teviothead Manse	Rev. R. Young	3	0 9	550 †	55·95	216
Hawick (Wolfelee)	Sir W. Elliot, Bt., F.R.S.	5	0 6	601 †	43·15	...
„ (Branxholme)	W. E. Lockhart, Esq...	5	0 2	451 †	35·21	...
„ (Kirkton)	Mr. J. Welsh	3	0 6	759 †	33·10	...
^D * „ (Silverbut Hall)	Mr. D. Elder	5	4 6	512 †	31·21	168

DIVISION XV.—WEST MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1881	
			ft. in.	feet.	inches.	
ARGYLL (MAINLAND)—(con).						
D Loch Sunart (Glenborrodale) ...	J. J. Dalgleish, Esq. ...	5	0 2	60 L	61·56	227
Ardnamurchan	Bd. of Northern Lights	...	3 6	82 P	45·76	172
Loch Eil (Corran)	" "	...	0 4	14 P	81·29	176
ARGYLL—(INSULAR.)						
Cantire, Mull of	Bd. of Northern Lights	...	...	279 P	46·77	163
" (Campbeltown, Devaar)	" "	...	3 4	75 P	48·26	174
" (Skipness Castle)	Mr. P. Maclean	6	1 6	20 L	47·50	...
D " (Stonefield, Tarbert) ...	Colin G. Campbell, Esq	3	1 3	90	66·07	222
D Islay (Ardbeg)	Mr. C. Hay	5	1 0	7 P	48·91	202
" (Rhinn)	Bd. of Northern Lights	...	3 0	74 P	34·71	156
" (Lochindaul) .....	" "	...	...	...	43·43	155
" (McArthurshead) .....	" "	...	...	...	66·83	146
D* " (Eallabus)	J. S. B. Ballingall, Esq.	5	1 0	67 T	46·40	192
D " (Gruinart School House) ...	Mr. D. Mac Gilp	5	1 0	214 N	43·81	207
" (Rhuvaal)	Bd. of Northern Lights	...	...	...	32·89	163
Jura (Lowlandmansbay) .....	" "	...	...	...	49·81	...
" (Fladda) .....	" "	...	...	...	51·32	146
Lismore (Mousedale)	" "	...	3 4	37 P	43·77	139
Mull (Earraid) .....	" "	...	...	...	40·61	121
" (Calgary)	J. M. McKenzie, Esq. ...	5	1 6	120	75·50	...
D " (Quinish)	J. N. Forsyth, Esq. ...	5	0 9	35	57·81	221
" Sound of	Bd. of Northern Lights	...	...	...	74·70	115
Tyree (Hynish) .....	" "	...	...	...	49·83	158

DIVISION XVI.—EAST MIDLAND COUNTIES.

CLACKMANNAN.						
D Dollar	Mr. A. Blackwood	9	1 0	178	45·40	190
KINROSS.						
D Loch Leven Sluice	Mr. W. Clarke	...	0 6	360	42·20	133
FIFE.						
D Dunfermline (Keavil)	L. Dalgleish, Esq.	5	0 2	150	31·12	15
" (Craigluscar)	W. Chisholm, Esq. ...	10	0 10	460 N	37·60	2
D " (Outh)	L. Dalgleish, Esq.	5	0 2	890	46·86	18
Falkland (Lothrie Reservoir) ...	A. Buchan, Esq.	5	0 1	700	48·54	0
D Strathmiglo (Leden Urquhart) ..	J. Thom, Esq.	8	0 6	615 T	40·90	20
Auchtermuchty	Dr. Troup	5	1 0	179 N	35·65	164
D Cupar (Kemback)	Mr. J. Scott	5	1 0	104 T	37·59	168
" (Birkhill)	A. Buchan, Esq.	5	0 5	130	32·83	9
St. Andrews (Castle Cliff)	" "	5	0 6	57	36·26	...
Leuchars (Ballmullo)	" "	5	0 9	100	28·97	...
Kilmany (Mountquhanie House) ..	D. Gillespie, Esq.	3	1 3	240	31·30	...

DIVISION XVI.—EAST MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1881	
			ft. in.	feet.	inches.	
PERTH.						
D Culross (West Grange)	J. J. Dalgleish, Esq. ...	5	0 2	116 ∇	45·47	138
Menteith (Cardross)	H. D. Erskine, Esq. ...	8	0 10	120	45·90	...
Aberfoyle	J. M. Gale, Esq., C.E..	8	0 6	60	53·00	...
Dunblane (Kippenross)	J. Stirling, Esq.....	6	0 4	150	34·00	...
Loch Dhu	J. M. Gale, Esq., C.E..	8	0 6	325	73·50	...
Ledard	" " "	8	...	1500	65·70	...
Loch Drunkie.....	" " "	8	0 6	420	64·80	...
" Vennachar.....	" " "	8	0 6	275	55·40	...
Lanrick Castle	Mr. J. Begg	3	0 9	...	41·95	...
Bridge of Turk	J. M. Gale, Esq., C.E..	8	0 6	270	66·60	...
Loch Katrine (Tunnel Hill Top)	" " "	8	0 6	830	71·80	...
Between Glen Finlas & Bed Ledi.	" " "	8	0 6	1800	50·20	...
Auchterarder (Glensherup)	W. Chisholm, Esq. ...	11	0 11	900 ∇	57·35	...
Callander (Leny)	J. B. Hamilton, Esq....	3	0 4	340 ∇	53·10	...
Glen Gyle	J. M. Gale, Esq., C.E..	...	...	380	80·00	...
Muthill (Orchil).....	A. Buchan, Esq. ....	...	...	...	38·70	...
D Auchterarder (Colquhalzie)	Mr. R. Morton	8	0 5	150	35·97	107
D Balquhidder (Stronvar).....	J. Dickson, Esq.	6	1 0	422 ∇	71·10	221
Lochearnhead.....	A. Buchan, Esq. ....	...	...	...	61·94	...
Crieff (Ochertyre).....	" " "	3	0 9	325	43·11	...
Perth Academy	Dr. Miller, F.R.S.E. ...	15	64 5	79 ∇	23·64	...
" (Inchbank)	" " "	10	1 6	24 ∇	31·48	...
Errol (Fingask Castle)	A. Buchan, Esq.	5	0 9	80	35·87	...
D Dunkeld (Inver Braan).....	Rev. J. M. B. Murdoch	...	...	500 ∇	42·37	170
D " (H.R.S.)	The Station Agent.....	5	1 0	225	37·88	...
Meigle (Arthurstone House).....	P. Carmichael, Esq. ...	5	2 3	187 ∇	32·31	...
" (" Garden)	" " "	5	2 3	196 ∇	32·59	...
D Dalnaspidal (H.R.S.)	The Station Agent.....	5	1 6	1450	53·99	204
FORFAR.						
D†Dundee (Westfield Cottage).....	Charles Clark, Esq. ...	5	6 0	50 ∇	32·22	177
D† " (Eastern Necropolis) ...	Mr. W. R. McKelvie...	3	0 5	167 ∇	34·05	148
D Broughty Ferry (Douglas Ho.)...	Mr. K. Graham	5	5 6	60 ∇	34·62	188
D†Craigton	J. Watson, Esq., C.E.	5	0 3	481	43·19	172
† "	" " "	11	0 3	481	43·31	...
†Crombie Reservoir ...	" " "	11	0 3	522 ∇	44·78	...
†Hill Head	" " "	11	0 3	570 ∇	43·79	...
D Arbroath.....	A. Brown, Esq., LL.D.	8	2 0	60 ∇	30·59	145
D Kirriemuir (Lintrathen)	J. Watson, Esq., C.E.	8	1 0	700	39·16	180
" (") monthly	" " "	8	1 0	700	40·85	...
" (" Creich Hill)	" " "	8	1 0	1500	37·65	...
Montrose (Sunnyside Asylum) ..	A. Buchan, Esq.	5	0 5	200	24·46	...

DIVISION XVII.—NORTH-EASTERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1881	
			ft. in.	feet.	inches.	
KINCARDINE.						
The Burn [Brechin]	Col. McInroy	4	0 6	250	35·50	...
Fettercairn	A. C. Cameron, Esq.	4	0 3	230 ∇	39·95	158
ABERDEEN.						
D† Braemar	J. Aitken, Esq.	8	0 9	1114 ∇	36·52	208
† Aboyne (Glentamar)	Mr. G. Hardy	5	1 0	576 ∇	39·04	117
" Castle	Mr. G. H. Smythe	5	1 3	450 ∇	30·09	176
Drumoak (Drum Castle) <i>monthly</i>	Mr. G. Gammie	5	1 6	275 ∇	39·28	...
Cromar (Logie Coldstone Manse).	Rev. G. Davidson	5	1 0	694 ∇	29·76	186
" (" " Loanhead)	Mr. A. Farquharson ...	5	1 0	743 ∇	27·61	191
" (Tillypronie)	Mr. R. Littlejohn	5	1 0	1120 ∇	30·77	205
† Aberdeen (Rose Street)	A. Cruickshank, Esq. ...	5	0 5	95 ∇	32·46	...
D " 	Mr. J. McCormack	8	1 9	103	34·16	221
" (Gordon's Hospital) ...	J. Dale, Esq.	8	1 6	63 ∇	32·47	213
D Midmar (Blackstock)	Mr. J. Barron	5	0 8	570 ∇	31·85	165
D " (Dunecht Observatory)..	Rt. Hon. Earl Crawford	8	0 11	461 ∇	29·80	187
D Skene (Kinmundy)	Miss E. Johnston	5	0 11	590 ∇	30·40	204
Monymusk (Cluny Castle)	Mr. McDonald	5	0 1	280 ∇	29·63	171
Inverury (Manar Farm)	Mr. J. Walker	8	15 0	270 ∇	32·12	...
Ellon (Tillydesk)	W. Hay, Esq.	11	0 4	349 ∇	28·43	...
D Old Deer	J. Walker, Esq.	5	2 0	135 ∇	29·86	218
D New Pitligo	Mr. D. Sturrock	3	0 3	505	34·64	213
Kinnairdhead	Bd. of Northern Lights.	...	...	...	19·32	...
BANFF.						
D Tomintoul	Rev. A. Guthrie	6	1 1	1103	31·46	179
D Keith (H.R.S.)	The Station Agent	5	1 0	364 ∇	29·91	173
ELGIN OR MORAY.						
Grantown	Mr. W. Duncan	5	1 1	712 ∇	24·67	169
Craigellachie (Elchies)	Mr. J. Milne	8	1 6	560 ∇	27·50	133
D Forres (H.R.S.)	The Station Agent	5	1 0	20	23·66	148
Gordon Castle	Mr. Webster	8	1 3	107	27·19	...
D Elgin (Highfield)	A. Cameron, Esq.	5	0 11	80 ∇	25·07	161
D Burchhead (H.R.S.)	The Station Agent	5	1 1	18	22·23	...
NAIRN.						
Nairn (Acharéidh)	A. Clarke, Esq.	8	1 0	60 ∇	21·40	165
" 	The Meteor. Council ...	8	1 9	84	23·13	178

DIVISION XVIII.—NORTH-WESTERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
WEST ROSS.‡						
D*Loch Alsh (Inverinate House) ...	Mr. McDonald	5	3 0	150	77·32	159
D Strome Ferry (H.R.S.)	The Station Agent.....	5	1 0	40 T	55·83	214
Applecross Gardens	Mr. D. McCowan	5	0 9	70 N	44·15	...
Strathconan [Beauly]	Mr. D. McIver	5	1 0	450	46·45	154
Loch Vraon.....	J. D. Baldry, Esq., C.E.	8	0 7	750	35·86	...
Lochbroom (Loch Drome)	„ „ „	8	0 7	850	38·12	...
Braemore House.....	„ „ „	8	0 7	750	37·66	...
„ Lodge.....	„ „ „	8	0 7	100	42·40	...
D Lochbroom	Mr. M. Macleay	5	0 6	48	42·23	208
Isle of Lewis (Stornoway)	Bd. of Northern Lights	...	3 4	31 P	34·99	152
„ („)	The Meteor. Council ...	8	3 0	24	39·12	228
„ (Butt of Lewis) ...	Bd. of Northern Lights	...	3 6	...	27·16	159
EAST ROSS.						
Achonachie Lodge [Beauly].....	W. C. Preston, Esq. ...	5	1 0	125 B	32·38	213
D Dingwall, H. R. S.	The Station Agent.....	5	1 1	3	26·02	119
*Invergordon Castle	B. B. Æ. McLeod, Esq.	5	1 0	25 P	27·31	136
D Alness (Ardross Castle).....	Mr. R. Massie.....	5	1 0	450 N	37·20	174
D*Tain (Fearn)	R. Gordon, Esq.....	5	1 0	58 N	24·99	...
„ (Springfield).....	Mr. E. McLardy	5	3 6	80	25·47	...
WEST INVERNESS.						
Loch Shiel (Kinlochmoidart) ...	W. R. Macdonald, Esq.	5	0 6	27	60·85	211
D Fort William (Public School) ...	C. Livingstone, Esq....	5	1 0	36 N	78·01	245
Glenquoich	A. Buchan, Esq.	8	2 0	660	94·67	...
Isle of Skye (Oronsay)	Bd. of Northern Lights	...	0 6	15 P	30·62	138
D „ (Broadford)	Mr. Logan	5	1 0	45	51·16	136
„ (Kyle Akin)	Bd. of Northern Lights	...	0 2	3 P	55·51	159
„ (Sligachan)	Mr. Butters.....	5	1 0	450 T	115·41	202
D* „ (Portree)	Mr. J. Grant	5	1 3	165 N	75·65	229
„ (Dunvegan)	Mr. D. Macaskill	5	1 0	24	61·89	160
Rona	Bd. of Northern Lights	...	...	...	52·70	176
Barrahead	„ „ „	...	3 0	640 P	29·19	...
S. Uist (Ushenish).....	„ „ „	...	0 4	157 P	46·70	170
N. Uist (Monach) .....	„ „ „	...	...	...	46·80	179
Harris (Island Glass)	„ „ „	...	3 4	50 P	41·92	167
EAST INVERNESS.						
D Roy Bridge (Brae Lochaber) ...	Sergt. A. Fraser.....	5	1 0	306 N	49·44	212
D Aviemore H.R.S.	The Station Agent.....	5	1 0	710	24·68	...
Glen Strathfarrer .....(monthly)	Mr. D. Fraser.....	5	1 0	461 T	45·05	...
D Inverness (H.R.S.)	The Station Agent.....	5	1 8	...	25·66	...
† „ (Culloden House).	D. Forbes, Esq.	6	4 0	104 T	23·54	...
D Cawdor [Nairn]	J. Joss, Esq.	5	1 0	260	28·11	196

‡ Including Cromarty.

DIVISION XIX.—NORTHERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which '01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
SUTHERLAND.						
Invershin	Mr. G. G. Young	5	4 0	20 †	30·90	...
D Golspie (H.R.S.)	The Station Agent.....	5	0 9	27	28·03	...
D „ (Dunrobin Castle)	Mr. D. Melville	5	1 0	14 †	32·36	166
„ („ „) <i>monthly</i>	„ „ „	3	0 3	13 †	32·40	...
Lairg	A. Buchan, Esq.	3	3 4	451	34·02	...
D „ H.R.S.	The Station Agent.....	5	...	...	33·22	206
D Kinbrace (Achintoul)	J. Burnet, Esq.	5	1 0	440 †	26·60	206
Scourie.....	J. Simpson, Esq.	3	0 5	26	42·30	177
D Forsinard H.R.S.	The Station Agent.....	5	1 0	...	34·18	214
Tongue House.....	A. Buchan, Esq.	3	0 5	45	34·06	...
Cape Wrath	Bd. of Northern Lights .....	...	3 6	355 ?	43·68	159
CAITHNESS.						
Wick	The Meteor. Council ...	8	1 9	77	28·51	204
D† „ (H.R.S.)	The Station Agent.....	5	1 0	...	28·46	...
† „ (Nosshead)	Bd. of Northern Lights	8	4 8	127 ?	22·00	162
D† Watten (H.R.S.)	The Station Agent.....	5	0 9	75	25·70	218
Thurso (Holburnhead)	Bd. of Northern Lights	3	0 8	60 ?	23·70	124
Pentland Skerries .....	„ „ „ .....	...	3 3	72 ?	21·57	...
ORKNEY.						
D S. Ronaldshay (Roeberry)	J. Gray, Esq.	5	1 2	101 †	30·58	201
Hoy (Cantickhead)	Bd. of Northern Lights .....	...	0 6	...	21·70	...
„ (Graemsay Sound, East=High) .....	„ „ „ .....	...	3 4	27 ?	33·96	187
„ („ „ West=Low) .....	„ „ „ .....	...	3 4	...	33·38	224
D† Pomona (Tankerness Hall)	J. Johnson, Jr., Esq.	5	0 9	12 †	30·30	249
„ (Kirkwall)	Mr. J. W. Cursiter ...	...	...	...	41·81	...
Shapinsay (Balfour Castle)	Col. Balfour	4	0 6	50	30·10	...
D† Pomona (Sandwick)	Rev. C. Clouston, LL.D.	11	2 0	78	36·96	233
Sanda (Start Point)	Bd. of Northern Lights	11	0 6	29 ?	24·33	...
North Ronaldsay .....	„ „ „ .....	...	3 4	21 ?	30·11	...
SHETLAND.						
Sumburghhead	Bd. of Northern Lights .....	...	...	...	25·09	145
„ (Dunroseness)	The Meteor. Council ...	8	1 0	84	36·66	247
Bressay Lighthouse	Bd. of Northern Lights	5	0 4	60	31·40	...
Stourhead .....	„ „ „ .....	...	...	...	32·20	140
D East Yell	Mr. A. D. Mathewson..	5	1 0	180	34·87	290

DIVISION XX.—MUNSTER—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
CLARE.						
D Kilrush	Mr. M. Bourke	5	7 0	61 T	33·03	204
D Ennis	J. Hill, Esq.	10	3 2	21 L	39·62	190
D Miltown Malbay	M. Molohan, Esq.	5	1 0	400 P	42·65	231
D Corofin	T. G. Mullins, Esq.	5	1 0	...	42·22	180

DIVISION XXI.—LEINSTER.

WEXFORD.

D New Ross (Horetown House) ...	S. D. Goff, Esq.	10	1 0	100 B	38·04	201
D „ (Longraigue).....	J. W. Deane, Esq.	5	1 1	210 T	41·89	181
Enniscorthy (Castle Boro')	J. L. Bashford, Esq.	5	1 0	270 B	48·59	173
D „ (Ballyhyland)	J. Moffat, Esq.	5	1 0	420 B	45·55	182
D Gorey (Courtown House)	RtHon Earl of Courtown	5	3 0	80 T	32·56	163

KILKENNY.

D Rosbercon Castle [New Ross] ...	A. E. Graves, Esq. ...	6	2 6	60 A	37·66	150
Tullagher [„]	D. A. Milward, Esq. ...	5	1 0	500 A	49·45	174
Inistioge (Woodstock)	Lady Louisa Tighe ...	5	4 6	400 T	46·34	199
Stoneyford (Inisnag).....	Rev. J. Graves	5	1 6	220 A	36·99	...

WICKLOW.

D† Bray (Fassaroe) ...	R. M. Barrington, Esq.	10	5 0	250	44·54	206
D „ (Florence Terrace)	T. H. Bridgford, Esq. ...	5	1 1	35 B	33·11	120

CARLOW.

D St. Mullins [Graigue]	C. Budds, Esq.	5	1 5	29 T	36·17	132
D Bagnalstown (Fenagh House) ...	D. W. P. Beresford, Esq.	5	0 9	350 T	34·20	181
D Carlow (Browne's Hill).....	R. C. Browne, Jun., Esq.	5	1 0	291 A	37·48	193

QUEEN'S COUNTY.

Abbey Leix (Blandsfort)	J. L. Bland, Esq.	8	3 0	532 A	33·81	192
„ „ („) <i>monthly</i>	„ „	5	2 0	532 A	33·95	...
Stradbally (Polesbridge)	Capt. Hastings Brooke	5	2 0	...	32·87	158

KING'S COUNTY.

D Parsonstown (Birr Castle)	The Meteor. Council ...	8	0 10	180	36·23	204
D Portarlinton	Dr. Hanlon	5	1 2	240 L	33·00	213
D Rathangan (Clonbrin)	Mrs. W. Gresson	5	1 4	224 T	33·83	154
Tullamore	H. J. B. Kane, Esq., C.E.	10	3 0	235	28·42	186

DUBLIN.

Dalkey (Bellevue Park)	Mr. J. Kevans	6	1 3	148	26·97	...
D Monkstown (Easton Lodge)	Greenwood Pim, Esq. ...	8	0 8	90	27·58	170
† Dublin (Fitz William Square) ...	Dr. J. W. Moore	5	3 4	54 T	27·03	198
„ (Phoenix Park).....	Col. Stotherd, R.E. ...	8	1 0	163 A	28·35	206
D Glasnevin (Botanic Gardens) ...	F. W. Moore, Esq. ...	8	0 11	65 A	25·42	156
D Balbriggan	Rev. S. P. Warren ...	5	1 0	57 T	28·66	182

DIVISION XXI.—LEINSTER—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which '01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1881	
			ft. in.	feet.	inches.	
MEATH.						
Clonee (Williamstown)	W. Johnston, Esq.....	5	1 0	200	28·57	197
D Trim	P. Malone, Esq., C.E.	10	4 2	180 T	34·67	157
D Navan (Balrath)	R. W. Walsh, Esq., C.E.	5	2 0	160	31·86	...
WESTMEATH.						
D Mullingar (Belvedere)	Mr. J. Baylis	5	1 0	367 T	35·58	141
LOUTH.						
Stephenstown	Col. Fortescue	5	0 11	75 N	34·30	203
D Dundalk (Farndreg)	J. Barton, Esq.	5	1 0	90 T	35·92	154
„ (Ravensdale Park).....	Rt. Hon. Lord Clermont	8	1 0	360 T	48·72	191
D Greenore	T. Chambers, Esq.....	5	1 0	4 L	34·21	167
LONGFORD.						
Edgworthstown (Currygrave Ho)	J. Wilson, Esq.	8	1 1	260	32·88	...

DIVISION XXII.—CONNAUGHT.

GALWAY.						
Gort (Cregg Park).....	The late R. J. Lattey, Esq	5	3 0	130 N	38·04	193
D Galway (Queen's College).....	Prof. Larmor	16	9 0	30	41·28	206
D Ballinasloe (Kilconnell)	Rev. H. E. Muriel.....	5	2 6	320 T	41·45	201
D „	W. H. Kempster, Esq.	5	0 6	150 N	38·26	197
D „ (Garbally)	Mr. J. Cobban	8	1 0	157 N	38·92	233
D Ahascragh (Clonbrock)	Rt. Hon. Lord Clonbrock	10	5 8	200 T	41·89	185
D Clifden (Kylemore)	Mr. J. Maxwell	5	1 0	105 T	90·29	231
Tuam (Gardenfield)	H. Kirwan, Esq.	5	1 0	155 T	41·94	...
„ („) ... <i>Snowdon</i>	„ „ „	5	6 0	160 T	40·03	...
MAYO.						
Ballinrobe (Creagh)	Mrs. Knox	5	1 0	80	49·78	...
„ (Kilrush)	J. Simson, Esq.	5	1 0	120 T	37·79	...
Westport (Oldhead House)	H. Wilbraham, Esq....	3	1 7	100 T	55·80	...
D Crossmolina (Enniscoe)	J. Pratt, Esq.....	5	0 11	50 P	50·32	211
SLIGO.						
Collooney (Markree Observatory)	Mrs. E. Salles.....	5	0 6	110 T	40·39	...
„ („ „)	„ „ „	31	16 7	148 T	29·30	213
D Sligo (Mount Shannon).....	F. M. Olpherts, Esq....	5	4 5	70 B	36·67	204
Mullaghmore	The Meteor. Council ...	8	1 2	40	42·41	229
LEITRIM.						
D Carrick-on-Shannon	R. Bradshaw, Esq., M.D.	5	1 0	150 P	35·79	179

DIVISION XXIII.—ULSTER.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1881	Days on which '01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
CAVAN.						
D Killeshandra (Drummany)	H.M. Anketell Jones Esq.	10	32 6	292 ∇	28·40	207
D Lough Allen (Dowra)	W. Howe, Esq.	5	1 6	225	35·87	236
FERMANAGH.						
Enniskillen (Florence Court) ...	Earl of Enniskillen FRS	8	1 9	250 \uparrow	58·13	216
„ (Lisbellaw)	R. Eadie, Esq.	5	1 0	200 ?	31·36	179
„ („) <i>monthly</i>	„ „	5	1 0	200 ?	35·04	...
Brookboro' (Colebrook Park) ...	The Meteor. Council ...	...	1 0	240	39·90	196
MONAGHAN.						
D Rockcorry	Mr. W. R. Loudon ...	5	1 0	290 ∇	36·31	185
ARMAGH.						
Flurrybridge	Rt. Hon. Lord Clermont	8	1 0	340 ∇	42·70	153
D Edward St. Station [Newry] ...	J. L. D. Meares, Esq. ...	5	1 0	22 ∇	41·33	143
D Armagh Observatory	late Rv Dr Robinson FRS	10	1 7	208 ∇	31·43	191
„ „	The Met. Council .....	...	2 0	204	32·92	221
DOWN.						
D Kilkeel	Rev. E. O'Brien Pratt	5	1 6	40	31·27	173
D Warrenpoint (Summer Hill)	Mr. B. M. Kernan	5	1 0	30 \downarrow	45·65	148
Newcastle (Fairleigh)	Rev. J. H. Seymour ...	5	1 5	12	58·69	179
D Rathfryland (Ballynagappoge) ...	J. Smyth, jun. Esq., C.E.	5	3 3	300	33·90	125
Castlewellan (Lough Island) ...	„ „ „	10	3 0	442 \uparrow	33·20	...
† „ (Bann Res.)	„ „ „	8	1 0	440 \uparrow	34·40	...
D Rathfryland	B. B. Meek, Esq.	5	1 0	500	37·57	124
Banbridge (Katesbridge)	A. Mulligan, Esq.	5	1 0	230	32·03	167
D Seaforde	Col. Forde	8	0 5	180 ∇	44·74	195
D Banbridge (Corbet Reservoir) ...	J. Smyth, jun., Esq. C.E.	10	3 0	234 \uparrow	31·40	137
D† „ (Milltown)	„ „ „	8	0 8	200 \uparrow	35·03	212
D† Waringstown	Major Waring	8	0 4	191 ∇	36·30	206
D Newtownards	Mr. W. Craig	5	1 7	10	35·79	163
D Sydenham (Alma House)	R. Reade, Esq.	5	1 0	60	45·08	211
Donaghadee	The Meteor. Council ...	8	1 6	30	36·48	203
ANTRIM.						
D Aghalee [Lurgan]	Lancelot Turtle, Esq. ...	5	1 0	105 ∇	36·49	201
D† Belfast (Queen's College)	Mr. W. Taylor	11	7 4	68 ∇	38·47	169
D „ (New Barnsley)	J. Firth, Esq.	5	1 0	200 \uparrow	44·75	208
D† „ (Antrim Rd.)	G. Thompson, Esq. ...	7	7 0	144 \uparrow	40·27	193
Ballymena (Harryville)	A. Dawson, Esq.	5	1 0	150 \uparrow	43·26	255
D Broughshane (Quolie)	J. Lanyon, Esq., C.E. ...	5	1 1	800 \downarrow	48·05	192
D Bushmills	Mr. D. Elliott	5	1 0	33 \uparrow	37·54	219
„ (Dundarave)	Sir F. E. Macnaghten, Bt	5	1 3	162 \uparrow	38·41	220
LONDONDERRY.						
Dungiven	J. M. Moore, Esq., M.D.	5	1 0	290	43·16	227
D Londonderry (Knockan)	Rev. H. F. Stevenson..	5	1 0	300 \uparrow	43·28	229

SUPPLEMENTAL TABLE OF IMPERFECT RETURNS,
AND OF THOSE WHICH, FOR VARIOUS REASONS, ARE NOT INSERTED IN THE GENERAL TABLES.

DIV.	COUNTY.	STATION.	OBSERVER.	RAIN GAUGE.			Depth of Rain.
				Diameter	Height above Ground.	Height Above Sea Level.	
II.	Surrey	Upper Caterham	Dr. Elliot	in. 5	ft. in. 1 0	feet. 609 $\overline{\pi}$	in. 31.19
"	"	Croydon (Waddon House)	P. Crowley, Esq.	8	3 0	...	23.33
"	Kent	Margate (Acol)	E. S. Lendon, Esq.	4	1 0	601	25.65
III.	Hertford	" (Birchington)	Rev. W. T. T. Drake	5	1 0	...	33.59
IV.	Suffolk	Hemel Hempstead (Gt. Gaddesden)	Rev. T. F. Lloyd	8	1 0	426 $\overline{\pi}$	25.38
"	Norfolk	Botesdale (Rickinghall Rect.)	Mr. C. Blanchfield	5	1 3	...	27.67
V.	Devon	West Dereham	The Meteorological Society.	5	0 11	20	87.39
VIII.	Lancashire	Dartmoor (Princetown)	Rev. C. L. Reynolds	5	1 0	1360	53.11
IX.	York, W.R.	Lancaster (Wray)	E. B. Smith, Esq., C.E.	5	1 1	1657	51.54
X.	Northumberland	Marsden (Standedge)	Rev. J. E. Leefe	9	2 6	11007	27.06
XI.	Anglesey	Morpeth (Cresswell Vic.)	Rev. D. Morgan	5	1 5	95	37.78
"	Guernsey	Bodewryd (Rhosybol)	A Collenette, Esq.	5	1 6	170	36.79
"	"	Buen Retiro	"	4	5 6	1451	36.41
"	"	Les Ruettes Brayes	"	4	5 6	2551	40.32
XIV.	Renfrew	Buen Retiro	Mr. J. Bryer	5	1 0	1451	38.37
"	"	Les Ruettes Brayes	R. Sharp, Esq.	3	1 0	867	99.96
XVIII.	Inverness	Paisley (Ferguslie House)	Major McDonald	5	1 0	50?	26.33
XIX.	Sutherland	" W. Wks. (Stanely Res.)	The Station Agent	5	1 0	...	37.81
"	Orkney	Loch Sheil (Glenaladale)	Rev. C. Clouston	5	...	...	39.89
"	Limerick	Kinbrace H.R.S.	Mr. J. D. Musgrave	5	...	...	45.08
XX.	Wicklow	Poinona (Deerness Manse)	Dr. E. E. Barrington	10	4 0	300	38.77
XXI.	Westmeath	Newcastle West	J. Hodson, Esq.	5	5 0	188 $\overline{\pi}$	32.71
XXIII.	Cavan	Enniskerry	Rev. E. Whyte Venables	9	0 9	208 $\overline{\pi}$	37.86
"	Londonderry	Athlone (Twyford)	Mr. J. Conroy	5	1 0	121	94
"	"	Belturbet (Redhills)	"	5	1 0	...	...
"	"	Londonderry (Abercarn Rd.)	"	5	1 0	...	...
"	"	" (Clooney Terrace)	"	5	1 0	94	...

S U G G E S T I O N S
FOR SECURING UNIFORMITY OF PRACTICE AMONG
RAINFALL OBSERVERS.

I.—SITE.—A rain gauge should not be set on a slope or terrace, but on a level piece of ground, at a distance from shrubs, trees, walls, and buildings—at the very least, as many feet from their base as they are in height. Tall-growing flowers, vegetables, and bushes must be kept away from the gauge. If a thoroughly clear site cannot be obtained, shelter is most endurable from N.W., N., and E., less so from S., S.E., and W., and not at all from S.W. or N.E.

II.—OLD GAUGES.—Old established gauges should not be moved, nor their registration discontinued until, at least, two years after a new one has been in operation, otherwise the continuity of the register will be irreparably destroyed. Both the old and the new ones must be registered at the same time, and the results recorded for comparison.

III.—LEVEL AND FIXING.—The funnel of a rain gauge must be set quite level, and so firmly fixed that it will remain so in spite of any gale of wind or ordinary circumstance. Its correctness in this respect should be tested from time to time.

IV.—HEIGHT.—The funnels of gauges newly placed should be 1 ft. above grass. Information respecting height above sea level may be obtained from the Editor.

V.—RUST.—If the funnel of a japanned gauge becomes so oxidised as to retain the rain in its pores, or threatens to become rusty, it should have a coat of gas tar, or japan black, or a fresh funnel of zinc or copper should be provided.

VI.—FLOAT GAUGES.—If the measuring rod is detached from the float, it should never be left in the gauge. If it is attached to the float, it should be pegged or tied down, and only allowed to rise to its proper position at the time of reading. To allow for the weight of the float and rod, these gauges are generally so constructed as to show 0 only when a small amount of water is left in them. Care must always be taken to set the rod to the zero or 0.

VII.—CAN AND BOTTLE GAUGES.—The measuring glass should always be held upright; the reading is to be taken midway between the two apparent surfaces of the water.

VIII.—TIME OF READING.—Nine a.m. daily ; if taken only monthly, then 9 a.m. on the 1st.

IX.—DATE OF ENTRY.—The amount measured at 9 a.m. on any day is to be set against the previous one ; because the amount registered at 9 a.m. of, say, 17th contains the fall during 15 hours of the 16th, and only 9 hours of the 17th. (*This rule has been approved by the Meteorological Societies of England and Scotland, cannot be altered, and is particularly commended to the notice of observers.*)

X.—MODE OF ENTRY.—If less than one-tenth ($\cdot 10$) has fallen, the cypher must *always* be prefixed ; thus, if the measure is full up to the seventh line, it must be entered as $\cdot 07$, that is, no inches, no tenths, and seven hundredths. For the sake of clearness, it has been found necessary to lay down an invariable rule that there shall always be two figures to the right of the decimal point. If there be only one figure, as in the case of one-tenth of an inch (usually written $\cdot 1$) a cypher must be added, making it $\cdot 10$. Neglect of this rule causes much inconvenience. All columns should be cast *twice*—once up and once down, so as to avoid the same error being made twice. When there is no rain, a line should be drawn rather than cyphers inserted.

XI.—CAUTION.—The amount should always be written down before the water is thrown away.

XII.—SMALL QUANTITIES.—The unit of measurement being $\cdot 01$, observers whose gauges are sufficiently delicate to show less than that, are, if the amount is under $\cdot 005$, to throw it away, if it is $\cdot 005$ to $\cdot 010$ inclusive, they are to enter it as $\cdot 01$.

XIII.—ABSENCE.—Every observer should train some one as an assistant ; but where this is not possible, instructions should be given that the gauge should be emptied at 9 a.m. on the 1st of the month, and the water bottled, labelled, and tightly corked, to await the observer's return.

XIV.—HEAVY RAINS.—When very heavy rains occur, it is desirable to measure immediately on their termination, and it will be found a safe plan after measuring to return the water to the gauge, so that the morning registration will not be interfered with. Of course if there is the slightest doubt as to the gauge holding all that falls, it must be emptied, the amount being *previously* written down.

XV.—SNOW.—In snow three methods may be adopted—it is well to try them all. (1) Melt what is caught in the funnel by adding to the snow a previously ascertained quantity of warm water, and then

deducting this quantity from the total measurement, enter the residue as rain. (2) Select a place where the snow has not drifted, invert the funnel, and turning it round, lift and melt what is enclosed. (3) Measure with a rule the average depth of snow, and take one-twelfth as the equivalent of water. This being a very rough method, is not to be adopted if it can be avoided. Some observers use in snowy weather a cylinder of the same diameter as the rain gauge, and of considerable depth. If the wind is at all rough, all the snow is blown out of a flat-funnelled rain gauge. Snowdon pattern gauges are much the best.

XVI.—OVERFLOW.—It would seem needless to caution observers on this head, but as not a year passes in which some of our observers do not allow it to happen, it is necessary to call attention to the fact that there does not seem to be any part of the British Isles where 4 inches may not fall in 24 hours. Therefore it is not desirable to purchase any new gauge of which the capacity is less than four inches.

XVII.—SECOND GAUGES.—It is desirable that observers should have two gauges, and that one of them should be capable of holding eight inches of rain. One of the gauges should be registered daily, the other weekly or monthly as preferred, but always on the 1st of each month. By this means a thorough check is kept on accidental errors in the entries, which is not the case if *both* are read daily.

XVIII.—DEW AND FOG.—Small amounts of water are at times deposited in rain gauges by fog and dew, they should be added to the amount of rainfall, because (1) they “tend to water the earth and nourish the streams; and not for that reason only, but (2) because in many cases the rain gauges can only be visited monthly, and it would then obviously be impossible to separate the yield of snow, rain, &c.; therefore, for the sake of uniformity, all must be taken together.”

XIX.—DOUBTFUL ENTRIES.—Whenever there is the least doubt respecting the accuracy of any observation, the entry should be marked with a ?, and the reason stated for its being placed there.

XX.—BREAKAGE.—The Editor has no desire to supply rain gauges or glasses, or in any way to undertake, or interfere with, that which is the business of Opticians; but the continuity and permanent accuracy of the records of his correspondents is to him of such importance, that he deems it advisable to announce that any assistance in his power is always at their service.