

EXPERIMENTAL RAIN GAUGES, ULLEY RESERVOIR, ROTHERHAM.

# BRITISH RAINFALL, 1875.

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ON

# THE DISTRIBUTION OF RAIN

OVER THE

# BRITISH ISLES,

DURING THE YEAR

# 1875,

AS OBSERVED AT ABOUT 1800 STATIONS IN GREAT BRITAIN  
AND IRELAND,

WITH MAPS, AND ILLUSTRATIONS.

COMPILED BY

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#### ERRATA IN BRITISH RAINFALL, 1874.

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- Page 4.—First line, *for* 1874, *read* 1873. [This applies only to some copies.]  
,, 86.—Division VII., line 5, *for* Wyndham *read* Wymondham.  
,, 113.—Line 2, *for* “first five,” *read* “first eight.”  
,, 177.—Bodmin, 55·48, should be 52·62.  
,, ,, —Lanteglos, 51·06 ,, 50·06.  
,, 188.—Catterick, 19·56 ,, 20·56.  
,, 191.— ,, (Brookfield), should be *Wigton* (Brookfield).  
,, 193.—Bryn Erwyn should be *Bryn Euryn*, and in Denbighshire.  
,, 194.—Scilly, Return erroneous.  
,, 203.—Inverness H.R.S. 28·67 should be 27·67.

## BRITISH RAINFALL, 1875.

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I now come to the end of my work—the preface ; and my readers may envy me the pleasurable relief of feeling that this stage is reached. With no desire to indulge in self-glorification, or to magnify my self-imposed task, I feel that if, by so expressing the results that anyone can comprehend them, the notion is supported, that rainfall work is “ pure routine ; no brains wanted,” and if, moreover, attention is never called to the masses of material which have to be examined, then, the further mistake may spread,—that this work might as well appear in March as in May.

If rain gauges were always in perfect order, if no verification were necessary, because observers never made mistakes, either of observation or computation, if they always wrote legibly, and sent their returns immediately that they were asked for them, many hundred hours' work would be saved.\* But even under these impossible circumstances, there would still remain the classification of the data, a work of great labour, and requiring extreme care, the computations including that of about 1,400 separate per-centages, and, finally, the preparation of the whole for the printer, and the revision of the proofs.

I do not, therefore, think that I need apologise for the late date of this preface, much as I regret it, both for my own sake, and for that of my readers.

G. J. SYMONS.

62, *Camden Square, N.W.*, May 22nd, 1876.

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\* Irrespective of the time occupied in verifying records which proved to be accurate, I may, as an illustration of rigorous scrutiny, mention that upwards of 300 separate enquiries have been sent to individual observers, respecting doubtful entries.

## REPORT.

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It may be regarded as indicative of the steady maintenance of the rainfall system of the British Isles, that the most important feature in the events of the past year has been a financial one.

I believe that there were never so many stations in operation as there are now ; that the observations were never more carefully made, nor more rigorously checked. Of course there is much yet to be done; the rainfall along the Caledonian Canal, and in many parts of Scotland, is unknown, but these *terræ incognitæ* are yearly decreasing, and ere long we may have to imitate Alexander, and lament the absence of other realms to conquer. However, the subsequent "Chronicle of new stations established," shows that there is ample scope for more energy, more computing strength, and more money than is at present at our command.

It will be noticed that an entirely different mode of printing has been adopted for the monthly details given in this volume, the number of records being largely increased, in accordance with a discussion upon the subject in *Nature*. This subject is fully explained on a subsequent page.

There is no material change to report either in instruments or in modes of observation, and it is clearly very undesirable that any change, except as regards additions to existing arrangements, should be made, for the primary essential in rainfall work is continuity—perfect, and without variation. The importance of this point is not sufficiently remembered, even by old observers. They notice, perhaps, that a tree is growing too high to be consistent with the perfect accuracy of the indications of the rain gauge : another part of their grounds is more unobjectionable, and therefore they move the gauge there. This is an easy mode of solving the difficulty, but it is not the right one, which is to obtain a second gauge, put it in the better place, observe both for a sufficient time to ascertain the relation existing between the old and the new gauge, and therefrom the error of the old

one. Nothing could be more plainly worded than Rule II., and it is much to be regretted that all observers do not obey it.

“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.”

It is obvious that it is equally objectionable suddenly to abandon an old gauge, and take to observing a new one. One or two records a-year are usually spoiled in this way, and the year 1875 was no exception, this great mistake having been made at three stations.

As regards new instruments, there is little of importance to mention. No good self-recording rain gauge, at a price suitable for ordinary observers, has yet been brought to my notice. I believe in the possibility of fulfilling these conditions, and am much surprised that no one has yet done so. A considerable increase has taken place in the number of gauges with deep funnels (Snowdon pattern), but in all the cases known to me, these have been used either in addition to the maintenance of the old gauges, or at entirely new stations.

The verification of the records contained in this volume is extremely important, and rigorous in the extreme; it occupies two persons constantly during nearly two months; and this is in addition to much work done out of the office, and to voluntary assistance, in which connection I desire here to express my special obligation to E. E. Dymond, Esq., F.M.S., of Oaklands, Aspley Guise, for considerable help.

I stated above, that the most important event was a financial one; by this I referred to the cessation of the British Association grant. The amount of this grant was not large, only once reaching £150, and averaging less than £100 per annum. The action of the Association is said to have been adopted in order to force Government to undertake the provision of funds for the maintenance of the rainfall system, and in the teeth of my refusal to allow a system created and developed during fifteen of the best years of my life, to be buried in an obscure corner of some Government office. The question, like most others, has many aspects. I will briefly state my views of it as related to (1) the progress of rainfall work; (2) the British Association; (3) Government; (4) the observers; (5) myself.

(1.) The progress of rainfall work will, I am inclined to believe, suffer no check. I have never let money matters thwart my efforts, and many of my observers have helped me. I trust to them to make

up this £100, and I believe that they will not fail, and that many who as yet have not subscribed will do so. Thus much for money. Respecting publication of details, such as have hitherto been given in the British Association Reports, it is yet early to decide, but if no other source offers, it is always possible to apply to the Government Grant Fund of the Royal Society, which I have ever found most fairly administered.

(2.) The Association will save, say £100 per annum ; it will lose the reports hitherto contributed to its annual volume, and also the *éclat* (of which it had obtained an undue proportion) of being supposed to be the financial supporter of the rainfall system, and of having observers all over the kingdom, who, as British Association stations, kept the name of the Association before the world. With respect to the reports it may be said that the Association will save the cost of printing them. Quite true ; but if the volumes contain no reports which are expensive to print, who will care for the volumes ?

(3.) I flatly refuse to transfer to any Government Office the system which I have organized at an enormous expenditure of money, time, and physical and mental energy. I do not believe that the gentlemen who so kindly voluntarily discharge the duties of observers, would approve of being placed under the supervision of Government officials. I believe that the *esprit du corps* which at present exists, would be extinguished ; and though by taking the present system and applying more red tape it might be possible to make the machinery even more nearly perfect than it is, it would be at the cost of that intelligent independence of thought which so greatly rules the progress of science. While, however, I believe the transfer of the organization to Government would be disastrous to the progress of rainfall knowledge, I do not maintain that there are no conditions under which Government aid could be accepted ; there obviously are such, *e.g.*, that a grant of ——— be made to the director, for ——— perfect daily records for the year supplied by him, the director of the rainfall system to be responsible for the accuracy of the instruments used, and for their position ; and Government to undertake to publish the details as supplied to them. I do not put this forward as a carefully-considered basis, but merely as a type of the sort of agreement which alone seems adapted for the peculiar circumstances of the case.

(4.) I trust that nothing would induce me to forget the feelings or interests of the observers ; they have been uniformly kind to me, and by my collating and tabulating their records, I think that I have rendered

the data contributed by each, interesting to all. If it be not quite an equivalent *quid pro quo*, it is certain that the advantage has not been all on one side. I do not think that the observers will suffer by the action of the British Association. I have had to ask for a little more money, but £100 among my correspondents is not a serious matter, and henceforth they will have the whole credit of supporting the system, which hitherto has been widely reported to be maintained by the British Association.

(5.) I cannot make up my mind whether I personally regret the decision of the British Association or not. I rather think that it is a good thing, although it throws much extra expenditure upon me. It frees me from the responsibility of attending the British Association meetings ; it frees me from the necessity of preparing an annual report for them, and it leaves me absolutely free and unfettered, to do exactly what I believe to be for the best interests of rainfall work. Perhaps we may lose a little prestige now that the British Association withdraws into itself, but if my friends second my efforts by the accuracy of their records, and by funds, we will earn a position far higher than any which the British Association or even Government itself could give us.

## THE RAINFALL OF 1875 IN WENSLEYDALE AND DISTRICT.

BY THE REV. F. W. STOW, M.A., F.M.S.

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THANKS to the numerous careful observations recorded in *British Rainfall*, it is beginning to be understood that a wet season over our midland and eastern plains by no means necessitates an equal excess, or any excess whatever, among the hills of the west and north-west of Great Britain; and, conversely, that a wet season among the hills may be a dry one in the plains. The former has been distinctly the case in 1875, as it was in 1860. I hope that the latter may not happen in 1876, as it did in 1861, though, certainly, since the middle of February, the weather, for six weeks, has been the worst that I ever remember.

The year 1875 was marked in this district by a great comparative absence of "Scotch Mist," upon which the heavy rainfall of hilly districts depends. For an exposition of the theory of these rains, and an attempt to classify rains in general, I will venture to refer your readers to an article which I contributed to *British Rainfall*, 1873. Further experience suggests but very slight qualifications of the account there given of these phenomena. The great point of difference between "Scotch Mist" and other rains lies in the former being produced by a fixed condenser, namely the mountains, whereas the latter are produced by the meeting and intermixture of two currents of air of different temperatures. Strong wind is, as a rule, unfavourable to ordinary rain, because the meeting point at which the condensation is taking place is rapidly shifted; but it is highly favourable to mountain rains, because more air is passed over the fixed condenser in a given time. The rate of rainfall in such cases depends, evidently, upon (1) the amount of vapour condensed out of each particle of air in a given distance; (2), the number of these particles which pass over that given space in a given time. In high winds probably (1) is less, but (2) is certainly much greater; and, therefore, more rain falls, especially in the easternmost part of a hill district; the very fact of (1) being smaller, allowing the air to reach those districts in a moister condition. This seems to explain why I never register here a heavy fall of genuine Scotch Mist without a gale of wind; in fact, the harder it blows, the harder (*ceteris paribus*) it is sure to rain.

TABLE I.—Heavy Mountain Rains in 1875.

	January										November.				December.						Lat. N.	Long. W.	Elevation feet.	
	13	14	15	17	18	19	23	24	Total	16	17	18	Total	16	17	18	19	20	21	24				Total
	.02	.12	.04	.08	.15	.01	.33	.08	0.83	.05	.40	.02	0.47	...	.02	.01	.05	.05	.08	.09				0.30
Hull .....	.10	.10	.20	.17	.06	.13	.20	.29	1.25	.03	.18	.17	0.38	...	.01	.10	.03	.01	.14	...	0.29			
York .....	.14	.17	.12	.06	.42	.51	.25	.12	1.79	.09	...	.15	0.24	...	...	.43	.05	...	...	0.48				
Ripon .....	.13	.12	.14	.11	.32	.55	.29	.21	1.87	.05	.20	.03	0.28	...	...	.07	.02	.15	.05	.39				
Bedale .....	.10	.23	.41	.06	.89	1.14	.40	.44	3.67	.14	.18	.22	0.54	...	...	.32	.16	.10	.84	.33				
Hestholm .....	.12	.26	.58	.07	1.04	1.24	.50	.46	4.27	.17	.27	.19	0.63	...	...	.88	.22	.13	.98	.29				
Carperby .....	Stations not started then										.27	.32	.47	1.06	...	.10	.43	.40	.35	1.25	.57			
Thornton Rust.											.17	.58	1.06	1.81	...	.21	.20	.24	1.60	.55				
Summer Lodge.	Stations not started then										.02	.19	.39	0.60	...	.07	.44	.25	.22	1.15	.30			
Askrigg .....											.12	1.00	.64	1.76	...	.01	.48	.73	1.86	.81				
Marsett .....	.34	.35	.65	.25	1.79	1.46	1.15	.83	6.82	.23	.71	.75	1.69	...	.04	.66	.38	.49	1.70	.55				
Hawes .....	.31	.36	.57	.42	1.68	1.33	1.02	.73	6.42	.21	.61	.74	1.56	...	.05	.57	.31	.29	1.60	.51				
Hardrow .....	.40	.44	.65	.50	2.20	1.06	.90	.77	6.92	.31	1.02	1.06	2.39	...	.08	.54	.45	.44	1.89	.55				
Lunds .....	.18	.32	.73	.07	.92	.75	.66	.52	4.15	.15	.32	.21	0.68	...	.05	.41	.19	.22	1.40	.27				
Kirkby Stephen	.12	.30	.60	.04	.40	.70	.57	.66	3.39	.34	.40	.07	0.81	...	.09	.44	.05	.18	1.13	.24				
Appleby .....	.12	.39	.56	.10	1.00	.75	.39	.41	3.72	.22	.64	.32	1.18	...	.10	.38	...	.02	.98	.10				
Penrith .....	.05	.05	.11	.18	.36	.68	.26	.20	1.89	.16	.45	.33	0.94	...	...	.15	.05	.13	.42	.14				
Carlisle .....	.33	.43	.78	.60	1.10	.28	.65	.40	4.57	.20	.77	.42	1.39	.08	.05	.76	.25	.32	1.31	.14				
Sedbergh .....	1.34	1.15	2.15	1.22	.57	.42	1.51	1.21	9.57	2.00	3.04	1.07	6.11	.94	.99	2.00	.85	.20	2.75	.18				
Little Langdale	.35	.58	1.08	.27	1.16	.74	.79	.66	5.63	...	1.20	...	1.20	...	.29	...	...	.90	2.35	...				
Keswick .....	SW	SSW	SW	SW	SW	SW	SW?	SW	...	SW	SW	SW	...	SW	SW	SW	SSW	SW	SW	SW	...			
Wind at Hestholm	4	4	7	5	7	8	3?	7	...	2	6	8	...	2	1	4	3	5	9	8	...			
at time of rain—	2.3	2.7	3.5*	7.7	9.5	7.0	8.0	5.0	...	1.9	7.0	5.4	...	1.9	...	3.3	3.3	3.2	10.3	3.5	...			
Direction .....	4	4	7	5	7	8	3?	7	...	2	6	8	...	2	1	4	3	5	9	8	...			
Force .....	2.3	2.7	3.5*	7.7	9.5	7.0	8.0	5.0	...	1.9	7.0	5.4	...	1.9	...	3.3	3.3	3.2	10.3	3.5	...			
Height of river } after fall in feet }	4	4	7	5	7	8	3?	7	...	2	6	8	...	2	1	4	3	5	9	8	...			

\* On 16th, 4 ft.

*Heavy* mountain rains occurred here only in January and December, in 1875, but those of November, 16th-18th, were remarkable further west. All these were caused by strong south-westerly winds, succeeding (after a short interval) severe weather. In January, the S.W. wind began on the 12th, the temperature rising 4° up to 9 a.m. on 13th, and 8° in the next 24 hours. At first the wind was very light, and we had little rain, although in parts of the Lake District it was already heavy; but on the 15th, the wind having a force of 7 on Beaufort's scale, and the temp. exceeding 50°, the rain became heavy, although still much heavier in the Lake District, 2·15 in. falling in Langdale. After that the temp. declined, but commenced to rise again in the night of the 17th, and a fearful rain-storm commenced at once, and continued for two days, the temp. being 49° to 52°, and force of wind 7 to 8. Then, with a sudden fall of temperature, came the "polar" half of the cyclone, with heavy showers of hail and rain, but only at two stations did the rainfall exceed 1-3rd in. on the 20th, whereas, during the "equatorial" half, as much as 3¾ in. had fallen at Lunds, and 3½ in. at Hawes and Hardrow. It is singular that the fall at this time in Little Langdale scarcely exceeded 2 in., most of which fell before 9 a.m. on the 18th; the mountains in that district, after the very heavy rain of the 13th, 14th, and 15th, having apparently lost much of their power to act as a condenser. A couple of days' sharp weather, however, appears to have put the condenser in order again, for when the temperature rose on the 23rd and 24th, 2·7 in. fell in Langdale, and nearly 2 in. at Hawes, in this dale.

I have gone through this period somewhat in detail, because it is a typical instance. The mean temperature of December, 1874, had been 28°, and the soil was scarcely thawed thoroughly at the commencement of the period, even in the valleys, while enormous snowdrifts were still to be seen on the hills. When a warm and very moist air was brought rapidly into contact with so efficient a condenser, it could only be expected that the rainfall should be excessive—and it was. It seems to me a very great pity that the Meteorological Office have still no mountain stations, because I am convinced, that not only could questions of rainfall be very greatly elucidated, but *all meteorological changes would be observed, as a rule, some hours earlier than elsewhere*, and the real conditions of wind, temperature, and humidity prevalent in the atmosphere, would be much more accurately known. It has been a hobby of mine to think so for years past, and I feel quite sure of it now—but I must come back to my subject.

In the paper alluded to I admitted that the phenomenon of Scotch Mist might occur to a smaller extent in a perfectly level country. Perhaps it does so to a greater extent than I then fancied. I may have attached too little weight to the fact, that the surface of the ground is capable of affecting the atmospherical conditions at a considerable height above it, owing, chiefly, to those vertical currents which are so persistently ignored by many meteorologists, but which, I fancy, play a very important part in the production of phenomena. I do not at present speak of those caused by the sun's heat. But it is obvious that the wind moving with enormous velocity at a height of several thousand feet, must either leave a comparative vacuum at the surface of the ground, or give off from its main stream a series of eddies, which, I take it, are what we call gusts, and the direction of the motion of each of which has a vertical component. These effect a constant intermixture of air, and returning slowly, as the water does in an eddy, to the main stream, carry the temperature of the ground to a great height.\* Thus mountain rain may go on even when the air which is being deprived of its moisture is not in actual contact with the condenser, and thus it is probable that all increase of rainfall with elevation above sea level is due to vertical currents, and the excess is of the nature of Scotch Mist. Moreover, I think we must attribute, as I

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\* If there be truth in what I have said about vertical currents, some generally received views about clouds may possibly require modification, especially when the still more important influence of the sun is also considered. I have twice noticed here an interesting phenomenon—a cold wind was blowing from N. N. W. across the valley; the morning was cloudless, but about 10 a.m. cloud obscured the sun, both here in the valley, and over the whole north-westerly slopes of the hills. Having several times wished it would clear away, but in vain, my attention was attracted to it. It appeared to be a large sheet of cumulo-stratus, with edges like low cirro-cumulus, and at an altitude of not less than 4,000 feet. The wind was blowing almost a gale, but as fast as the cloud moved on, fresh dots of cloud appeared at the hinder edge, which was, I think, nearly vertically over the foot of the hills to the S. During the whole afternoon the same thing went on, and the sun never shone here, while on the north side of the valley, only two miles distant, the sun was never obscured, and the snow consequently much melted. Here we have, apparently, a vertical current, generating cloud at a fixed point, probably 2,000 ft., at least, higher than the hills, and not exactly over them. May it not then be possible that even cirrus cloud is not unaffected by some terrestrial objects, and does not so much resemble the gods of Epicurus as is supposed? I commend this to Mr. Clement Ley's consideration,

previously pointed out, a considerable portion of the rainfall on the coast even at the sea level, to this cause. For instance, if moist air begins to blow from the open sea, having a temperature of  $50^{\circ}$ , and finds the shallow water near the shore at  $45^{\circ}$ , and the land at  $35^{\circ}$ , no doubt condensation will occur, even after that which is produced by meeting the cold air which overlies the land and shallow water has come to an end ; and the more uneven the land, the more thorough the mixture effected by vertical currents, and, consequently, the heavier the rain. Moreover, the rainfall will probably be heavier a few miles inland than just at the coast.

While asserting then, as I think I am justified in doing, that some rain at sea level is of the nature of Scotch Mist, and that the excess observed with elevation above that level, is principally, if not wholly, due to the same cause, we have, when dealing with a mountain range, not only rain produced by the help of vertical currents, several thousand feet above it, but the much more rapid condensation caused by actual contact, and, hence, wherever hills attain a height exceeding 1,000 or 1,500 ft., we may expect a very considerable accession of rainfall.

In the paper alluded to I intimated my belief that Scotch Mist was not altogether confined to south or south-westerly winds. Noticing the dense mist in which some of the easterly rains enveloped our hills, I wondered whether any appreciable portion of the rain that fell was caused by the mountains. With a view to this, I have analyzed the records of the most important easterly rains in the past year, along a line extending from Hull to Carlisle, with the following result:—In July I can trace neither any increase which can be attributed to the hills, nor any decided diminution to the lee of them. There was not, however, any rise of temperature during the July rains which should cause any Scotch Mist. In October there was, first of all, a fall of temperature from the 17th up to 9 a.m. on the 19th, at which time 0·45 in. had fallen ; then a gradual increase up to 9 a.m. on the 21st, during which 1·84 in. fell ; then a more rapid increase for 12 hours, with 0·16 in. The wind, also, was moderately strong. Here, then, we have conditions under which Scotch Mist may occur, and if it did occur at this or neighbouring stations, the fall would be greater than on the neighbouring plains to the E. and S.E., and still greater than the fall in places to the N.W., because the air had before reaching them been mulcted of whatever

TABLE II. -- *Easterly Rains in 1875.*

	PART I.										PART II.				
	October.										June 27 to July 3.	July 8-25.	Aug. 9	Sept. 2	Sept. 8
	18	19	20	21	22	23	Total.	13	14	Total.					
Hull	.09	.39	1.00	.09	.45	.36	2.38	.81	.04	.85	.95	3.66	1.05	.27	.04
York	.08	.65	1.20	.11	.32	.31	2.67	1.07	.07	1.14	1.17	2.87	.47	.76	.12
Ripon	...	.93	1.31	.21	.33	.47	3.25	1.75	.12	1.87	2.52	2.49	.28	*	...
Bedale	.05	.68	.90	.21	.48	.47	2.79	1.71	.43	2.14	2.18	3.10	.60	.10	.76
Hestholm	.40	.84	1.00	.16	.58	.51	3.49	2.51	.55	3.06	1.74	2.76	.62	.49	1.65
Carperby	.36	.89	.97	.21	.58	.46	3.47	2.31	.66	2.97	2.12	3.47	.85	.56	1.55
Thornton Rust	.50	.83	.73	.26	.56	.36	3.24	4.02	.46	4.48	1.78	2.72	1.14	.82	1.62
Summer Lodge	.43	.85	.96	.23	.84	.48	3.79	2.72	.61	3.33	2.28	2.79	.88	1.00	1.74
Askrigg	.07 ?	.65	.66	.22	.55	.34	2.49 ?	2.49 ?	*	*	2.18	...	.87	.85	1.55
Marssett	...	.41	1.04	.45	...	...	1.90	2.43	.34	2.77	...	...	3.32	1.06	1.24
Hawes	.55	1.02	.58	.21	.59	.29	3.24	2.47	.70	3.17	1.33	2.79	1.26	1.09	1.35
Hardrow	.56	.78	.51	.16	.56	.21	2.78	2.34	.55	2.89	1.19	2.53	1.19	.96	1.35
Lunds	.19	.60	.36	.24	.22	.32	1.93	1.55	.50	2.05	1.41	2.40	.95	1.47	1.63
Kirky Stephen	.15	.15	.30	.50	.52	.10	1.72	1.62	.10	1.72	1.19	2.54	.40	1.05	1.34
Appleby	...	.17	.70	.20	.13	.57	1.77	.75	.05	.80	1.76	2.85	...	.87	1.47
Penrith	.32	.15	...	.50	.23	.15	1.35	.63	.02	.65	2.39	3.17	.20	.70	1.15
Carlisle	.02	.30	.77	.16	.35	.06	1.66	.44	...	.44	1.94	2.53	.13	.70	...
Sedburgh	.11	.29	.29	.18	.28	.07	1.22	1.25	.11	1.36	1.01	2.20	.45	1.99	1.24
Little Langdale	.48	1.30	.80	.78	...	.26	3.62	1.53	.10	1.63	.62	3.20	.86	3.67	1.15
Keswick	.03	.31	...	.93	.27	...	1.54	1.27	.31	1.58	.90	2.87	.30	1.67	1.50
Wind at Hestholm at time of rain—	NE	NE	E	SSE ?	E	ENE	...	NE	NE	...	generally SE	generally E	NE, SW	...	...
Direction	4	3	3	3	1	3	...	1	5	...	...	...	1 & 2	...	...
Force	2.3	5.5	6.2	3.4	4.5	4.5	...	10.2	?	...	1.1 to 3.9	1.2 to 3.2	5.0	4.9	9.2

\* Observer absent.

excess of moisture had been given us by the formation of Scotch Mist, although it might be possible for the Lake hills, by their greater altitude, to wring more out of the sponge which we had squeezed. Bearing in mind these conditions, it is interesting to observe (Table II.) a fall of 2·38 in. at Hull increased to 2·67 in. at York and 2·79 in. at Bedale, by whatever Scotch Mist the low hills and cold plains may have produced, but swelling rapidly to 3·25 in. at Ripon, as it reached the foot of the hills, and attaining almost its maximum as it reached the first high hills in this immediate neighbourhood. The same occurred also at Ilkley station and Pately Bridge. Nearest Swaledale, however, where it passed along a gradually rising ridge, the maximum fall of 3·79 in. was observed at Summer Lodge. From the maximum it decreased to 3·24 in. at Thornton Rust and Hawes; 2·78 in. at Hardrow; 1·93 in. at Lunds; 1·72 in. at Kirkby Stephen; and reached its minimum, 1·35 in., at Penrith, slightly swelling again to 1·54 in. at Keswick. But before reaching Langdale, the S.E. wind has only crossed the low moors about Keighley, Skipton, or Clitheroe, and afterwards the still lower hills near the foot of Windermere, and moreover, has possibly received an accession of vapour from Morecambe Bay. Thus, as might be expected, a second maximum occurred there (3·62 in.), only slightly inferior to that at Summer Lodge.

Again, take the great cyclonic fall of November 13th and 14th. Of this the greatest part fell with an easterly breeze varied by calms, and with a rising temperature, which attained its maximum exactly at 9 a.m. on the 14th, at which time the rain almost ceased for half-an-hour. The wind then shifted to N.E., and a violent "polar" rain commenced, with decline of temperature. The rain put down to the 13th, therefore, exactly represents that due to the "equatorial;" that put down to the 14th, that due to the "polar," half of the cyclone.

This may not apply exactly to all stations, but is fairly approximate. We see, then, features almost identical with those of the October rains. It begins with 0·81 in. at Hull, and gradually increases to 2·51 in. at Hestholm, and 2·72 in. at Summer Lodge. At Thornton Rust, however, where my observer (a drill sergeant) is thoroughly trustworthy, the enormous fall of 4·02 in. occurred up to 9 a.m. Thornton Rust is on the south side of the valley, and the ground above it rises very quickly to nearly 1,600 ft., while Summer Lodge is on the opposite ridge.

It may interest those curious in heavy falls, to know that as (see hourly record by electrical gauge—that for the October rains has been

printed in the *Meteorological Magazine*) almost the whole of the total of over 3 inches at Hestholm fell in the astronomical November 13th, it is almost certain that at Thornton Rust more than  $4\frac{1}{4}$  in. out of 4.48 in. fell in 24 hours. From this we have a decrease, as before, but more rapid, to the minimum (0.44 in.) at Carlisle, the mountains of the Lake District making the fall at Keswick and Little Langdale an inch greater than at Penrith, and 0.8 in. greater than at Appleby.

I think, then, that in these two instances, we have very distinctly traced the effect of hills in adding Scotch Mist to certain easterly rains—equatorial or cyclonic in character—during whatever part of their continuance the conditions necessary for its formation existed.

But during the July rains these conditions were not presented, or, at least, I have been unable to trace their existence. There was, first of all, a period (June 27th to July 2nd) during which heavy thunderstorms were prevalent. I gave my reasons in the paper on “Scotch Mist,” before alluded to, for thinking that thunderstorms are essentially “polar” rains, in which I am only following up with an attempt at nomenclature the observations of Kæmtz. I would not say that the hills in this country are altogether without effect upon thunder-clouds; they may, and probably do, determine their course, and the points of most rain: and, in fact, we see that in the more level portions of the country the maximum precipitation usually occurs over those valleys or plains which furnish, under the sun’s rays, the most powerful and the moistest up-current of heated air; but the hills are, in these cases, certainly not the condensers.

The *summer* rains of 1875 were, as I hold, for the most part distinctly polar, or to speak popularly, thunder-rains, though many of them were unaccompanied by electrical phenomena. An examination of Table II. part 2, will not, I think, show any perceptible effect of hills upon their amount; although some of the thunderstorms especially were of great violence in certain hilly districts—as *e.g.*, that of June 29th in parts of Cumberland and Westmoreland (Penrith 1.45 in.); July 1st, in high Wharfedale, between Bishopdale Head and Arncliffe; August 9th, in Semmerdale (Marsett 3.32 in.); September 2nd, at the Lakes (Little Langdale 3.67 in.); and September 8th, all over,—1.15 in. to 1.74 in. at all stations. Unfortunately I was from home at the time, and so cannot describe it as an eye-witness; but the area over which it extended must have been very large.

TABLE III.—Hourly rate of Rainfall compared with discharge of river at Hestholm.

	1874.				1875.			
	Oct. 21.	Dec. 21.	Nov. 13.	Jan. 18.	Jan. 19.	Oct. 20.	Oct. 19.	July 18.
Most in 1 hour at Hestholm (in.)	.17	.20	.32	.12	.13	.18	.16	.10
Highest mean hourly rate for 6 hours (in.)	.133	*.100 ?	.160	.088	.105	.101	.070	.065
(a) General ditto in district (in.)	.222	.180 ?	.160	.156	.105	.090	.070	.060
Max. height of river on scale (ft.)	12.2	10.3	10.2	9.5	7.0	6.2	5.5	3.2
† No. of cubic feet discharged per second...	11756	8381	8212	7144	3825	2925	2250	619
† Percentage of (a) discharged at highest flood	87	77	85	76	60	58	53	17
Wind—Direction	S.W.	S.W.	N.E.	S.W.	S.W.	E.	N.E.	E.
Force (0-12)	10	9	1	7	8	3	3	1

\* Clock stopped for 2 hours. † Roughly approximate.

General Table of Rainfall in Wensleydale in 1875.

Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.		Nov.	Dec.	Year.	Most in 24 hours.	Date.
										Oct.	Sept.					
Hestholm	5.64	0.82	0.80	1.30	1.32	3.12	3.59	2.87	3.62	4.95	5.52	2.77	36.32	36.32	2.51	Nov. 13
Carperby	6.36	1.05	0.92	1.36	1.56	2.83	4.59	3.19	4.34	5.44	6.26	3.36	41.26	41.26	2.31	Nov. 13
Walden (Nell Bank)	8.44	1.04	1.81	2.23	2.53	4.39	2.84	4.44	4.72	5.75	6.11	3.54	47.84	47.84	...	...
Bishopdale	9.00	.80	1.06	6.02	6.02	7.38	3.00	18.90 ?	18.90 ?	4.77	6.37	5.00	57.53 ?	57.53 ?	...	...
Thornton Rust	[7.50]	[1.50]	1.04	2.10	2.06	4.43	3.89	3.69	4.62	4.77	7.89	4.22	[47.71]	[47.71]	4.02	Nov. 13
Summer Lodge	[9.50]	2.03	2.20	2.24	2.71	3.59	4.04	4.57	5.79	6.99	8.71	5.28	[57.65]	[57.65]	2.72	Nov. 13
Askrigg	...	...	...	...	2.18	3.29	7.00	3.62	5.01	4.70	6.96	3.27	...	...	...	...
Marsert	[9.50]	[1.00]	[1.00]	2.99	3.36	4.20	7.30	5.44	5.31	3.26	8.95	5.54	[57.85]	[57.85]	3.32	Aug. 9
Hawes	10.06	1.39	1.66	2.16	2.96	4.39	3.61	4.12	5.13	5.65	7.81	5.66	54.60	54.60	2.47	Nov. 13
Hardrow	9.59	1.28	1.63	1.96	2.97	3.90	3.43	4.28	4.65	5.11	7.40	5.38	51.58	51.58	2.34	Nov. 13
Lunds	10.26	1.58	2.58	2.34	4.02	4.80	3.34	4.87	6.67	5.08	7.87	6.64	60.35	60.35	2.20	Jan. 18
Mean height of river in feet	3.3	1.5	1.7	1.4	1.3	1.5	1.6	1.5	2.1	2.4	2.7	2.5	1.94	1.94	...	...

[ ] = Computed amounts.

It only remains to say a few words about the scale, which (following the example of " Nilometer ") I have styled Potamometer—avoiding the attempt to turn the name of this river into Greek, for an obvious reason. Having taken counsel with Mr. Rogers Field, I find that much more accurate measures of the river bed than I yet have, are necessary. I can only for the present, therefore, give the height, and an extremely rough approximation to the amount discharged. Since a flood never lasts a whole day, I have taken the hourly rate as recorded by my electrical gauge, and by correcting this in the ratio of the rainfall in 24 hours here, to that which was, as far as I can tell, the average of the whole district drained by the Yore above this point, I have arrived at figures representing the maximum mean hourly rate maintained for any 6 hours in this district. A glance will show, (1) the very rapid increase of maximum rate of discharge with the heaviest rains—owing, no doubt, to a larger per-centage running off the surface of the ground ; (2) the much greater discharge in winter than in summer.

The area of the district drained is almost exactly 60,000 acres, or 2,613,600,000 square feet. On this area a fall of 12 inches would yield of course that number of cubic feet, a fall of 1 inch 217,800,000 cubic feet, and so forth. The fall of October 21st, 1874 (= .222 in. an hour for six hours) should therefore have yielded 48,351,600 cubic feet each hour for that period, if the whole of it had been discharged by the river. I calculate the actual discharge per hour at 42,321,600 cubic feet, when the river was at its highest ; but it rises and falls so rapidly that it would be a matter of great difficulty to determine its average for six hours. This maximum rate of discharge is 87 per cent. of the mean hourly rate of rainfall for six hours, while the maximum rate of discharge on July 18th reached only 17 per cent. of the mean hourly amount of rain. How much of the rainfall of the district passes off in the river I am not at present in a position to say ; and indeed I publish with much misgiving, lest they should be utterly wrong, these results as to the amount discharged.

I have given a map to show the position of the Wensleydale and neighbouring stations, and a general Table of monthly totals for all our stations.

Of the gauges in the list given last year, the daily registers at West Burton and Walden Head were given up after a few months, in the latter case from the death of the observer. The monthly gauge at Lunds has, I find, never been started, but the daily register is a very good one. The 3-in. gauge has not yet been utilised, but Mr. Pinck

hopes to make some arrangement by which it may be placed high up on the hills. The 3-in. daily gauge which was at Walden Head is now at Marsett, and the monthly gauge is now placed according to my instructions on the top of the moor, between Marsett and Outershaw. The 8-in. gauge of the old magnitude series is in use by myself, and my own 5-in. has gone for a daily register in Bishopdale. I have also fitted up another 5-in. at the new Vicarage, which is now in course of erection. The spare 3-in. monthly gauge is in the hands of Chas. Woodd, Esq., at Outershaw. This is the wettest station, I believe, in this neighbourhood. The register at Summer Lodge is imperfect, owing to the measuring glass sent with it having been broken on the journey. Those at Thornton Rust, Askrigg, and Marsett were not arranged for in time, and the registers for 1875 are consequently imperfect. We still need a gauge in Widdale, near Hawes. The inn at Widdale Head is 1400 feet above the sea level, and the place is more dismal than the top of Kirkstone Pass, in Westmoreland. No doubt there is abundance of rain meteorologically running to waste there.

It will be observed that in the accompanying map the line showing the watershed excludes Bishopdale and Walden, as the beck from those two valleys joins the Yore below the potanometer. The watershed of the Yore is almost exactly conterminous with the limits of the old parish of Aysgarth, and thus the area is easily obtained in figures from the 6-in. ordnance maps.

In conclusion, I owe many apologies to your readers for the imperfections of this paper, which result from extreme press of work.

## ON THE MEASUREMENT OF SNOW.

BY COL. WARD, F.M.S., F.R.A.S., &amp;c.

As a rider to my paper on the above-mentioned subject, in *British Rainfall*, 1874, I now give you shortly the result of another winter's experience; but, on account of the small amount of snow which has fallen, as compared with other years, the measurements have been but few. I annex a table showing the amount caught by the two gauges, the measurement by inverted funnel, the depth of snow, the duration of fall, temperature during fall, the force of wind, and lastly, the nature of the snow.

The table requires little remark. It confirms my opinion expressed last year on "Measurement by inverted funnel," as well as on "Measure with a rule and take one-twelfth." The table shows 0·7 in. as = 0·11 and 0·03; 1·5 in. = 0·04 and 0·10; 2·5 in. = 0·36 and 0·07; 3·0 in. = 0·14, 0·13 and 0·44; and 4·0 in. = 0·23 and 0·08.

TABLE No. 1.

Date.	Snowdon gauge.	Rain gauge.	Measurement by inverted funnel.	Depth of Snow.	Duration of fall.	Temp. during fall.	Force of wind.	Nature of Snow.
				in.	hrs.			
1875								
Nov. 20	0·380	0·300	0·360	2·5	...	28·0-34·0	7	Small flakes.
21	·110	·110	·110	0·7	6	26·0-32·0	0	"
25	·080	·080	·070	0·8	·6	15·0-22·0	0	Very minute flakes.
Dec. 4	·070	·070	·070	2·5	24	19·0	0	Single crystals.
11	·080	·080	·070	1·0	...	10·0-14·0	0	"
12	·035	·035	·030	0·7	5	27·0	0	Small snow.
1876								
19	·095	·095	·080	2·0	2	26·0	0	"
Feb. 4	·240	·200	·240	4·5	15	28·0	5	Minute flakes.
5	·320	·270	·320	6·5	24	20·0	0	Very minute flakes.
6	·040	·040	·040	1·5	6	16·0-21·0	0	"
"	·100	·100	·100	1·5	2	19·0-22·0	0	"
7	·140	*	·140	3·0	6	16·0	0	Single crystals.
8	·260	*	·230	4·0	8	14·0-19·0	0	"
9	·150	*	·130	3·0	6	17·0-19·0	0	"
10	·080	*	·080	4·0	4	14·0-19·0	0	"
11	·025	·025	·020	0·5	...	9·0	0	"
23	·460	*	·440	3·0	13	30·0	7	Very minute flakes.

I placed, in addition, a carefully made (5 in.) open iron cylinder, 3 ft. deep, alongside the gauges, sinking it to the level of their rims. I kept it covered until the snow commenced on the morning of

\* Funnel could not hold the snow.

November 20th and left it untouched until March 1st, when I took it up, melted, and measured its contents. The yield was 10·02 in., that of the Snowdon being, for the same period, 10·18 in., 7·65 of which fell in February.

With regard to the merits of the respective gauges, I see no reason to alter my last year's opinion, and am glad to see by "Scott's Instructions," dated May 7th, 1875, that the Snowdon pattern has been adopted by the Meteorological Society.

During the six hot months, I emptied the rain gauge daily, the Snowdon monthly (or when full), placing a maximum thermometer in the latter and reading the temperature daily.

The subjoined table gives the mean monthly max. temp. in shade, sun, and gauge; the amount caught by, and the difference + and — between the two gauges; the number of days on which rain fell; and the number of thunderstorms during which rain fell into the gauges. The total number of thunderstorms during the six months was 41, but during twelve of them no rain fell in the immediate vicinity of the gauges.

TABLE No. 2.

	Maximum Temperature.			Gauge.			No. of days on which rain fell.	Thunderstorms.
	In Shade.	Sun Black bulb in vacuo.	Inside Snowdn. gauge.	Rain gauge daily,	Snowdon gauge monthly.	Snowdon +or—		
	deg.	deg.	deg.	in.	in.	in.		
May .....	68·5	127·0	87·0	4·739	4·745	+0·006	11	7
June .....	67·1	128·5	89·7	4·820	4·805	—0·015	16	4
July .....	67·5	127·5	81·5	9·440	9·620	+0·180	21	9
August .....	72·0	120·5	92·5	5·610	5·745	+0·135	14	7
September .....	69·0	118·7	81·6	3·550	3·580	+0·030	10	2
October .....	50·6	108·0	56·0	5·370	5·385	+0·015	18	0
Sums .....	...	...	...	33·529	33·880	+0·351	90	29
Means .....	65·8	121·7	81·4	...	...	...	...	...

I cannot help thinking that the excess of the Snowdon over the ordinary rain gauge is due to the "out-splashing" from the latter during the heavy rain which accompanies these thunderstorms, an opinion strengthened by the fact, that, the four storms in June, when the rain gauge is in excess, were very moderate ones.

I will not occupy your space further, but let the two tables speak for themselves.

## NOTE UPON THE FOREGOING PAPER.

BY THE EDITOR.

COLONEL WARD, in addition to being entitled to the thanks of all who are interested in the accurate measurement of snow, will, I think, find few persons who will disagree with his principal conclusions (1), that the Snowdon pattern of gauge is the best, and (2) that the twelfth of the depth of snow is an inaccurate measure of its equivalent in water.

As to the first point, it hardly appears necessary to add anything to the figures in the papers by Colonel Ward in last year's volume, and in the present.

With reference to the rule of one-twelfth, there has, perhaps, been a little misapprehension, and it may, therefore, be well to refer briefly to the original note upon the subject in *British Rainfall*, 1865, Appendix p. viii., or, better still, to the long article "On the Measurement of Snow in this and other Countries," in *British Rainfall*, 1872, pp. 9 to 23, on the last page of which this rule of one-twelfth is dismissed in the following terms:—

"III. *Measure the depth, and take one-twelfth.* But the value varies from one-fifth to one thirty-fifth, and the plan also fails utterly with mingled snow and rain."

I have computed from Colonel Ward's Table I., the values for its second, third, and fourth columns, if that in the fifth had been exactly an inch; and arranged the results, not in chronological order, but in that of the density of the snow, computing it from the values in the second and fourth columns. In this manner the following table was formed:—

Date.	For each inch deep of Snow.			Inches of Snow to yield 1 in. of Rain.	Date.	For each inch deep of Snow.			Inches of Snow to yield 1 in. of Rain.
	Snow-don Rain Gauge.	Ordinary Rain Gauge.	Measurement by inverted funnel.			Snow-don Rain Gauge.	Ordinary Rain Gauge.	Measurement by inverted funnel.	
	in.	in.	in.			in.	in.	in.	
Nov. 21	·157	·157	·157	6	Feb. 5	·049	·042	·049	20
Feb. 23	·153	...	·147	7	Feb. 7	·047	...	·047	21
Nov. 20	·153	·120	·144	7	Dec. 12	·050	·050	·043	22
Nov. 25	·100	·100	·088	11	Feb. 9	·050	...	·043	22
Dec. 11	·080	·080	·070	13	Feb. 11	·050	·050	·040	23
Feb. 11	·067	·067	·067	15	Dec. 19	·048	·048	·040	23
Feb. 8	·065	...	·058	16	Dec. 4	·028	·028	·028	36
Feb. 4	·053	·044	·053	19	Feb. 6	·027	·027	·027	37
					Feb. 10	·020	..	·020	50

The inferences which I should draw from the above are few and

simple. (1.) The table constructed in 1865 showed that 1 in. of water might be the product of any number of inches of snow from 5 to 35; the above table may be said to range over the same limits, with the addition of one wonderful case of 50 in. of snow being required to give 1 in. of water. (2.) The snow at Rossinière is generally lighter than that usual in this country; in other words, the mean specific gravity is less, and, perhaps, in such districts, Colonel Ward's mean result, one-twentieth, is nearer than one-twelfth, but with a range from 6 to 50, the precise mean is of no moment. (3.) It does not appear to me judicious to suppress all mention of the approximate rule of one-twelfth because cases will arise in which there are but two alternatives, viz., to adopt some equivalent value or to omit the record altogether. It seems to me evident that although in this country we ought sometimes to adopt 1-6th and sometimes 1-18th, it is better to take the average of 1-12th than to break up a year's record by making no entry at all. (4.) The most important fact seems to me to be the close agreement between the measurements by inverted funnel, and the readings of the Snowdon gauge. In eight cases out of seventeen, the two methods gave identical results, and in the others the differences were not large, and they were uniformly in favour of the Snowdon gauge, implying that the measurement by inverted funnel was partly vitiated by the melting of the snow in contact with the earth.

## POSTSCRIPT.

Since the foregoing was in type, I have received from Col. Ward the results of eleven very carefully-made measurements during the deep snow, March 4th to 22nd, giving the equivalents of more than 4 ft. of snow. The following is the Table:—

*Supplement to Table No. I.*

Date.	Snowdon Gauge.	Rain Gauge.	Measurement by inverted funnel.	Depth of Snow.	Duration of fall.	Temp. during fall.	Force of wind.	Nature of Snow.
				in.	hrs.			
Mar. 4	0·490	Discarded.	0·450	3·0	1	32·0	0	Large flakes.
7	·900		·880	6·0	20	27·0-32·0	9	„ „ violent TS
8	·200		·140	3·0	5	32·0	7	Small Snow.
9	·020		·015	2·0	1	30·0	0	„ „
10	·070		·065	1·0	...	31·0	0	Very small.
13	·280		·220	3·0	6	32·0	4	„ „
17	·420		·390	9·0	6	32·0	0	Large dense flakes.
18	·420		·420	9·0	21	20·0-22·0	0	Very small (powder)
19	·110		·110	2·5	7½	21·0	0	„ „
21	·030		·030	0·8	1	16·0-20·0	0	„ „
22	·720		·720	12·0	24	25·0-29·0	0	Small snow. „
Total ....	3·660	...	3·440	51·3	.	...	...	

Reducing these supplementary observations to uniform values, as I have above reduced Col. Ward's original Table, the result is as follows :—

For each inch deep of Snow.				Inches of Snow to yield 1 in. of water	For each inch deep of Snow.				
Date.	Snow-don Rain Gauge.	Ordinary Rain Gauge.	Measurement by inverted funnel.		Date.	Snow-don Rain Gauge.	Ordinary Rain Gauge.	Measurement by inverted funnel.	Inches of Snow to yield 1 in. of water.
	in.	in.	in.		in.	in.	in.		
Mar. 4	·163	...	·150	6	Mar. 18	·047	...	·047	21
7	·150	...	·147	7	17	·047	...	·043	22
13	·093	...	·073	12	19	·044	...	·044	23
10	·070	...	·065	15	21	·038	...	·038	26
22	·060	...	·060	17	9	·010	...	·008	113
8	·067	..	·047	18					

These values will be seen to agree very well with the previous ones, and therefore to need no comment, except that if any one except Col. Ward had reported that two inches of snow yielded only 0·020 in. of water in a Snowdon gauge, and only 0·015 in. by measurement with an inverted funnel, we should hardly have believed it. This observation of March 9th implies that about 10 ft. of snow would be required to yield one inch of water (the ratio being by the two methods respectively 100 to 1, and 125 to 1). In the British Isles, however, we fortunately need not trouble ourselves with apprehensions of any such equivalents.

### ON RAIN GAUGES.

By E. E. DYMOND, Esq., F.M.S.

SOME of your readers may remember that in your last issue of *British Rainfall*, page 35, you published a paper of mine, describing a new form of rain gauge, in the construction of which I endeavoured to avoid what I thought were two sources of error in those commonly in use, and suggesting the desirability of further observations with a series of gauges, each of 5 in. diameter receiving surface, but varying in the depth of the funnel and in the position of the collecting bottle.

Since then I have set up the series I proposed, but as, from various causes, the gauges were not in position until August last year, I have not yet any decided results to communicate.

Hoping to avoid the possibility of a rainfall passing over one or more of the gauges and escaping the others, an event which I believe

once occurred at Strathfield Turgiss, I have put my gauges as near together as possible, and the anemometer and wind-vane are also set up close by. The former is only 13ft. 6in. above the ground, as I wished rather to know how much wind was driving the rain near the ground than to see how much was passing overhead at a great height.

The site is a grass field with (except the deodara shown on the plan) no trees or shrubs above the height of 5ft. within a considerable distance of the gauges, situate on the brow of a hill, open from east through south to west, and overlooking a valley some miles in width.

The instruments used have been :—

- A.—Ordinary Pattern Gauge, No. XII. B. A. Rep. 1866., with a Six's max. and min. thermometer inside.
- B.—Modified Snowdon Pattern. The funnel 4in. below the rim, and the bottle entirely above ground.
- C.—Ordinary Pattern, as A, but bottle 2ft. below ground, with a Six's max. and min. thermometer close to the bottle.
- D.—Modified Snowdon, as B, but bottle 2ft. below ground.
- E.—Old Gauge (No. XII.) This stood near G during 1875.
- F.—Snow Gauge, described below.
- G.—Gauge, figured at page 36, *British Rainfall*, 1874.
- H.—Wind-vane.
- I.—Anemometer.
- K.—Thermometer stand.

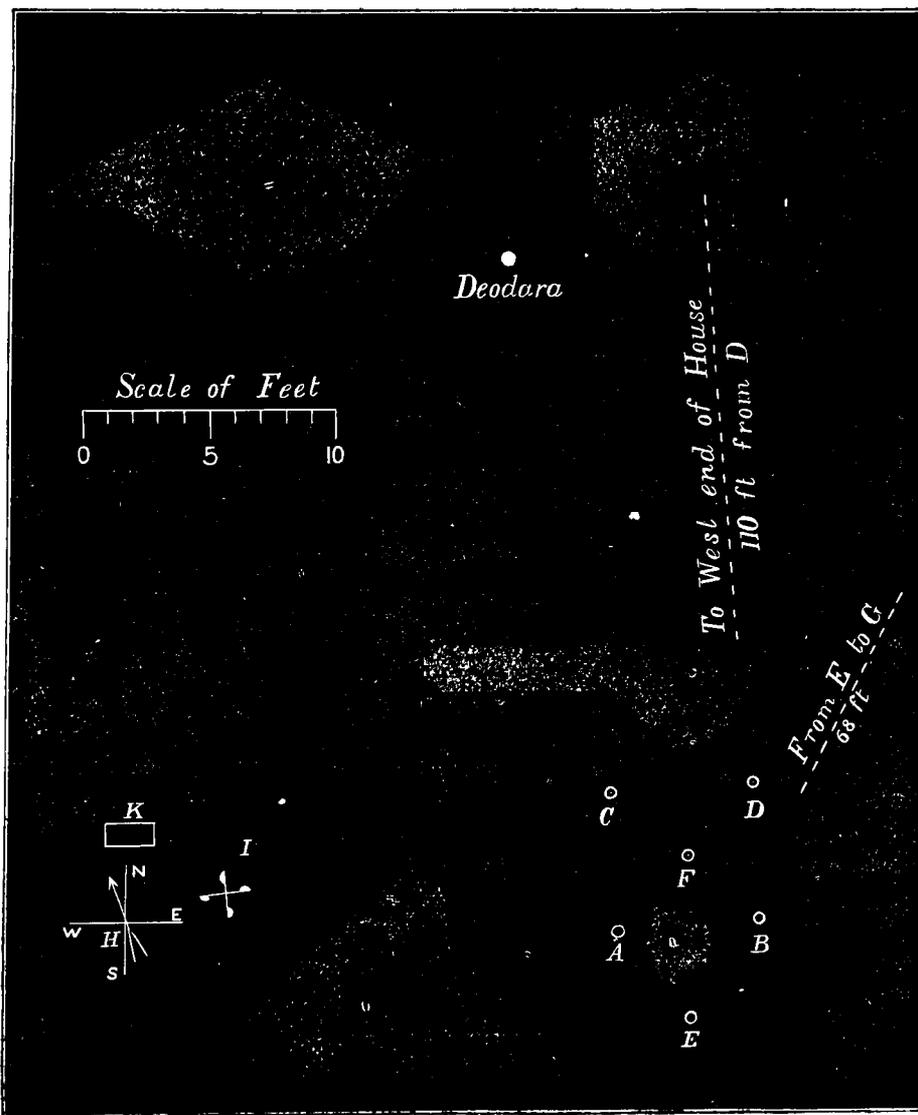
I have daily taken the readings of all the gauges (except G), and of both the thermometers, but the shortness of the time they have been at work prevents my making more than the few general observations.

Up to the end of November, during which time I had sixty-six wet days, the differences in the amounts caught by the four gauges A, B, C, D, were not very great, but were so very irregular that I have not yet been able to reduce them to any order at all. Sometimes one, sometimes another would catch more than any of the rest, sometimes two would agree, sometimes they read all alike, sometimes all different, and when the snow fell in the beginning of December I was utterly beaten. As long as the quantity of snow was not too great to be contained in the funnels, it was all very well; but when, on the 2nd of December, there fell about 8 in. in depth, which filled all the funnels and stood up over and out beyond the rims, measurement was impossible, or rather there was no knowing what to measure. I have since added a snow gauge (F), in the form of a cylinder 5 in. diameter and 18 in. deep, sunk about 6 in. in the ground so as to bring its mouth level with the rest of the gauges; but there has not been much snow since I set it up, and only on three occasions has the quantity been at all considerable.

The gauge G has been at work during the whole of last year, and read monthly. It has always registered rather more than E (then

standing within a few feet of it, and read daily) except in July when its bottle got broken and some of the rain was lost in transferring to a new one, but I am disposed to think that this difference may be in a great degree attributed to a small loss on each reading of the daily. Possibly the Rotherham observations may throw some light on this point.

I purpose to continue the observations to the end of the present year and, if you will allow me and I find out anything worth publication, to communicate the result to your readers in your next issue. As to the snow measurements, it would be very desirable if some of your correspondents in more snowy districts would take up the matter. Snow is neither frequent enough nor sufficient in quantity in Bedfordshire to make this an eligible station.



## ROTHERHAM EXPERIMENTAL RAIN GAUGES.

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As stated in *British Rainfall*, 1874, p. 42, the gauges constructed for Mr. Chrimes, and observed under his superintendence, at Boston Reservoir, Rotherham, were presented by him to the corporation of that town. They were, by their direction, erected on the bank of the Ulley Reservoir, about four miles S.S.E. of Rotherham. We are indebted to the engineer of the corporation (Mr. Mansergh, C.E.) for a series of photographs of the instruments in their new position, and also for the plan whence the accompanying one has been reduced and lithographed. The general view forming the frontispiece has been engraved from a photograph looking nearly N.N.W. Owing to the angle which the line of gauges made with the direction of the axis of the camera there is considerable foreshortening in the distances between the gauges, and they *look* too close together. Reference to the ground plan shows, however, that the least distance between any two gauges is nearly 5 ft., while the average exceeds 10 ft., and the total distance from No. 4 to No. 15, is 135 feet.

The whole of the instruments were fully described, with detailed engravings, in *British Rainfall*, 1869, pages 11 to 15, and therefore it is unnecessary to give more than the explanation of the numbers on the lithograph.

1. Anemometer (Apps's).	9. Twenty-five feet gauges.
2. „ „ (Chrimes's).	10. Fifteen feet gauges.
3. Vane.	11. Five „ „
4. Five-mouthed gauge.	12. „ feet gauge at 90°
5. One foot gauge.	13. „ „ „ „ 67½
6. „ „ „	14. „ „ „ „ 45
7. Ten feet gauges.	15. „ „ „ „ 22½
8. Twenty feet gauges.	

There can be no doubt that the entire change of arrangement indi-

cated by the difference between the view and plan which we gave in 1869, and those we now give will be indicated by differences in the results. We should never recommend a reservoir bank as a good place for determining the true fall of rain ; there is usually too great a sweep of wind. But the object of these experiments was not to determine the true fall of rain at a given spot, but to ascertain the angle at which rain falls, the connection between that angle and the velocity of the wind, and various matters of that kind. We have found what the gauges indicated when they were on the level flat of Boston Reservoir, we shall now see what they will indicate on Ulley Bank.

Mr. Berry has sent us a copy of the daily records, and from them we have had the usual summaries extracted. We do not carry the examination any further this year, for several reasons, but probably only two need be mentioned, (1) that we think it unsafe to base conclusions on the records of a single year, and (2) that, to our regret, we have not yet been able to call and see the instruments and the new observer.

RAIN GAUGE EXPERIMENTS, ULLEY RESERVOIR,  
ROTHERHAM, 1875.

FIVE MOUTHED GAUGE.

INCLINED ROTATING GAUGES.

Height above ground.	5ft.					5 ft.			
	Facing East.	Facing North.	Facing West.	Facing South.	Horizon Centre.	22½°	45°	67½°	90°
January.....	·342	·117	·707	1·891	1·893	2·756	3·665	4·000	2·849
February .....	·561	·647	·053	·642	·735	1·417	1·972	2·463	2·817
March.....	·400	·463	·059	·381	·487	·880	1·207	1·393	1·496
April .....	·110	·840	·066	·190	·453	·740	1·032	1·182	1·138
May .....	·109	·311	·290	·510	·954	1·335	1·410	1·522	1·340
June .....	·057	·355	·320	·652	2·082	2·482	2·386	2·213	1·721
July .....	·668	2·193	·545	·142	3·384	4·431	4·757	4·358	3·583
August.....	·014	·704	·975	·194	4·312	4·189	4·840	3·884	2·507
September.....	·029	·510	·250	·806	1·893	1·711	1·942	2·723	2·276
October... ..	·771	1·824	·704	1·033	3·654	4·951	6·845	6·875	6·073
November.....	·254	1·521	·869	1·266	3·065	4·173	4·832	4·882	4·259
December ... ..	·218	·969	·874	·420	·755	1·234	1·615	1·935	2·051
Totals.....	3·524	10·454	5·712	8·127	23·667	30·299	36·503	37·430	32·110

## 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 .....	2·104	2·057	—·047	1·632	1·696	+·064	1·740	1·755	+·015
February .....	1·112	1·124	+·012	·692	·733	+·041	·680	·729	+·049
March .....	·639	·625	—·014	·488	·461	—·027	·431	·447	+·016
April .....	·597	·563	—·034	·485	·476	—·009	·450	·453	+·003
May .....	1·172	1·173	+·001	·909	·937	+·028	·912	·935	+·023
June .....	2·371	2·348	—·023	2·008	2·060	+·052	2·016	2·027	+·011
July .....	3·825	3·858	+·033	3·358	3·362	+·004	3·331	3·368	+·037
August .....	4·541	4·671	+·130	4·206	4·291	+·085	4·253	4·314	+·061
September ...	2·104	2·144	+·040	1·802	1·846	+·044	1·814	1·844	+·030
October .....	4·060	4·144	+·084	3·485	3·521	+·036	3·572	3·618	+·046
November ...	3·402	3·454	+·052	2·820	2·889	+·069	2·911	2·917	+·006
December ...	1·070	1·078	+·008	·654	·703	+·049	·698	·708	+·010
Totals .....	26·997	27·239	+·242	22·539	22·975	+·436	22·808	23·115	+·307

Height above ground .....	15 ft.			20 ft.		
	Read Daily.	Read Monthly.	Diff.	Read Daily.	Read Monthly.	Diff.
Months.						
January .....	1·720	1·720	·000	1·780	1·866	+·086
February .....	·694	·713	+·019	·691	·600	—·091
March .....	·447	·448	+·001	·448	·439	—·009
April .....	·470	·460	—·010	·470	·452	—·018
May .....	·920	·924	+·004	·929	·960	+·031
June .....	2·053	2·029	—·024	2·086	2·038	—·048
July .....	3·379	3·360	—·019	3·400	3·280	—·120
August ...	4·242	4·261	+·019	4·080	4·281	+·201
September .....	1·828	1·808	—·020	1·857	1·864	+·007
October .....	3·589	3·562	—·027	3·696	3·632	—·064
November .....	2·924	2·890	—·034	2·969	2·943	—·026
December .....	·673	·673	·000	0·672	·742	+·070
Totals ...	22·939	22·848	—·091	23·078	23·097	+·019

The records of the 25 ft. gauges are suppressed, as they were not in perfect order.

# RAINFALL AT THE ROYAL OBSERVATORY, GREENWICH.

Lat. 51° 28' 38'' N. Long. 0° 0' 0''

Communicated by SIR G. B. AIRY, K.C.B., D.C.L., &c., Astronomer Royal.

1875	MONTHLY AMOUNT OF RAIN COLLECTED IN EACH GAUGE.								No. of days on which rain fell.
	Cylinder partly sunk in the ground. read daily.	Cylinder partly sunk in the ground. read mntly	Crosley's.	On the roof of the Photographic thermometer shed.	On the roof of the Library.	On the roof of the Octagon Room.	Self-registering Gauge of Osler's Anemometer.	Second Gauge at Osler's Anemometer.	
	in.	in.	in.	in.	in.	in.	in.	in.	
Jan. ...	2·99	3·05	3·34	2·85	2·27	2·21	1·67	1·76	17
Feb. ...	0·82	0·99	0·99	0·84	0·74	0·69	0·40	0·47	12
March	0·56	0·60	0·62	0·52	0·44	0·39	0·29	0·35	7
April..	1·55	1·42	1·72	1·48	1·46	1·15	0·81	0·95	8
May ...	1·46	1·35	1·66	1·36	1·16	1·17	0·93	0·91	11
June...	2·28	2·18	2·80	2·22	1·91	1·83	1·61	1·54	11
July ...	5·28	5·06	6·34	5·12	5·09	4·49	3·91	4·02	16
Aug....	2·28	2·23	2·36	2·30	2·19	2·05	1·91	2·04	11
Sept...	2·66	2·62	3·21	2·64	2·39	2·31	2·00	2·20	11
Oct. ...	4·13	4·12	4·89	4·11	3·97	3·46	2·97	3·07	18
Nov ...	2·90	2·93	3·46	2·84	2·77	2·44	2·13	2·27	16
Dec...	1·06	1·05	0·81	0·95	0·79	0·62	0·44	0·45	14
<b>Sums..</b>	<b>27·97</b>	<b>27·60</b>	<b>32·20</b>	<b>27·23</b>	<b>25·18</b>	<b>22·81</b>	<b>19·07</b>	<b>20·03</b>	<b>152</b>

*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 Cylinder Gauges, partly sunk in the ground	155	3	0	5
Crosley's Gauge	156	6	1	8
Gauge on the roof of the Photographic Thermometer Shed	164	10	10	0
Gauge on the roof of the Library	177	2	22	4
Gauge on the roof of the Octagon Room	193	2½	38	4½
The two Gauges at Osler's Anemometer	205	6	50	8

G. B. AIRY.

**CHRONICLE OF NEW STATIONS ESTABLISHED, AND  
REQUIRED, AND OF CHANGES IN THE PERMANENT  
STAFF OF OBSERVERS, DURING THE PAST YEAR.**

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THE following remarks are to a great extent, a debtor and creditor account of the rainfall system. Taken in conjunction with the general tables, and with the two supplementary lists, viz: "Imperfect returns" and "Missing returns," they give as nearly complete a record as practicable, of the existing staff. We have said debtor and creditor account, and that is really a good simile, for each station given up is a loss, and each new one started is a gain to the whole system. From this it follows that every individual person who succeeds in filling even one of the blank districts hereinafter mentioned, will have appreciably contributed towards perfecting our system, and there can be few readers who have neither friends nor acquaintances in any of the localities whence at present records are desirable.

This may be also the most appropriate place to give the list of the county superintendents, to thank them for their services, and to express the hope that many others will volunteer for other counties. There is much to be done, and the more helpers there are, the sooner it will be accomplished.

**COUNTY SUPERINTENDENTS, 1875.**

Sussex .....	F. E. Sawyer, Esq., F.M.S. ....	Buckingham Place, Brighton.
N. Hants.....	Rev. C. H. Griffith, F.M.S. ....	Strathfield Turgiss, Winchfield
*Northampton...	H. Terry, Esq. ....	Northampton.
Bedford .....	E. E. Dymond, Esq., F.M.S. ....	Oaklands, Aspley Guise.
*Cambridge .....	S. H. Miller, Esq., F.R.A.S., F.M.S.	Observatory, Wisbeach.
*Norfolk .....	Rev. J. M. Du Port, M.A. ....	Mattishall, E. Dereham.
*Hereford .....	Rev. Nash Stephenson, M.A. ....	Bromyard.
*Leicester .....	H. Billson, Esq., ....	Saxe-Coburg Street, Leicester.
Stafford .....	W. Arnold, Esq., F.M.S. ....	Lichfield Street, Tamworth.
N. Yorkshire ...	Rev. F. W. Stow, M.A., F.M.S. ....	Aysgarth, Bedale.
Denbigh .....	Whitehall Dod, Esq., .....	Llanerch, St. Asaph.
Flint .....	Capt. Griffith Boscawen .....	Trevalyn Hall, Wrexham.

The gentlemen against whose names an \* is placed, publish monthly summaries of the rainfall, at stations in their neighbourhood, in local newspapers or otherwise; a practice which it is very desirable should be greatly extended.

## MIDDLESEX.

The deficiencies which we mentioned last year, viz : East London, Staines, West Drayton, Uxbridge, and Southall, continue to exist, and the first-mentioned is aggravated by the loss of both the Islington stations.

## SURREY.

The most important losses are Farnham and Chobham ; the gains to be set against them, are the resumption of the records from Caterham, and the establishment of a new station during 1875, at Ashtead, near Epsom. These changes leave as *desiderata* records from the west, and south-east of the county.

## KENT.

No important change. New stations are still very much wanted near Gravesend, and in the Isle of Sheppey.

## SUSSEX.

The most serious loss is that of the Battle Abbey record, which was commenced in 1861, and in fact, the only other is that of an irregularly kept record at Pevensy vicarage. There are ten fresh records, the most important being those from Winchelsea, and the Dyke House, near Brighton. We should be glad of returns from the neighbourhood of Pulborough, and of Newhaven or Seaford.

## HAMPSHIRE.

In the Isle of Wight, there is a very welcome addition to our staff, and one which partly supplies the want of records from the west of the island, which we mentioned last year, it consists in the establishment of a station at Newtown Vicarage, about  $4\frac{1}{2}$  miles W.N.W. of Newport. We have however still, with the above exception, no station west of St. Lawrence, so that there are about 50 square miles between Niton and Freshwater without a single station.

On the mainland, the losses though not very serious, have been nearly all in one part, and consequently of more importance than is due to the mere length of the interrupted records. We have lost Portsmouth, Fareham, and Leigh Park, Havant, which leaves the

extreme S.E. of the county quite unrepresented (except by Sussex stations). The New Forest is also without a fair share of stations, and Bournemouth, which once boasted a local meteorological society, has this year failed to furnish even a solitary record of its rainfall. There are several valuable additions, the most important being Fording-bridge, Michelmarsh, and Andover. A station near Micheldever would be useful, and also one at Kingsclere, whence the observer (who had been provided with a gauge gratuitously) has removed without notice, or restitution of the instrument.

#### BERKS.

No important change. Stations are wanted near Lambourn and East Ilsley.

#### HERTFORDSHIRE.

The record at North Mimms, which we mentioned last year as an acquisition, broke down during 1875, but will, we hope, be perfect during 1876. There is no other material change.

#### BUCKS.

There are no losses in this county, and there is one important gain, viz : Mentmore, near Leighton Buzzard, where observations were commenced last autumn. Stations are desirable near Beaconsfield, Princes Risborough and Bletchley, and also in the west of the county.

#### OXFORD.

No alterations. Gauges are still required near Bampton, Burford or Witney.

#### NORTHAMPTON.

The only losses during the year are the records from Newbottle Manor, and that arising from the neglect of the King's Sutton gauge during the excessive rain of October 9th, which spoiled the register, and has compelled its transfer to the list of imperfect returns. On the other hand, we have nine new stations, and the county is well provided with observers, except in the extreme South, and to the North of Oundle.

## HUNTINGDON.

No losses ; one or two stations, both in the east and west of the county, would be acceptable.

## BEDFORD.

The only loss is the transfer of the Stotfold record to the imperfect list, owing to doubts respecting the measurements of snow. Stations are needed near Luton and Shefford, and throughout the North of the county.

## CAMBRIDGE.

Thanks chiefly to the exertions of Mr. Miller, the blank spaces to which we called attention last year, have been filled by new stations, started during 1875. All the old records have been continued, except that at The Limes, Elm, interrupted by illness, and that at Cheveley Park, Newmarket, of which we can hear no tidings, though we have written to the observer three times.

## ESSEX.

The changes in this county are not important, and new stations in the south, and near Ongar, Thaxted, Burnham, and St. Osyth, would be very useful.

## SUFFOLK.

The only loss is that of the recently-established station at Wickham Market, but it renders one in the neighbourhood of Debenham or Framlingham still more necessary than it was in 1875. Stations would also be acceptable about eight miles N., and about the same distance S. of Bury St. Edmunds.

## NORFOLK.

There are scarcely any losses in this large county, while there are three important acquisitions—Long Stratton, Mulbarton, and Hindringham. There is no doubt that Mr. Du Port's elaborate monthly tables have a most beneficial effect in keeping the observers quite up to the mark.

## WILTSHIRE.

There are two losses in this county, one being of considerable geographical importance, viz., Bower Chalk, in the extreme S. of the

county. On the other hand, the two districts which we mentioned last year as needing observers, have been occupied, Devizes by a station at Bishops Cannings, and Malmesbury by one at Charlton Park, supplemented by one at Steeple Ashton, Trowbridge.

#### DORSET.

A series of deaths and removals have broken up the records at Bridport, but a new series of observations is now being made in that town. We have also a new record from Wimborne Minster. But the loss of Kimmeridge is serious, and it is desirable that steps be promptly taken to obtain stations in the Isles of Purbeck and Portland, also near Dorchester, Cranborne, Sturminster Newton, and Sherborne.

#### DEVON.

With this large county we must proceed systematically. We have at present received 69 perfect records from it, apparently an ample number, but not so in reality. Devonshire contains 2,589 square miles, therefore, if the above stations were distributed in the most perfect manner possible, they would be six miles apart. We are, of course, very far from reaching that theoretical perfection of distribution, and, consequently, there are in many parts large tracts of country without an observer.

Our losses have not been very important, the most so being the Sheepstor station of the Plymouth Water Works, Widdecombe Vicarage, a general failure of the Exeter gauges (with only one exception) during the rain of October 19th, and a short interruption of the Bratton Fleming record. The most interesting gains are Newton Ferrers, Strete, near Dartmouth, Abbots Kerswell, Arlington Court, near Barnstaple, and Lee Abbey, near Lynton. The districts most needing additional observers are those round Totnes, Moreton Hampstead, Hatherleigh, and Hartland.

#### CORNWALL.

There is one serious loss in this county, viz., that of the Helston record, through the ill health of the veteran observer, and, most unfortunately, we have simultaneously lost that at St. Ruan Minor, a few miles S. of Helston, and between it and the Lizard. The abandonment of the record at Lansdowne Road, Falmouth, is, perhaps, for the

reason stated last year, not much to be regretted. The principal deficiencies are (1), that indicated above, near, and S. of, Helston ; (2), near St. Columb Major ; and (3) in the extreme N. of the county.

#### SOMERSET.

There is only one return (Yatton) missing from this county, and it is not a very important one, as it is only two or three miles from Backwell. On the other hand, there are several most useful additions, so that the county is now far better provided with stations than at any previous period.

#### GLOUCESTER.

We have lost five records out of the twenty-five given for this county last year. Canon's Marsh, because the gauge was allowed to overflow ; Cotham Park on account of removal ; the record kept at Cote House cannot be found ; at Park House, Gloucester, the register was improperly kept during Mr. Price's absence ; and (on an inspection tour) we found the gauge at the County Asylum, Gloucester, in such a condition that we decline to publish the results.

The new stations are more numerous than the missing ones, but are not of special geographical importance. In fact, the alterations, although numerous, are without material influence upon the representation of the county. Sherborne Park is, however, a welcome addition. Stations near Tetbury, Wickwar, Coleford, and Newent, are very desirable.

#### HEREFORD.

Two records only are missing, viz., Leysters and Brockhampton. The former is imperfect ; the latter we believe to be incorrect ; neither of these affects seriously the distribution of the stations, which continues remarkably good. The new station at Goodrich is a useful addition.

#### SHROPSHIRE.

The missing records from this county are not very important, and the resumption of the Whitchurch register is beneficial, but this large county, with an area of 1,290 square miles, has only 19 stations, and those not very well distributed. We mentioned last year the desirability of additional stations in the vicinity of Clun ; to it we may add that of Bridgenorth, Craven Arms, and Ellesmere.

## STAFFORDSHIRE.

We have here to chronicle one serious loss, that of the Ellastone record, owing to the death of the Rev. Sir C. R. Lighton, Bart. This is a loss geographically, for there is no station within six miles, but is still more important as it was the only station in that part of the county of which the records extend back for many years. One or more stations in the centre of the county are also much required.

## WORCESTER.

In this county there is also one serious loss, viz., that of the record commenced in 1855, and continued up to his death, by Mr. G. Dipple, of the Ford House, Bromsgrove. In order to secure the continuity of *one* record at Bromsgrove, he purchased a gauge, and induced the schoolmaster, Mr. W. Dodd, to begin a register, but he has failed to reply to our repeated communications, and, therefore, that part of the county is left blank. The new station at Upton-on-Severn, after several changes, has been abandoned, in consequence of the removal of the observer.

## WARWICK.

There are no returns missing, and one complete new one (Blackdown Hill, Leamington) has been received. We are glad to mention that a register has been commenced at Stratford-upon-Avon, but the observers in the county are still below the proper number, and the distribution is not perfect. The observer at Henley-in-Arden has been obliged to discontinue his records from failing sight, which leaves the new Stratford-on-Avon station as the only one in the S.E. of the county—about 400 square miles.

## LEICESTERSHIRE.

The only loss is a temporary one, and, moreover, that of a very recently-established station in Leicester, where we have two other stations, so that for all practical purposes, we may regard the continuity of the Leicestershire records as unbroken. There are three useful new records, but stations near Atherstone, and in the E. of the county, are still needed.

## RUTLAND.

Mr. Holmes has removed from Thistleton to Greetham, but in other respects the staff in this county is unchanged and ample.

## LINCOLN.

No important change ; Cawkwell is an acquisition, but the deficiencies mentioned last year still exist.

## NOTTINGHAM.

Owing to the removal of Mr. Paget from Ruddington Grange, there is now no station in this county south of the Trent. We should be glad to hear of one being started ; one is also needed near Tuxford ; in other parts the county is well provided.

## DERBYSHIRE.

The losses are—Derby, mentioned last year ; Long Lane, and temporarily, owing to a change in position, Belper. This loss is made up by the new station at Milford, but stations are much needed in the west of the county, especially since the loss of Ellastone (Staffordshire).

## CHESHIRE.

All the records published for 1874 extend throughout 1875, and there are a few unimportant additions. The gauge lent for Tarporley, some years back, was not observed during either 1874 or 1875, and as it has been transferred to a new observer, we hope for a record for 1876 ; there is no other gauge in the neighbourhood. Records from Nantwich and Knutsford would also be useful.

## LANCASHIRE.

The losses in this county are neither numerous nor important, and are far outweighed by the gains. The county is, on the whole, amply provided with observers, but stations near Bury, Leigh, and Newton-in-Makerfield, south of Ormskirk, near Fleetwood, on Littledale Fell, and between the lower parts of Windermere and Coniston, are desirable.

## YORK, WEST RIDING.

There is only one loss of sufficient importance to claim mention, viz : Balne, near Snaith, and against it we may put the gain of Drax. There are fourteen additional returns for this riding, but excepting

Drax, Cold Coniston and Nun Monkton, they hardly call for mention here. The neighbourhood of Thorpe Arch still requires an observer, and one is also needed near Selby.

#### YORK, EAST RIDING.

The only loss is that of Thicket Priory, Thorganby, but it is rather serious, leaving a large district unrepresented. Stations are required near Market Weighton and Bridlington, and we have hopes of obtaining the latter shortly.

#### YORK, NORTH RIDING.

The only losses are Scarborough, and Thorpe Grange, Barnard Castle; the former is vexatious, and we hope will soon be remedied. Mr. Stow's new stations in Wensleydale, amply supply that district, and fortunately we have been favoured by Mr. Whitwell, with a record from Arkengarthdale, in the next valley to the North. Next year, all being well, we hope to have additional details for the whole upper basin of the Tees, which will be joined to the Wensleydale series by this Arkengarthdale record. We complained last year of the absence of observers in the eastern half of the North Riding, but at present there is no improvement, and stations are wanted over a triangle of which the angles are Scarborough, Northallerton, and Easingwold, say 300 square miles.

#### DURHAM.

We have here to regret the loss (through failing health) of Dr. Gillow's record from Ushaw College, one of the best returns in that part of England. This is the only loss, and this year the additions are unimportant. In our next we hope to insert a number of records from Teesdale. We should be glad to have also records from Bishops Auckland, and Stanhope.

#### NORTHUMBERLAND.

The losses this year in themselves are not serious, but taken jointly with those of the previous year, they become so. We require a station in the extreme N., one or more along the Border Counties Railway, one near Morpeth, and one on the River Reed.

## CUMBERLAND.

Neither the losses nor the gains in this county are very material. Mr. Fawcett, of Blencowe School, has been exerting himself to obtain observers in the district mentioned last year, and now the *desiderata* seem to be, records from the foot of Wastwater, Ennerdale, Hesket Newmarket, and E.N.E. of Longtown.

## WESTMORELAND.

There are only two missing returns, and one of these, Easdale Tarn, is only removed to the imperfect list, because it may have been tampered with. Stations are needed near Milnthorpe and Tebay.

## MONMOUTH.

The tremendous rain of July 14th, respecting which we shall have much to say in the latter part of this work, robbed us of two records from this county, inasmuch as the gauges were allowed to run over, and thus the returns were rendered incomplete. Mr. Lawrence has removed from Llangibby Castle; neither of the Tredegar returns (Ebbw Vale and Sirhowy) has been sent, and Monmouth is also missing. True, we have two returns which we had not in 1874, but a total of six records is miserably inadequate for the county.

## WALES.

The losses during the past year have been extremely few; in fact there is only one worth mentioning, viz., Aberdaron, near the extremity of the S.W. promontory of Carnarvonshire. The gains are numerous and important, especially in Northern Denbighshire. Among the most important new and perfect records, we may mention—Glyn Corrwg, Llechryd, Mellington Hall, Llangollen, and Garthwin. There is besides a short list of useful stations established *during* the year.

In spite of all, there remain more than a dozen districts whence additional records would be useful. We give the names, with no further comment than to ask the attention of all readers who either have property in the neighbourhood or feel that they could assist. Gauges would be useful at or near

The Black Mount	Llanelly	Tregaron
Llandoverly	Pembroke	Llanfyllin
Llanwrtydd	Fishguard	Llanrwst
Builth	Aberaeron	Ruthin
Hay		Anglesea (Southern)

## SCOTLAND.

With regard to the number of Scotch stations, there is little alteration. The losses are not very serious; the worst are, probably, Balfour (1857—74), and the interruption of Polmaise (1852—74), as registers representative of secular change; and Sannox (Arran), and Struan (Perth), as leaving large tracts of land without an observer. Among the gains, the most important are—Oban, Quinish (Mull), Kinloch Rannoch, Glen Quoich (Inverness-shire), and Broadford (Skye), and a very useful station will, we hope, be added next year, viz., Ewick-by-Tyndrum, near the pass from Perthshire to Argyllshire. On the whole, we are inclined to regard the returns from Scotland as better distributed than in any previous year, but not one of the deficiencies we mentioned in our last volume,\* has been supplied. Surely Scotchmen will not leave to an Englishman the task of completing the efficient organization of stations in their own country.

## IRELAND.

In stating the fact that the perfect records from Ireland number 137 instead of 87 as in 1874, and of 13 as in 1860, we probably give as striking an illustration of the development of the rainfall system as could be desired. Yet even this does not show the full extent of progress, for owing to several gauges not reaching their destination until a few days of January, 1875, had passed, the records from those stations are placed in the Supplementary table, and not included in the above. We are extremely glad to state that with few exceptions the new Irish observers have done their work well, and though its verification has occupied a large share of our time, we believe that it has been time well spent. We do not expect that our labours will be appreciated—dry routine work seldom is—and considering that an Irish drainage engineer told us that he did not “take the rainfall into account in laying out drainage works”!! it is not remarkable that the Irish Government and people, alike leave to English money and English brains the organization and maintenance of the observations by which, if judiciously utilized, thousands and thousands of pounds may be saved. Of course we do not for a moment imply that all the engineers of Ireland are so ignorant; on the contrary, we know that it

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\* *British Rainfall*, 1874, p. 57.

is otherwise. We owe nearly all the progress of the rainfall system in County Down to a Member of the Institute of Civil Engineers of Ireland; and yet, on the other hand, it is a singular fact that when the help of that very institute was requested in the obtaining of new rain registering stations, the letter was not even acknowledged. Ah, well! we shall go on with that which we believe is for the good of the country, whether the "powers that be" appreciate it or not.

To drop the digression. There are now only five districts where fresh stations are of importance, viz., near Killarney and Thurles, in West Wicklow, East Mayo, and East Longford.

#### GENERAL.

We have now to take a survey of the condition of the rainfall system, and are glad to be able to report that it is on the whole very satisfactory.

With a body of observers exceeding two thousand persons, it is obviously very difficult to be at all times, or indeed at any time, able to give precise information respecting the observations being made in all parts of the British Isles. With so large a body, changes are unavoidable, but fortunately the larger the body, the less the influence which changes exert.

In previous pages we have not hesitated to call attention to weak points. We know them better than any other person, and it is surely wiser to admit them, than to leave to others the opportunity of pointing them out. Besides, whose fault is it that the mouth of the Thames, the north of Bedfordshire, the eastern half of the North Riding of Yorkshire, and the sides of the Caledonian Canal are left without observers? Is the blame to rest on us, or on those who have stopped the grant out of which we, at a cost of some such trumpery sum as *eighteen shillings* each, have started several hundred stations.

It must not, however, be supposed for a moment that the system is, or can be, crippled by such petty action. On the contrary, while we have said more concerning our losses and our wants, than we have about our gains, the latter far exceed the former, not only in mere numbers (and in that respect the number of perfect records in the present volume exceeds that in any previous one by 108) but—what is far more important—in geographical distribution. In this respect we need only refer to the improvement in Northamptonshire, Northern Denbigh, and Western Scotland.

In conclusion, we may as well state why we have thus dwelt upon our losses and wants—it was that our readers might think about them, might try to remedy them, or to supply them.

#### MAP OF RAINFALL STATIONS.

It may be convenient to our readers to know that a map of the British Isles, showing all the rainfall stations known to be in operation on December 31st, 1875, is hung in the Meteorological Section of the Loan Scientific Exhibition, at South Kensington, and we shall be glad to hear from any person who can point out any errors in it, or procure observations from districts where we have no stations.

## RAIN GAUGES OVERFLOWING.

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I AM rather weary of writing upon this subject, for it seems impossible to arouse attention to it. Apparently, the only thing to be done is to reprint the last note upon the subject, and to add at the foot a list of records vitiated in 1875, either by the absence of the observers, on the occasion of exceptionally heavy rains, or by their neglect of Rule XVI. I should be very sorry to write anything harsh of anyone, but it is aggravating beyond description, that when exceptional phenomena occur, observers are so often absent, or, if at home, fail to pay the slightest attention to their gauges.

The following is the paragraph from *British Rainfall*, 1872, p. 42 :—

### DEFICIENT CAPACITY OF RAIN GAUGES.

RULE XVI. is as follows :—

OVERFLOW.—It would seem needless to caution observers on this head, but as a recent foreign table contains *six instances in one day* in which gauges were allowed to run over, it is evidently necessary that British observers should be on the alert.

Unfortunately our caution is not everywhere heeded; we have repeatedly stated that there is no part of the British Isles where four inches in twenty-four hours will not occasionally fall, and it is probably much more mortifying to ourselves than to our observers, when they allow these exceptional rains to catch them unprepared, and thus leave us without data of the greatest importance. We earnestly hope we may never again have to say, as we have now, that five of our own countrymen have thus failed in one year. We should advise every observer who reads these lines to test (on any dry day) the capacity of his gauge, and if he finds it below the limit we have named, then he should adopt one of the following two ways of surmounting the difficulty. The first and best plan is to have a gauge of which the capacity is *at least* four inches; if it is twice that, so much the better. The second is to make it a point that some other person besides the observer (who might be absent), should be instructed to measure off (or bottle till the observer's return), the water collected, whenever there appears reason to fear an overflow.

### STATIONS AT WHICH THE GAUGES WERE ALLOWED TO OVERFLOW IN 1875.

July 14th.....	Canon's Marsh, Bristol.
" "	Piercefield Park, Chepstow.
" "	Llanfrechfa Grange, Caerleon.
October 9th. ..	King's Sutton, Banbury.
" 19th.	High Street, Exeter (both gauges),
" "	Manston Terrace, Exeter.

## OBITUARY.

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WE mentioned, casually, in our last volume, that the number of observers whose removal by death it was our duty to chronicle, was very steady from year to year. On looking closely into the figures, the uniformity is striking; since 1869, the average has been 21 per annum. In 1873 it was exactly that average; in 1874, it was 22; and in 1875, the annexed list gives 23.

There is another fact which we have noticed, but upon which we have not sufficient data to enter fully, viz., the extremely advanced age to which many of the observers live. There are, of course, exceptions, such as the early loss of Dr. Barter, who (as well as Mr. Dixon) was one of the contributors to the first of the series of rainfall publications—the leaflet upon the rainfall of 1860, but they are more than counter-balanced by many cases of extreme longevity—for instance, the other gentleman just mentioned was, we believe, nearly or quite 90.

		Perfect yearly records.
Armstrong, A., Esq., Kylemore, Galway .....	C 1875 C .....	1
Ballingall, R., Esq., Eallabus, Argyll .....	C 1866-75 .....	10
Barter, C. S., Esq., M.B. {	Axford Bldgs., Bath C 1855-61 T .....	7
	Gen. Hospital, ,,... C 1862-64 T .....	3
	Paragon ,,... { C 1865-69 T .....	5
	Gay Street, ,,... { C 1869-73 T .....	5
Benson, Rev. J. P., Witheridge, Devon ... ..	C 1870-72 T, C 1874-5 .....	5
Bewley, T., Esq., Black Rock, Dublin .....	C 1855-60, 1862, 1864-74 C ...	18
Brown, Rev. H., Pevensey, Sussex .....	1840-74 T .....	35
Dawson, H., Esq., Shu-le-Crow, Keswick .....	C 1861 imp -67 T, C 1868-74 T	13
Dewar, Mr., Balfour, Fife .....	C 1872 imp -74 T .....	2
Dipple, G., Esq., The Ford House, Bromsgrove	C 1857-74 T .....	18
Dixon, H., Esq., Dorward' Hall, Witham .....	C 1855 imp -74 T .....	19
Fawcett, E. G., Esq., Ludgershall, Wilts .....	C 1847-75 .....	29
Gavin, J., Esq., Wester Elchies, Moray .....	C 1867 imp -74 C .....	7
Gibb, Mr. J., Kettins, Forfar .....	1872-75 .....	4
Gorrie, Mr. H., Polmaise, Stirling .....	1856-73 T .....	18
Matthew, H., Esq., Bradninch, Cullompton ...	1852-74 .....	23
Miller, J., Esq., Upwey, Dorset .....	C 1841-73 T .....	33
Rayson, W. A., Esq., Horncastle ... ..	C 1862-73 T .....	14
Redford, R., Esq., Yapton, Arundel .....	1874 T .....	1
Sharland, H., Esq., North Brook, Fareham, Hants	C 1866-75 T .....	10
Sigsworth, Mr. F. P., Coney Street, York .....	C 1860-74 T .....	15
Smith, J., Esq., York Parade, Hull .....	C 1864-72 T .....	9
Ward, Dr., Chobham ... ..	C 1857 imp -74 C .....	17
Winter, Rev. J. S., Weedon, Northampton ...	C 1865 imp -74 T .....	9
	C 1864-75 T .....	12

RAINFALL AND METEOROLOGY

OF

1875.

## ON THE METEOROLOGY OF 1875,

WITH NOTES OF SOME OF THE PRINCIPAL PHENOMENA.

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[These Notes should be read in conjunction with those on Heavy Rains in 1875, on page 125.]

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## JANUARY.

1st.—Sharp frost in the early morning, the sharpest in the year at many stations. The min. in air in the eastern counties was generally below  $10^{\circ}$ , and at *Audley End* (IV), as low as  $7^{\circ}0$ . A silver thaw occurred at *Forest Hill* (II) and *Cambridge* (III). —*Trevarna, St. Austell* (V). The most remarkable event was the great flood on New Year's Day, when the whole of the valley below *St. Austell* was inundated, the roads were rendered impassable for several days, and there being a large accumulation of sand in the river at the time, sent down by the clay works, the whole was deposited on the parish roads, and cost more than £1,000 to remove.—*Coston* (VII). Sudden thaw on night of 1st and 2nd, with following frost, but thaw again on 2nd. Min. on stand on 1st,  $9^{\circ}2$ .—*Mansfield* (VII). Thaw came on at night.—*Stanley* (IX). Temp. at 8.30 at  $16^{\circ}$ ; wind E., towards 10 a.m. the wind began to veer towards the S.; at 1 p.m. the rime ran from the trees; at 3 p.m. a sprinkle of snow fell; at 6 sleet; at 8 sleet and rain; the S.W. wind drove back the E. wind, and nearly half-an-inch of rain fell; the thaw then progressed without a change.—*West Hendon Ho.* (X). The snow was 8 in. deep on the level, and drifted more on that day than I ever saw it before.—*Ivy Tower, Tenby* (XI). Rapid melting of snow and heavy rain. 1.51 in.—*Melrose* (XII). Very early on the morning of this day a strong gale from the S.E., which continued 24 hours, causing a most fearful drift from the snow that had previously fallen, a drift which will long be remembered, as some hundreds of people were drifted up for that period in the railway trains on the Moorfoot Hills.—*Keith* (XVII). Hurricane of wind and snow drift.—*Kilsallaghan* (XXI). A strong S.E. gale blew during the whole of the 1st, accompanying the thaw, which by the evening of the 2nd removed the last remains of the ice.—*Glenturk* (XXII). Thunderstorm at 9 p.m.—*Ballinasloe* (XXII). Violent squalls.

2nd.—*Brereton* (VI). A very rapid thaw.—*Chester-le-Street* (X). Complete fresh set in on 2nd, after the wintry weather of December.—*Cessnock Park* (XIV). January 2nd and 3rd stormy.—*Keith* (XVII). A fresh fall of snow.

3rd.—*Melrose* (XII). High wind, S.W.

11th.—*Coston* (VII). Very foggy.—*Partney* (VII). Dense fog in the morning.—*Nairn* (XVII). Fog.

12th.—*Shap* (X). Lightning.

13th.—*Druid House, Ashburton* (V). Heavy and continuous rain, and max. fall of month 1·32 in.—*Kylemore* (XXII). 0·74 in. fell between 6 and 8 a.m.

14th.—*Mansfield* (VII). Very high wind and rain.—*Kylemore* (XXII). 2·12 in. (the max. of month), all fell in 10 hours during the night.

16th.—*Forest Hill* (II). Lunar halo after 9 p.m.

17th.—*Enfield* (I). Violent gale; *Forest Lodge, Maresfield* (II.), lightning.—*Cambridge* (III). Severe thunderstorm at 3.30 a.m. No damage reported.—*Court Barn* (V). Thunder, and max. fall of month 1·25 in.—*Ashby Parva* (VII). A thunderstorm of unusual violence for this time of the year, passed over the south of Leicestershire, between 2 and 3 a.m., travelling due E. Here the lightning was very brilliant; about sixty flashes in a very short space of time; the storm passed rapidly. Heavy hail for a few minutes at 2.30, the rain in the storm was ·36 in.—*Coston* (VII). Heavy rain, with thunder and lightning and high wind at 2 a.m.

18th.—*Woodlands, Elterwater* (X). Raining until 2 p.m., and wet night; total fall 2·42 in., the max. fall of month.—*Holehouse* (XIV). Hail.—*Nairn* (XVII). Much lightning in the evening.—*Strathconan* (XVIII). Hurricane in the afternoon.

19th.—*Bromley* (II). Very windy.—*Forest Hill* (II). S.W. gale in evening.—*Cambridge* (III). Gale from S.W. at night.—*Woodlands* (X). A most stormy day, the max. speed of the wind being 75 miles an hour at 9.10 p.m., and the average speed throughout the night, from 9.15 p.m. to 7.40 a.m., was 40 miles an hour. Many trees uprooted or snapped off.—*Shap* (X). A great storm of wind and rain, causing floods.—*Cessnock* (XIV). Stormy.—*Innerhadden* (XVI). Frequent thunder; constant lightning in W.—*Budgate, Cawdor* (XVIII). Loud peal of thunder at noon; hail.—*Dava* (XVIII). Thunderstorm.—*Glentworth* (XXII). A perfect hurricane at night.

20th.—*Mansfield* (VII). Thunder, rain, and hail.—*Halifax* (IX).

Rather a sharp thunderstorm passed over here at 2 p.m.; lightning during the evening.—*Llanfrechfa* (XI). Heavy gale of wind, with rain.—*Chester-le-Street* (X). A very high wind from W.S.W.—*Katesbridge* (XXIII). Hurricane at 1 a.m.—*Bushmills* (XXIII). Violent storm from W. in morning.

21st.—*Hastings, Bleak House* (II). Thunder and lightning.—*Teignmouth* (V). Lightning from 2 to 5 a.m.—*Stanley* (IX). Severe frost.—*Bushy Hill, Cambuslang* (XIV). Snow.—*Strathconan* (XVIII). Great fall of snow.

22nd.—*Pinner Hill* (I). Hail and rain.—*Court Barn* (V). Thunder.—*Melrose* (XII). Large lunar halo at 8.30 p.m.

23rd.—*Cambridge* (III). Squally S. wind.—*Court Barn* (V). Thunder and lightning in the night.—*Druid House, Ashburton* (V). Very heavy storm all night, and 1.25 in. of rain fell. Min. bar. at 10 p.m. Squally, with showers, all the following day.—*White Lackington Vicarage* (V). Violent gale.—*Brereton* (VI). Thunder and lightning about 3 p.m.—*Coston* (VII). Snow fell in the morning.—*Castle Malgwyn* (XI). It was very stormy, with thunder, the rain at times fell in torrents, and the wind blew a perfect hurricane.—*Cambuslang* (XIV). Snow.

24th.—*Enfield* (I). Violent gale and much lightning.—*Addiscombe* (II). Frequent lightning in N.E. to W., from 8 p.m. Max. fall of the month .52 in.—*Bromley* (II). Gale.—*Forest Hill* (II). Sheet lightning, S.S.E., 6 to 6.15 p.m., and in W. afterwards.—*Forest Lodge, Maresfield* (II). A tremendous gale.—*Addington* (III). Very stormy day, and much lightning at night.—*Cambridge* (III). Heavy shower, 8 a.m.; S.S.W. gale, in evening.—*Oxford* (III). Heavy shower, with thunder and lightning at 4 a.m.—*Diss* (V). Heavy gale from S. in morning; renewed in the evening, and in the night.—*Compton Bassett* (V). A strong gale from the S.W., accompanied by hail, thunderstorm and vivid lightning. Very little damage was done in this neighbourhood.—*Pewsey* (V). Tremendous wind, S.W.—*Teignmouth* (V). Thunderstorm at 2 p.m., and at night.—*Trevarrick* (V). Thunder and lightning in the night.—*Upfield* (VI). Thunderstorm from W.N.W. to S.E., from 3.30 to 4 a.m.; a gale blew all the day, with showers of rain, hail, and sleet; total fall, .47 in.—*Brereton* (VI). Extremely windy; about 5 p.m. it reached to a whole gale.—*Coston* (VII). Very high winds all day; heavy showers.—*Stanley* (IX). Severe gale in the night.—*Shap* (X). A great storm.—*Cessnock* (XIV). Squally, with rain.—*Ballinasloe* (XXII). Squally morning; lightning at 7.30 p.m.

25th.—*Oxford* (III). High wind.—*Tytherton* (V). Gale and thunderstorm at 5 a.m.—*Kingsbridge* (V). Thunder.—*Llanfrechfa* (XI). Thunderstorm in the early morning; it was very severe about four miles distant, and ignited a gas jet in a tower of a church.

27th.—*Cambridge* (III). Distant lightning in evening.—*Melrose* (XII). High wind.

29th.—*Addington* (III). Stormy.

## FEBRUARY.

1st.—*Mansfield* (VII). Foggy.

5th.—*Addington* (III). Clear in morning, but dense fog in afternoon.—*Melrose* (XII). Min. 18° 5.

6th.—*Bincombe* (V). Very stormy; gale from S.S.E.—*Mansfield* (VII). Dull and disagreeable.

7th.—*Melrose* (XII). Snow on 7th and 11th, and daily from 18th to 27th (except on 21st).; total depth, 10½ in.

8th.—*Coston* (VII). Snow in early morning.—*Middlesborough* (IX). Snow showers.—*Kilrush* (XX). Heat so great that the leaves of vegetables in the gardens flagged.

9th.—*Addington* (III). Temp. never above 32°, and on the 10th the max. was 33°.

10th.—*Longthorns* (V). Temp. 24°.

11th.—*Diss* (IV). Snow and rain in the night.

13th.—*Coston* (VII). Very foggy.

14th.—*Coston* (VII). The mildest day in the month; max. 52°.

16th.—*Addington* (III). Dense fog.—*Mansfield* (VII). Thunderstorm at 8.30 p.m.—*Llanfrechfa* (XI). Snow lying on the hills 2¼ miles to the W. of this place, from 16th to the end of the month.

18th.—*Addington* (III). Frequent showers of snow.—*Coston* (VII). Snow.—*Llanfrechfa* (XI). Very cold wind.

19th.—*Diss* (IV). Heavy snow during the night, remaining on the ground.

20th.—*Cork, Royal Institution* (XX). Snow.

21st.—*Shap* (X). A great storm of wind, and bitterly cold.

23rd.—*Ipswich* (IV). Min. 20°.—*White Lackington* (V). Thunder.

24th.—*Hastings, Bleak House* (II). Snow.—*Leamington* (VI). Snow fell equal to .25 in. of rain.—*Mansfield* (VII). 24th to end dull, cold, and often windy.—*Stanley* (IX). Heavy fall of snow.—*Cork, Royal Institution* (XX). Snow.

25th.—*St. Clare, Penzance* (V). The 0·99 in. of this day was nearly all the product of snow.—*Bincombe* (V). Heavy snowstorm, with thunder and lightning.

26th.—*Court Barn* (V). The deepest snow was on this day.—*Coston* (VII). A cold thaw.—*Warrenpoint* (XXIII). The severest day this year, and ·91 in. of rain.

## MARCH.

1st.—*Langtree Wick* (V). Ground white with snow.—*Coston* (VII). Frost and snow.—*Middlesborough* (IX). Sleet.

5th.—*Hastings, Bleak House* (II). Zodiacal light seen.

7th.—*Dunfanaghy* (XXIII). The only fall exceeding 1 in. during the year, equal to 1·17 in.

8th.—*Diss* (IV). Gale from S.W., then from W., and finally from N.E., from whence it started.

9th.—*Cambridge* (III). Gale from W. to N.W.—*Coston* (VII). High wind till sunset.

18th.—*Diss* (IV). Wind again boxed the compass from N.E. round by S. and W., to N.E. again.

19th.—*Diss* (IV). Wind W., but very cold. Hail, sleet, and snow.

25th.—*Bishop's Castle* (VI). Snow not quite gone till to-day.

27th.—*Addington* (III). Sharp hail storm.—*Diss* (IV). Hail and thunder at 1 p.m., wind W.—*Coston* (VII). High wind all day.

28th.—*Diss* (IV). Hail and snow ; gale from N.W.

## APRIL.

1st.—*Strathconan* (XVIII). Very storm-like.

2nd.—*Strathconan* (XVIII). Very wet ; 1·08 in. fell.

3rd.—*Cambridge* (III). Squalls from W.S.W. at night.

4th.—*Addington* (III). High wind.—*Coston* (VII). High wind.—*Melrose* (XII). High wind from N.W.

5th.—*Cambridge* (III). Gale, S.S.W., from 11 a.m. to 5 p.m.—*Tytherton* (V). Slight thunderstorm.—*Compton Bassett* (V). Thunderstorm in the afternoon.—*Halifax* (X). Distant thunder.

6th.—*Enfield* (I). 6th and 24th slight aurora in the evenings.

7th.—*Kylemore* (XXII). Mountain tops covered with snow.

8th.—*Coston* (VII). Very high wind at night.—*Melrose* (XII). Stormy from N.E. ; lightning at 9.30 p.m.

9th.—*Addington* (III). Very cold ; max. only 42°.

10th.—*Addington* (III). Brooks much flooded.

13th and 14th.—*Sansaw* (VI). Min. on grass 21°.

14th.—*Halifax* (IX). Min. on grass 18°·8.

19th.—*Tytherton* (V). Dry bulb 68°·9 ; wet 55°·8 (Kew verified) ; difference (13°·1) the greatest in the year.

20th.—*Bromley* (II). Range of temp. remarkable, being no less than 44°.—*Reagill* (X). 74° in the shade.—*Shap* (X). Very hot, with distant thunder.

21st.—*Addington* (III). Wind W. till 3 p.m., then changed very suddenly to N.E.—*Cambridge* (III). Very great variation in temp.—*Wereham* (IV). Temp. at noon 70° ; at 2 p.m. 49°·8.—*Cheadle* (VI). At 9 a.m. dry bulb 61° ; wet bulb 51° ; diff. 10° ; at 5 p.m., dry 44° ; wet 42° ; diff. 2° ; and difference in temp. from 9 a.m., 17°.—*Coston* (VII). Very sudden change about 12.30 (noon) ; the wind changed from S. to N. ; sky became overclouded, with threatening-looking thunder-clouds ; temp. fell rapidly, and gusts of wind blew the dust along the roads.—*Mansfield* (VII). At 9 a.m. the ther. stood at 65°·6 ; wind S.W. ; the wind gradually shifted by W.N.W., and N., to N.E. at 12.30 (noon), the ther. falling 20°·5 during that time, it continued to fall, and reached 40°·3 ; this cold lasted three days, when the wind veered round to the S.W., and beautiful weather prevailed.—*Shap* (X). Bitter cold east wind.

22nd.—*Ipswich* (IV). Very cold this night, ice 5-16ths of an in. thick ; ther. (3 ft. above ground) fell to 25°.—*Beddgelert* (XI). Sharp frost, which did much damage to the fruit trees.—*Llanfrechfa* (XI). Sleet, rain, and snow-flakes at 8 a.m. ; snow on the hills four miles to the west.

24th.—*Auchtercairn, Gairloch* (XVIII). 1·04 in., the only fall reaching 1 in.

25th.—*Enfield* (I). Min. on grass 21° ; and in many low-lying districts much lower.

27th.—*Melrose* (XII). Thunder at 1 a.m.

29th.—*Shap* (X). Hot, with distant thunder.

## MAY.

6th.—*Calcethorpe* (VII). Thunder at 12.30 p.m.—*Melrose* (XII). Thunderstorm at 2.45 p.m.

7th.—*Addington* (III). Thunderstorm.—*Ipswich* (IV). Thunder-

storm, very heavy hail, and rain ; 1·19 in. fell in nine hours, between 9 a.m. and 6 p.m.—*Coston* (VII). Single clap of thunder at 1.30 p.m.—*Melrose* (XII). Distant thunder.

11th.—*Glenturk, Bangor* (XXII). Heavy rain last night ; S.W. wind ; total fall 1·15 in., max. of month.

15th.—*Addington* (III). Very warm ; max. 79°.—*Cambridge* (III). Very warm summer day.—*Compton Bassett* (V). Very hot sun ; max. in shade 78°.

16th.—*Halifax* (IX). Temp. on grass down to 28°.

17th.—*Addington* (III). Thunderstorm at night.—*Oxford* (III). Thunderstorm at night.—*Cambridge* (III). Lightning in S.W. after 11 p.m. ; thunderstorm till 2 a.m. of 18th, and thunder at intervals all day.—*Wetherden Rectory* (IV). Sudden change to cold.

18th.—*Addington* (III). Thunder.—*Diss* (IV). Distant thunder.—*Bucknall* (VII). Thunder.—*Calcethorpe* (VII). Thunder at 7 a.m.—*Melrose* (XII). Hail.—*Cork, Royal Institution* (XX). Heavy shower of hail at 2.15 p.m.—*Kylemore* (XXII). Frequent hail showers.

19th.—*Enfield* (I). Thunderstorm, without rain.—*Cambridge* (III). Large hail at 5 p.m.—*Diss* (IV). Heavy hailstorm at 9.40 a.m., and at mid-day thunder.—*Ipswich* (IV). Thunderstorm, with much hail, quite covering the ground.—*Cheadle* (VI). Thunderstorm, with hailstorm.—*Bucknall* (VII). Thunder.—*Halifax* (IX). Thunderstorm, with hail.—*Melrose* (XII). Thunder.—*Strathconan* (XVIII). Snow on the hills.—*Tytherton* (V). Thunderstorm, and again on 28th.—*Bushy Hill* (XIV). Hail.

20th.—*Enfield* (I). The fall (1·13 in.) commenced about noon, and terminated shortly before 5 p.m.—*Harrow* (I). As the fall here, 1·16 in., differed much from the Greenwich and London returns, I fancied I must be wrong, but on applying to my nearest neighbour, the Rev. R. J. Knight, I found that he had registered more than I had ; 1·24 in. against my 1·16 in.—*Bucknall* (VII). Thunder.—*Melrose* (XII). Forked lightning at 9.40 p.m.

21st.—*Woodlands* (X). Very dark all day, but at 6.25 p.m. heavy rain, thunderstorm, and a most violent wind commenced, and lasted half-an-hour ; ·39 in. of rain fell in the time.—*Jane Ville* (XX). 1·02 in. fell in four hours—10 a.m. to 2 p.m.

23rd.—*Cheadle* (VI). Fresh wind from W., bar. rising rapidly.—*Calcethorpe* (VII). Thunder at 11.30 a.m.—*Halifax* (X). Thunderstorm.—*Melrose* (XII). High winds.

24th.—*Coston* (VII). Very high wind at midnight,

28th.—*Addington* (III). Thunderstorm, and max. fall of month, .58 in.—*Andover* (II). Thunderstorm, and large hailstones; .64 in. max. of month.—*Oxford* (III). Thunderstorm, and max. fall of month equal to .42 in.—*Cambridge* (III). Thunderstorm at 5 p.m.; .67 in. of rain between 5 and 7 p.m.—*Ipswich* (IV). Thunderstorm, during which .75 in. fell in 45 minutes, between 5 and 6 p.m.; even at a distance of  $1\frac{1}{2}$  miles, only a slight shower fell.—*Compton Bassett* (V). Heavy thunderstorm, with hail and rain, at 3 a.m., from N.W.; total fall of rain 1.03 in., the max. fall of month.—*Coston* (VII). Wind veered from W. at 9 a.m. to N. during the day, and was very high at night.

29th.—*Diss* (IV). Heavy thunderstorm during the day.—*Brookbank*, *Teignmouth* (V). Heavy thunderstorm; fall of rain between 9 a.m. and 10.30 a.m., equal to .20 in., and between 10.30 a.m. and 6 p.m. equal to .55 in.; total in 24 hours, .81 in., max. of month.

30th.—*Halifax* (IX). Temp. on grass, 28°·6.

#### JUNE.

1st.—*Forest Lodge, Maresfield* (II). The temp. varied from 70°·9 to 33°.—*Halifax* (IX). Temp. on ground, 31°·6.

3rd.—*Merton Villa, Cambridge* (III). Hot; distant lightning in N.W. after 10 p.m.—*Staunton, Gloucester* (VI). Heavy thunderstorm between 5 and 6 p.m.; the fall of rain in the hour was 1.05 in.—*Stanley* (IX). Brilliant day; thunder at night.—*Bodewryd* (XI). Thunder.—*Melrose* (XII). Hoar frost.

4th.—*Partney* (VII). Thunderstorm at 3.28 p.m., rain .07 in.; and from 4.5 to 4.17 p.m. rain .35 in.; total .42 in.; the rain was much more copious on the hill, e.g., at Langton, 1.10 in. fell.

7th.—*Sprouston* (IV). Wind very high and gusty.

9th.—*Enfield* (I). Thunderstorm from 11 a.m. to 4 p.m.; rain only .02 in.—*Addington* (III). Sharp thunderstorm, very near.—*Cambridge* (III). Thunderstorm from 3 to 4 p.m.—*Strathfield Turgiss* (II). Thunderstorm in S.E.—*Compton Bassett* (IV). Thunderstorm at 9 a.m.—*Dartmoor* (V). Thunder.—*Teignmouth* (V). Heavy thunderstorm from 7.45 to 9.15 a.m.; passed to N. of Teignmouth; nearest flash about  $1\frac{1}{2}$  miles distant.—*Fore Street, Kingsbridge* (V). Thunderstorm, 8 a.m.—*Tytherton* (V). Thunderstorm.—*Cheadle* (VI). Heavy rain at 11 a.m.—*Coston* (VII). Heavy rain from noon to 4 p.m., with occasional thunder and lightning.—*Llanfrechfa* (XI). Heavy thunderstorm, 8 to 10 a.m.

10th.—*Hailsham* (II). Thunderstorm at night.—*Coston* (VII). Heavy showers at intervals.

11th.—*Enfield* (I). Thunderstorm, noon to 3 p.m.—*Strathfield Turgiss* (II). Thunderstorm to S.E.—*Addington* (III). Thunder, and very heavy rain at times; similar weather on the 12th.—*Cambridge* (III). Thunder at intervals, 4 to 6 p.m.—*Ipswich* (IV). Thunder, and very cold night.—*Compton Bassett* (V). 11th and five following days cold.—*Dartmoor* (V). Thunder.—*Bushy Hill* (XIV). Thunder and lightning.—*Ballinasloe* (XXII). Heavy hail at 5.45 p.m.

12th.—*Enfield* (I). 1.35 p.m., thunderstorm; .30 in. in twelve minutes.—*Alton* (II). Very heavy thunderstorm, 2.14 in. of rain.—*Bromley* (II). Very high wind.—*Strathfield* (II). Thunderstorm to S.W.—*Cheadle* (VI). Heavy showers all day.—*Middlesborough* (IX). Thunderstorm during the afternoon.—*Stanley* (IX). Heavy shower at 2.30 p.m.—*Melrose* (XII). Large hailstones at 2.30 p.m.

15th.—*Addington* (III). We had a little, but a *very little*, hail; considerable quantities fell only one mile distant.—*Cambridge* (III). Strong wind from S.S.W.—*Tytherton* (V). A heavy gale with rain and hail.—*Coston* (VII). Showers all day, high wind in afternoon.—*Mansfield* (VII). Very high wind.—*Shap* (X). A great storm of wind and rain.

16th.—*Enfield* (I). Thunderstorm at 11 a.m.—*Cambridge* (III). Sudden and heavy showers.—*Melrose* (XII). Distant thunder.

17th.—*Enfield* (I). Thunderstorm at 3.50 p.m., from this time, when it was very violent and near, it continued till 4.55, when a down-pour commenced and continued to 5.12; the fall in 17 minutes was .79 in.; at 5.20 thunder and lightning re-commenced and continued with great violence till 6.5 p.m.; the total fall was .90 in.; a few large hailstones fell about 5 p.m.; at Tottenham the hail was tremendous.—*Addington* (III). Thunder.—*Beech House, Cambridge* (III). Thunderstorm from 6.30 to 9.30 p.m.; rainfall 1.59 in. I have had a gauge 12 years, and never had so large a fall in 24 hours. This storm came from the S.W. The fall at Granchester Mill was only .79 in.—*Merton Villa, Cambridge* (III). At 5.15 p.m. thunder commenced in S.W. about eight miles distant; 7.30, heavy rain began, ceasing about 9.30; the fall in two hours equalled .63 in.—*Hulcote Rectory, Woburn* (III). Thunder, and a little hail mixed with rain; within a mile of here the hail completely stripped the leaves off the potatoes, beans, and young plants; under the eaves of a cottage where it was driven, and where it fell also from the roof, I found it to be

nearly 18 in. deep.—*Wetherden* (IV). Much thunder.—*Uppfield* (VI). Thunderstorm in N.E. at 6 p.m.—*Coston* (VII). Thunder in the afternoon to S.E., and from 6 to 7.30 p.m. thunder and vivid lightning to N.W. and W., between six and eight miles distant.—*Stanley* (IX). Heavy thunder-shower.—*Llanfrehfa* (XI). Thunder and rain at 4.30 p.m.—*Melrose* (XII). .26 in. fell in 30 minutes.

18th.—*Addiscombe* (II). Thunderstorm.—*Dymchurch* (II). Heavy thunder-shower of short duration, hailstones the size of small nuts; in ten minutes (0.5 to 0.15 noon) .25 in. fell.—*Strathfield Turgiss* (II). Thunderstorm directly over this station.—*Merton Villa, Cambridge* (III). 10 a.m. thunder commenced in N.W. about two miles distant, 10.30 heavy rain began; rain in two hours, to 12.30, .40 in.—*Beech House, Cambridge* (III). Thunderstorm, 10 a.m. to 1 p.m., from N.E.—*Ipswich* (IV). Thunder.

21st.—*Llanfrehfa* (XI). Storms in the neighbourhood; a few drops only here.

24th.—*Ospisdale* (XIX). 1.05 in., the only fall in the year that exceeded .78 in.

26th.—*Melrose* (XII). Hail.

28th.—*Melrose* (XII). Fog.

29th.—*Enfield* (I). Thunderstorm, 4.30 p.m. to 7 p.m.; thunder incessant in N. and N.E. from 5 to 6 p.m.—*Cambridge* (III). Thunderstorm from 6 to 7.30 p.m.—*Addington* (III). Heavy thunderstorm, began about 5, very near at 6.30 p.m.—*Cardington* (III). 2.50 in. of rain fell between 7 and 8 p.m. during a thunderstorm, being the heaviest fall during the last 30 years. A large elm was struck, and two cows standing under it were killed, and some stabling about two miles distant, was set on fire by the lightning.—*Newport Pagnell* (III). After a very close, heavy day, we had a thunderstorm lasting more than two hours, commencing about 6 p.m. During this storm we must have had fully 2.00 in. out of the 2.76 in. measured on the morning of the 30th. At Olney, 4½ miles distant, they had but a moderate fall of rain, while ours was the largest I ever remember in the midland district.—*Hulcote Rectory* (III). Heavy fall of rain, 1.58 in., accompanied by thunder but no hail.—*Dunmow* (IV). Fearful thunderstorm, lasting from 5 to 7 p.m., and damaging houses, &c.; 1.46 in. of rain fell.—*Calcethorpe* (VII). Thunderstorm from noon to 2 p.m.; max. fall (1.61 in.) since 29th September, 1871.—*Leicester, Dane Hills* (VII). Thunderstorm from S.E. 2 p.m., rain .40 in.; thunderstorm from W. at 3 p.m., S.E. at 3.30; heavy rain 5 to 6,

and up to 9 p.m. 1·10 in., and from that time to 9 a.m. ·65 in., total 2·15 in. ; while at the Museum only 1·77 in. fell, and at Belmont Villa 1·66 in. The storms were evidently partial ; the storm at 3 p.m. came up from west, just caught this, the west end of Leicester, and then after a pause was driven back by a S.E. current. I think this storm did not reach the Museum, and thus caused the difference in fall. There was scarcely any rain at Kettering, 27 miles distant. —*Chester* (VIII). Of the ·76 in. registered ·50 in. fell in half-an-hour. —*Stanley* (IX). Thunder and continuous rain, 1·33 in.

## JULY.

1st.—*Cambridge* (III). Thunder at 7 p.m.—*Broughton-in-Furness* (VIII). About 2 p.m. ·80 of rain in 20 minutes, being at the rate of 2·40 per hour, accompanied by thunder and vivid lightning.—*Buckden* (IX). Heavy thunderstorm and great fall of rain, 2·07 in.—*Woodlands* (X). Thunderstorm at 5 p.m., of 30 minutes' duration.—*Rhug, Corwen* (XI.) Very sultry ; heavy thunderstorm.

2nd.—*Bushy Hill* (XIV). Thunder and lightning.

3rd.—*Enfield* (I). Heavy thunderstorm from 3.30 to 5 p.m.

8th.—*Llanfrechfa* (XI). Thunder 6 p.m., towards the W.

11th.—*Enfield* (I.) Thunder and lightning at 11 a.m.—*Sprowston* (IV). Thunderstorm at 4 p.m.—*Druid House, Ashburton* (V). Very heavy storm of wind, trees blown down.—*Brereton* (VI). Thunder at 3.15 p.m.—*Keith* (XVII.) 1·64 in. of rain ; the max. of month, accompanied by high wind from N.W., which caused serious damage to cereals.

14th.—*Hanworth* (I.) 14th and 15th, the greatest fall (2·11 in.) for the last three years.—*Bromley* (II). 14th and 15th very heavy rain, small fruit very much damaged.—*Canterbury* (II). 14th to 19th, 4·00 in. fell during these 6 days, but no flood occurred in the valley. —*Shillinglee Park* (II). Rain 1·68 in., largest fall in 24 hours since 1868, and on July 15th 0·66 in., not having ceased for 48 hours.—*Tenterden* (II). 1·46 in. fell between 8.30 p.m. on 14th and 8.30 on 15th.—*Bishops Cannings* (V). The fall on this day, 2·20 in., was from the S.E.—*Cleavelands, Lyme Regis* (V). No thunderstorm, but a steady downpour, 2·72 in.—*Lyme Regis* (V). 1·90 in. fell within 24 hours ; the vale of the river Axe, six miles from here, was completely covered with water ; the damage done to hay, unmown grass fields, and in some places to wheat, is immense ; whole fields of grass hay washed

away, and the corn crop laid down so much that it is doubtful if it will rise again.—*Reevy Farm, Kempsford* (VI). The greatest fall ever recorded here in one day, 2·39 in.—*Rocklands, Ross* (VI). The fall (3·36 in.) on this day exceeds any previous fall during the 23 preceding years; the two next highest were 2·20 in. on 7th July, 1853, and 1·98 in. on the 7th of April, 1858.

15th.—*Oxford* (III). The river Cherwell began to rise on the 15th, attained its greatest height on 23rd; the total rise from 15th was 3 ft. 2 in.—*Ashley Down* (VI). 15th and 16th great floods.

17th.—*Worsted* (IV). 17th and four following days remarkable for the enormous rainfall, 6·95 in.—*Calcethorpe* (VII). Thunderstorm; 1·36 in., max. of month, fell in 5 hours.

18th.—*Weldon* (III). Great storm on N. border of Northamptonshire; its E. extremity was between Dene and Bulwick; at Dene much rain fell, at Bulwick a few drops only; it reached Uppingham on the N., but at Wing there were only a few drops. Of its S. and W. limits I can give no idea, but I believe it was worst at Weldon, where it carried away a great length of wall. I hear that the gardener at Rockingham Castle measured 2 in. as falling in 2½ hours. H. A. Boys.—*Whitley Convalescent Home* (X). Severe thunderstorm.—*Chester-le-Street* (X). Violent thunderstorm.

19th.—*Stanley* (IX). About this date low grounds very much flooded, with great damage to the corn and root crops.—*Melrose* (XII). Severe thunderstorm at 4.30 a.m., lightning bright blue, in large sheets.

20th.—*Birmingham* (VI). 1·56 in. between 1 and 7 p.m.—*White Lackington* (V). ·62 in. of rain in half-an-hour.—*Hagley Rectory* (VI). Rain began at 4 p.m.—*Coston* (VII). The flood in this village was higher than has ever been recorded.—*Dane Hills, Leicester* (VII). Thunderstorm, heavy rain, floods in lower part of town 2 feet deep.

21st.—*Sprowston* (IV). A very wet day; 1·40 in. fell between 10 a.m. and noon.—*Mansfield* (VII). Thunderstorm at 2 p.m.—*Scaleby Hall* (X). Max. temp. of year 80°·0.

22nd.—*Cambridge* (III). Great floods in the Fen district.—*Bea-minster* (V). Thunderstorm.—*Sunnyside, Trowbridge* (V). The heaviest fall of the year (2·69), of which 2·53 in. fell in one hour, between 2 and 3 p.m. The storm was very local, hardly extending beyond the boundary of the parish. The storm was concentrated about two miles from my gauge, and a phenomenon resembling a waterspout was said to have been seen there. I went to the spot an hour later, when the rain had ceased, and the turnpike roads resembled the bed of an Alpine torrent

rather than the Queen's highway.—*Tytherton* (V). The heaviest rain ever recorded in 24 hours (2.10 in.) thunderstorm.—*Llanfrehfa* (XI). Thunder and lightning at 1 p.m.—*Kilkenny* (XXI). 1.26 in. of rain, max. of month, and thunderstorm.—*Iwisnag*. (XXI.) Tremendous storm among the hills in the neighbourhood of Castle Comer; some of the hills are 1,200 ft. high. A destructive flood ensued, in the streams which take their rise there, the river Dinin and its tributaries, but the Nore, our principal river, was not raised above its confluence with the Dinin, showing that there was no rain in Queen's County. The shower here was heavy, with some thunder and lightning, and .57 in. of rain. There was not any rain two miles distant in a westerly direction.—*Kilsallaghan* (XXI). Thunderstorm and max. fall of month.

23rd.—*Oxford* (III). Floods in the Thames and Cherwell valleys.—*Wetherden Rectory* (IV). .40 in. fell in 20 minutes at 3 p.m.—*Hengoed* (VI). Local whirlwind, carrying off hay, &c.—*Babworth* (VII). Thunderstorm.

24th.—*Kilsallaghan* (XXI). Thunderstorm and hail.

25th.—*Enfield* (I). Sharp, but brief, storm from 6.10 to 6.30 p.m.—*Wetherden* (IV). Quite a hurricane at 2 p.m., which lasted only about 10 minutes.—*Breton* (VI). Thunder with very large hail, 4.30 p.m.—*Sansaw* (VI). Temp. on grass 37°.5.—*Bushy Hill* (XIV). Hail.

27th.—*Halifax* (IX). Temp. on grass down to 36°.

28th.—*Oxford* (III). Floods sinking.

29th.—*Trevalyn Hall* (XI). Max. temp. of year 81°.

#### AUGUST.

2nd.—*Fore Street, Kingsbridge* (V). Thunderstorm.

3rd.—*Enfield* (I). Thunderstorm 2.30 to 5 p.m.—*Addington* (III). Thunder.—*Compton Bassett* (V). Thunder.—*Ham* (V). Thunderstorm.—*Teignmouth* (V). Thunderstorm.—*Tytherton* (V). Thunderstorm.—*Breton* (VI). Severe thunderstorm between 2 and 3 p.m.—*Shap* (X). Thunder.—*Llanfrehfa* (XI). Distant thunder.—*Melrose* (XII).—Thunder, 12.30 p.m.—*Cessnock* (XIV). Thunder.

4th.—*Beaminster* (V). Heavy thunderstorm at 5.15 p.m.

6th.—*Diss* (IV). Frequent thunder at 2 a.m.; severe storm to N.—*Dunster* (V). Rain fell without intermission from 8 p.m. to 9 a.m. on 7th, accompanied by thunder and lightning; amount 2.42 in.—*Teignmouth* (V). Thunderstorm at 11 p.m. in S.E. and E.—*Trevarrick*

(V). Lightning at night.—*Castle Malgwyn* (XI). Thunderstorm and heavy rain, 1.53 in. max. of month. From 6th to 10th, inclusive, 4.46 in. of rain fell, and on 10th the banks of three ponds a little above Cardigan gave way, fifty houses were flooded, and two lives lost.—*Llanfrechfa* (XI). Thunderstorm, with rain, at 5.30 p.m.—*Ystalyfera* (XI). Rain, 3.50, and greatest flood ever known.

7th.—*Enfield* (I). Violent thunderstorm from 1.40 to 5 p.m.—*Muswell Hill* (I). .43 in. fell here during the thunderstorm, which lasted from one to two hours; this is a very small fall as compared with the enormous falls which occurred at the same time in other places.—*Eltham Green* (II.) A violent thunderstorm commenced about 1.30 p.m., and rain shortly before 2. Between 2 and 3 p.m. the rain was tremendous, coming down at times in sheets. The lightning was terribly grand, and was followed immediately by deafening peals of thunder. The rain amounted to 1.66 in., of which 1.30 in. must have fallen in one hour between 2 and 3 p.m. The river Quaggy was flooded to the top of its banks.—*Bromley* (II). Heavy thunderstorm at 4 p.m.; the rain, 1.25 in. (max. of month), fell in an hour, but at West Wickham, 2½ miles away, there was not a drop.—*Forest Hill* (II). 1.48 in. (the heaviest fall I have ever registered), fell in one hour, during a violent thunderstorm; 1.45 p.m. to 2.45 p.m.—*Blessington Road, Lee* (II). The thunderstorm was local, Lee about the centre of it; the rain (2.37 in.) fell in less than 1½ hours.—*Bridge Street, Canterbury*. (II). A ribbon storm passed one mile to west of Canterbury, in a course S.E. to N.W.; it was a quarter of a mile wide, all slopes grooved and furrowed by the downpour. Rain at Canterbury not appreciable; one mile distant said to be 2.0 in.—*Harbledown* (II). A severe thunderstorm began in the S. at 0.50 p.m., no rain fell till 1.10 p.m., and in twenty minutes 2.12 was registered; the rain ceased at 1.35; at 2 the sun came out, and a glorious afternoon followed. Harbledown is a village on a hill, 1¼ miles from Canterbury Cathedral, with many large trees in the village, and extensive woods near.—*Cambridge* (III). Thunderstorm at 3 a.m.; thunder at 4.30 p.m., and distant lightning 9 to 11 p.m.—*Diss* (IV). Lightning in evening.—*Beaminster* (V). Thunderstorm, 1.30 a.m.—*Brereton* (VI). Thunderstorm 9.30 to 10 a.m.—*Mansfield* (VII). Thunder and lightning, noon to 2 p.m.; rain 2.21 in.; an incessant downpour during this time.—*Halifax* (IX). Thunderstorm.—*Ulley Reservoir, Rotherham* (IX). 2.40 in. fell, the max. of year, which obliged us to empty the gauge twice.

8th.—*St. Laurence* (II). Thunderstorm.—*Cambridge* (III). Lightning in E., 10 to 11 p.m.—*Oxford* (III). Thunder.—*Compton Bassett* (V). Thunderstorm.—*Court Barn* (V). .91 in. fell between 11 p.m. and 8 a.m., a heavy thunderstorm.—*Druid Ashburton* (V). Thunderstorm, 10 p.m.; .80 in. max. of month.—*Teignmouth* (V). Heavy thunderstorm, at its height about midnight; a tree struck near Landscape.—*Trevarrick* (V). Thunderstorm in evening.—*Partney* (VII). Sultry day, evening fog, and the air particularly oppressive.—*Merthyr Tydvil* (XI). Thunderstorm.

9th.—*Enfield* (I). Sharp thunderstorm from 6.30 to 7 a.m.—*Diss* (IV). Thunder in forenoon.—*Beaminster* (V). Thunder at 1 a.m.—*Upfield, Stroud* (VI). A thunderstorm passed over here from S.S.E., beginning at 2.45, and ending at 4 a.m., rainfall .28 in.—*Bishop's Castle* (VI). Terrific thunderstorm, large lumps of ice fell, which I heard falling while two miles distant, before the storm reached here.—*Tamworth* (VI). During a thunderstorm, which commenced at 5.55 and ended at 6.15 a.m., just twenty minutes, there fell .60 in., the heaviest fall in so short a time which I ever knew.—*Gainford* (X). Thunderstorm from 11.45 to 11.55 a.m.—*Strathconan* (XVIII). Thunderstorm at night.—*Bushmills* (XXIII). Thunderstorm, wind S.E.

10th.—*Chester-le-Street* (X). Tremendous thunderstorm; the storm burst in Newcastle, where I hear a fall of 2 in. in 12 hours was recorded.

11th.—*Cambridge* (III). Distant thunder at 1 p.m.; solar halo at 6.30 p.m.—*Bogside, Leochel Cushnie*. (XVII.) 1.20 in. of rain in one hour during a terrific thunderstorm; the lightning struck ten different places in this neighbourhood; this was the most severe thunderstorm for many years.

12th.—*Manor House, Hastings* (II). From 0.15 to 0.40 p.m., .39 in. fell during a thunderstorm.—*Hythe* (II). Thunderstorm; .56 in. of rain fell in 10 minutes, commencing at 0.50 p.m.—*Addington* (III). Thunder, and heavy rain.—*Cambridge* (III). Distant thunder at noon, and distant lightning at 10 p.m.—*Oxford* (III). Thunderstorm.—*Calcethorpe* (VII). Thunderstorm during the day, lightning at night; 1.50 in. the max. of month.—*Duke Street, Rochdale* (VIII). 2.26 in. fell in about 3 hours, 5 to 8 p.m., during a severe thunderstorm.—*Allithwaite* (VIII). The Welsh coast (50 miles distant) was seen clearer than we had ever noticed it before during 20 years.—*Walton* (VIII). Sharp thunderstorm, 2 to 4.30 p.m.—*Stanley* (IX). Thunderstorm.—*Holehouse* (XVIII). Thunderstorm.—*Kilkenny* (XXI). Thunder.

13th.—*Pewsey* (V). 1·30 in., thunderstorm, and max. of month.—*Walton* (VIII.) Thunderstorm.

14th.—*Coston* (VII). Much thunder and lightning.

16th.—Hot. The max. temp. in the year occurred at most stations. The following are some of the temperatures recorded: *Forest Hill* (II). 85°·7; *Forest Lodge* (II). 82°·3; *Newport, Isle of Wight* (II). 79°·2; *Addington* (III). 83°·0; *Cambridge* (III). 86°; *Audley End* (IV). 85°; *Culford* (IV). 84°; *Wereham* (IV). 84°·8; *The Graig, Ross* (VI). 82°; *Mansfield*, (VII). 83°·5; *Stanley* (IX). 80°·0.—*Melrose* (XII). High wind, thunder at 4 p.m., S.E.; high wind also on 21st and 25th.

19th and 20th.—*Bromley* (II). Fogs.

28th.—*Cambridge* (III). Heavy rain from 8 p.m. to midnight.

29th.—*Tain* (XVIII). During a thunderstorm ·37 in. fell in less than 15 minutes.

30th.—*Coston* (VII). High wind.—*Cessnock* (XIV). Much lightning to the south.

31st.—*Cambridge* (III). Strong breeze from N.W.—*Sprowston* (IV). High wind, storm at 5 p.m.

#### SEPTEMBER.

1st.—*Shap* (X). Thunder.

2nd.—*Broughton-in-Furness* (VIII). 2·24 in. (max. of month) fell in ten hours.—*Ystalyfera* (XI). 2·75 in., and great floods.—*Beddgelert* (XI). Heavy rain, 2·06 in., making with the fall on the preceding day 4·92 in., and producing a great flood.—*Dalbeattie* (XII). The greatest fall in 24 hours (2·22) during 30 years.

3rd.—*Melrose* (XII). Thunder at 9.30 a.m.

6th.—*Bromley* (II). Fog.

8th.—*Enfield* (I). From 7·3 p.m. to 11·30 p.m., vivid lightning.—*Cambridge* (III). Distant lightning till 4 a.m., and in the evening.—*Ham* (V). Thunderstorm.—*Teignmouth* (V). Heavy thunderstorm at 11 a.m.—*Macclesfield* (VIII). Thunderstorm.—*Walton* (VIII). Lightning in evening.—*Halifax* (IX). ·98 in. (max. of month) fell in two hours, during a very severe thunderstorm.—*Chester-le-Street* (X). Thunderstorm.—*Melrose* (XII). Sheet lightning at 9·30 p.m.

9th.—*Walton* (VIII). Thunderstorm at 5 p.m.—*Bingfield House* (X). Thunderstorm.—*Bogside, Leochel Oushnie* (XVII). 1·08 in. fell

in  $1\frac{1}{2}$  hours during a thunderstorm in the morning.—*Kilsallaghan* (XXI). A heavy fall (.98) during a few hours in the middle of the day; the clouds appeared to concentrate over this place from the S.E. and S.W.; the amount was upwards of four times greater than at Dublin, less than 10 miles distant.

10th.—*Chalbury, near Wimborne* (V). Thunderstorm at 1 a.m., preceded by a rush of wind, which roused most of the dwellers in the house. The storm was all over by 2 a.m.; 1 in. of rain fell during this time, the effect of the downpour was plainly shown next day, by the gravel washed down the hill-side.

11th.—*Convoy House* (XXIII). .48 in. fell in one hour, 6 to 7 p.m., the heaviest rain, for the time, I ever measured.

13th.—*Walton* (VIII). Dense fog in early morning.

17th.—*Enfield* (I). Sharp thunderstorm at 1.50 a.m.—*Court Barn* (V). 1.72 in. (max. of month); this partly fell between 11 p.m. and 9 a.m. on the 18th, during a violent thunderstorm.—*Druid House, Ashburton* (V). 1.16 in. fell in the night of 17th (and probably the early morning of 18th), during a thunderstorm.—*Kilworthy Hill, Tavistock* (V). 1.33 in. (max. of month) fell during a thunderstorm at night.—*Walton* (VIII.) Thunderstorm in afternoon and evening.

18th.—*Cambridge* (III). Fog till 8 a.m.; intense heat; temp. 82°.—*Diss* (IV). Splendid weather, almost cloudless sky; heat in the middle of the day oppressive; ther. in shade at midday, 85°.—*Beaminster* (V). Thunderstorm at 6.30 a.m.—*Fore Street, Kingsbridge* (V). Thunderstorm.—*Teignmouth* (V). Heavy thunderstorm from midnight to 4 a.m. on 19th.—*Llanfrechfa* (XI). Thunder at 6.20 a.m.

19th.—*Oxford* (III). Thunderstorm.—*Cambridge* (III.) Intense heat; distant lightning 8 to 9 p.m.—*Compton Bassett* (V). Thunder at night, but no rain.—*Tytherton Lucas* (V). .62 in. fell in 20 minutes during a thunderstorm.—*Brereton* (VI). The thunderstorm in the evening of this day was extremely grand, intensely bright blue flashes of sheet lightning lit up the surrounding country, and almost simultaneously with it was seen the "forked," darting horizontally across the sky, sometimes high above the horizon, sometimes low down; the storm came up suddenly; between 6.30 and 8 p.m. the rain and hail fell heavily.—*Coston, Melton* (VII). Distant lightning between 7 p.m. and 10 p.m.—*Fox Hill, Frodsham* (VIII). Thunderstorm; a close, sultry day, was followed at 7 p.m. by heavy and continuous thunder and lightning and torrents of rain, nearly the whole of the 2.00 in. recorded fell in about two hours-and-a-half, doing considerable damage

to roads, walls and hedges. One man was killed, and several were injured by the electric fluid.—*Macclesfield* (VIII). Thunderstorm and vivid lightning.—*Walton* (VIII). Very severe thunderstorm, 6.30 to 10 p.m.; 1.11 in. the max. of month.—*Broughton-in-Furness* (VIII). Thunderstorm, lasting only from 10.55 p.m. to 11.15 p.m., and during half that time the rain was but slight, yet in the morning I measured .76 in., nearly all of which fell between 11 and 11.10 p.m.; the roaring of the tempest was fearful, and almost overpowered the noise of the thunder, loud though it was.—*Woodlands Rectory* (VIII). .76 in. fell in less than 20 minutes during a thunderstorm, which commenced at 10.55 and ceased at 11.15 p.m., the great bulk, indeed nearly all, fell between 11.0 and 11.10 p.m.; the sound of the rushing water was awful, the gravel was washed from my garden walks, and the highway in front was the bed of a river.—*Shap* (X). A storm of thunder and lightning.—*Melrose* (XII). Sheet lightning at 8.30 p.m.—*Bushmills* (XXIII). Thunderstorm.

20th.—*Llanfrecha* (XI). Thunder and storms at 4 p.m.

21st.—*Addington* (III). Fog in morning.

22nd.—*Skibbereen* (XX). 2.01 in., max. of month; heavy floods, much damage done.—*Glenturk, Bangor* (XXII). Equinoctial gales.

24th.—*Enfield* (I). Heavy thunder, with almost continuous and very vivid lightning from 9 p.m. on 24th to 2 a.m. on 25th.—*Croydon* (II). Terrific thunderstorm at night; 1.13 in. fell in one hour.—*Cambridge* (III). Lightning in S.W. after 10 p.m.—*Coston, Melton* (VII). Lightning in the night, and early morning of 25th.—*Partney* (VII). Thunderstorm at 4.15 a.m.—*Dalnaspidal* (XVI). Severe storms of wind and rain.

25th.—*Cambridge* (III). Thunderstorm from 1 to 2.30 a.m.; distant lightning 8 to 9 p.m.—*Beverley* (IX). A violent storm, with 1.67 in. of rain, the max. fall in year, followed by other storms.—*Jane Ville* (XX). Rain commenced at 11 p.m., and continued till 6 p.m. on 26th, 3.01 falling in 19 hours.

26th.—*Cambridge* (III). Gale from W.S.W. from 11 p.m. to 5 a.m.—*Inverbraan* (XVI). Heavy rain storm with thunder at night.—*Warrenpoint* (XXIII). The fall of rain on Sunday, the 26th (2.69) is unparalleled in this quarter; the damage done by that fall in this county is estimated at £20,000; the remainder of the month fine.

27th.—*Sprowston* (IV). High wind in evening, gale all night.—*Compton Bassett* (V). Heavy rain at night.—*Broughton-in-Furness* (VIII). Very high wind.—*Buckden* (IX). A heavy gale from the W.

which did much damage in various parts of the country.—*Stanley* (IX). Severe gale in the night, very destructive to fruit.—*Shap* (X). A great storm of wind.—*Holehouse* (XIV). 1.50 in., max. of month; thunderstorm at night, the only flood we had.—*Pinmore Girvan* (XIV). The fall on this day (3.45 in.) the heaviest recorded during the nine years in which a rain gauge has been kept; the greater part (probably about 3.00 in.) fell between 6 p.m. on 26th and 4 a.m. on 27th; the flood in the river and its tributaries unexampled; in this Road Trust alone, about ten bridges have either been completely destroyed or rendered useless, beside several private and one railway bridge entirely swept away; ash trees from 2 feet to 2½ feet in diameter uprooted and bodily swept down the river, and deposited in a field two miles down; happily there was no loss of life, but there were many painfully narrow escapes.—*Old Deer* (XVII). 2.23 in. fell in about 14 hours.—*Dava* (XVIII). Thunderstorm; 2.88 in. of rain, max. of month; high wind from N.—*Carrick-on-Shannon* (XXII). 1.20 in. max. of month; E. and S.E. winds prevailed.—*Ballinasloe* (XXII). 1.46 in. max. of month, and heaviest fall since 23rd of August, 1873.

27th.—*Enfield* (I). Slight thunderstorm 4.10 p.m.—*Forest Lodge, Maresfield* (II). 0.34 in. fell as hail during 15 minutes in a thunderstorm.—*Bleak House, Hastings* (II). Heavy gale.—*Addington* (III). Thunderstorm in afternoon.—*Oxford* (III). Thunder with hail and high wind.—*Diss* (IV). Rain, hail, and thunder at 2 p.m.; distant thunder at intervals on this and following day.—*Macclesfield* (VIII). Thunderstorm.—*Walton* (VIII). Tremendous gale 1 a.m.—*Castle Malgwyn* (XI). Stormy, with heavy showers.—*Melrose* (VII). Strong westerly gale for 12 hours; lightning at 5.30 a.m.—*Tillydesk* (XVII). 2.43 in. fell between 2 a.m. and 11 a.m.—*Cork, Royal Institution* (XX). Great flood in the Lee; all the low parts of the city flooded.

28th.—*Cambridge* (III). Thunderstorm at 2 p.m.—*Compton Bassett* (V). Thunderstorm.—*Melrose* (XII). High wind, N.W.

29th.—*Melrose* (XII). High wind, W.

#### OCTOBER.

2nd.—*Enfield* (I). Thunderstorm, with heavy hail and rain, from 4.5 to 4.55 p.m.—*Addington* (III). Thunder and heavy rain.—*Cambridge* (III). Aurora at 9 p.m.—*Melbury* (V). A hurricane, its course was about 100 yards wide. Several trees were uprooted; tops of

fine young oaks snapped off, and the ground all along strewn with limbs and branches.—*Orcheston St. Mary* (V). .50 in. fell in 20 minutes, and .80 inch in an hour.—*Cessnock Park* (XIV). Sheet lightning at night.

4th.—*Melrose* (XII). High wind, W.

9th.—*Long Wittenham* (II). 1.44 in. fell in about 4 hours; heaviest between 2 and 3 p.m.; heavy and sudden flood in the upper Thames. *Berkhampstead*—(III). 1.18 in. fell during the evening and night; the temperature fell from 57° at 10 a.m. to 44°·5 at 5 p.m., and to 35°·5 on the following morning; large flakes of snow fell with the rain in the evening.—*High Street, Banbury* (III). Rain between noon and 10.30 p.m., 3.25 in.; highest flood known.—*Broughton near Banbury* (III). 2.95 in., the greatest fall I have ever registered; the greatest previously was 1.75 in. on 15th August, 1867. Rain began about 11.30 a.m., when the wind was due S.; between 12 and 1 p.m. it changed to W.N.W., and the rain became heavier, indeed from 1.30 to 2.15 it was tremendous, the wind increased all the afternoon, till in the evening it blew a gale, the rain continuing till 9 p.m., when the wind went down, and the rain ceased.—*Kingham* (III). The greatest fall in the time which I ever remember, commenced at 11 a.m., and continued without ceasing till 11 p.m. (12 hours), when 2.22 in. had fallen. Some time since I put up some iron fencing to keep my sheep from the portion liable to floods, as it was found to give them the rot. I put the fence beyond where the flood had ever been known to reach, but on the morning of the 10th the water was 15 feet beyond the fence, and within a few feet of my hay rick; my farm-yard was flooded, not from the river, half a mile distant, but from the water that came from the ground above, and the men were up to their middle in rescuing the pigs, &c.—*King's Sutton* (III). The gauge was overflowing when measured at 9 a.m., probably more rain fell, say .25 in. (see nearest station, Mr. Beesley, of Banbury). I have entered the fall as 3.08 in., which is what the gauge holds. The whole neighbourhood flooded.—*Oxford* (III). Max. fall of month 1.72 in., with high winds, which continued during the two following days.—*Upper Heyford* (III). Rain commenced about midday, and continued for 10 or 11 hours; during the greater part of that time there was a strong N.W. wind; at midnight wind and rain ceased; total fall 2.50 in., being more than one-third of an inch above the average for the whole month.—*Brereton Villa* (VI). A severe thunderstorm coming from the N.E. shortly after midnight continued till 1.30 a.m.; lightning

very brilliant, and many of the broad luminous sheets were tinged with pink, blue and violet; there were a few flashes of forked lightning, which darted across the sky, apparently entering dark lowering clouds, whilst others swooped downwards towards the earth, the latter were followed by rattling peals of thunder (one being remarkably loud). No damage done by the lightning near here; the rain was incessant for 16 hours.—*Coventry* (VI). Rain commenced about noon from N.W., with strong wind, though at 9 a.m. the wind had been S.S.W.; total 1·70 in., which is the greatest fall in 24 hours that I have measured in the 9 years I have been observing.—*Evesham* (VI). Rain commenced at 9 a.m., and fell without intermission till 11 p.m.; total 1·88 in., the heaviest consecutive fall I have recorded during 10 years. The Avon rose rapidly, reached a max. height of 9 ft. 3 in. above mean level on the 10th, at 6 p.m., and kept at that height, with little variation, for 24 hours. Rain began from N.E., and backed, with wind, to the W. during the night, when it ceased; all the roads and meadows by the river are under water.—*Moseley* (VI). Rain commenced at 11 a.m., and continued without ceasing for 12 hours; wind at first N.N.E., having during the preceding night passed from S., S.S.E., S.E. and N.E., when the rain ceased; shortly before midnight the wind was W., so that between the night of the 8th and morning of 10th it had touched every point of the compass. Total fall 1·22 in., chiefly falling with a N. wind.—*Tamworth* (VI). Rain began at 11.30 a.m., and ended at 10.30 p.m. Total fall 1·14 in.—*Witcomb Court* (VI). 2·13 in. of rain fell in 13 hours.—*Ashby Parva* (VII). Rain began at 1 p.m., the atmosphere being as dark as in a London fog, so that it was difficult to read by a window; between that hour and 3 a.m. on 10th, when the rain ceased, 2·12 in. fell in a steady downpour.—*Coston* (VII). High wind.—*Leicester Museum* (VII). 2·17 in. from 1 p.m. to midnight; very heavy and continuous from 2 to 8 p.m.; westerly gale.—*Wing* (VII). After a very fine morning there came up clouds, and drops began to fall at 12.45, then a cessation till 1.50, when rain set in steadily, increasing till evening, when it was very heavy, with hail (about 7 to 8 p.m.), and continued until between 2 and 3 a.m.; total fall 1·20 in.; the brook between Wing and Manton greatly flooded on the day following.—*Partney* (VII). Began to rain about 4.30 p.m., an hour afterwards it fell heavily, and continued to do so until at least 1 a.m. on 10th; it was frequently accompanied by a strong wind. I noticed, about an hour before it began to rain here, that it was raining heavily over Langton,

1½ miles distant ; passing through Langton on the following morning I heard that they had had much more rain than even the large amount I had registered : Partney 2·01 in., Langton 3·25.—*Cessnock Park* (XIV). The first frost this season.

10th.—*Shap* (X). A great storm of wind and rain ; ·96 in. max. of month.—*Woodlands* (X). Showery till 3 p.m., heavy continuous rain afterwards ; total fall 2·08 in., max. of month.

11th.—*Enfield* (I). Thunderstorm 3.45 p.m.—*Walton-on-the-Hill* (VIII). Heavy rain at 4.30 p.m., thunder and lightning at 6 p.m.

12th.—*Compton Bassett* (V). First white frost.—*Brookbank, Teignmouth* (V). Thunder at 1.15 p.m.—*Calcethorpe* (VII). White frost ; min. on grass, 25·3.—*Melrose* (XII). Ice one-eighth of an inch thick.—*Budgate, Cawdor* (XVIII). Very frosty in the morning.

13th.—*Bushmills* (XXIII). Thunder, lightning, and hail.—*Drummanway* (XXIII). 1·36 in. fell in 68 minutes.

14th.—*Macclesfield* (VIII). Lunar rainbow visible for some time about 7.30 p.m.

17th.—*Partney* (VII). Parhelia seen.

18th.—*Cambridge* (III). Squalls, E. to S.E.—*Coston* (VII). Wind high all night.

19th.—*Oxford* (III). Thunder, lightning, hail and rain ; 1·66 in. fell in 10 hours after 11 p.m. ; river rising.—*Banbury* (III). Great flood, water 12 in. above rails at G. W. station.—*Bramford Speke* (V). The fall unprecedented since I have kept a register, and the consequent floods most disastrous.—*Compton Bassett* (V). Heavy rain, thunder.—*Meshaw* (V). 3·14 in. ; heaviest ever met with.—*Brookbank, Teignmouth* (V). Max. of month, 1·85 in. ; the rain began at 4 p.m., and from 6 to 8 p.m. it fell in torrents (with lightning and thunder), causing sudden floods, which did great damage.—*Landscore, Teignmouth* (V). 1·81 in. fell in two hours, causing great flood in Teignmouth ; Bank-street flooded 2 feet deep, and much damage done by washing away walls and buildings.—*Tytherton* (V). Very vivid lightning for some hours after dark.—*Tiverton* (V). Excessive rain in evening ; great floods.

20th.—*Harrow* (I). We had a persistent rain on the 20th, but not so much as elsewhere.—*Bayfordbury* (III). From 7 a.m. to 8 p.m. 1·04 in. fell.—*Burton* (VI). Burton Street submerged to a depth varying from 6 inches to 4 feet. The rainfall of October 18th to 20th exceeds that of July 19th to 21st by ·60 in., and correspondingly the present flood has been greater than that of July by 18 in. or 2 feet ; the flood in July was less in vertical height than that of November,

1852, by 5 or 6 inches, according to the most trustworthy accounts, so that this of October must greatly exceed that of 1852. The injury and inconvenience wrought by the flood are immense.—*Stanley* (IX). Max. of month, 1.30 in. ; low lands flooded by the long continued rain, but no great damage done.—*Gainford* (X). 1.70 in. (max. of month) fell between 1 p.m. and 9 a.m. of 21st.

21st.—*Cambridge* (III). Heavy rain, hail, and thunder at 5 p.m.

22nd.—*Oxford* (III). Floods at the highest.—*Diss* (IV). Sharp thunderstorm in evening.—*Brereton Villa* (VI). Gale, S.E. ; on 23rd gale E.—*Melrose* (XII). Lightning at 11.50 a.m.

23rd and 24th.—*Reading* (II). The greatest flood since 1852.—*Mansfield* (VII). Very fine.

25th.—*Addington* (III). One of the two finest days in the month, though preceded by a very red sky in the morning.—*Fermoy* (XX). 1.78 in., max. of month, and of any fall there registered.

26th.—*Druid House, Ashburton* (V). 2.25 in. recorded, the rain having commenced at 1 p.m., .20 in. more fell before midday on 27th, the whole (2.45 in.) having fallen in 23 hours.—*Court Grange, Newton Abbot* (V). The heavy storm on this day was remarkably localised, for while at Chudleigh and all along the valley it was very severe, at Bovey Tracey it was scarcely felt.—*Melrose* (XII). Slight aurora at 9 p.m.

#### NOVEMBER.

4th.—*Melrose* (XII). White aurora at 5.40 a.m.

5th.—*Ipswich* (IV). Very sudden and great fall in bar.—1 in. in 24 hours.—*Compton Bassett* (V). Hurricane and heavy rain.

6th.—*Harrow* (I). Hurricane from 8.15 a.m. to 8.45 a.m. was tremendous, and did some damage.—*Addington* (III). Large flood.—*Diss* (IV). Gale in forenoon, and blowing heavily all the rest of the day.—*Burnham* (V). High wind.—*Druid House, Ashburton* (V). Squally all day.—*Brereton* (VI). Heavy squalls during the day.

7th.—*Hailsham* (II). 1.50 in., max. fall of month 1.40 in., of which is believed to have fallen between 8 a.m. and noon, that is, in four hours.—*Coston* (VII). High wind.—*Cessnock* (XIV). Snow on north hills.

8th.—*Melrose* (XII). Snow on the Eildons.

9th.—*Bincombe* (V). Heavy thunderstorm.—*Druid House, Ashburton* (V). Thunderstorm.—*Calcethorpe* (VII). Solar halo.—*Bingfield*

*House* (X). Mock suns, with brilliant prismatic colours.—*Milltown, Malbay* (XX). An extraordinary fall of snow.

10th.—*Croydon* (II). S.W. gale and very low bar.—*Dymchurch* (II). 1·10 in. fell in 12 hours.—*Tenterden* (II). 1·46 in., the largest quantity I have ever registered in so short a time as 13 hours.—*Geldeston* (IV). 1·19 in. ; the only day in the year on which more than 1 in. fell.—*Saffron Walden* (IV). 1·02 in. fell in two or three hours during the night and caused a flood.—*White Lackington* (V). ·91 in. of rain in eight hours.—*Hutton Hall* (IX). 1·34 in. of rain.

11th.—*Uckfield* (II). Highest flood since 1852.—*Addington* (III). Very large floods.—*Halifax* (IX). Lightning.

12th.—*Bridge Street, Canterbury* (II). Valley of Stour flooded throughout, to two miles beyond Canterbury, after 2·58 in. had fallen during nine days.—*Imber* (V). The springs broke.—*Otterburn* (X). A large lunar halo, which lasted seven hours, and was followed on the 13th by very heavy rain ; 2·21 in. the max. fall of the year.

13th.—*Hailsham* (II). Very strong wind ; Pevensy Marshes one great sea.—*Addington* (III). Rain nearly all day, and heavy flood on the day following.—*Ilfracombe* (V). The greatest fall in a given time was on this day, when 1 in. fell between 9 a.m. and 3 p.m. ; about the latter hour, the Wilder stream burst its banks, and flooded the lower part of the town.—*Landscore, Teignmouth* (V). 1·50 in. of rain, and Teignmouth again flooded.—*Tytherton* (V). A violent gale on night of 13th and morning of 14th.—*Brereton* (VI). Rain, commencing at 1 p.m. ; 1·17 in. in ten hours.—*Hutton Hall* (IX). 1·65 in., and on following day 1·05 in., or 2·70 in. the two days.—*Hawes Vicarage* (IX). Max. fall of year 2·47 in. ; on this occasion there fell from 9 a.m. to 9 p.m. ·57 in. ; 9 p.m. on 13th to 9 a.m. on 14th, 1·90 in., or 2·47 in. in 24 hours, and a further fall of ·70 in. between 9 a.m. and 3 p.m., on 14th ; total in 30 hours, 3·17 in.—*Lockwood Beck* (IX). The small can inside the gauge overflowed on 13th, but measurement was made by employing the outer can. The rain-storm on this and following day commenced early in the morning, and ended about noon on the 14th, thus coming into the record on two days ; the total fall was 2·79 in.—*Kilrush* (XX). Remarkably high tide—3 ft. higher than usual.—*Bushmills* (XXII). 1·62 in. max. fall of the month ; storm from E.—*Glenturk, Bangor* (XXII). Heavy E. storm, with 1·42 in. of rain, the max. fall of the month, and great flood.—*Aghalee* (XXIII). The fall of this day (1·16 in.), the heaviest during the past eight years ; violent

gale ; two houses blown down at Lurgan, and a few chimneys at Coleraine, Newtownards, and in other parts ; considerable floods near Armagh.—*Moville* (XXIII). The greatest fall (2·54 in.) I ever registered ; the rain commenced at 1 p.m. on 13th.

14th.—*Bleak House, Hastings* (II). Heavy gale ; much damage done.—*Bridge Street, Canterbury* (II). Great gale from S.W. ; high tides, doing much damage at seaports.—*St. Lawrence* (II). A tremendous gale on 14th ; two large elms blown down in the grounds of the Consumption Hospital, a beautiful specimen of the Australian Gum Tree (*Eucalypt. Glob.*) was broken off within 8 feet of the ground. This tree had only been planted about five years, and had attained the height of 30 feet.—*Burnham* (V). Gale from W.—*Ashley Down* (VI). 14th and 15th. ; great floods.—*Coston* (VII). Wind veered to N., and became very high about 2 p.m., and continued so till 8 p.m.—*Partney* (VII). 2.30 p.m. remarkable darkness, and at 3 p.m. a strong gale continuing through the night.—*Llanfrechfa* (XI). Heavy gale from 8.30 a.m. to 5 p.m.

15th.—*Oxford* (III). G. W. trains cannot reach here on account of the floods.—*Tempsford* (III). Highest flood.

16th.—*Solva* (VI). Thunderstorm.

17th, 18th, and 19th.—*Brereton* (VI). Gales.

18th.—*Diss* (IV). Gale from W., beginning at 2 a.m.—*Cessnock* (XIV). Squally night, with much rain.

19th.—*Pinner Hill* (I). Gale of wind.—*Hailsham* (II). Very strong S.W. wind all night.—*Diss* (IV). Strong gale from W. and then from N., violent in the evening ; first snow this season ; frequent squalls on 20th.—*Sprowston* (IV). High wind all day, and severe gale in the night (W. and N.W.), doing much damage on coast, and blowing down many trees.—*Burnham* (V). Gale N.W.—*Compton Bassett* (V). Boisterous and stormy throughout.—*Chapel Allerton* (IX). 19th and 20th, 2·25 in. fell in 48 hours, an unusual quantity for this district.—*Woodlands* (X). Windy ; max. velocity 50 miles per hour from 4 to 5 p.m. ; average during the night, 23 miles.—*Glenturk, Bangor* (XII). Heavy shower during the night, after which no rain fell to the end of the month, the weather becoming cold and frosty with E. winds.—*Melrose* (XII). Very high N.W. wind.

20th.—*Sprowston* (IV). Stormy wind, some hail and thunder.—*Hutton Hall* (IX). 1·10 in. fell.

24th.—*Ford House, Bromsgrove* (VI). Snow.

25th.—*Diss* (IV). Ponds frozen first time this season.—*Bushy Hill, Cambuslang* (XIV). Snow.

26th.—*Tempsford* (III). First snow.—*Brereton* (VI). Min. on grass, 21°.—*Dingestow Court* (XI). 26th to December 10th, snow, hard frost, and skating.

27th.—*Ashley Down, Bristol* (VI). Intense hoar frost, and the coldest day in the month ; min. temp. on grass, 17°·6.

#### DECEMBER.

2nd.—*Hailsham* (II). December began with slight snow, increased on 2nd to a heavy fall ; very cold at night.—*Royal Institution, Cork* (XX). 2nd to 11th strong frost every night ; skating during almost the entire interval.

3rd.—*Tanfield Lodge, Croydon* (II). At 9 a.m. the snow was from 5½ to 6 inches deep in many places.—*Addington* (III). Snow 8 or 9 inches deep.

4th.—*Enfield* (I). Min. 21°·4, and on grass 12°.—*Forest Hill* (II). Min. of year on grass, 14°·5.—*Bridge Street, Canterbury* (II). Snow 8 in. deep ; a further fall of 6 in. on the 6th, making a total of 14 in.—*Hythe* (II). Depth of snow-fall between 5.30 p.m. on the 4th and 10 a.m. on 6th, 20 inches.—*Diss* (IV). Min. on grass 19°.

5th.—*Court Grange* (V). Min. temp. of year 20°.—*Melrose* (XII). Ther. registered 16°, and sea gulls were seen 30 miles inland on the same day.

6th.—*Enfield* (I). The snow that has fallen since the 1st would be 14 in. deep, and from the wind being high it is now drifted in some places to the depth of two or three feet.—*Bromley* (II). Deep snow, 9 inches on level.—*Forest Hill* (II). Snow 6 inches deep on the ground : the deepest I have ever known so early in the winter.—*Sansaw Hall* (VI). Min. on grass 14°.

8th.—*Bromley* (II). Rapid thaw.—*Cambridge* (III). The frost ceased.

12th.—*Addington* (III). A regular thaw set in.—*Arthurstone* (XVI). Snow about 12 inches deep.

14th.—*Enfield* (I). Fog.—*Addington* (III). Dense fog from 9 a.m. till noon.—*Brereton* (VI). Dense fog.—*Coston* (VII). Thick fog at night.

16th.—*Bromley* (II). Foggy.—*Llanfrechfa* (XI). Foggy.

18th.—*Castle Malgwyn* (XI). Very heavy rain, 1·26, max. of month.—*Melrose* (XII). High wind.

19th.—*Sansaw Hall* (VI). Very fine ; hot sun.—*Strolomus, Skye* (XVIII). Bright frosty morning, but changed to rain, with high S.E. wind and squalls during the night.

20th.—*Cambridge* (III). Weather became very mild.—*Diss* (IV). Heavy gale in early morning.—*Chester-le-Street* (X). High winds.—*Melrose* (XII). Lightning at 6 a.m.—*Cessnock Park* (XIV). Bar. fell half-an-inch between 9 a.m. and 10 p.m.; storms of wind and rain on the four following days.—*Royal Institution, Cork* (XX). Several flashes of lightning at night, an event of very rare occurrence here.—*Glenturk, Bangor* (XXII). Thunder and lightning at 9 p.m., 16 peals.

21st.—*Addington* (III). High wind.—*Cheadle* (VI). Gale from S.—*Blundel Sands* (VIII). High wind.—*Castle Malgwyn* (XI). Stormy and rainy.—*Llanfrechfa* (XI). Thunder at 1 a.m.—*Holehouse* (XIV). Heavy shower and stormy.—*Budgate, Cawdor* (XVIII). High wind at night.—*Strolomus* (XVIII). Strong gale from S. all day, increasing towards night.—*Strathconan* (XVIII). Hurricane during the night.

22nd.—*Enfield* (I). Hail, and frequent lightning after dark.—*Harrow* (I). Aurora from 9 to 11 p.m.—*Dartford* (II). From 1 p.m. to 1.3 p.m., .08 in. fell (nearly 0.03 in. per minute) during a sudden and short calm in the midst of gales from S. and S.W.—*Forest Hill* (II). S.W. gale in the morning.—*Sprowston* (IV). High wind.—*Druid Ashburton* (V). Very rough night.—*Brereton* (VI). Gale.—*Sansaw Hall* (VI). Windy; high wind, S.W., and heavy thunder in N.N.E. in the afternoon, but no rain till night.—*Buckden* (IX). Thunder.—*Carperby, Wensleydale* (IX). Thunderstorm in the evening.—*Bingfield House* (X). Thunderstorm.—*Woodlands* (X). Very high wind; max. velocity 70 miles an hour, and estimated average for the day 33 miles an hour. I have not yet heard of any damage resulting therefrom. There were frequent flashes of lightning from 6 to 7 p.m.—*Llanfrechfa* (XI). Lightning at 9 p.m., slight.—*Strathconan* (XVIII). Lightning at night.—*Strolomus* (XVIII). Gale from S.W. and N.W., with severe squalls, hail, rain, and lightning.

23rd.—*Kinloch Rannoch* (XVI). Lightning and high wind.—*Strathconan* (XVIII). Heavy fall of rain and high floods.—*Strolomus* (XVIII). Gale continued with heavy rain (2.65 in.), hail, and lightning.

24th.—*Cambridge* (III). Squalls from W.S.W.—*Strathconan* (XVIII). Very stormy.—*Glenville, Fermoy* (XX). Thunder and lightning in the evening.

25th.—*Sprowston* (IV). Very fine.—*Strolomus* (XVIII). Gale moderated; ther. rose to 51° in the night.

26th.—*Strolomus* (XVIII). Strong wind from S.

31st.—*Rocklands, Ross* (VI). It rained first, but snow was falling in the early morning of New Year's day.—*Castle Malgwyn* (XI). Heavy rain at night.

## OBSERVERS' NOTES ON THE MONTH.

## JANUARY.

I. *Muswell Hill*. Rainfall above the average, and the number of days on which it fell (25) unequalled since 1872.

II. *Forest Hill*. Wet, southerly winds prevailing, and very mild for the time of year. The month has been a great contrast to the preceding one in temp., the adopted mean ( $43^{\circ}6$ ) having been  $10^{\circ}1$  higher than in December, 1874.—*Bromley*. An exceedingly mild month, frequent rain but no heavy falls.—*Andover*. The rapid alternations of temp. have been very trying to the infirm and aged.

III. *Addington*. Very dull; little or no sunshine during the first three weeks, and during the remainder of the month not one entire bright day. The temp. has been (comparatively speaking) high; very little frost after the 2nd.—*Cambridge*. A mild month, with frequent showers. The mean max. and min. temp. being  $47^{\circ}5$  and  $37^{\circ}$  against  $36^{\circ}$  and  $26^{\circ}3$  in December.

IV. *Sheering*. Rain near the average. Mean temp. of month more than five degrees above the average of the last 15 years.—*Diss*. The sudden change from the severe weather of December to a warm and relaxing condition, which continued through the month, caused a great mortality among old people, and an unusual amount of sickness among persons of all ages, chiefly severe influenza and pulmonary attacks.—*Sprowston*. Rainfall only slightly above the average, but some nearly every day. A mild month, and pleasant change after the intense frost of the last week in December.

V. *Tytherton Lucas*. Very wet.—*Compton Bassett*. Very wet (rain having fallen more or less on 25 days) but very mild for January, the ther. having fallen below  $32^{\circ}$  on only four mornings.—*Dartmoor*. Almost continuous fogs.—*Altarnum*. The wettest month on record save December, 1868.—*Taunton*. Very mild, with an unusual number of wet days.

VI. *Sansaw Hall*. Very rainy, and generally warm.—*Brereton*. For the most part gloomy, wet and rainy.

VII. *Coston*. Very mild ; prevailing winds, W., S.W. and S. ; mean temp.  $40^{\circ}\cdot7$ , that of December, 1874,  $29^{\circ}\cdot8$ .—*Mansfield*. Dull, rainy, and windy, with few bright days ; mean temp. at 8.30 a.m.,  $41^{\circ}\cdot3$ .

IX. *Buckden*. After a storm of snow of nearly six weeks' duration, terminating with intense frost, a thaw set in on the evening of the 2nd, whence the temp. rose gradually till it attained its max. about the middle of the month, and continued with very few exceptions equable to the end.

X. *Chester-le-Street*. A dull, damp month.—*Measandbecks*. Beginning of the month hard frost and snow ; towards the middle rain and high winds ; latter part mild.—*Shap*. The month opened with a cold thaw, which lasted several days, so that the snow went away without any flood ; the land at the end of the month looked fresh and green, and the weather is more like the latter end of April than of January ; the floods in the latter part of the month have caused some damage to land near the rivers.—*Woodlands, Elterwater*. Extremely wet ; measurable rain fell on every day but one (the 21st) ; there were 5 days on which it exceeded 1.00 in., and the total was 17.58 ; the month was very mild, mean temp.  $41^{\circ}\cdot6$ .

XI. *Castle Malgwyn*. The weather has been exceedingly mild but stormy.

XVII. *Nairn*. With the exception of the morning of the 1st (when it was  $16^{\circ}$ ), the lowest reading of the ther. was  $25^{\circ}$ . The month was remarkable for light winds or dead calms, except on a few days.

XX. *Glenville*. The only month in four years showing rain every day.—*Kilrush*. Much rain, but snow on only one occasion, and that only a slight fall.

XXI. *Kilsallaghan*. The frost, which had lasted almost without intermission during the month of December, passed away with the old year. The weather here has continued mild during the whole of the month ; much rain has fallen, but not in large quantities at a time ; the atmosphere has been generally damp, and S. winds have prevailed.—*Kilkenny*. Very damp, constant mist, even on the days when the actual rainfall was not great.

XXIII. *Bushmills*. The month opened with a thaw, and after this there was no more frost. The wind was S. on 19 days, and generally very light.

## FEBRUARY.

II. *Croydon*. Cold and dry.—*Forest Hill*. Much snow, with N.E. winds.

III. *Addington*. Early part of month prevailing wind N.W., latter part N.E. We have had very little sunshine; the 15th and 22nd were fine, but the other days were dull. There were four days on which the temp. sank to 24°, and 25 days on which it fell to or below 32°.—*Cambridge*. Cold, more especially during the latter half. Mean temp. 7° below that of January; wind constant between N. and E., with frequent snow showers after the 16th.

IV. *Sheering*. Wind, northerly or easterly on 25 days out of the 28. Mean temp. more than 5° below the average (15 years); rainfall, .98 below the average (11 years).—*Ipswich*. Very cold, and very dry.—*Diss*. Beginning of the month warm and relaxing, then cold and wintry, with great prevalence of N. and N.E. winds. Snow remained on the ground from the 10th to the end. Much sickness about, particularly a severe form of influenza, whooping cough and all kinds of laryngeal and pulmonary affections.

V. *Tytherton Lucas*. A cold, ungenial month.—*Compton Bassett*. A genuine winter month—dull, hazy, and frosty, with frequent showers of rain and sleet until the 19th and 20th, when snow fell to the depth of 6 inches, and remained on the ground till the 26th, when a cold thaw set in and partially cleared the ground from snow, but on the 27th and 28th sharp frosts occurred and delayed the completion of a desirable thaw.—*Taunton*. Very cold month, especially the latter part; very useful in checking vegetation.

VII. *Coston*. A very different month from January; on the whole very cold and wintry. From the 17th to 28th a succession of E. and N.E. winds.—*Partney*. Remarkably gloomy, the sun and stars rarely being visible; the temp. rather low, and weather comfortless.

IX. *Buckden*. Cold ungenial weather, continued snow and frost; max. of cloud registered on 21 days.

X. *Chester-le-Street*. A chilly month; snow prevailed from 19th.—*Shap*. About the middle of the month frost, snow, and cold N.E. winds set in, making it very unpleasant for a great number of people who are at present suffering from colds, &c.; a few bitterly cold days ended the month.

XI. *Llanfrechfa*. Unusually cold and severe, especially the latter part; it has felt very cold from its great dampness, there not having

at any time been 3° difference between the wet and dry bulb thermometers.—*Castle Malgwyn*. Fine seasonable weather throughout.

XX. *Kilrush*. From 12th to the 20th fair, sunny and frosty ; from 20th to the end cold, with E. winds.

XXI. *Kilsallaghan*. Mild in the early part of the month, but very cold during the last week, with cutting winds, snow and sleet.

XXII. *Ballinasloe*. First week foggy, second rainy, last fortnight moderately fine, but cold.—*Kylemore*. Snow has fallen slightly on the tops of the mountains from 24th to 28th, but none below.—*Carrick-on-Shannon*. Middle of the month dry and frosty, N. and E. winds prevailing.—*Glenturk, Bangor*. First week fine, second rather cloudy ; 14th to 18th, inclusive, clear and warm ; thence to the end rather cold, with E. or N. winds.

XXIII. *Bushmills*. During the first half of the month the weather was very mild, with wind from S. ; from the 18th to the end there was an almost constant breeze from the E., which was exceedingly cold.

#### MARCH.

I. *Muswell Hill*. It is remarkable how nearly similar the fall in February and March 1874, was to that in the corresponding month in 1875 : February 1874, 1·16 in., and March, ·67 in. ; total, 1·83 in. February 1875, 1·09 in., March ·79 in. ; total, 1·88 in.—*Enfield*. Dry, dull, cloudy, and cold, with E. or N. winds. The dry weather and cold nights have kept vegetation back, and the pastures are very bare.

II. *Riverhead, Sevenoaks*. A more sunless March I never remember ; vegetation consequently backward ; temp. generally ranging from 30° to 40°, except on 24th, 25th and 26th, when the wind had changed from N. to W.—*Bromley*. Dry, sunless month ; remarkable absence of high wind for the time of year.—*Andover*. Very dry, dusty and cold, with E. winds.

III. *Cambridge*. A cold, cloudy and very dry month ; mean. temp. 1°·5 below that of January ; wind northerly or easterly, except on six days.

IV. *Diss*. Cold and cheerless, with a prevalence of E. and N. winds. The rainfall (·66 in.) is exceedingly small, and towards the end of the month the want of water was again felt. Sickness has been excessive and very fatal, both to young and old ; whooping cough, bronchitis, pleuro-pneumonia having been of frequent occurrence, while few people

have escaped violent colds or the attacks of a very severe form of influenza, with sore throat and much muscular pain.—*Sprowston*. A cold, but dry month.

V. *Tytherton*. A harsh, dry month.—*Taunton*. Hazy and sometimes foggy, with cold wind and much dust, occasioned by the deficient rain.

VI. *Sansaw*. Bitterly cold weather, cutting winds, either N.W. or N.E. The ground hard, dry and ungenial; vegetation very backward.

VII. *Coston*. Very dry and cloudy; wind E. and N.E., and, if it changed, it soon backed to those quarters.—*Partney*. This month, like February, has been very gloomy, sun rarely appearing, and the temp. generally low. Gales on five days.

VIII. *Walton, near Liverpool*. Very dry month; temp. low, and very little wind.

IX. *Stanley*. Vegetation very late, and rain much wanted.—*Buckden*. Dry, cold, sunless, and gloomy; less wind than usual; vegetation retarded, and all the usual consequences of long continued cold ungenial weather.

X. *Chester-le-Street*. Favourable for farming operations, but vegetation backward.—*Shap*. Farm work much kept back by the hard frost at the early part of the month; grass land looks much as it did at the latter end of December. Lambs seem to have come a month before their time. The mountains are thickly covered with snow. The farmers took advantage of the dry days at the close of the month to cast in their seed.

XI. *Llanfrechfa*. Very cold.—*Castle Malgwyn*. Very cold, but for planting and sowing, all that could be desired.

XII. *Melrose*. Unusually fine for March.

XVI. *Innerhadden*. Dry month, very trying for all stock, and for the constitutions of people.

XVII. *Mulben*. The weather everything the agriculturist could wish for.

XVIII. *Strathconan*. Frosty during the first half; spring weather during third week.

XXII. *Ballinasloe*. The first part of the month was very cold, but with good drying winds, which were very favourable to farmers. The latter part of the month very fine and mild, but invariably with an overcast sky.

XXIII. *Warrenpoint*. An unusually dry month; the weather for the most part favourable for out-door work, though rather cold.

## APRIL.

I. *Enfield*. Frequent frosts, and on the grass very sharp on several mornings.—*Muswell Hill*. Another month of slightly deficient rainfall, and only .03 in. less than April, 1874; taking the three months, February, March, and April, there is only 0.02 in. by which 1875 exceeds 1874.

II. *Bromley*. Fine, but cold; the mean min. of the month no less than 5<sup>·</sup>9 below that of April, 1874. Everything backward.—*Forest Hill*. Generally dry, except during the second week, when 1.21 in. fell. The weather was cloudy and cold till the 17th, then warm and fine to 21st.

IV. *Diss*. First three weeks very cold, with sharp frosts almost every night; the last week warm and genial. Gardens and field crops look well, in spite of the want of rain in the latter half of the month. Great show of fruit blossoms, but the frost has injured the gooseberries and young apricots. Much illness prevailing, principally in the form of bronchitis of a severe type, and whooping-cough.—*Sprowston*. A cold dry month.

V. *Compton Bassett*. Dry, rain having fallen on only eleven days. Vegetation backward and progressing slowly, owing to the frost at night and the drought of day.—*Dartmoor*. Air abnormally devoid of moisture throughout; winds easterly.—*Taunton*. Prevailing winds N. and N.E.

VII. *Coston*. The last two-thirds of the month very dry, and at times very hot; vegetation delayed through want of rain.—*Bucknall*. Exceedingly dry month.—*Partney*. Notable for absence of "April showers," for prevalence of misty weather, and a general gloom, which in this district has characterized this and the two previous months.—*Mansfield*. The early part wet and unpleasant, though by no means cold; occasionally bright mornings; from the 11th beautiful fine warm calm days (except from 21st to 23rd), to the end of the month; rain very much wanted; ground parched.

IX. *Stanley*. Vegetation forward, and quite uninjured by the frost; rain much wanted for domestic purposes, as well as for the land.—*Halifax*. Fine month; rain much wanted.—*Buckden*. Dry, with cold dry winds, night frosts, overcast sky, and hazy atmosphere.

X. *Shap*. The month began with bitterly cold days, and heavy showers of rain falling for the most part during the nights. Farm work going on in good order.—*Woodlands, Ambleside*. The month

was very dry (for this district), rain having fallen on only seven days ; mean temp.  $46^{\circ}7$ , and the range of temp.  $45^{\circ}$ .

XI. *Llanfrechfa*. Cold month ; wild flowers very late. 18th to 21st very warm.—*Castle Malgwyn*. Cold, and the hoar frost has blackened all the potatoes which were above ground ; but, taken as a whole, the seed time has been favourable.

XII. *Melrose*. Temp. unusually high for the month.

XVI. *Innerhadden*. A very good month for the lambing season, and also for the gardener and agriculturist.

XVII. *Mulben*. This month has been most favourable for the agriculturist.

XX. *Kilrush*. Changeable at the beginning, warm in the middle, and, on the whole, growing weather, though dry.

XXII. *Carrick-on-Shannon*. N.E. winds prevalent.

XXIII. *Warrenpoint*. Very dry, fine warm weather, with a summer sky, prevailed during the whole month.—*Bushmills*. The weather during the month has been remarkably fine ; more like June than April.

#### MAY.

I. *Harrow*. The oaks are a little in advance of the ash trees, and there is a promise of a good fruit year.—*Muswell Hill*. Rain, happily slightly above the average, as it tends to restore the balance caused by the deficiency of the previous months.

II. *Bromley*. Dry, with rapid variations of temp., but no frost till the last night, when it was sufficiently sharp to injure potatoes and scarlet runners ; the fruit was too advanced to suffer. Rain is much wanted ; grass very short and backward.—*Riverhead, Sevenoaks*. Cold after the 8th or 9th ; nights particularly chilly. Promise of fruit still continues good, but green crops are short from the want of rain and heat.

III. *Cambridge*. Most days very fine, with refreshing rains at regular intervals ; mean max. temp.  $65^{\circ}5$  ; mean diurnal range  $23^{\circ}$ . No sharp nights ; min.  $37^{\circ}$ .

IV. *Diss*. Except the stormy days of 19th and 29th, the weather has been warm and magnificent ; the rain on the 1st ( $\cdot52$  in.) came in time to save us from another short hay crop, and the grass, though not very abundant, looks good ; the garden and field crops also look well. During the first three weeks pulmonary attacks and influenza were still

prevalent, but before the end of the month the improvement in public health was evident.

V. *Compton Bassett*. The month has been most favourable to the crops, rain having fallen just when it was wanted.—*Clawton, Holsworthy*. The most beautiful May I ever remember, and every crop looks well; foliage particularly fine.—*Taunton*. This has been one of the finest months of May I ever remember. The prospects for hay, fruit, corn, and roots are most promising.

VI. *Sansaw Hall*. Cold and windy; ground dry and hard on the surface, but vegetation doing well, except grass, which in places exposed to the unclouded sun, is too much burnt up to recover itself this year.

VII. *Coston*. A dry month, though the rain falling between the 17th and 23rd did much good to our meadows and gardens. There was very little heavy rain, the showers being generally light.—*Mansfield*. The weather of the month has been very varied, but its general character has been dry and hot; vegetation has suffered much in consequence, and farmers and gardeners everywhere are complaining.

VIII. *Walton-on-the-Hill*. This year has been wetter than usual, and a low temp. has characterized the month throughout.

IX. *Stanley*. Vegetation rapidly progressing.—*Halifax*. Very fine month; rain much wanted towards the end.—*Buckden*. The temp., though pretty equable, was rather under the average; the general character of the month was mild (with the exception of occasional cold winds, and a few rather frosty nights), and was not, on the whole, unfavourable to vegetation.

X. *Chester-le-Street*. Hay likely to be very light, particularly on new land.—*Shap*. The month commenced with cold S.E. wind, and cold showers; about the middle, fine warm summer weather occurred, then cold, with drenching showers to 24th; then a few cold windy days. The month ended with three dry days, the 30th and 31st being as hot as if in August.

XI. *Castle Malgwyn*. Fine growing weather; vegetation has made great and rapid progress. Every appearance of an abundant harvest.

XVI. *Kinloch Rannoch*. A very good month, crops look well.

XVIII. *Budgate, Cawdor*. Very dry and windy.

## JUNE.

II. *Riverhead*. Temp. low for June.—*Bromley*. A dull showery month, with much thunder, but no storm in this immediate neighbour-

hood. Rain was much wanted for the grass, which is a poor crop ; fruit abundant and good.

III. *Addington*. Fine growing month, the max. temp. never high, except on the 3rd and 4th, when it was 81° and 79°, until the 8th ; very fine from 9th to 20th ; rain every day but one ; thunder frequent, and sometimes near.—*Cambridge*. Heavy rainfall for June (3·46 in.) ; thunderstorms and showery weather prevailed from 9th to 20th, and from 27th to the end. Temp. warm ; mean max. 69°, mean min. 49°.

IV. *Sheering*. Total fall 3·18 in., being 1·35 in. above the average of the last ten years.—*Sprowston*. Rainfall of month 1·56 in., about a quarter of an inch below the average, and for the first six months of the year we are about 2·50 in. below the average.

V. *Compton Bassett*. The first part of the month fine and clear by day, but cold at night ; the second part cool and showery almost every day ; the latter part dull and foggy, but warmer after 23rd. The crops are looking well, but bright sunshine is greatly needed for the hay.—*Tytherton*. A rather boisterous month.—*Taunton*. A most favourable month for agricultural affairs. A warm genial rainfall, in excess of the average ; hay and roots abundant ; cereals, fruits, and flowers most flourishing.

VI. *Sansaw*. On paper, the rainfall is seemingly a fair amount, but the winds were so bitterly cold and drying that the rain never penetrated the soil, and so, till the rains of the 28th, 29th, and 30th, vegetation was parched, having had no good supply since the 8th of December.—*Brereton*. Much colder and wetter than last June. The first week was bright and fine ; the last few days were very wet, the air reeking with moisture.

VII. *Coston*. Very dry till the beginning of the first rainy period on the 9th ; after the 17th the grass again became burnt up ; crops, &c., backward ; nights occasionally cold for June. The rainfall from 27th to the end more than equalled the fall in the previous part of the month, and was more penetrating than any previous fall this year.—*Partney*. Notwithstanding the amount of rain which has fallen, so dry was the state of the country, that in many places the moisture did not penetrate to the roots of vegetables until the end of the month.

VIII. *Walton-on-the-Hill*. Month very wet, cold, and unsettled.

IX. *Buckden*. Temp. rather low ; rainfall amply sufficient for vegetation. Much electrical disturbance in the middle of the month.

X. *Chester-le-Street*. The thinnest hay crop I ever remember.—*Shap*. Rather a wet month, at times very hot, but more frequently

cold ; thunder frequent, but distant. The air generally has been damp during the day-time—cold at night. The hay promises to be a first-rate crop ; corn, potatoes, and other crops are all looking well.—*Woodlands*. The coldest June for some few years, the mean temp. being  $54^{\circ}6$  ; S.W. winds most prevalent.

XI. *Llanfrechfa*. The latter part of the month unusually cold ; barley and oats much retarded thereby ; hay from artificial grasses much damaged ; hardly any meadow grass housed—very little cut ; unusually late.—*Castle Malgwyn*. The weather has been all that could be desired ; crops flourishing.

XII. *Melrose*. The beginning of the month dry and warm, the remainder showery, with little sunshine ; good growing weather.

XVI. *Levy, Callander*. Low temperature.

XVII. *Mulben*. Favourable for agriculturist ; crops look well.

XVIII. *Budgate*. Very dry scorching wind.

XXII. *Ballinasloe*. Showery, with cold winds, and very little sun.—*Carrick-on-Shannon*. Winds generally S. or S.W.—*Glenturk*. The first three days very fine and summer-like ; rain every day from 9th to 22nd inclusive ; clear fine weather from 27th to the end.

## JULY.

I. *Muswell Hill*. The total for the month, 5.20 in., may be considered about double the average for this district.

II. *Linton*. Very wet, yet not so as to cause floods.—*Bromley*. A cold wet month, with very unsettled weather ; remarkable absence of thunder. Second crop of grass very abundant.—*Forest Hill*. Very wet, cold, damp, and cloudy, the only fine weather occurring in the last week.

III. *Addington*. A cold and wet month ; brooks have been much flooded ; large quantities of hay have been carried off or injured by the rain.—*Merton Villa, Cambridge*. Remarkable for the unusually heavy rains, *without* thunderstorms, of the week from the 14th to 21st inclusive, 87 per cent. of the month's fall being gauged during that week ; the rest of the month was pretty fair and cool, the mean daily max. temp. being  $68^{\circ}$ . No rain of any importance after the 21st.

IV. *Sheering Rectory*. Total fall 4.15 in., being 2.21 in. above the average of eleven years—1864–1874.—*Diss*. A wet month with cold nights ; the rainfall in eight days—14th to 21st inclusive—amounted to 2.83 in., which is excessive for this district. Some hay was secured

at the beginning and at the end of the month, but in the middle much was injured, and some quite spoiled, but we may probably have a good second crop. The barley (large in quantity, I should think) is sadly knocked about, and its quality injured; the wheat, in many places, has stood up bravely, and looks well, but here and there it too is laid; straw will be plentiful; turnips and beet look well and vigorous; potatoes are much diseased, but the new parasite which has attacked the American rose, here, as elsewhere, has not, I believe, done any extensive mischief. Other garden crops are good, and slugs and insects have been less destructive than usual. There has been much illness, particularly pulmonary diseases and influenza.—*Sprowston*. An extraordinarily wet month; from the 9th to the 21st it scarcely ceased raining, and on the latter day rain descended in torrents, flooding every place, and causing great damage to the growing crops.

V. *Compton Bassett*. The weather during the month has been cold, wet, and ungenial for the crops, until the 20th, when a seasonable change to dry, bright, and sunny weather took place. The wheat and potatoes are the most affected round here by the late heavy rain.—*Taunton*. Rainfall in the month 4·18 in., the third highest of the 20 years of which I have the register.

VI. *Tamworth*. Total fall 8·26 in., or 33 per cent. of our *annual* fall. Max. fall was 2·40 in. on 20th, causing on the 21st the largest flood that we have had here since 1852; the result is, that 75 per cent. of the hay crop is either washed away, or spoiled by grit and dirt left by the water; the corn crops also are seriously damaged.—*Breton*. Rain began about 9 a.m. on 14th, with E. wind, and continued with scarcely any intermission for a whole week, the total being 4·47 in. The floods were tremendous, and most disastrous to the crops; scarcely any air in motion from 14th to 21st; on 18th and 19th the air was stifling and oppressive. No heavy thunder showers, but steady and continued rain.

VII. *Coston*. A very extraordinary month, the rainfall unprecedented. The fall of the three days, 18th, 19th, and 20th, was equal to the greatest monthly fall yet recorded by me, August, 1873. The weather after the 25th was fine, and favourable for hay-making, which had been much delayed by the rain, but the nights became very cold, and the mean temp. of the month was considerably below the average.—*Calcethorpe*. The recent heavy rains have done but very little apparent damage in this part of the country.—*Mansfield*. The rainfall in this month, though great (4·28 in.), is not excessive, being far below

what it is in some districts ; it is less than that of 1871, when 4·55 in. fell, and though greater by 0·24 in. than in 1872, yet, as 6·10 in. fell in the June of that year, the total summer fall is much less. Owing to the elevation, 350 ft. above sea level, and the good drainage, there have been no floods in the immediate locality.

VIII. *Walton, near Liverpool.* A very unsettled and cold month ; max. temp. on the 3rd, only 58°·5.

IX. *Halifax.* The heaviest rainfall in July (5·73 in.), for 40 years.—*Buckden.* Rainy, warm and close at the beginning, succeeded by several fine days, and then rainy to the 25th, but fine at the end ; on the whole, favourable for hay-harvesting operations.

X. *Chester-le-Street.* More rain fell in this month than in the three preceding it ; till the last week great fears were entertained for the harvest, and grain prices rose violently, but the month closed with more settled weather, and prices fell again. The fogs [“after grasses”] look well.—*Shap.* Began with wet, but it lasted only three days, and was followed by fine weather, though there were occasional showers. The hay is nearly all secured in good condition, and is a good crop.—*Woodlands.* Mean temp. slightly below the average ; the weather has been pretty favourable for farmers getting in their hay.

XI. *Llanfrechfa.* Much hay spoilt by the rain ; corn crops not injured.—*Castle Malgwyn.* Owing to the heavy fall of rain on 14th, the river Teifi was flooded, and destroyed some meadows of hay, they having the appearance of a lake ; no other damage was done.—*Heyhope.* Cold throughout. Violent thunderstorms, one of which killed a child near here.

XII. *Melrose.* The temp. has been cold for July, only one day on which it reached 80° ; very little sunshine, but much distant thunder.

XIV. *Cessnock Park.* The weather round Glasgow has been very fine ; the crops are good. We have had neither thunderstorms nor heavy rain to injure them.

XVII. *Keith.* Hay crop heavy, and pastures abundant ; barley heavy ; oats fair ; turnips and potatoes promise well ; weather, on the whole, favourable for growth.—*Mulben.* Notwithstanding the great fall of rain, 7·73 in., July has been favourable for agriculturists, and crops are looking better in this district than for the last few years, so we expect an abundant harvest.

XXI. *Imisnag.* July was a broken and rather wet month but, with the exception of a severe thunderstorm on the 22nd, not abnormal.—*Kilsallaghan.* July 7th to 21st cold and wet, with easterly winds ; the

weather cleared during the last few days, and the temp. became more summer-like. Mean temp.  $56^{\circ}\cdot 8$  more than  $3^{\circ}$  lower than that of July, 1874.

XXII. *Ballinasloe*. Fine, bright, and warm during the last ten days.—*Glenturk, Bangor*. Last week warm, fine, and summer-like.

#### AUGUST.

I. *Enfield*. The month, on the whole, has been favourable for harvest, especially the latter part. From the 15th to the end, very little rain fell.

II. *Bromley*. Fine month ; harvest very late ; potatoes bad.—*Forest Hill*. A dry month, except from 5th to 13th, during which time there were frequent storms, with a hot, damp, and oppressive atmosphere ; though cloudy, the month has been warm, the warmest this year, and the warmest August since 1871.—*Andover*. Splendid harvest weather ; hot sun, yet showers sufficient to refresh the gardens.—*St. Lawrence*. A fine genial month ; fruit very abundant, and but few wasps. Potatoes, 50 per cent. diseased. A bad honey year, combs only about half full.

III. *Cambridge*. A hot month after the 6th ; very fine harvest weather for a fortnight from 14th. Mean daily max.  $74^{\circ}$ , being  $6^{\circ}$  hotter than July.

IV. *Diss*. Splendid weather for the harvest, which, however, was not finished by the end of the month. Wheat is light, and barley not of good quality, but yet, matters have turned out better than was anticipated ; the root crops are good, and the second crops of hay and clover are heavy, and will go far to compensate for the scanty first crop. The gardens have done well, and the two potato diseases, new and old, which at one time threatened to destroy the crop, were cut short in their ravages by the warm dry weather. In my own and other gardens the yield of the American rose is excellent. The apple crop is heavy in places, but unequally distributed. Public health improved, the diseases of last month having given place to the usual summer diarrhoea, often accompanied by ulceration of the mouth and throat ; these attacks are certainly analogous to the foot-and-mouth disease of cattle, which has been extremely prevalent.—*Ipswich*. Very fine harvest month.—*Sproston*. A cool and very dry month. Rain about  $1\frac{1}{4}$  in. below the average. Harvest began about the 7th ; showery during the first week, but brilliant weather after the 13th, enabled the farmers to harvest their crops in excellent condition. Both wheat and barley are a poor crop, and the quality is inferior.

V. *Compton Bassett*. The weather has been very fine for maturing the grain crops, which are now being stored in good condition. The root crop has greatly improved, owing to the increased warmth of the soil from bright sunshine. The potato crop round here, about one-third diseased.—*Taunton*. The latter part of the month splendid for harvest.

VI. *Sansaw*. Fine weather in the latter end for harvesting.—*Brereton*. A fine month, on the whole ; the heat not excessive.

VII. *Partney*. Fine harvest weather from the 16th.—*Mansfield*. The early part of the month fine, wind chiefly from N. till the 9th, when a change took place, the direction during the remainder of the month being N.W. and S.W. The 7th was noted for the heaviest rainfall yet recorded ; for two hours an almost incessant downpour occurred, accompanied by thunder and lightning ; this was followed by broken weather for a week, the rest of the month being beautifully fine. A rather high wind on the last three days.

VIII. *Walton*. Greater part of the month unsettled.

IX. *Stanley*. Brilliant harvest weather after 14th. Corn wonderfully improved by the fine weather.

XI. *Llanfrechfa*. Wet month. Hay out at the end of the month, and only half the harvest secured.—*Castle Malgwyn*. The first half of the month has been wet, and much damage was done to growing crops, but the latter part was very fine.

XII. *Melrose*. The weather throughout has been warm, but not sunny ; prevailing wind, first 14 days, N. and E., afterwards S.W.

XVIII. *Stratheconan*. Rather a drizzly month ; 22 wet days.

XX. *Kilrush*. Fine harvest weather.

XXI. *Kilsallaghan*. Fine warm month, without much rain, except on the 9th. Mean temp. 3° above that of August, 1874. Easterly winds prevailed during the early part of the month, but westerly in the latter part.

XXII. *Carrick-on-Shannon*. S.E. winds prevalent.

#### SEPTEMBER.

I. *Muswell Hill*. First half of month generally dry, the second half wet.

II. *Croydon*. Fine and warm till the 16th ; wet from 20th to 28th.—*Bromley*. Very fine at the commencement, but wet and boisterous for the last ten days, with severe thunderstorms.—*Forest Hill*. The warmest September yet registered here ; the mean temp. was 1° higher

than that of June or July. The first half of the month was fine and dry, with easterly winds; the second half wet and variable, with westerly winds.

III. *Addington*. Very fine month for harvest work, but little rain falling until the 21st, when we had a good downpour, and another on the 23rd.

IV. *Diss*. Harvest concluded under the most favourable conditions. Wheat a light crop; barley better, but injured by wet in July; root crops good, but flagging much during the first three weeks for want of rain; the fall in the latter part of the month was most acceptable. Apples, pears, and wall-fruit abundant, and well ripened. Health, on the whole, improving.

V. *Compton Bassett*. The first part of the month showery, the middle brilliantly fine; from 20th to 28th rain fell, more or less, every day, and frequent thunderstorms occurred, accompanied by heavy rain and boisterous wind.

VI. *Sansaw*. Very warm, especially towards the end. Weather, though seemingly rainy, very enjoyable.

VII. *Coston, Melton*. Very fine till the 21st, when a cold, damp period set in, accompanied by high winds. Mean temp.  $2^{\circ}5$  higher than 1874, and  $5^{\circ}5$  higher than 1873.

VIII. *Walton*. Latter part of the month wet and unsettled.

IX. *Stanley*. Half the potato crop spoilt by disease; this might have been avoided if they had been gathered in a fortnight sooner, before the fungus had reached the tubers.—*Buckden*. Fine harvest month, till about the 21st; changeable, with rain, to the end, with falling temperature.

XI. *Llanfrefcha*. Remarkably calm; the gale of 26th not felt here.—*Castle Malgwyn*. Some fine weather, but, as a whole, it has been a wet month.

XII. *Melrose*. Weather favourable for the ingathering of the harvest. About 14 days in the middle of the month splendid harvest weather; fine, with drying E. winds.

XVIII. *Strathconan*. Beautiful harvest weather.—*Gairloch*. Weather generally clear, calm, and dry.

XXI. *Kilsallaghan*. The weather during the latter part of the month was very broken, with a succession of southerly and westerly winds, accompanied by heavy rains.

XXIII. *Warrenpoint*. Total fall 8.40 in. About half of the month was unusually fine, the heat being almost unbearable up to the 17th; then came a change, and the equinoctial gales with a vengeance.

## OCTOBER.

I. *Pinner Hill*. Rather cold; easterly winds more than half the month.

II. *Bromley*. Unsettled weather; high winds and heavy rains. The total fall, 4·33 in., is 1·35 in. above the average of ten years.—*Forest Hill*. Wet, cold, and gloomy, with E. winds, and very little ozone. Mean temp. 48°·4, 11°·6 below that of September, being the greatest fall between any two consecutive months I have ever recorded.—*St. Lawrence*. The weather has been, what I believe, a Sussex labourer, characterized as “'eavenly weather; it only rains o' nights, and on Sundays;” and yet more rain has fallen during this October than in any other October during the last ten years.—*Andover*. Generally wet and uncomfortable; now and then a bright day. The rainfall must be great to be injurious in *this* country, but it is becoming so now.—*Alton*. Total fall exactly the same as in October, 1874.—*Wantage*. Rainfall (7·89 in.) without parallel.

III. *Addington*. More rain has fallen here this month than in any one month since 1871; the brooks have been much flooded on different occasions, and the meadows covered with water, though not to the same extent as lower down the stream. Some days have been very fine.—*Cambridge*. Wet and cold after the 9th; very cloudy, with cold easterly winds towards the end of the month.

IV. *Diss*. Chilly, wet, and dull, but, as usual, we have had little or nothing of the severe storms which have been so prevalent in other parts of the country. The weather has been cold, but without sharp frosts. The farmers are hoping for fine weather. There has been much sickness, but no regular epidemic, unless the extraordinary prevalence of jaundice and bilious attacks (attributable, I suppose, to the alternations of heat and mugginess, and of cold, at the beginning of the month), may be so called.—*Sprowston*. Very wet; rain nearly an inch above the average.

V. *Compton Bassett*. Very wet, rain having fallen heavily on 18 days; the other 13 were dull and gloomy, not a blink of sunshine during the whole month. Very slight frosts.—*Tytherton*. Rainfall (7·36 in.) excessive; the heaviest ever yet recorded here in any one month.—*Kilworthy Hill*. The fall this month (7·43 in.) exceeds the average of (26 years) October (the wettest month of the year), by 2·14 in.

VI. *Upfield*. The total rainfall (6·95 in.) is the greatest fall in one

month for many years.—*Cheadle*. The wind blew from the east from the 17th to the end.—*Brereton*. Total amount of rain for nine months, ending September 30th, 23·79 in., thus exceeding the total for the whole of last year by ·90 in. The October floods were within about a foot of the July floods, and the rainfall exceeded that of the corresponding month of 1874 by 4·12 in. From 9th July to 19th September (inclusive), 72 days, the fall was only 6·69 in. on 27 days, while from the 20th of September to 28th of October (inclusive), 39 days, the fall was 9·21 in., and the number of rainy days 27. During the four months—July, August, September, and October, 1874—the fall was 9·75 in. ; during the same four months in 1875 it was 17·8 in., or nearly double.—*Leamington*. Total 6·49 in., being 3·94 in. above the average of 13 years.

VII. *Coston*. Another very wet month ; the marked periods of rain were the 9th to 12th, and the 18th to 23rd ; during the latter period fears were entertained of a flood as high as that of July 28th, the ground being so saturated that the ditches and streams were immediately filled. With the exception of the 24th and 25th, the sky was overcast almost continuously from the 19th to the 31st, the last six days being particularly dull.—*Calcethorpe*. The wettest month ever recorded, no considerable damage, however, was done by the rain.—*Mansfield*. The weather of October has been far from as genial and pleasant as customary ; instead of bright days, we have had an almost ceaseless succession of wet ones.

VIII. *Walton, near Liverpool*. A wet unsettled month.

IX. *Buckden*. Rainy, dull, and overcast, and towards the end cold, with easterly winds. The rainfall was considerable and persistent, with but few fair days.

X. *Woodlands*. Mean temp. 46°·7, which is about the average here, but is 2°·3 below October, 1874.

XII. *Melrose*. Wet, rain falling nearly every day ; the wind during the first half of the month was westerly, and in the latter half easterly.

XVI. *Kinloch Rannoch*. Wind easterly and cold ; corn crop generally secured.

XVII. *Nairn*. This district has been remarkable for its immunity from the storms of wind and rain which have prevailed over the greater part of the country ; during the last three weeks of the month these storms were very severe on the Aberdeenshire coast, within 50 miles of here, but we have had very little wind, and scarcely any rain.

XVIII. *Strathconan*. Fine weather for potatoes towards the end ; and the last week, very fine.—*Strolomus, Skye*. To the 10th squally and rough, remainder of month very dry, with wind from E. and S.E. Upon the whole, it has been a very dry season for Skye.

XXII. *Carrick-on-Shannon*. S. and S.E. winds prevailed.

#### NOVEMBER.

I. *Enfield*. The first half very wet, the rainfall to the 16th being 3·64 in ; in the latter half there has been an almost incessant fall of soft hail, with occasional snow crystals.

II. *Bromley*. Dull and showery, but, on the whole, mild.—*St. Lawrence*. First half of the month very wet. Cold weather set in on 21st, and continued to the end.

III. *Addington*. Early part very wet, causing heavy floods ; latter part frequent rain, but never much at a time. From 20th to the end very dull and cold, mean max. temp. of the last six days being only 35°·3.—*Cambridge*. Noteworthy for heavy floods (as in July), caused by the rainfall from 5th to 13th ; rain only light after the 13th. Weather mild till the 20th, then cold, with N.E. winds.

IV. *Diss*. Cold, sunless, stormy, and wet. The floods, although as nothing compared with those of other parts, have done considerable damage, and caused great inconvenience, by impeding farming operations. On the other hand, they have done much good, by washing out our not very sweet Waveney river, and removing the filth accumulated during the many droughts of the previous two years, and not only removing it, but *utilizing* it ; for a farmer, who had some meadows flooded, told me that it would put money into his pocket, as it would do more good than anything he could put on, and save him the expense of carting and spreading. The month ended as it began, with dull raw weather.—*Sheering*. More rain (3·78 in.) than in any November since I first registered (in 1864) ; in 1872 the fall was 3·41 in. ; the average for the 11 years, 1864—1874, is 1·76 in.—*Ipswich*. Sunless, dull, wet, and cold.

V. *Compton Bassett*. First half wet, rain having fallen on every day but three, to the 18th ; from the 19th to the end the weather was dry, but dull and gloomy, with boisterous winds from the N.E., and slight frosts almost every night.—*Beaminster*. Remarkable for strong transition of temp., and weather, *e.g.*, up to the 13th mild, with copious rainfall, which mostly fell in the night ; from 13th to end sharp

frost, increasing in severity, and on the last three days slight falls of snow.

VII. *Coston*. Very unsettled and stormy; the latter part very cold, with prevailing N.E. winds from 23rd to 30th.—*Calcethorpe*. The wettest month (5·76 in.) yet recorded here, although we had no really heavy fall.—*Mansfield*. Very damp and gloomy; mean temp., 9 a.m., 40°·3; mean max. 45°·4; mean min. 36°·1.

VIII. *Walton*. First half very wet, latter part dry and cold.

IX. *Stanley*. Although this has been a wet month, and the ground generally saturated with moisture, yet the floods have done very little damage here, beyond inconvenience to the farmers, &c.—*Buckden*. Temp. to 19th moderately high, thence to the end it was low. The month generally wet; rain during the early part, frost, snow, and inclement weather during the latter part.

X. *Woodlands*. Mean temp. 41°·2, being slightly above the average.

XI. *Llanfrechfa*. Total fall 8·90 in., being 5·22 in. above the average, 1864—1874; the greatest fall in November except in 1872, when 9·67 in. was registered.—*Castle Malgwyn*. So very wet that many of the farmers have not been able to sow their wheat or lift their potatoes.

XII. *Melrose*. Very cold and stormy; prevailing winds E. or N.E. on 21 days.

XX. *Skibbereen*. From 1st to middle wet, with occasional thunder and lightning; 19th to 27th heavy frosts, with clear sky; 27th to end sharp frosts, with E. winds.—*Kilrush*. First nine days mild, but wet. No rain after 14th; the middle of the month dry and pleasant, the last week frosty with E. winds.

XXII. *Carrick-on-Shannon*. S. and S.E. winds to about the middle of the month, then fair and frosty to the end.

#### DECEMBER.

I. *Muswell Hill*. In the first six days 9 to 10 in. of snow fell, but from evaporation it was never that depth on the ground.—*Enfield*. Total fall 1·66, of which 1·18 was melted snow, which fell daily till the 8th; from the 10th to the end the weather was generally mild and cloudy, and from the 24th, nearly calm.—*Harrow*. The first part of the month was frosty, with snow and fog, and the latter part generally dull and damp, with a few fine days; much milder. Birds, particularly

thrushes, singing boldly; Christmas Day was magnificent, clear and mild, and the birds singing in chorus.

II. *Tenterden*. The total depth of snow during the first week was 17 in.—*Bromley*. Very cold, with almost daily snow till the 6th, on which day it fell heavily, and was 9 in. deep on the level; after the 18th, the weather unusually mild for the time of the year; dry on the whole, and calm except on the 22nd, when the wind was very high.

III. *Addington*. First half cold, the mean temperature of the first 17 days was 31°; from 18th until the end, much milder, the mean temperature, 42°·5.—*Cambridge*. A variable month, frost and snow prevailing till the 8th, then mild weather, with only light wind at intervals till the end of the month; frequent fogs from 10th to 16th inclusive.

IV. *Bishop's Hill, Ipswich*. Nearly 12 in. of snow fell during the first five days, but no very sharp frost occurred; the snow went away very gradually, and the weather became mild, with much fog which set in on the 14th, more dense than I ever saw it in Ipswich before.—*Diss*. Cold, cheerless, and stormy till the 25th, with heavy gales; the last week fine, warm and pleasant, and very favourable for agricultural operations, which had been much delayed; there has been much sickness.

V. *Compton Bassett*. During the first week an early winter was indicated, as snow fell to the depth of 3½ in.; a second fall of 2 in. occurred on the 6th, but a gentle thaw set in on the 11th, and in three days the snow had all gone; thence to the end, variable, dull, foggy, and rainy, but very mild for the season.

VI. *Sansaw*. After the 10th, as remarkably warm as November was cold, so much so as to require lighter clothing; nights very mild.—*Brereton*. The first half raw and cold, the latter half warm and damp, S.W. or W. winds prevailed on twenty days.

VII. *Coston*. First part very cold with N.E. winds; latter part, milder, no frost 4 ft. above the ground from 17th to 31st, and only on five days on the grass; wind S.W. or W. during the whole of that time. *Mansfield*.—The month opened sharp and winter-like, snow falling every day. On the 8th the wind veered towards the West, and the temperature rose considerably; this high temperature was mostly maintained throughout the month; the last week the wind kept steadily S.W., and the days were bright and spring-like. Blackbirds and thrushes have been singing in my garden, and a blackbird's nest containing one egg was found on the 29th, not far from Mansfield.

VIII. *Walton*. Very dry month.

IX. *Buckden*. Cold and winterly to the 10th, afterwards mild and soft foggy weather.

X. *Shap*. The early part seasonable for the time of the year; had frosts with little snow; the 12th was a warm spring-like day, followed by a few fine days, and since then it has done nothing but rain, accompanied by rough wind; the 21st was the wettest day in the year (2·40), causing a great flood, and keeping the land for several days in a very wet state. Loud thunder and much lightning have occurred during the night. The pastures are fresh and green, plants and trees are forward in bud.

XI. *Castle Malgwyn*. Seasonable weather throughout.

XII. *Melrose*. First week, snow every day; on the 5th, temperature sank to 16°, and sea gulls were seen 30 miles inland. The latter part of the month mild for the time of the year, with the exception of 22nd, 23rd, and 24th, which were very stormy; wind W. and S.W. Wall-flowers in bloom on the top of the abbey, and roses in my garden on Christmas-day, and starlings seen in the ruins of the Abbey.

XVII. *Keith*. Particularly mild and fine for the season, from 12th to end of the month.

XXII. *Carrick-on-Shannon*. Frosts with N.E. winds to the middle of the month. Rain with S.W. winds prevailed thence to the end of the month.

## OBSERVERS' NOTES ON THE YEAR 1875.

## ENGLAND.

## DIVISION I.—MIDDLESEX.

HAMPTON WICK.—The year was remarkable, not only for the two great floods in November, but for the still more rare event of a flood in July.

TEDDINGTON.—The total fall (25·24) is about 1·25 above the average here.

ROSLYN, HAMPSTEAD.—A very wet cheerless summer-time, hay and fruit crops large, fruit required more sun for maturity.

HIGHGATE.—Total (26·94), about  $1\frac{1}{2}$  above the average of last fourteen years.

MUSWELL HILL.—The total (30·20) is about 20 per cent. in excess of the average of this place, and exceeds that of the three previous years by 2·26, the rain has been very unequally distributed, January, June, July, September, October, and November, all being in excess, whilst February, March, April, August, and December were deficient.

HAREFIELD PARK, UXBRIDGE.—Average—1866 to 1875 inclusive (10 years) 25·55 ; 1875, 31·24 + 5·69.

ENFIELD.—The year with the exception of March, April, and December, wet ; though a large proportion of the total fall was the result of thunderstorms. Snow fell on thirty days.

## DIVISION II.—SOUTH EASTERN COUNTIES.

SANDY CROSS, DORKING.—From February 1st, to June 11th, the character of the weather extremely dry, we had occasionally a wet day, generally from the N. or E., and again followed by a drought ; June 11th to July 24th, very heavy rains at frequent intervals, thence to

September 20th, very fine and dry, with moderate heat ; to November 18th, very heavy rains ; to December 16th, frost and snow ; to the end of the year, mild, dry, cloudy weather. A great prevalence of N.N.E. E. and S.E. winds.

**HARTLEY, CRANBROOK.**—One-third of the total fall in the first six months, and two-thirds in the last six months.

**LINTON.**—January mild ; February and part of March wintry ; Spring dry and cold ; Summer irregular, subject to sudden changes, July being a wet month ; fine harvest weather. Autumn wet, but not so much so here as in many places. Deep snow early in December, but very mild after it was gone. On the whole it has been a wet year ; the rainfall (30·25) being nearly 4 in. above the average of the preceding twenty years.

**CANTERBURY, BRIDGE STREET.**—Two remarkable “ ribbon ” storms occurred in the summer of this year, the first in June, attended by hail and lightning ; three points were struck in the course of three miles, and one ignited. Hail deep on the road for four hours ; width of storm about two miles, direction E.N.E. to W.S.W. (For account of second storm, *see* August 17).

**BROMLEY.**—Unusually wet in July, but not much in excess during the other summer months. The fall of the year is only 0·37 in. above the mean of ten years.

**THE HALL, BECKENHAM.**—The long-continued Autumn rain began exactly at the Equinox, and lasted till the middle of November, just eight weeks. It is rather noteworthy, that a very large proportion of the rain this year came from the E. Total first six months, 10·18 ; last six months, 19·58 ; total of year, 29·76. Only two daily falls above 1 in., viz: July 15th, 1·59 ; and August 7th, 1·747. The three most remarkable rains were 14th and 15th July, 2·40 ; 21st to 24th September, 2·14 ; and 18th to 23rd October, 2·13.

**FOREST HILL.**—July was the wettest month, and the fall on August 7th (1·48 in one hour), the max. daily amount I have ever registered here. February, March, April, and May were dry, July and October very wet. A few thunderstorms occurred in the summer. Easterly winds were above the average, especially in the spring and autumn. Heavy westerly winds in January and November. January, May and September were much above the average temp., February and July below it. It was the cloudiest year I have ever observed here ; but there was less fog than usual. Shade temp. fell to, or below, 32° on 66 days, and on grass on 108 days. The latest

frost on grass in the spring was  $29^{\circ}9$ , on May 31st, and the first in autumn was  $28^{\circ}2$ , on 12th of October.

CHICHESTER INSTITUTION.—The rainfall has, I believe, been above the average, but we have had no floods, the land in the neighbourhood being flat, with a gentle rise towards the Southdowns.

FERNHURST.—March, April, May, August, and September were, on the whole, fine dry months. Thunderstorms have been few, and not severe. Heavy falls of rain have occurred, affecting narrow belts of land.

FOREST LODGE, MARESFIELD.—Notwithstanding the persistent rain and heavy snow with which the year began and ended, the total fall at this station,  $30\cdot42$ , was  $0\cdot52$  below the average of the preceding nineteen years, an effect to a considerable extent referable to the drought which prevailed in March, April, May and August. The amount of cloud during the past year has exceeded anything that I can remember.

NEWPORT.—I believe the rainfall has been rather *below* than above the mean.

CADLANDS.—The fall this year has exceeded the average (15 years) by  $2\cdot17$  in., the heaviest fall in one month, viz: October,  $6\cdot57$ , has been exceeded four times during the last fifteen years, viz.: January 1872,  $6\cdot90$ ; September 1866,  $8\cdot05$ ; October 1865,  $8\cdot82$ ; and October 1862,  $7\cdot10$ .

OTTERBOURNE.—The number of rainy days is smaller by ten than in any year I have recorded, except 1870, when there were only ninety-eight, but the rainfall of that year was only  $21\cdot59$ , while in 1875 it was  $33\cdot63$ . Heavy rains were more frequent than usual.

LISS, PETERSFIELD.—No rain fell between March 9th and April 6th.

MICHELMARSH RECTORY.—I notice that the excess of this year, great as it has been, was not owing to the number of wet days, but to the large quantities that have fallen on so many days. On one day  $2\cdot65$ , on six days more than  $\frac{3}{4}$  of an inch, and on twenty days between  $\frac{1}{2}$  an inch and an inch.

WOOD GREEN.—Much electricity, especially during October and November. Floods up the vale and the course of the Avon.

CHAPEL HILL, BASINGSTOKE.—Rainfall ( $32\cdot68$ ) is  $5\cdot80$  above the average (1869—1874); there were three days during the year on which more than 1 in. fell, viz: July 14th,  $1\cdot71$ ; July 15th,  $1\cdot35$ ; and October 19th,  $1\cdot59$ .

LICHFIELD RECTORY. Here, as elsewhere, the yearly fall ( $37\cdot22$ )

was very much above the average, and nearly 10 in. more than in 1874.

LYNWOOD.—The excess of rainfall for the year over that of the seven preceding years is 3·61, the principal excesses were January, July, and October ; the temp. of the year was 48°·7 or 1°·1 below the seven year average.

PURLEY.—The noticeable feature of the rainfall is that it came from the N.E. There was an absence of thunderstorms, temp. below the average. The people in the village say that the floods were a little below those of 1852.

STREATLEY.—Excessively wet ; the springs are raised to an extraordinary level, as is evident by wet patches remaining in land, where such a thing as flooding has hardly been known hitherto.

WANTAGE.—The rainfall (33·52) about 7 in. above the average (10 years), but not equal to 1872.

LONG WITTENHAM.—This is the wettest year (32·50) since 1852.

#### DIVISION III.—SOUTH MIDLAND COUNTIES.

BERKHAMPSTEAD.—The total (33·87) is about 5½ in. above the average, and 8·25 more than in 1874. We are not subject to floods, the gradients of the country allowing the rain to flow off as it falls.

ADDINGTON MANOR.—Nearly as much rain (33·50) fell this year, as in the wet year, 1872, when we registered 34·76, but in that year the rain was more evenly distributed. Fruit of all kinds plentiful, but particularly hedge fruit.

MAGDALEN COLLEGE, OXFORD.—Cold spring, with N.E. winds. Temp. never below 32° from April 30th, until late in October. Absence of E. winds and frost in the *late spring and summer* caused a "tropical foliage" rarely seen in Oxford, not a leaf was seared or shrivelled all the summer. Floods out from July 23rd to middle of August ; depth, that of an average winter flood. Rainfall this year 32·40, being 7·24 above the average.

BROUGHTON LODGE, NEAR BANBURY.—We have had more rain this year (35·69) than I have ever before registered, except in 1872, when 36·25 was registered ; 1875 has been most remarkable for its heavy falls, the amount (2·95) on October 9th was most unusual, my greatest fall, previously, having been 1·75, August 15th, 1867.

BOUGHTON LODGE, BANBURY (*continued*).

	Mean Rainfall 7 years, 1868 to 1874.	Rain in 1875.	Difference from average.	
	in.	in.	in.	
January .....	2·644	2·85	+ 0·206	
February.....	1·927	0·92		-1·007
March .....	1·677	0·86		-0·817
April .....	1·541	2·18	+ 0·639	
May .....	1·982	2·07	+ 0·088	
June .....	2·000	2·72	+ 0·720	
July .....	1·930	5·82	+ 3·890	
August .....	2·087	1·27		-0·817
September .....	2·815	2·69		-0·125
October .....	2·581	7·98	+ 5·399	
November ... ..	2·301	5·03	+ 2·729	
December .....	2·893	1·30		-1·593
Totals .....	26·378	35·69	+13·671	-4·359

35·690

26·378

9·312 inches above mean of 7 years.

KING'S SUTTON, NEAR BANBURY.—The October floods were the heaviest known for 30 years in this district ; in July large quantities of hay were carried away by the floods.

KETTERING.—Total rainfall 1875, 37·53. Average previous 12 years, 24·06 ; excess in 1875, 13·47 in.

ROCKINGHAM CASTLE.—The daily rainfall above 1 in. on six days between July 13th and November 14th, the total on these days being 8·66 or nearly  $\frac{1}{4}$  of the total of the year, 37·39.

SANDY RECTORY.—From July to November, we had ten floods, and our river meadows were under water for the greater part of that time.

CARDINGTON.—31·39, the greatest fall during 30 years, but only exceeding that of 1848 by  $\frac{1}{2}$  an inch, and that of 1852 by  $\frac{3}{4}$  of an inch.

TEMPSFORD.—The total rainfall here is a little less than that of 1872. The rains of June 29th, and July 3rd, caused very heavy local floods, but only partial damage. The flood on the 15th of November reached higher than in 1852, or in any year since 1823, all through this county and Huntingdonshire.

ABINGTON PIGOTTS.—Temp. of the year 47°·8 being 0°·8 below the average. July was remarkable for very low temperature, and very heavy rainfall. Average velocity of the wind for the year, 13·3 miles an hour.

BEECH HOUSE, CAMBRIDGE.—Although more rain fell in 1872 than in 1875, I have been stopped 17 days at my mill by floods this year, against 15 days in 1872.

MERTON VILLA, CAMBRIDGE.—A very dry spring, but wet summer and autumn, remarkable for serious floods in the third week in July and second week in November. The total rainfall 25·92, is  $4\frac{1}{2}$  in. above the average of twelve years.

CHATTERIS.—There were three heavy floods the first and heaviest in July, 4·32 in. fell between the 14th and 22nd of that month ; the second flood was in October, 1·52 in. fell between 18th and the 23rd ; and the third flood in November, 3·31 in. falling between the 5th and 14th. Total fall for the year 27·06, against 17·70 in 1874.

COLDHAM HALL, ELM.—The year 1875 was remarkable for the drought of the early part, and for the tremendous rains from June 28th to July 25th, and in November. Up to June 28th, only 7·88 had fallen ; from June 28th to July 25th, both inclusive, no less than 10·52 fell, being an excess in 28 days of 2·64 over the total of the previous six months. The following falls are remarkable : June 28th, ·75 ; 29th, 2·00 ; 30th, 1·10, and July 1st, ·80 ; making 4·65 in four consecutive days ; from 4·30 p.m. to 5·30 p.m. (one hour), on June 29th, 1·36 in. fell ; July 19th, ·74 ; 20th, 1·50 ; 21st, ·67 ; total 2·91 ; in three consecutive days ; between 3 p.m. on 20th, and 1 p.m. on 21st, exactly 2·00 in. fell.

HARECROFT HOUSE, WISBEACH.—From 10th to 25th of July, inclusive, *i.e.*, 16 days, 8·15 fell, averaging more than  $\frac{1}{2}$  an inch daily. On the 19th, 20th, and 21st, the fall was 4·88, an average for three consecutive days of 1·63 in.

#### DIVISION IV.—EASTERN COUNTIES.

DUNMOW.—Fall in the year 3·01 in. above the average.

AUDLEY END.—A long and very dull, but dry spring, but no late frosts, hence a good crop of all kinds of fruit ; early part of the summer very wet and cold, the latter part fine and warm ; wet autumn, with heavy floods.

BOXFORD.—Very little summer weather ; much wind and gloom. Snow from November 25th to December 7th ; depth about 15 in.

GRUNDISBURGH.—Snow 15 in. deep on the level during the first six days of December—the most I ever saw at one time.

WESTLEY.—Cold, with very heavy rain in July and November.

One of the worst crops of corn for many years ; very little fruit came to perfection. The partridges were almost all killed by the heavy rain in July. In the first week in December the deepest snow for many years, 16 in. on the level.

WALSHAM-LE-WILLOWS.—Considerable floods in July and November.

GELDESTON.—Total fall (24·68 in.) 1·15 in. above the average (10 years) ; the 3·69 in. in October, and 5·29 in. in November, are the largest amounts for those months yet recorded.

GELDESTON RECTORY.—The winter, 1874–5, was long and tedious, with continuous but not severe frosts, and but little snow. Spring favourable ; summer ungenial, and the heavy rains of July most injurious to the corn crops, which are from one to two quarters per acre below the average. The valleys were flooded, and much hay carried away. Autumnal quarter, very fine ; winter, hitherto, stormy and wet, with deep snow. From the great rains of November (5·56 in.), and the snow of December, our valley has been deeply flooded for five weeks. The lock-keeper had only a few square yards of dry land for more than a month, on this he has killed 100 rats, and a great number of moles.

SPROWSTON.—More rain fell in the last six months of 1875, than in the whole of 1874. Rain fell every day (with one exception) from November 5th to December 8th ; total fall in year 28·39 in., of which 11·80 in. fell in July and November.

MATTISHALL.—Rainfall 3·20 in. above the average. July, October, and November remarkably wet ; March, April, and August very dry. Very unfavourable to agricultural produce. Hay crop short and bad ; corn crop short and light ; root crop partial, and all but mangold-wurzel small.

HILLINGTON HALL GARDENS.—Great loss was occasioned by the spring droughts ; the hay crop ruined. July and November remarkable for the exceptional fall of rain. Lilacs, &c., most luxuriant ; acorns very abundant. Farm crops bad ; garden produce, especially apples, plentiful, but keeping quality doubted.

LEATHERINGSETT HALL.—I never remember so much rain in July and November in this county.

WELLS-NEXT-THE-SEA.—The weather on the Norfolk coast during 1875 was most unsettled. Spring cold and cheerless, from the absence of sun and prevalence of easterly winds ; summer remarkable for its stormy character at each return of the spring tides. S. and S.W. winds and gales, and heavy rains, especially in June and July. In

August there was a short period of sultry summer weather ; September fine till the middle, when the weather broke ; a wet autumn set in ; winter commenced on November 23rd.

DIVISION V.—SOUTH-WESTERN COUNTIES.

ORCHESTON ST. MARY.—Rainfall considerably above the average ; 12·22 in. of rain fell between September 20th and November 20th ; an unprecedented amount, preceded and followed by very dry weather. Year not remarkable for the number of its wet days, but for the large daily amounts.

MILDENHALL.—The wettest year of the ten during which I have had the gauge.

TYTHERTON LUCAS.—The rainfall 1875 (36·02 in.), is 9·02 in. above the average of nine preceding years, 1866—1874.

OSMINGTON.—Total 39·28 in., being 4·54 in. above the average (nine years).

WIMBORNE.—The floods in July were higher than for many years, even in winter.

CHALBURY, WIMBORNE.—Rainfall in each quarter of the year above the average (10 years), and yet in six months, viz., February, March, April, August, September, and December, the fall was below the average. The year was remarkable for long periods of wet and dry weather alternating, and for more *heavy* falls than usual.

POLAPIT.—The rivers in this neighbourhood were much swollen, but did not overflow their banks so much as I have seen them before, nor was any damage done by the floods.

WHITE CLIFF GLEN.—The fall of rain between October 16th and November 14th amounted to 13·39 in.

CLEVELANDS, LYME REGIS.—Fall, November 1st to 14th, 6·28 in., the greatest fall for the whole month of November in previous ten years being 5·46 in. in 1872.

COURT BARN.—The fall of 1875 exceeded that of 1874 by 3·96 in.

BRAMPFORD SPEKE.—A wet cloudy year, every month above the average of the ten preceding years, except February, March, April, and December. Sharp frost and some snow from November 26th to December 11th, mild before and after. A very plentiful year for fruit. Butterflies and insects very scarce, except aphides.

BRAMPFORD SPEKE (*continued.*)

	Mean Rainfall 10 years, 1865 to 1875.	Rain in 1875.	Difference from average.
	in.	in.	in.
January .....	4·57	5·00	+ 0·43
February .....	3·16	2·66	— 0·50
March .....	2·68	1·19	— 1·49
April .....	2·09	1·60	— 0·49
May .....	2·18	2·63	+ 0·45
June .....	1·37	3·14	+ 1·77
July .....	2·30	3·69	+ 1·39
August .....	2·51	2·85	+ 0·34
September .....	3·70	3·94	+ 0·24
October .....	3·81	8·29	+ 4·48
November ... ..	3·10	5·81	+ 2·71
December .....	3·88	0·82	— 3·06
Totals .....	35·35	41·62	+ 6·27

CLYST HYDON.—October was more rainy than it had been since 1847, when I registered 7·74 in. ; in 1875 it was 7·51 in. In Exeter they had 9 inches in October, and severe floods ; we had no high flood here.

EXE VILLA, TIVERTON.—Average, eight years, ending December, 1873, 40·88 in., so we are this year nearly 4 in. above it. December was the driest month in the year. The greatest number of consecutive wet days was 26—October 25th to November 19th, inclusive. The greatest number of consecutive dry days was 12—November 20th to December 1st, inclusive.

MESHAW RECTORY.—The amount of rain (45·88 in.), and the number of wet days (205), above the average. October the wettest month (8·66) ever observed here, exceeding even September, 1866, by 0·19 in. Much thunder and lightning.

HORWOOD, BIDEFORD.—Six inches of rain fell in the first 13 days of November.

PENZANCE.—The total (51·57 in.) is 8·51 in. above the average (16 years).

POLTAIR.—It is curious to observe how one mile proximity to the Western Hills increases the rainfall, the difference between Poltair (60·04 in.) and Penzance (51·57 in.) being 8·47 in.

CROWAN.—The heaviest rains came from E.S.E. to S.S.W. ; the most continuous from S.W. to W.S.W.

LISKEARD.—On two occasions (July 14th, 2·42 in., and October 26th, 2·43 in.) more than 2 in. fell within 24 hours. This has never occurred here before during 12 years. The total for the year

(61·78 in.) is the heaviest during the 12 years, with the exception of 1872, when 62·41 in. was recorded.

LYDEARD HOUSE.—In spite of the heavy floods and great amount of damage done; the rainfall (39·24 in.) has not been so great as in 1872, when I collected over 44 in.

COTHELSTONE.—The S. and S.W. rains which were in arrear at the close of 1874, have been fully made up, with rain from those quarters since August 1875.

EXFORD.—The year was more remarkable here for *frequent* than for *heavy* falls. While the greatest amount registered was 1·77 in., October 19th, the number of days on which rain fell was 239. Rain was registered on 44 consecutive days, from October 7th to November 19th, and there was only one break from September 16th to November 19th—a period of 65 days. The Exe rose here to its highest point on 13th November.

DUNSTER.—Some parts of the parish were flooded to a depth of 3 and 4 ft. on the 11th and 19th of October.

#### DIVISION VI.—WEST MIDLAND COUNTIES.

SOUTH PARADE, CLIFTON.—1875 has been the wettest of the series (1853 to present time) and has exceeded the (23 years) average (32·71) by 11·34 in.

REEVEY FARM, KEMPSFORD.—Floods higher on the 14th of November than at any time since 9th November, 1841; that was a quick flood, it soon went down; in 1852 it was not quite so high as in 1875. In March 1867, we had a very high flood, from a sudden thaw of deep snow, and rain, but it soon went down. My rainfall from September 21st to November 14th, both included, was considerably more than the average (10 years) for six months.

SAUL LODGE.—The rainfall in 1875 (36·31) was 11·68 more than the average here, but less by 2·65 than in 1872, in which year, however, the rain was more equally distributed than in 1875. In the months of October and November, nearly 11 inches of rain fell, and there were but few houses in the parish of Saul, on the 15th of November, that were not flooded, in some cases to a depth of two or three feet in their sitting rooms; there has been no such flood since 1809, when it appears to have been about 2 feet higher. The whole vale of Gloucester adjoining the Severn was flooded for many miles, and nearly as high as in 1852.

ROCKLANDS, ROSS.—The total rainfall (42·16) was 10·10 above the average of the preceding 22 years.

THE GRAIG, ROSS.—January excessively warm, and almost continuously wet. February, much E. winds; temp. 8°·5 lower than January, with about 6 in. of snow. March, scarcely any rain after the 7th; fine month, but cold. April, wind E., latter part very dry, some splendid weather. May, warmer and less E. wind than usual, 13th, 14th, 15th, and 16th were almost cloudless and very hot. June very warm and fine, the first week, afterwards cold, showery, and ungenial. July, very wet. August, a finer month, 16th very hot, 82° max. of year. Harvest deficient, but well got in. October and first half of November, very wet. December, the latter part very mild.

BRYNGWYN, HEREFORD.—The year has been remarkable for heavy rainfalls and floods, and for cloudy weather.

WEST BANK, LEDBURY.—Dry spring. I began to cut my grass 21st June, the ground was as hard as the high road; we had one week's fiercely hot sun, and next Sunday rain, and before we had finished hay, the fields were a marsh. Very wet July, September, October, and November; we had only one more rainy day than in 1874, though we had 14 in. more rain; in fact the fall in 1875 was not far short of the total of the two years 1873 and 1874.

HAGLEY PARK.—The crop of fruit has been generally abundant, the quality poor though the fruit was large.

STRETTON RECTORY.—A very wet cold year, 192 days of E. wind, only ten days on which the shade temp. was above 80°.

STANTON-ON-WYE.—We have had four floods this year, viz: in July, August, September, and October. The one in July was the heaviest since 1852, but inferior to that.

BISHOP'S CASTLE.—As this town lies high, and has no large river near, the great floods of 1875 have caused no damage, only a little delay in harvesting, &c. Grain crops rather light, root crops good, except potatoes, which are almost a failure.

MORE RECTORY.—Rainfall unusually large, but not nearly equal to that of 1872. Few high winds, tempests or thunderstorms, much easterly wind.

FITZ MANOR.—July, September, October, and November fearfully wet; not that any great weight of water fell, but we had a continual drizzle, just like the autumn of 1852. I have noticed this year, a curious circumstance, I never remember to have met with before, though I am an extensive fruit grower: pears that do not usually

ripen before April have ripened in December ; I suppose the continual wet has caused it ; and beside that, they are flavourless.

HENGOED.—A very cold wet year, with very little sun, and much N. and N.E. wind.

TAMWORTH.—Remarkable for its fearful floods, which occurring in the months of July, October, and November, proved most destructive to the hay and corn, and completely prevented wheat-sowing on strong lands. Owing to its tropical character, the rainfall of 1875, (36·19) was about 50 per cent. above the average.

RODBASTON.—There were fifteen days on which 0·50 in. or more fell.

BURTON-ON-TRENT.—In July was the greatest flood we had had since November, 1852, but in October, not only was the July flood exceeded, but that of 1852 also, and the flood of October, 1875, appears to have been the greatest flood since 1795.

BARLASTON.—Total (33·85) about 1·46 above the average of preceding ten years. The month of July (6·75) shows nearly three times the average (10 years). Although we have had floods as elsewhere, we have never had 1 in. in 24 hours.

TEAN, NEAR CHEADLE.—The rainfall of the first six months, less than one-third of the total fall, the driest month being April, the wettest, July, with its extraordinary fall of 7·82. The heaviest fall in 24 hours was 1·45, on the 19th of October, a memorable day in the midland counties, as the beginning of one of the greatest floods experienced for many years.

EVESHAM.—From January to June, 11·88, or exactly the seven years' mean ; from July to December, 22·08, or just 50 per cent. in excess. Number of rainy days, 130 ; or 23 less than the average.

IVY LODGE, RADWAY.—The rain of October 16th was the heaviest of the year, and the floods rose higher here, than ever remembered.

LEAMINGTON.—The rainfall of the year (36·32) much in excess of average. This district suffered from floods.

BRERETON.—The fall (36·39) exceeded last year by 13·50 in. ; this excess being more than the total fall from January to June, inclusive. A dry and favourable spring, wet summer and autumn, and rather mild winter.

COVENTRY, PRIORY ROW.—From the end of June to the middle of November, our district was visited by periods of excessive rainfall, causing floods of almost unprecedented magnitude. October, 1875, was the month of greatest rainfall I have measured since I have kept a

record (from August, 1866), and the fall on the 9th of October (1·70) is also the greatest I have ever recorded between 9 a.m. and 9 a.m. on the following day. The total fall of the year is not so large as that of 1872, which was 39·48 or 4·87 in excess of 1875, but with that exception it is the greatest I have recorded.

**BICKENHILL.**—The latter part of the year very wet, and the lowlands flooded in consequence.

**STRETTON HOUSE, HINCKLEY.**—The average fall of the last ten years is 26·40, the fall this year (33·38) is 6·98 above the average; the six months of February, March, April, May, August, and December, gave an aggregate of only 7·41, while the six remaining months have the extraordinary total of 25·97; 12·55 in., or about 38 per cent. of the whole year's rain, fell in twelve days.

#### DIVISION VII.—NORTH MIDLAND COUNTIES.

**MARKET HARBOROUGH.**—The flood in October was the greatest here since 1801.

**COSTON.**—Rainfall much above the average, especially in July, October, and November.

**BELVOIR.**—This is a remarkably dry district, the probable cause being a range of heights 25 miles distant to the S.W., and land 150 ft. higher than this station within six miles. Efficient drainage has made the adjoining county (Lincoln) one of the driest in England. The first five months averaged rather under 1·25 in. per month; our excess (over the average of 24·5 in.) occurred in July, October, and November; it was much required to replenish the exhausted springs.

**TOLETHORPE HALL, RUTLAND.**—From January 1st to June 8th there fell 6·56 in.; from 8th of June to 31st December there fell 24·11 in.; total, 30·67 in.

**PODE HOLE, SPALDING.**—The fall in July (9·00 in.) unprecedented here. The year will be long remembered as one of floods and disaster. After ushering in the July floods, each full moon seemed fraught with terror and dread. The oldest inhabitant has never witnessed such fearful floods. Crops were seriously injured (cereals); root crops in many cases entirely destroyed. Large areas of newly-sown wheat-land were blackened by the wet, and re-sowing was extensively necessary; general wheat sowing greatly delayed. In our Fen district, with under-drainage by steam power, the consumption of coals has been extraordinary.

BOSTON.—The total fall for the year, 25·55 in., was 2·99 in. above the average of the previous 20 years; the greatest fall in one day was 1·39 in. in October. Rain fell on 158 days, on 40 of which the wind was blowing from N.E., on 25 from S.E., on 71 from S.W., and on 22 from N.W. There was an excess of polar winds, the number of days on which the wind blew from N.E. being 109, as compared with an average (10 years) of 72. From S.E. the wind came on 42 days; from S.W. 143 days; and from N.W. 71 days. The mean temp. of the whole year was 49°·1, or about 1° above the average.

BUCKNALL, HORNCastle.—Almost as much rain fell in November as in the first five months of the year.

FALDINGWORTH.—The fall in this year, 26·93 in., was 1·94 in. above the eight years' average (24·99 in.)

GEDLING, NOTTINGHAM.—A very wet year, and round Nottingham we have suffered severely, yet the aggregate fall is 4 in. below that of 1872.

WHITEMOOR, NOTTS.—The weather has been very variable, but the heavy rains have not reached us.

WELBECK ABBEY.—1875 will long be remembered for its excessive rainfall in the midland and other districts. The total fall was 31·48 in., being about 6½ in. above the average. June, July, August, September, October, and November had the largest rainfall I have registered in those months during the 40 years that I have kept the record. The Trent, Soar, and other midland rivers overflowed their banks, and caused great loss of life and property, especially at Nottingham. Another remarkable feature in the great rainfall was, that the prevailing winds came from E. more than I ever registered in the summer and autumn months.

BRETBY GARDENS.—Great want of solar light; all sorts of fruit ripened badly, and with inferior flavour.

TRENT COLLEGE.—March and April the driest consecutive months since 1870, when the April fall was '64 in., and May '50 in., being together '05 in. less. June the wettest since 1871. July, August, October, and November the wettest on record. The cricket field and neighbouring fields flooded to an unprecedented extent in October and November.

SPONDON.—Very wet after the middle of June, with very little sunshine; the thunderstorms heavy, but rarely with electric discharges near here. The character of the lightning was, however, intense, and extraordinary—notably so in September, and, probably, not equalled since 1826 and 1830.

DUFFIELD.—We have not had so great a flood on the Ecclesbourne in 1875 as in 1874, but much higher floods on the Derwent.

DIVISION VIII.—NORTH WESTERN COUNTIES.

CREWE.—There has only been one week free from rain during 1875.

PULFORD.—This year has been one of extremes, the first six months were abnormally dry, the total rainfall only amounting to 9·67. In July, rain commenced, and we had a very wet month. August was also wet, and September, October, and November still more so. Floods prevailed in the low-lying lands, and the ground was so saturated, that a complete stop was put to ploughing and sowing. A change for the better happily took place in December; the temp. rose, there was little rain, and scarcely any snow, fog, or cold winds, in fact, it was an unusually fine Christmas.

MACCLESFIELD.—The amount of rain in the first six months is just half that which fell in the last six months, viz: January to June 30th, 11·49; July 1st to 31st December, 22·97; July to November, very stormy and changeable.

WINNINGTON.—In spite of less rain having fallen during March, April, and May, than in any previous year that I have recorded, the total for the year (32·02) is more than half-an-inch above the average of the previous seven years. The greatest falls in 24 hours have been between 18th and 20th of each month respectively.

HINDERTON NESTON.—Rainfall (32·18) nearly 20 per cent. above the average.

HIGHFIELDS, THELWALL.—Seventeen days in succession without rain in April, and 16 days without rain in December.

GREEN HILL, ALLERTON.—The year is remarkable for the great number of heavy falls in the second half of the year, it having exceeded 0·50 thirteen times between 1st July and 31st December, and 0·75 seven times; the total fall (34·93) is 2·06 above that of 1874, and 5 in. in excess of 1873, while the number of days on which rain fell in each year is nearly identical.

WALTON-ON-THE-HILL.—Very dry spring, cold and unsettled summer, very wet autumn, and a dry December, with a severe frost in the early part of it.

OLD TRAFFORD.—The rainfall (35·49) is just about the average

(Manchester, 80 years), large excess in July, August, September, October, and November, but the early part of the year very dry.

THE FOLDS, BOLTON.—The rain in 1875 (43·94) was 4·73 less than in 1874, and 3·22 less than the mean of the previous 44 years.

DUKE STREET, ROCHDALE.—During March, April, and May, only 3·74 in. fell, the average being 6·38 in.; during the next three months, June, July and August, 12·65 in. fell, the average being 7·93.

RUFFORD.—The total fall (34·59) is about the average, but only one-third fell in the first half year, and the remaining two-thirds during the second half.

SOUTH SHORE, BLACKPOOL.—Total fall (33·93) being 1·85 above the average of the last 20 years; one-third fell in the first half year and two-thirds in the second half.

ELSWICK LODGE.—Not a bad year for farmers in this district, crops good, especially hay. Wet autumn for ploughing, but three weeks of dry weather, beginning on November 20th, in which neither rain nor snow fell, enabled the farmers to make up for much lost time.

CATON.—Fall (38·40) is 2·50 less than average of 27 years. Floods in Lune Valley fewer, and of less height than usual during this year.

STORR'S HALL.—The fall of this year (40·19) is more than 3 in. below the average of the last ten years. The rainfall of this part though heavy, is not very variable, and we have entirely escaped the serious floods which devastated so many parts of England.

HAWKSHEAD, WINDERMERE.—The total fall rather below that of the two years preceding, and on the whole a most favourable year in this locality; the crops and particularly the hay being abundant, and the latter well housed, I might almost say, without a drop of rain.

#### DIVISION IX.—YORKSHIRE.

RICHMOND HILL.—Early part of the year very dry, weather broke up in June, after which it was cold, damp, and stormy; easterly winds prevailed throughout the year, and brought most of the heavy rains. Autumn cold and foggy.

SADDLEWORTH.—The floods in this district have not been heavy.

STANLEY.—Mean temp. at 8·30, 48°·1; rainfall 1·57 above the average.

WEETWOOD HALL.—Total (28·87) being only 0·10 above the aver-

age (1865 to 1874); February, March, and April, below the average, October and November above it.

**BASHALL LODGE, CLITHEROE.**—Though this is so wet a district, we had none of those excessive rains which did so much mischief in the midland counties in the autumn.

**FOG CLOSE HOUSE, PATELY BRIDGE.**—We have not had any floods, and the rainfall (41·38) is 16·80 less than in 1872.

**OUGHTERSRAW.**—The driest and finest year and season for 20 years; July, August, and September, splendid weather; only thirteen days on which rain fell between 26th of July and 23rd of September. Much sun, little mist, little thunder, and splendid hay crop.

**SWARTHGHYLL.**—Most favourable season for farmers for many years past; hay crop late in starting, but heavy and well got up; fine year for sheep and lambs.

**STONE HOUSE, DENT.**—The year was very fine and dry for this mountainous region.

**SEDBERGH.**—No extremes, either of rain, heat, or cold, but sunless, and the last week of the year drizzling.

**YORK PARADE, HULL.**—Dry March and April, heavy rains in July and August, and in October and November; in the latter two months 10·10 in. fell, the wettest two consecutive months experienced during the 18 years that observations have been taken here, the two previously wettest months following each other, were December, 1868, and January, 1869, when 9·20 fell.

**BEVERLEY.**—First six months dry. In July, much hay of a very thin crop was spoilt by the wet, the harvest delayed to August 16th. The River Trent flooded twice in November, whilst twice in one year is considered as remarkable. From November 7th to December 12th, the wind blew from N. almost without a change.

**GREAT GIVENDALE.**—A year with very little sunshine, a few fine days in the middle of April, and fine from the middle of August to the end of September.

**CARPERBY, WENSLEYDALE.**—Easterly winds very prevalent during the year, very little thunder during the year, and much less sun than usual.

**EASINGTON.**—The rainfall small in February, March, and April; hay crop, poor; in November the rain was very heavy.

**GREY TOWERS.**—26·85, rather above the average, dry in the early months; very heavy rain (7·02) in November, the largest rainfall for any month known in Cleveland.

HUTTON HALL, GUISBOROUGH.—November was remarkable for heavy rains, and during the month the sun shone only four times.

DIVISION X.—NORTHERN COUNTIES.

DARLINGTON.—February and May very dry ; great floods in July and November, many houses submerged.

BRINKBURN.—The fore part of the year dry and mild ; the heavy rains in July did not cause any floods, but the continuance from that time till October, and 2·90 in three days, caused a heavy flood, and afterwards continuing wet, and 1·55 in two days in the middle of November, caused a flood 18 in. higher than the one in October.

WEST HENDON HOUSE.—Since 1860, inclusive, but three years have exceeded 1875 in their total rainfall, viz : 1860, 1866, and 1872 ; there was a great prevalence of E. wind, and they were (strange to say) most frequent in the autumn ; this was apparently the cause of the latter part of the year being so wet. The rain in November was exactly the same as in October, 1865, but has not been exceeded in any month since 1860, inclusive.

DEAF AND DUMB INSTITUTION, NEWCASTLE.—The largest monthly rainfall since we have had a rain gauge (1868) took place in July, 1875 (5·97).

CLEMENTHORPE.—The fall in July and August was 1·28 more than fell in the previous six months, and the fall in the last six months (21·32) exceeded the fall in the whole year of 1873 or 1874.

BINGFIELD HOUSE.—Fruit of all kinds abundant, potatoes much diseased.

BRENCKBURN PRIORY.—Exceedingly dry till midsummer.

WHITTON TOWER, ROTHBURY.—Remarkable for drought during the summer months, when there was such great rainfall in other parts of England ; springs very low during June, July, August and September.

OTTERBURN.—Summer very dry ; while great parts of England were flooded, we were basking in sunshine, and had no wet weather till the end of September and October. The hay crop suffered severely from drought.

MILFIELD, WOOLER.—There has not at any time this year been more rain than was required.

BOOTLE RECTORY.—Grass never so abundant in the memory of the oldest inhabitant, but the summer ungenial for fruit and vegetables. Potatoes, a large crop but sadly diseased.

BRAYSTONES.—In 1875 the total rainfall (34·61) was 2·58 less than the average of the previous 11 years.

BLENCOWE SCHOOL.—The rain here (35·87) is fully 11 in. less than that of last year. We have had no floods or storms as in some places, every season has been at its proper time ; crops abundant, and well secured, potatoes blighted.

STAINBURN.—The rainfall of the year (35·46) is 2·90 below the average of the last ten years.

BROUGHTON.—About an average fall, though a very dry spring. The north and especially Cumberland escaped the serious floods.

KENDAL.—The total fall for 1875 (46·22) is 6·00 below the average of 53 years, and 9 in. below the fall of last year, so that the floods and heavy rains have not reached the lake district, especially Cumberland, but have been confined to the southern and midland counties.

HIGHGATE, KENDAL.—The fall (48·04) was nearly 6 in. below the average.

BRATHAY VICARAGE.—72·61, much below the average, this is rather remarkable, as in other places the fall has been much greater than usual.

WOODLANDS, ELTERWATER.—85·20, considerable less rain than the average, and standing out in striking contrast to the heavy rainfall of the greater part of England.

KIRKBY STEPHEN.—We have quite escaped the extraordinary floods which spread over the midland and southern counties.

CROSBY RAVENSWORTH.—Less rain than usual (46·81), no inconvenience from floods.

#### DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS.

DINGESTOW COURT.—Westerly winds prevailed in April ; very wet, and great floods in July. Constant thunderstorms during the summer months. No spots on the sun ; many icebergs in the Atlantic. Little sunshine through the year. Bad year for bees.

THE HAM, COWBRIDGE.—I believe that the greatest rainfall in 24 hours here during the ten or eleven years that a register has been kept, was that on the 14th of July, when 2·42 in. fell, and our little brook was filled to overflowing, but no damage was done ; but on the 13th of November, when 1·45 in. only fell, it was followed by the greatest flood

ever remembered, and much damage was done by the brook. It had rained heavily on each of the preceding 13 days, and the ground being so saturated, all that fell on the 13th went to make the floods.

ELY, CARDIFF.—The greatest amount of rainfall recorded during the past 14 years.

PENTYRCH.—Just half an inch in excess of the great fall of 1872 ; the number of wet days was fewer by 47, but the totals in 24 hours were much heavier, amounting, in the aggregate, to more than a quarter of the total quantity, instead of rather less than one-fifth, which is the usual proportion here. The max. total in the ten years I have recorded was in 1875, 63·22 in., and the max. fall in 24 hours was on the 14th of July, 1875, when 4·80 in. was measured.

MERTHYR TYDFIL.—The year has been a remarkably healthy one.

YSTALYFERA.—July 14th, August 6th, and September 2nd, three extraordinarily heavy floods ; that on August 6th the heaviest ever known.

HAVERFORDWEST.—The wettest year (excepting 1872) of the last 26 years ; great variability and sudden changes of temp. February, March, and April dry and cold ; the first 17 days of December cold, bright, and frosty, then mild to the end of the year.

SOLVA.—All the rain in November (5·33 in.) fell during the first 21 consecutive days.

RUABON.—A dry spring and winter ; a wet summer and autumn ; the total (45·10 in.) nearly 10 in. above our average. We have had more than our share of snow, 2·42 in. having been measured as the result of ten different falls.

BRYMBO.—The least fall in December since 1865 ; the least fall in March since 1863, when the register began ; and the least in April during the same period ; the most rain in July during the same period with the exception of 1872 ; October also unprecedentedly wet.

TREVALYN HALL.—The total fall in 1875, 29·54 in., was 1·12 in. above the average, 1868—1874, and was larger than in any year, with the exception of 1872, when the extraordinary quantity of 47·90 in. was collected. July, September, October, and November were very rainy, but December was a singularly dry month. There was much cloudy weather during the summer, and the temp. was generally below the average. The hay harvest was seriously impeded by the heavy rain in July, but this district was happily exempt from floods.

LLANNERCH.—The year of floods in England has here been very dry (28·55 in.), especially in the spring. July, September, and October

were wet, and more particularly the first 18 days in November; the heaviest fall in the year, .98 in., was on the 13th of that month, while at Dyffryn Aled, 8 miles off on the hills, the fall exceeded 1.00 in. three times, the heaviest being 1.30 in. on 15th July.

GLAN-Y-WERN, DENBIGH.—No rain fell here between November 18th and December 18th.

BEDDGELEERT.—The first five months dry; June changeable, with much rain at times, and but little sunshine; July variable, but rainfall below the average. November, to 19th, very wet, then dry and frosty; December, first three weeks, dry and frosty, last week very mild.

LLANFAIRFECHAN.—The spring months very dry; hay crop short. There was no excess of rain here, and the land lying on steep inclines, the water ran away very rapidly.

GUERNSEY.—Total fall 35.64 in., being almost exactly the average of the last 30 years.

## SCOTLAND.

### DIVISION XII.—SOUTHERN COUNTIES.

DUMFRIES.—Rainfall of the year (39.16) nearly  $6\frac{1}{2}$  in. less than 1874.

KIRKTON.—Total 33.20 or 0.60 below the average (14 years).

WOOLPLAW.—Rainfall (30.90), about the average, spring unusually dry, summer cold and wanting sunshine.

### DIVISION XIII.—SOUTH EASTERN COUNTIES.

BORTHWICKBRAE.—Total (40.90) below the average.

NORTH ESK.—No damaging floods in this district, mills short of driving water-power, in May, June, July, and August, but have had an abundance from the 25th September to the end of the year.

MARCHMONT HOUSE.—32.51, about the average; September, October, and November, were very wet, and there has been a great absence of sunshine; grain is in consequence not so heavy in the bushel as was expected.

PRESTONKIRK.—While in the south the rainfall seems to have been much above the average, ours is 2·00 in. below it; this is often the case: light fall in Scotland and heavy in England, and *vice versa*.

EAST LINTON.—The fall in the spring was much below the average, and in autumn rather above it. The total (23·93) is above 2 in. less than the average of the last 20 years.

#### DIVISION XIV.—SOUTH-WESTERN COUNTIES.

BOTHWELL CASTLE.—The rainfall (28·12) is about the average, and crops, both in field and garden, have, in this locality, been good.

HOLEHOUSE.—January, wet and stormy; the next three months unusually dry and fine, the seed-time very fine; May and June, good growing weather; July, we suffered a little from drought; August was a wet harvest month, but the first half of September was very fine, which was a great boon to the farmers in this district, where the crops are a little late. We have only had one flood here, which was on the 26th September.

#### DIVISION XV.—WEST MIDLAND COUNTIES.

INVERARY CASTLE.—No floods, but a regular distribution of moisture, in every way favourable for the growth and maturing of vegetation; all crops well gathered, and no disease worth mentioning in the potatoes.

GLENBORRODALE.—Total rainfall (42·85) considerably below the average.

ARDBEG, ISLAY.—A fine season throughout; summer, finer and drier than usual; October and November, stormy and wet, the rest of the year much better than the average for steadiness of weather and less rainfall.

#### DIVISION XVII.—NORTH EASTERN COUNTIES.

ARNHALL, KINCARDINE.—Rainfall (40·90) exceeds the average of last 30 years by nearly 7 in.

COLDSTONE.—October and November, exceptionally wet, and the rain coming on before the crops in this part were gathered in, much damage was done to the oats, fields of which in the later districts were not reaped till the second week in November, by which time they had well nigh rotted on the ground; only in a few early localities were

the potatoes secured before the setting in of the rains, and the frost coming on directly afterwards, spoiled fully half the crop.

BLACKSTOCK, MIDMAR.—The first half dry, the second half wet, more especially the harvest months. No floods nor hurricanes.

BOGSIDE, LEOCHEL CUSHNIE.—The fall in October (7·54) was the largest for any month I have registered during the 16 years in which I have had a gauge. The crops were seriously injured by the rain, and several small remnants are still in the field quite useless. The potato disease has been worse than for many years.

OLD DEER.—9·35 fell in the twelve max. falls, being very nearly a quarter of the total of the year (37·81), the fall during the last four months (18·32) was nearly equal to that in the previous eight months.

GORDON CASTLE.—31·07, about  $2\frac{1}{2}$  in. above the average for this district.

ELGIN.—The early part of December frosty till the 21st; all the lakes and ponds frozen, to the great enjoyment of the skaters and curlers; the remainder of the month most genial, causing the autumn sown wheat to advance wonderfully, and the fields to look as in spring; tortoiseshell butterfly in fields as in summer, and bats enjoying the charming evenings.

#### DIVISION XVIII.—NORTH WESTERN COUNTIES.

STRATHCONAN.—The wettest and stormiest month was January, while February was the driest; wind E. nearly all September and October; there was only two-thirds as much rain as last year, but more fog.

AUCHTERCAIRN, GAIRLOCH.—The last four months were very mild and pleasant, we were happily exempt from heavy rains, the only fall exceeding 1·00 being that of 1·04 on the 2nd of April.

BERNERA.—This has been one of the best seasons for the north highland farmer since 1846, when his enemy, the potato disease, first appeared. We have not had any floods.

ARDROSS CASTLE.—Spring, frosts slight; autumn, sunless, and therefore unfavourable for ripening fruit, &c.

PORTREE.—Total fall, 67·42. The driest year on record here since 1860 (except 1870); fewer gales than ever remembered, but more frost and snow. The best crops of grain and hay for the last 50 years, and potatoes have not been such a good crop since 1847, when

the disease first appeared; they are now selling at two shillings a barrel, last year they were seven shillings a barrel.

STROLOMUS.—July, August, September, and October, unusually dry for Skye. On the whole the summer has been the finest during my six years' experience of Skye.

GLENQUOICH.—The best season known here for many years.

#### DIVISION XIX.—NORTHERN COUNTIES.

OSPISDALE.—Total fall, 26·14; the fall in the first six months being about 10·00 in., while that of the last six months was 16·00 in., but we had no heavy rains, gales, or thunderstorms; 1·05 on the 24th of June being the only fall above 0·78 in.

BALFOUR SHAPINSAY.—A remarkably fine year in all its seasons, the crops all better than usual, only the straw is short, but all kinds of grain weigh heavily. In August, there was a great scarcity of water and many wells were dry.

### IRELAND.

#### DIVISION XX.—MUNSTER.

FERMOY.—January, wet, but not cold. February, to the end of May, fine and seasonable. June and July, weather broken and unfavourable for hay carrying, but very good for pastures and green crops. August 6th to September 16th, favourable for harvest; from that time to the 16th of November, a constant downpour and heavy floods; from the last week in November to December 12th, hard frost; the rest of the month mild, with rain.

GLENHAZLE, DROMORE.—Though the rainfall was heavy, 69·33 in., there were fewer rainy days than usual; in fact, it was a fine season. There was a harder and more continuous frost from 1st to 11th of December, than even in the year of the Crimean war. Min. temp., 10°·0.

TRALEE.—The year 1875 has been the driest on record in Kerry, since 1826, when no rain fell from the 28th of May to 4th of October.

There has not been for 41 years so long a frost as that in November and December, which lasted 18 days.

ROANMORE LODGE.—Although the total fall is great (41·40 in.), and 5 or 6 in. above the average, the year may be considered as a fine one, the excess being caused by very heavy falls.

GLENAM, CLONMEL.—Although more rain than usual has fallen in this neighbourhood, we have not had very great floods, such as have occurred in other places, or here in past years.

TUBRID, CAHIR.—Favourable generally to farmers.

TIPPERARY.—Very wet (43·58 in.), but only one slight flood. An unusually severe frost from 1st to 12th December.

JANE VILLE.—As the rain in January, 7·57 in., was continuous, rather than heavy, it did not cause high floods. February, March, and April were dry for this county, and so enabled farmers to get in their crops well. May, more rain than usual; 1·02 in. fell in four hours—10 a.m. to 2 p.m. on the 21st. All the following months (except December) were wet.

GURTEEN, SHINRONE.—Only one fall of more than 1·00 in.

MILTOWN.—February, March, and April dry months, all the others, more or less wet, but September the most so.

#### DIVISION XXI.—LEINSTER.

INISTIOGUE.—Except 1852 and 1872, this was the wettest year since I began to observe in 1842; the max. fall in 24 hours during that period was on the 19th of November, 1871, when 2·84 in. was measured. We rarely have here 2·00 in. in 24 hours. We were not troubled with either floods or snow in 1875.

BALBRIGGAN.—The fall for 1875 was rather above the average.

DRUMCASHEL.—Spring months rather dry; autumnal months very wet. In September, October, and November the rainfall was very much above the average; the smallest amount fell in April, ·81 in., and the largest in November, 5·73 in.

#### DIVISION XXII.—CONNAUGHT.

CREGG PARK.—No rain between 18th of November and 17th of December.

TUAM.—February, March, April, and first half of December very dry; June, August, September, October, and part of November wet.

We had no snow, except very slight showers, nor had we any unusual floods.

KYLEMORE.—This is, I believe, the first year in which rainfall observations have been made here, but the general opinion is, that the fall has been considerably less than in former years.

WESTPORT, MAYO.—From 1st to 10th December, frost, and a week's skating, which has not occurred for the last five years. We have had no sudden flood of importance during the year.

ARDTARMON COTTAGE, SLIGO.—The year has been very mild here; no snow, and very little frost.

#### DIVISION XXIII.—ULSTER,

FLORENCE COURT.—January wet; February, March, April, and May dry; June wet and cold; July comparatively dry and warm; August a good month; September and October very wet; November and December tolerably dry and fine.

LISBELLAW.—January, September, and October the most wet, and April the driest, during the past year. I have no means of ascertaining, but I think this year has been unusually wet. The longest periods of drought were from the 6th to 25th of April, and from the 19th of November to the 17th of December, except the 3rd of December, when .05 in. fell.

KATESBRIDGE.—April fine and dry, only .25 in. fell during the month. December 3rd to 17th, 14 days frost.

NEWTOWNARDS.—The spring months unusually dry; the autumn months, September 20th to November 19th, exceptionally wet; only 11.69 in. fell during the first six months, while 20.45 in. fell during the last six. The winter so far has been uncommonly mild.

SYDENHAM.—The first five months dry; June realized the old adage, "leaky June," being  $1\frac{1}{2}$  in. above the average (eight years), affecting the crops very favourably, especially the flax. July and August were slightly under the average, thus affording a favourable harvest time. September, October, and November very wet; 1.90 in. fell on September 29th, and 2.18 in. on November 26th, being the largest fall in eight years. Happily, this district escaped floods, but other portions of this and other counties suffered severely, agricultural produce being swept away or destroyed, and bridges and roads injured to the estimated value of £20,000.

BUSHMILLS.—Only once during the year was the ground covered with snow, and all that then fell melted in the receiver.

BENBURB.—September, October, and November, the rainfall excessive, destructive floods taking place during September and October, causing great loss to farmers and others, and great dissatisfaction among the taxpayers of the Lough Neagh Drainage Commissioners, at the wretched means used to prevent flooding.

STEWARTSTOWN.—January very wet; February, March, April, and May comparatively dry; June, July, August, and September about the average; latter part of October and November floods; December pretty dry, with ten days frost.

DRENAGH, LIMAVADY.—Less rain than in any year since 1871.

MONEYDIG.—As a whole, the crops were good and early harvested; a few days' frost in November and December; the close of the year mild and fine. Owing to the dry spring, upland hay, and grazing, was deficient till June, after which the grass was excellent. Thunder was only heard twice, except at a great distance, and we had neither storms nor floods.

BALLYSHANNON.—Total 33·69 in., being 9·16 in. less than 1874. March was the driest, and October the wettest month in the year. A hard frost in the latter part of November, continuing, without intermission, to the middle of December, but there has been an almost entire absence of snow. The hay, grain, and potato crops have been good, and the supply abundant.

CONVOY HOUSE.—Rather changeable weather, but very favourable to agriculturist; the best the farmers have had for many years. Less rain than I have ever before registered, and no floods.

TEMPLECRONE RECTORY.—Strange that this should have been the driest year recorded at this place, for at *least nine* years past, while there have been such heavy falls of rain in other places, even as near as Co. Tyrone.

DUNFANAGHY.—Total 36·37 in. This has been a very fine dry year; in this N.W. corner, even when the floods were most severe in other places, we had very little rain, our heaviest fall, and the only one exceeding 1 in., fell on the 7th of March.

ROCKFORT, BUNCRANA.—The north of Ireland has been greatly favoured with fine weather, to the great benefit of the farmers, the crops, almost without exception, both in field and garden, having been the finest for many years.

## HEAVY RAINS OF SHORT DURATION.

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DURING the last seven years we have annually collected and grouped under the above heading the most remarkable instances in each year of excessive rain during periods not exceeding 6 hours. We now give a similar table for 1875, but having regard to the other and more pressing features of the rainfall of that year, we shall make our remarks upon it as brief as possible.

The noteworthiness of a heavy rainfall rests upon two elements, and on their being relatively at the two extremes, for it depends on the *maximum* fall in the *minimum* time. The fall of a tenth of an inch of rain in a minute is a remarkable fact, while that of a tenth of an inch in an hour is not. Again, the continuance of a heavy fall is rare; thus, while the fall of a tenth of an inch in one minute is unusual, the fall of nine-tenths in nine successive minutes is much more so. [This occurred on July 21st, 1875; see third entry in table on next page.] The remarkable feature in this year's list is, however, one far surpassing even the above, viz., the fall on August 7th, at Harbledown, near Canterbury, of 2·12 inches in twenty minutes,\* showing an average of more than a tenth of an inch for each of twenty successive minutes. We do not remember any equally heavy and prolonged fall during recent years; the nearest that we recollect are subjoined, together with the recent instance.

1870, August 2nd, Div. XVII., Braemar,	in 45 minutes	2·10 in. fell.
1872, June 18th, Div. X., Casterton,	in 18 ,,	1·34 in. ,,
1875, August 7th, Div. II., Harbledown,	in 20 ,,	2·12 in. ,,

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\* Further particulars respecting this fall are given on page 61.

*Heavy Falls in Short Periods.*

Date.	Division.	Station.	Duration.		Amount.	Rate per hour.
			hr.	min.	in.	inches.
Sept. 25 ...	I.	Camden Square .....	...	2½	·10	2·40
Dec. 22 ...	II.	Dartford .....	...	3	·08	1·60
July 21 ...	VI.	Caerswall .....	...	9	·90	6·00
Sept. 19 ...	VIII.	Broughton-in-Furness.....	...	10	·76	4·56
Aug. 12 ...	II.	Hythe .....	...	10	·56	3·36
June 17 ...	I.	Enfield .....	...	17	·79	2·76
Aug. 7 ...	II.	Harbledown .....	...	20	2·12	6·36
July 1 ...	VIII.	Broughton-in-Furness. ....	...	20	·80	2·40
Sept. 19 ...	X.	Woodlands .....	...	20	·76	2·28
„ „ ...	V.	Tytherton Lucas .....	...	20	·62	1·86
Aug. 9 ...	VI.	Tamworth .....	...	20	·60	1·80
Oct. 1 ...	V.	Orcheston St. Mary.....	...	20	·50	1·50
July 20 ..	VI.	Wolverhampton .....	...	30	1·40	2·80
„ „ ...	V.	White Lackington .....	...	30	·62	1·24
May 28 ...	IV.	Ipswich.....	...	45	·75	1·00
July 22 ...	V.	Sunnyside, Trowbridge ...	1	...	2·53	2·53
June 29 ...	III.	Cardington .....	1	...	2·50	2·50
Aug. 7 ...	II.	Forest Hill ..	1	...	1·48	1·48
„ „ ...	„	Bromley .....	1	...	1·25	1·25
Sept. 24 ...	„	Croydon .....	1	...	1·13	1·13
June 3 ...	VI.	Staunton .....	1	...	1·05	1·05
Oct. 20 ...	III.	Bayfordbury.....	1	...	1·04	1·04
Sept. 9 ...	V.	Chalbury .....	1	...	1·00	1·00
Oct. 13 ...	XXIII.	Drummanway .....	1	8	1·36	1·20
Aug. 7 ...	II.	Blessington Road, Lee.....	1	30	2·37	1·58
Sept. 9 ...	XVII.	Bogside, Leochel Cushnie.	1	30	1·08	·72
June 29 ...	III.	Newport Pagnell.....	2	...	2·00	1·00
Aug. 12 ...	VI.	Lynhales, Kington .....	2	...	2·00	1·00
Oct. 19 ...	V.	Landscore, Teignmouth ...	2	...	1·81	·91
June 29 ...	IV.	Dunmow .....	2	...	1·46	·73
July 21 ...	„	Sprowston.....	2	...	1·40	·70
Sept. 19 ...	VIII.	Frodsham.....	2	30	2·00	·80
Aug. 12 ...	„	Rochdale .....	3	...	2·26	·75

## THE PRINCIPAL HEAVY RAINS OF 1875.

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NOTE.—The letter **M** throughout this article is used as an abbreviation of the term, “Maximum daily rainfall during the year.” The day being in all cases, where not otherwise specified, the rainfall day, terminating at 9 a.m. on the succeeding civil day.

The amounts and per-centages given for each date are usually only those in which either (1) upwards of 2 inches fell, or (2) the fall was more than 5 per cent. of the total yearly amount. In certain cases even these limits have been raised, in order to avoid printing needless masses of figures, and yet draw attention to the leading features of the respective cases.

### JANUARY 1ST.

An ordinary **M** at stations in Devon and Cornwall, and over the English Channel. The only stations at which the above-mentioned limits were exceeded were—

	in.	p.c.		in.	p.c.
V. Plymouth (Nav. Sch.)... 2·15	5·1		V. Ivy Bridge .....	2·01	3·4
„ „ (Ham) .....	2·85	6·2	„ Falmouth (Carlew) .....	2·17	4·2
„ Devonport (St. John’s)... 2·57	5·7		XI. Jersey (Millbrook).. ...	1·83	5·4

### MARCH 8TH.

The **M** at 14 stations in Fife, Perth, Forfar and Aberdeen, and at two in the N.W. of Ireland.

XVI. Craigton Reservoir .....

2·95=5·6

### MAY 7TH.

A local **M** between Ipswich and Hertford.

III. Ware (Much Hadham) ... 1·62=6·0

### JUNE 17TH.

Thunderstorms in the S. Midland Counties.

III. Cambridge (Beech House)... 1·59=5·9

### JUNE 29TH.

The **M** at 16 scattered stations between Bedford and York, all being east of the meridian of Burton-on-Trent.

III. Newport Pagnell..... 2·76=8·2		IV. Dunmow .....	1·46=5·8
„ Sandy (The Lodge)..... 1·65	5·7	VII. Thornton .....	3·20
„ Cardington ... ..	2·63	8·5	IX. Doncaster (Magdalens) 1·88
„ Elm (Coldham Hall) ...	2·00	6·3	„ Ackworth .....
IV. Chelmsford .....	1·70	6·1	„ Wakefield Cemetery ... 1·95
			6·5

## JULY 3RD.

The **M** at a few very widely scattered stations.

III. Stevenage..... 1.61=5.6 | III. Hitchin..... . . . . . 2.06=7.1

## JULY 14TH.

Out of 1081 records, 257 assign the **M** to the above date. This fact alone suffices to indicate its importance, but there are others yet more remarkable. Of these **M** only five were under an inch, but we had better give the values in a tabular form.

At	5	Stations,	under	1	inch.
At	143	„	between	1	in. and 2 in.
At	70	„	„	2	„ 3
At	32	„	„	3	„ 4
At	4	„	„	4	„ 5
At	3	„	above	5	inches.

We could fill pages with the comments of observers upon the rarity of such a fall as each experienced at his own station. The following is, however, a fair type of them all, by no means an extreme illustration, for, as will be seen, the max. being 2.52 in., it is merely one of the “70 stations between 2 in. and 3 in.”

List of all instances of a rainfall exceeding 1 inch in 24 hours, at Osmington Lodge, Weymouth, 1867 to 1875 inclusive.

1867. None.  
 1868. Feb. 29, 1.12; Aug. 17, 1.34; Aug. 18, 1.07; Sep. 29, 1.03; Nov. 22, 1.02.  
 1869. None.  
 1870. Feb. 6, 1.21; Mar. 1, 1.06.  
 1871. April 18, 1.15; June 17, 1.27; Sept. 25, 1.02; Sept. 26, 1.28.  
 1872. July 24, 1.31; Oct. 15, 1.43; Oct. 24, 1.39.  
 1873. Sept. 14, 1.16.  
 1874. Aug. 11, 1.03; Oct. 6, 1.24; Nov. 25, 1.06; Nov. 28, 1.22.  
 1875. Jan. 1, 1.51; Feb. 26, 1.02; July 14, 2.52; Sep. 21, 1.01; Oct. 26, 1.14.

Hence we learn (1) that during nine years there were 24 instances of falls exceeding an inch, five of these (or twice the average) occurred in 1875; (2) there is no instance exceeding 1½ inches except in 1875, and in that year there were two; (3) the fall on July 14th was nearly twice as great as any previously recorded.

We now take another branch of the subject. The fall of rain began first in Pembrokeshire, and somewhat later at eastern stations. Self-recording gauges are at present too expensive for them to be at all general; in fact, we believe there are not a dozen in the whole of England and Wales. No observer can decide at the commencement of a rain whether it is likely to be one of importance or not, and therefore only those keeping careful records, enter the time at which the rain begins, and if the rain proves altogether exceptional, others can

only reason back and by affairs of private life decide upon the time of commencement. When this beginning occurs in the night, or early morning hours, the difficulty is much increased. Having pointed out these drawbacks, we proceed to give *every* record that we have obtained as to the time at which this great rainfall began.

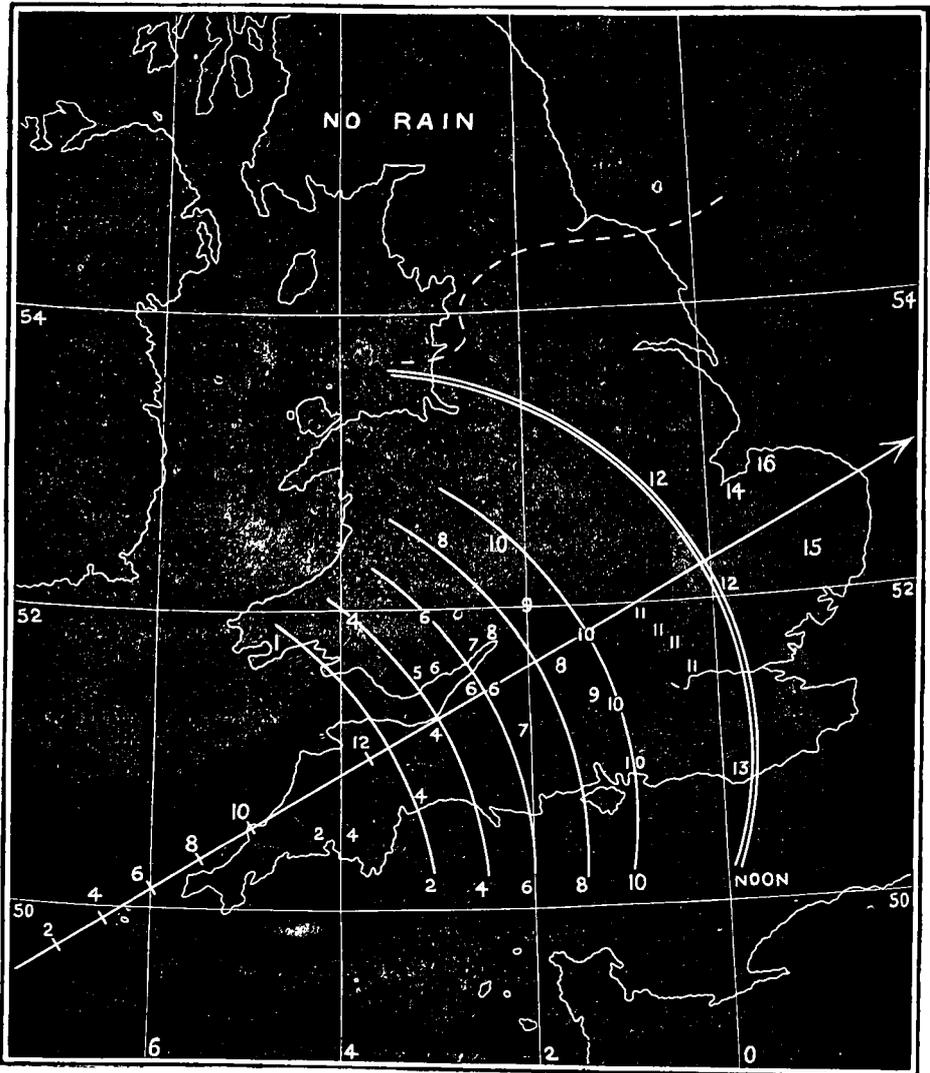
*Hour at which rain is reported to have begun on July 14th, 1875.*

Div.	County.	Station.	Time.	Div.	County.	Station.	Time.
I.	Middlesex,	Camden Sq.	11.0 a.m.	V.	Devon,	Dawlish .....	4.0? a.m.
	"	Muswell Hill	11.30		"	Sidmouth .....	4.0
	"	Enfield Chase	11.30		"	Clevelands .....	5.30
II.	Surrey,	Croydon .....	10.0		Cornwall,	Pentillie Cas.	2.0
	Kent,	Beckenham .....	11.30		Somerset,	Burnham.....	4.0
	"	Forest Hill .....	11.15		"	Bath, Gay St.	7.0
	Sussex,	Worthing .....	10.30		"	Weston	6.0
	"	Hastings .....	1.45 p.m.	VI.	Gloucester,	Clifton.. ..	6.0
	"	Hailsham.....	0.45		"	Minchinhampton	6.30 ?
	Hampshire,	St. Lawrence	9.0 a.m.		"	Staunton ..	7.45 ?
	"	Sherborne...	9.0		Hereford,	The Graig ...	7.0
	"	Strathfield Turgiss	9.30		"	Longtown ...	6.30
	Berks,	Cookham Vic. ...	10.0		"	Ledbury .....	8.0
	"	Wantage .....	8.0		Salop,	Ludlow .....	8.30
III.	Herts,	Bayfordbury ..	11.0		"	Bishop's Castle...	5.0
	"	Berkhempstead.	10.0		Stafford,	Wolverhampton	11.0
	Bucks,	Addington .....	9.0		"	Cheadle .....	11.0
	Oxford,	Magdalen Coll..	10.0		Worcester,	Evesham ...	9.0
	"	Broughton .....	9.0		"	Orleton .....	7.30
	"	Banbury, High-st	9.15		"	Hagley Rec.	10.0
	Bedford,	Aspley Guise..	11.0		Warwick,	Leamington..	9.0
	Cambridge,	Merton Villa	0.30 p m.	VII.	Leicester,	Coston.....	noon.
	"	Wisbeach ..	2.0	XI.	Monmouth,	Newport.	5.30 a.m.
IV.	Suffolk,	Aldham... ..	2.0		"	Caerleon.	6.0
	Norfolk,	Diss .....	3.0		"	Chepstow	6.0
	"	Hillington.....	4.15		"	Monmouth	7.0
	"	Hunstanton ..	4.0		Glamorgan,	Ystalyfera..	4.0
V.	Wilts,	Imber .....	7.0 a.m.		Pembroke,	Tenby .....	1.0
	Devon,	Lee Moor.....	4.0		Radnor,	Rhayader .....	8.30
	"	Ashburton .....	4.30				

Our next step was to lay down the whole of these 59 records upon a map. It then became evident that with few exceptions the values were remarkably accordant. Carrying on the work we found that a very large proportion of the returns could be satisfied by the advancement of a circular system about 330 miles in diameter, along a line passing from Padstow in Cornwall to Aylsham in Norfolk (N. 59° E.) The centre of these circles was, at 2 a.m. on July 14th, 100 miles S. 59° W. of Padstow, and moved N.E.-wards about 12½ miles an hour until 10 a.m., when the centre touched the Cornish coast; after which the speed seems to have been greater, viz., about 30 miles an hour.

These features are represented on the accompanying map, and we therefore leave them to tell their own tale.

One feature is not shown ; we do not assign much importance to it, but deem it worthy of mention. We have stated above, that our hypothetical circular system has a diameter of 330 miles, and advanced about  $12\frac{1}{2}$  miles per hour ; this would require  $26\frac{1}{2}$  hours to pass over any given spot, and that is in moderately fair accordance with the duration of the fall at stations on or near the central line, which varies from 24 to 36 hours.



We next come to the question of amount. If we quoted all the *M* above the ordinary limit, we should have  $70+32+4+3=109$  entries (see page 126) on the ground of their exceeding 2 inches, and 41 others on account of their exceeding 5 per cent, of the yearly total. Such a

list would be needlessly long, and we therefore quote only those where the amount exceeded three inches, or the per-centage 7 per cent.

II. Southampton .....	2·25=7·5	VI. Goodrich .....	3·09= 7·7
Woolston .....	2·62 7·9	Rocklands .....	3·36 8·0
Shedfield, Moor Hill ...	2·42 7·1	The Graig .....	2·98 7·7
Bishops Waltham .....	2·58 7·2	Longtown .....	3·88 7·3
Droxford .. .....	2·85 7·9	Bryngwyn .....	3·11 7·4
V. Imber.....	2·69 7·5	Whitfield .....	3·26 7·6
Thames Head .....	3·36 8·6	Ledbury .....	2·78 7·7
Wimborne .....	3·45 8·0	Hereford .....	2·65 7·3
Longthorns .....	3·18 8·2	West Malvern .....	3·12 7·6
Bingham's Melcombe ...	3·58 7·9	XI. Newport, Springfield...	5·30 9·5
Beaminster .....	3·65 8·1	"    Water W. ..	5·33 9·7
Melbury .....	3·92 9·3	Caerleon .....	4·64 9·7
Ashmore .....	3·34 8·3	Tintern .....	5·31 10·0
Kingsbridge .....	3·03 6·0	Abergavenny .....	3·88 8·4
Holne Vicarage .....	3·93 5·1	Ash Hall .....	3·67 6·4
Ashburton.....	3·10 5·0	Cardiff, Ely .....	4·75 8·5
Princetown .....	4·15 4·8	"    Pentyrch .....	4·80 7·6
"    ... .....	3·75 4·7	"    Crockherbtown	3·74 7·2
Tavistock .....	3·03 5·7	"    Lisvane ... ..	4·84 8·6
Gittisham .....	3·40 7·9	Glyn Corrwg .....	3·33 3·6
Cricket, St. Thomas ...	3·02 6·4	Treherbert .....	3·85 3·5
Bath Lit. Inst.....	2·75 7·2	Aberdare .....	3·56 4·9
"    Weston .....	2·77 7·1	Carmarthen Gaol .....	3·05 5·0
Backwell .....	3·04 6·5	Tegfynydd .. .....	3·48 5·8
VI. Minchinhampton.....	3·32 7·2	Tenby .....	3·31 5·5
Nailsworth .....	3·33 7·2	Rhayader.....	3·68 5·7
Cirencester .....	3·11 7·6		

From the above it will be seen that in spite of the restriction caused by raising the limits from 2 in. to 3 in., and from 5 per cent. to 7 per cent., a long list remains—in fact, long enough and full enough to give a good basis for anyone to trace out the details of the fall. The list is, however, so long, that there is a possibility of the remarkable records at the wettest stations being overlooked, and we therefore give them by themselves.

V. Dartmoor, Prince Town.	4·15 in.	XI. Newport, Springfield .....	5·30 in.
XI. Cardiff, Ely .....	4·75	Tintern.....	5·31
"    Pentyrch.....	4·80	Newport Water Works ...	5·33
"    Lisvane .....	4·84		

We have said nothing respecting the loss of life and property, because we feel that we must either write much, or leave the subject untouched. An abstract of some of the damage was given in the *Meteorological Magazine* for August, 1875; other particulars are given in a paper read by the Author before, and printed in the *Proceedings of, the Institution of Civil Engineers*, on the Floods of 1875. Therefore it will probably suffice to say here, that the injury was proportional to the magnitude of the flood.

In the south-east of England the fall of the 14th was followed by, and partly merged in, a local rain of considerable amount, which fell throughout the 15th; its general character is well shown by the following note:—

*3rd day Nov C. once ref.*

HEAVY RAINFALL AT ACRISE IN 1875.—July 14th, rain commenced at 2 p.m., and at 11 p.m. the quantity measured was 0·17 in.; from this time to 8 a.m. on July 15th, 0·90 in.; the total fall for the 16 hours was 1·07 inches. Rain continued, and on July 15th, at noon, 0·53 in. was recorded; again at 7.30 p.m., 0·42 in. was registered; then at 10 p.m., 0·55 in.; to July 16th, at 6.30 a.m., 1·04 in., and to 8 a.m. 0·12 in., making a total for the past 24 hours of 2·66 inches, which is the largest amount ever registered here in the time.

JULY 19TH.

Heavy rain fell in most parts of England and Wales, but M only occurred in Cheshire, Lancashire, and Yorkshire.

VIII. Rufford, Ormskirk ... 1·91 in.=5·5 per cent.

JULY 20TH.

In point of numbers this was the third wettest day in the year, for while the M occurred at 257 stations on July 14th, and at 116 on November 13th, it occurred at 81 on July 20th. These stations are mostly in Northampton, Cambridge, Norfolk, Salop, Stafford, Warwick, Leicester, Lincoln and York. Raising the limits to the same values as for July 14th, we have the following list:—

IV. Worsted .....	2·47=	7·5	IV. Wells .....	3·58=	12·8
Hillington Rectory ...	2·16	7·7	Hunstanton .....	1·80	7·2
"    School ...	2·20	7·9	VI. Wolverhampton ...	2·79	7·3
"    Hall ...	2·43	7·8	Tamworth .....	3·40	9·4
Letheringsett Hall ...	3·95	13·2	VII. Dalby Hall .....	2·66	8·1
Burnham .....	3·17	10·6	Waltham .....	2·75	7·8
Holkham .....	3·06	10·2	Tydd Gote .....	2·20	7·8

We have just received a return from Hindringham, near Wells, thoroughly supporting the above remarkable record from Letheringsett. At Hindringham the fall was 3·89 in. Thus in one of the driest parts of the British Isles we have three stations with more than 3½ in. of rain on one day.

JULY 21ST.

Another day of heavy rain in the midland and eastern counties, but the totals not excessive.

II. Strathfield Turgiss .....	1·78=	5·6	III. Huntingdon .....	2·34=	8·1
"    Saye .....	1·91	5·6	IV. Thorpe .....	1·88	5·9
Heckfield ...	2·34	7·1	Sprowston .....	1·74	6·2
Reading .....	1·75	5·5			

JULY 22<sup>ND</sup>.

A single **M** from a local thunderstorm.

V. Trowbridge..... 2·69 in.=6·9 per cent.

JULY 23<sup>RD</sup>.

A well-defined **M** around the Moray Firth.

XVII. Burghead .....	2·08=8·0	XVIII. Invergordon Cas. ...	1·34=5·6
Highfield, Elgin .....	1·75 6·2	Tain, Fearn .....	1·46 6·3
Nairn .....	1·45 6·6	„ H.R.S. ....	1·32 5·5
„ Achareidh ....	1·32 6·6	„ Springfield ...	1·44 5·7
XVIII. Moy House .....	1·69 5·6	Cawdor, Nairn .....	2·28 8·4

AUGUST 6<sup>TH</sup>.

An unimportant **M** on both sides of the Bristol Channel, but giving some large values at the wet Glamorganshire stations.

V. Dunster .....	2·42 in.=5·9 per cent.
XI. Ystalyfera .....	3·50 4·5
Treorchy... ..	4·99 4·8

AUGUST 7<sup>TH</sup>.

A heavy local storm in the S.E. of London,\* and a general rain over the west midland counties, and especially extending over Nottingham, Derby, and East Yorkshire. The **M** being mostly in these dry counties, the per-centages are high; we therefore only quote those exceeding 2 in. or 7 per cent.

I. Enfield Chase .....	2·75=7·9	VII. Grassmoor .....	2·62=9·7
II. Blessington Road ... ..	2·37 7·4	IX. Richmond Hill ... ..	2·83 8·8
VII. Highfield House .....	2·10 6·0	Brincliffe Rise.....	2·53 6·5
Nottingham.....	2·16 6·7	Broomhall Park .....	2·57 7·1
Mansfield... ..	2·21 6·9	Crookes .....	2·47 7·3
Welbeck .....	2·32 7·5	Ulley Reservoir ... ..	2·40 8·9
Worksop, The Mount... ..	2·59 8·3	Moorgate Grove .....	2·56 8·5

SEPTEMBER 2<sup>ND</sup>.

A very general **M** on the western side of the Pennine chain, reaching from South Wales to the south of Argyllshire, and extending slightly over the N.E. of Ireland. This being a wet district, we have quoted only stations at which the fall exceeded 3 inches, but have left the limit of the per-centage as usual at 5 per cent.

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\* Another occurred near Canterbury, but the record not being perfect for the year the only reference to it is on pages 61 and 123.

VIII. Southport .....	2·13=5·1	X. Loweswater .....	2·40=5·2
Barrow .....	1·83 5·1	Crosthwaite .....	2·65 5·1
Flookburgh .....	2·55 6·2	Staveley .....	3·00 5·5
Holker .....	2·55 5·9	Matson's Grounds.....	3·22 5·4
Ulverston .....	3·00 5·8	Brathay Vicarage .....	3·06 4·2
Powka Beck .....	3·05 5·5	Little Langdale.....	3·67 4·1
Woodland Rectory ..	2·94 5·3	Lesketh How.....	3·20 4·1
Lanehead .....	3·72 5·2	XI. Rhiwbrifdir .....	4·45 4·8
Coniston.....	4·35 5·2	Pen-y-gwryd .....	3·50 3·4
Hawkshead .....	3·85 5·4	XII. North Balfern .....	2·53 5·7
Brathay Hall.....	3·17 4·5	Dalbeattie .....	2·22 5·2

## SEPTEMBER 8TH.

A **M** of no special importance, nearly in the same latitude as that of September 2nd, but further east.

XII. Wanlockhead... ..	3·80 in.=5·7	per cent.
XIII. St. Abb's Head .....	1·55	6·7

## SEPTEMBER 26TH.

The **M** on this day are wholly either in Scotland or Ireland, and the most important were in the W. of Scotland and the N.E. of Ireland. The fall was generally very near 5 per cent., and in order to keep the list compact it only includes per-centages exceeding 7 per cent. and falls exceeding 3 inches.

XIV. Pinmore ... ..	3·45=7·2	XXIII. Newry.....	3·08=5·1
XVIII. Dava H. R. S. ....	2·88 10·7	Newtownards.....	2·67 8·4
XXIII. Castlewellan .....	3·14 6·0		

## OCTOBER 9TH.

A heavy **M** in the counties of Buckingham, Oxford, Northampton, and also at stations in Gloucester, Warwick, Leicester, and Lincoln. Limits 3 in., and 7 per cent.

III. Helidon Vic.....	2·58=7·4	III. Weedon.....	3·52=9·5
Towcester .....	2·52 7·2	Weedon Beck Vic. ....	3·28 8·9
Upper Heyford.....	2·50 7·3	Althorp... ..	2·86 7·7
Broughton Lodge.....	2·95 8·2	Naseby .....	2·62 7·5
Banbury, High Street...	3·25 9·5	VII. Minningsby .....	2·60 9·0
Thorp Mandeville .....	3·14 8·5	Langton .....	3·25 9·6

To these may be added the following entries from imperfect records near Banbury :—Culworth, 3·09 ; Parsons Street, 3·00 ; Horse Fair, 3·10 ; and King's Sutton, 3·08 + the unknown quantity which ran over.

## OCTOBER 15TH AND 16TH.

One isolated **M** is reported on each of these two days. For the former there is a record of 3·30 in., or 9·1 per cent., at Middleton-on-

the-Wolds, in the East Riding of Yorkshire. There was more or less rain at all stations in the neighbourhood on that day, but at no other did it reach an inch. The stations are too scattered to render distinct evidence as to the accuracy of the above record. Similarly the fall on the 16th was 2·45 in. at Ivy Lodge, Radway (VI.), and amounted to 6·8 per cent. The observer writes, "the rain on October 16th was the heaviest for years, and the floods rose higher than ever remembered."

## OCTOBER 19TH.

This was a wet day, generally, but only worthy of special notice for the excessive fall between Tiverton and the Dart.

II. Fernhurst .....	2·03=6·8	V. Tiverton, Springfield ...	2·28=4·9
Wantage.....	1·85 5·4	Witheridge.....	2·09 5·7
V. Exeter Institution.....	3·26 8·6	Meshaw .....	3·14 6·8
Brampford Speke .....	2·39 5·7		

Most unfortunately, the other three gauges in Exeter were allowed to overflow.

## OCTOBER 20TH.

A fall of about  $1\frac{1}{2}$  in. ; **M** chiefly in Lincolnshire and South Yorkshire.

VII. Boston .....	1·39=5·3	VII. Whitmoor .....	1·30=5·2
Navenby .....	1·36 5·2	IX. Tickhill.....	1·53 5·3
Longhills .....	1·44 5·5	Barnsley .....	1·66 5·2
Bucknall .....	1·32 5·3	Holbeck W. W. ....	1·35 5·8
Horncastle .....	1·59 5·7	X. Brinkburn.....	2·00 6·9
Lincoln ... ..	1·26 5·7		

## OCTOBER 25-26TH.

The **M** for the S.E. of Ireland occurred on one or the other of these days ; at the southernmost stations on the former. The amounts are not very remarkable.

XXI. Tullogher .. ..	2·53=4·4	XXI. Wexford .....	2·10=4·8
Inistiogue .....	2·07 4·0	XXII. Drummanway .....	2·03 6·1

## NOVEMBER 13TH.

A very general heavy rain, the **M** at 116 stations, principally in Devon, Lancashire, Yorkshire, Durham, Northumberland, Westmoreland, and N. Wales. The amounts were very uniform, ranging generally between  $1\frac{1}{2}$  and  $2\frac{1}{4}$  inches. Limits 2 in. and 6 per cent.

IX. Whiteholme.....	2·30=4·4	X. Seaham Vicarage ...	2·08=7·2
Otterburn .....	2·21 5·1	Birtley .....	1·88 6·5
Langcliffe .....	2·25 5·4	Eighton Cottage ...	2·06 6·1
Fog Close House .....	2·22 5·4	Casterton .....	2·10 4·8
Castle Stead .....	2·08 5·1	Whelprigg .....	2·12 4·7
Hawes .....	2·47 4·5	XII. Mull of Galloway..	2·10 8·1
Middleton Tyas .....	2·03 6·1	XXIII. *Alma House .....	2·18 5·7
Buckden .....	2·69 4·3	Annahilt .....	2·12 6·0
Carperby .....	2·31 5·6	Carnlough .....	3·19 7·6
X. Darlington, South End.	1·93 6·6	Drenagh .....	2·41 7·1
Dinsdale .....	2·30 7·9	Stewartstown ...	2·25 6·1
Shotley Hall.....	2·25 6·1	Tullyhogue .....	2·43 6·8
Gainford .....	1·98 6·6	Moville .....	2·54 6·2
Durham Observatory ...	2·73 7·4	Rockfort .....	2·33 6·3

## DECEMBER 21st.

A local **M** between Ambleside and Hawick. There was no **M** which reached 5 per cent., but as the stations are wet ones, several of the **M** were above 2 in. The absolute **M** was

X. Seathwaite..... 3·19 in. = 2·7 per cent.

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\* The damage caused by this rain in the north of Ireland is referred to on pages 71 and 72.

## MAXIMUM FALLS IN 1875.

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WE have now to group together the materials from which the previous narrative has been compiled, and to ascertain the character of the maximum falls of 1875.

The mode of using the data furnished by the observers is as follows :—

- (1). From each perfect record the following details are copied :  
Number of Division, Name of Station, Date of Greatest Fall, Amount of Greatest Fall, Total Fall in year.
- (2). These entries are sorted under their respective dates, and also, subsequently, for each date, into proper geographical order.
- (3). The per-centage which each greatest fall is of the total yearly fall at that station is computed.
- (4). The next step is the compilation of the previous article.
- (5). A considerable number of the largest falls are copied out, and from them the largest sixteen are selected, to form Table I.
- (6). Table II. is formed from Table I.
- (7 and 8). The processes numbered 5 and 6 are repeated, except that the largest *per-centages* are extracted, instead of the largest *falls*, and thus Tables III. and IV. are formed.
- (9). The whole of the per-centages and maximum falls are copied in long columns, in order to ascertain the mean per-centage for the whole kingdom, and the mean amount of rain on the wettest day, and this incidentally involves counting the number of entries, which for 1875 is 1081. Thus are obtained the data given in Table V.

We may now proceed to examine the Tables. The first shows the influence of the great rain on July 14th ; 11 out of the 16 entries being for that fall, and consequently the district (Monmouth and South Wales) in which that fall was the greatest, is most fully represented.

Table II. shows that these falls were not only larger than usual, but greater than in 1872 by exactly ten per cent.

Table III. shows the most remarkable per-centages—heavy falls in dry districts. Take for example the first record, Letheringsett Hall. It appears that the total fall in the year was 29·89, or a little more than half-an-inch a week. Now this table shows that in 1875, on July 20th, there fell 3·95 in., or as much as would, on the average, fall in a period of 6 weeks and 6 days. And even in the least remarkable case quoted, viz., Ballarena, it is evident that with a total fall of 32·60 in., the monthly average would be 2·72 in., but on Nov. 23rd, 3·05 in. fell in a single day.

Table IV. shows, it is true, a run of + signs, but that in the depth column is of fourfold greater relative excess, telling the same tale as Table II., viz., of unprecedentedly large *amounts*. The per-centages are not so remarkable, as the total fall in the year has been somewhat above the average.

Table V. is formed from the whole of the returns used for this branch of the work, 1081 in number, and shows that the per-centages have been slightly above the average, and the amounts unprecedentedly large. The average of 6970 M which have been discussed during the ten years ending with 1874, gave a mean of 1·46 in., that is to say, usually the fall on the wettest day in the year at a British station is under 1½ inches. This value was highest in 1865, when it was 1·70 in., but in 1875 it was 1·83; the heavy falls in 1875 were therefore about one-twelfth greater than previously recorded, and one-fourth greater than the average.

TABLE I.—*Maximum Falls in 1875.*

Date.	Div.	Stations.	Depth.	Per cent.	Fall in year.
July 14 ..	XI.	Newport Water Works .....	5·33in.	9·7	55·30 in.
„ „ ...	„	Tintern Abbey .....	5·31 „	10·0	53·13 „
„ „ ...	„	Newport, Monmouth .....	5·30 „	9·5	55·64 „
Aug. 6 ...	„	Treorchy .....	4·99 „	4·8	103·78 „
July 14 ...	„	Lisvane .....	4·84 „	8·6	55·78 „
„ „ ...	„	Pentyrch .....	4·80 „	7·6	63·22 „
„ „ ..	„	Ely, Cardiff .....	4·75 „	8·5	56·37 „
„ „ ...	„	Lansoar .....	4·64 „	9·7	48·41 „
Sept. 2 ...	„	Rhiwbrifdir .....	4·45 „	4·8	92·11 „
„ „ ...	VIII.	Coniston .....	4·35 „	5·2	84·00 „
July 20 ...	IV.	Letheringsett Hall .....	3·95 „	13·2	29·89 „
„ 14 ...	V.	Holne Vicarage .....	3·93 „	5·1	76·59 „
„ „ ...	„	Melbury House .....	3·92 „	9·3	42·24 „
Dec. 24 ...	XVIII.	Glenquoich .....	3·92 „	3·7	106·72 „
July 14 ...	VI.	Longtown Vicarage .....	3·88 „	7·3	52·90 „
„ „ ...	XI.	Larchfield .....	3·88 „	8·4	46·27 „

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.
Mean ...	3·46	6·1	66·0	5·55	7·3	.....	...
1875 ...	4·52	7·8	63·9	5·33	9·7	Newport W. W.	XI.
Diff. ...	+1·06	+1·7	-2·1	-22	+2·4	.....	...

TABLE III.—*Maximum Per-Centages in 1875.*

Date.	Div.	Stations.	Per Cent.	Depth.	Fall in year.
ly 20 ..	IV.	Letheringsett Hall .....	13·2	3·95in.	29·89 in.
„ „ ...	„	Wells .....	12·8	3·58 „	28·00 „
Sept. 26 ...	XVIII.	Dava Station.....	10·7	2·88 „	26·70 „
July 20 ...	IV.	Burnham .....	10·6	3·17 „	30·25 „
„ „ ...	„	Holkham .....	10·2	3·06 „	29·73 „
„ 14 ...	XI.	Tintern Abbey .....	10·0	5·31 „	53·13 „
Aug. 7 ...	VII.	Grassmoor Colliery* .....	9·7	2·62 „	27·12 „
Oct. 9 ...	„	Spilsby, Langton .....	9·7	3·25 „	33·65 „
July 14 ...	XI.	Newport Water Works .....	9·7	5·33 „	55·30 „
„ „ ...	„	Lansoar .....	9·7	4·64 „	48·41 „
Oct. 9 ...	III.	Banbury (High Street) .....	9·5	3·25 „	34·32 „
„ „ ...	„	Weedon .....	9·5	3·52 „	37·25 „
July 14 ...	XI.	Newport, Monmouth .....	9·5	5·30 „	55·64 „
„ 20 ...	VI.	Tamworth .....	9·4	3·40 „	36·19 „
„ 14 ...	V.	Melbury House.....	9·3	3·92 „	42·24 „
Nov. 23 ...	XXIII.	Bellarena .....	9·2	3·05 „	32·60 „

\* Since Table III. was compiled, and Table IV. computed from it, and both set up in type, we have ascertained that the gauge at Grassmoor Colliery was moved during the year, and therefore that it is not strictly entitled to a place in the table. As, however, other unprinted data show that it is *probably* near the truth, and *possibly* quite correct, we have not thought it worth while to spend the time necessary to rectify Table III. and re-work the means for Table IV.

TABLE IV.—*Comparison of Maximum Per-Centages with those in previous years.*

MEAN.				ABSOLUTE.			
Years.	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.....	III.
Mean...	9·2	2·53	28·2	12·4	3·77	.....	...
1875 ...	10·2	3·76	37·5	13·2	3·95	Letheringsett	IV.
Diff. ...	+1·0	+1·23	+ 9·3	+ 0·8	+18	..... [Hall	...

TABLE V.—*Comparison of the Mean of all the Maximum Falls in 1875 with similar data for previous years.*

Year.	Number of Returns.	Mean Percentage.	Mean Amount.	Mean Total Fall in year.	1867 being assumed =100.	Ratio of Rainfall to the Mean.	Total Fall being assumed =34 in. Mean Max. =
1865	481	5·1	1·70 in.	33 in.	106	102	5·00 per cent.
1866	590	3·7	1·48 ,,	40 ,,	129	119	4·36 ,,
1867	584	4·6	1·44 ,,	31 ,,	100	100	4·24 ,,
1868	676	4·3	1·43 ,,	33 ,,	106	106	4·21 ,,
1869	637	4·2	1·42 ,,	34 ,,	108	101	4·18 ,,
1870	687	4·9	1·30 ,,	27 ,,	81	82	3·82 ,,
1871	752	4·0	1·49 ,,	30 ,,	98	97	4·38 ,,
1872	743	3·4	1·59 ,,	47 ,,	151	136	4·68 ,,
1873	809	4·6	1·35 ,,	29 ,,	94	95	3·97 ,,
1874	1010	4·4	1·41 ,,	32 ,,	103	96	4·14 ,,
Mean ...	697	4·4	1·46	34	108	103	4·30 ,,
1875	1081	5·0	1·83	37	119	108	5·37 ,,
Diff.....	+384	+ ·6	+ ·37	+ 3	+ 11	+ 5	+1·07 ,,

## NEW TABLE OF MONTHLY RAINFALL IN THE BRITISH ISLES DURING 1875.

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IN an earlier part of this work I stated that, consequent upon some remarks in *Nature*, I have entirely recast this portion of the volume. There is a second cause for my action, in the termination of the series of tables of monthly rainfall, which for fourteen years past I have compiled for the British Association. I think that the subject will be most easily understood, and followed, by reprinting my letter to *Nature* and the editorial note upon it.

### BRITISH RAINFALL, 1874.

I am much obliged by your favourable mention (*Nature*, vol. xii. p. 76) of my annual volume, and am very glad to find that it concludes with a suggestion, because, to quote from p. 138 of the work under notice, "We always receive with pleasure suggestions for the improvement of this publication, and within reasonable limits never allow either trouble or cost to prevent the adoption of all which in any way commend themselves to our judgment."

Your suggestion is as follows:—

"The publication of the monthly as well as the annual amounts of rain for the whole of the 1,700 stations is very desirable, and it is hoped that in an early issue of the *British Rainfall* it will be done."

I shall be glad if you will allow me to supplement by some other facts the data which were before you when the above paragraph was written, and to learn from your pages whether or not this fuller information induces any modification of your views.

As I (whether fortunately or unfortunately I need not say) have to pay my own printer's bills, I always keep them as low as possible; hence the publication being an annual one, statements made in one volume are rarely repeated in the next. Therefore, probably, your reviewer was not aware of the principles upon which the tables of monthly rainfall (pp. 140-145) are compiled, viz., to give one station in every county in the British Isles, and two in a few of the larger ones, such as York, Inverness, and Ross. I may add *en passant* that these tables give the monthly fall at 108 stations, while the Registrar-General of England is satisfied with forty-four, and of Scotland with fifty-five; so that my table exceeds both together. That, however, is of little moment. [For your own information, I enclose a map with these 108 stations plotted.]

In the next place, I must refer to *British Rainfall*, 1871, pp. 135-138, where the question of publishing additional monthly returns is discussed at length, and the method of computing the monthly fall from the per-centage tables (which

are given every year) is explained and illustrated by a completely worked-out example.

To this let me add that returns from 150\* other stations are published monthly in my *Meteorological Magazine*, and that up to the present time another very large series (143) has been printed biennially in the Reports of the British Association.

If it is the opinion of yourself and of others competent to judge, that still more is necessary, more shall be done ; but it must be borne in mind that the accurate (and without accuracy figures are worse than useless) printing of 20,400 values involves a great expenditure both of time and of money. I do not quite know whence either the one or the other is to be obtained.

G. J. SYMONS.

[It was just because of the inadequacy of one station in each county of the British Isles, and two in the larger counties, to represent the rainfall, even though these be supplemented by Mr. Glaisher's forty-four stations, the Scottish Meteorological Society's two hundred odd, and by Mr. Symons himself in his Magazine and in the British Association Reports, that we stated it to be very desirable that the monthly as well as the annual amounts of rain for the whole of the 1,700 stations were published. The method of computing the monthly fall from the percentage tables referred to in *British Rainfall*, 1871, pp. 135—138, does not supply what is desiderated. It is the capriciousness of the distribution of the rainfall and its important bearings on many practical questions which render so desirable a knowledge of the actual monthly amounts in particular localities. Since what is desired would be an invaluable contribution to British Meteorology, we earnestly hope that Mr. Symons will be induced to supply it, and that in that case he will receive substantial support in carrying on a work so important.]

Before proceeding to the vital question, it may be well to correct the remark as to "the Scottish Meteorological Society's two hundred odd." As an old member of that Society, and a reader of its publications, I can recall no publication by it, of monthly records from "two hundred odd" stations, but the matter is quite unimportant.

The essential point is the advisability, or otherwise, of further increasing the number of stations whereof the monthly totals are given. I showed in the above letter, that even the volume criticized by *Nature* gave more than the publications of any other body, public or private ; but I have no objection to giving still more, and have, therefore, prepared a set of tables far more elaborate than any yet published, containing as they do the monthly results from two hundred and forty five stations.

It is not, however, a lofty class of mind which judges of the value of records by their number. I have by no means yielded to the demand for the publication of the monthly details from the whole 1,700 stations ; (1), because of the expense—the mere setting up of

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\* Should have been 100.

the type would cost nearly £20. (2.) Because of the delay which the reading of nearly fifty extra pages of figures would involve. (3.) Because I think it is more useful and more scientific to compile such tables in accordance with physical conditions, than with social ones. The progress of civilization and education gives more observers in the centres of opulence, industry, and culture, but that is surely no reason for the publication of thrice as many rain returns per thousand square miles in those districts as in others. It is not possible to secure equable distribution of stations throughout the country, nor is absolute uniformity desirable; but the departures from equality should, as far as possible, be dependent on physical conditions alone.

It has been my duty to consider what would be a reasonable area to consider represented as to the monthly distribution of the total annual rainfall, by each station—by no means a simple problem.

I am inclined to think that it is ample to *publish* the monthly falls of one station for each 500 square miles: the total area of the British Islands is 120,572 square miles, hence the monthly values should, on the above system, be 241. I have given 245, distributed as follows:—

	Area.	Returns.	Square miles to each record.	Radius of circle having that area.
England ...	50,396 square miles	... 101	... 499	... 13
Wales ...	7,425 ,, ,,	... 22	... 337	... 10
Scotland ...	30,238 ,, ,,	... 64	... 473	... 12
Ireland ...	32,513 ,, ,,	... 58	... 561	... 13
Total	120,572	245		

Having implied that I hold it to be a mistake to proceed in a scientific investigation on a mere basis of numbers, I need hardly say that I have been very careful in selecting the stations for the following tables. It is not likely that I have been uniformly successful, but it is only fair to state that all the stations were plotted on large scale maps before deciding which should be selected, and subsequently when all the records had been copied (there are nearly 10,000 figures in these tables alone) two or three discordant records were detected and replaced by others.

Monthly Rainfall in the British Isles during 1875.

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.	
I.	Middlesex	Camden Square.....	3.22	1.06	.69	1.53	1.61	2.40	4.63	1.79	2.86	4.35	3.86	.94	28.44	
		Uxbridge (Harefield).....	3.88	1.24	.83	1.08	2.58	2.62	6.59	1.18	2.51	4.29	3.38	1.06	31.24	
		Guildford (Guildown).....	3.01	1.59	.92	1.23	1.13	2.60	4.76	1.17	1.36	4.63	4.10	1.56	28.06	
		Tenterden.....	3.37	.73	.94	.94	1.09	2.58	4.40	2.24	2.39	4.78	5.97	2.13	31.56	
		Hythe.....	4.42	1.31	.82	.82	1.72	2.17	4.83	2.51	3.04	4.86	8.82	3.24	38.03	
		Seven Oaks (Riverhead) ...	5.17	1.34	.87	1.24	1.35	3.26	4.83	1.44	1.84	4.81	5.39	1.81	33.86	
		Sittingbourne.....	3.38	.57	.59	1.28	1.07	1.83	5.01	1.30	1.90	2.07	3.35	4.06	1.05	25.56
		Worthing.....	3.83	2.17	.72	1.37	.96	2.67	2.50	1.90	1.90	2.07	6.25	5.55	.75	30.57
		Maresfield (Forest Lodge)..	4.01	1.29	.96	.92	1.61	2.94	4.29	1.49	2.09	2.09	4.50	4.83	1.49	30.42
		L. of Wight (St. Lawrence)	5.06	2.83	.77	1.44	.93	2.04	3.15	1.57	1.95	1.95	5.61	5.63	.97	31.95
II.	Kent	Droxford.....	5.09	2.74	.93	1.18	1.87	3.35	5.52	2.24	1.57	5.27	4.80	1.39	35.95	
		Basingstoke (The Vyne)...	3.79	2.44	.89	1.43	1.53	3.41	5.50	1.43	2.44	5.70	3.69	1.23	33.48	
		Newbury (Welford).....	4.88	2.26	1.27	1.77	2.74	4.21	4.95	1.30	2.45	6.32	4.55	1.74	38.44	
		St. Albans (Bayfordbury)..	2.77	.90	.69	1.29	1.80	2.71	4.71	2.01	3.20	4.51	3.96	1.11	29.66	
		Buntingford (Aspenden)...	2.39	.96	.52	1.37	2.35	2.55	4.73	1.24	2.83	3.95	4.02	4.53	1.14	28.56
		Amersham (Gt. Missenden)	4.26	1.34	.99	1.42	2.65	2.48	6.33	1.38	2.02	6.08	4.02	.86	33.83	
		Buckingham (Castle Field)	3.08	1.10	1.08	2.30	1.64	2.72	4.95	2.80	2.64	7.11	4.35	1.32	35.09	
		Oxford.....	3.62	1.63	1.09	1.24	1.77	2.97	4.70	1.37	1.94	7.41	4.73	3.80	.86	32.40
		Wellingborough.....	3.08	1.44	.92	2.14	1.63	2.28	5.91	1.59	2.79	4.73	4.40	4.40	1.47	32.38
		Whittlesea.....	1.79	1.05	.50	.98	1.19	2.94	6.46	1.41	2.32	3.52	3.86	3.86	.80	26.82
III.	Northampton	Huntingdon.....	2.27	1.30	.43	1.67	1.33	2.95	5.30	1.42	2.23	4.47	3.62	1.19	28.18	
		Bedford.....	1.51	.77	.22	1.05	1.44	2.21	5.59	2.26	2.39	2.92	4.23	.63	25.22	
		Ely (Stretham).....	2.05	1.21	.44	.85	1.61	3.28	7.14	2.39	2.22	2.71	4.10	4.09	1.69	29.69
		Wisbech.....	2.05	1.21	.44	.85	1.61	3.28	7.14	2.39	2.22	2.71	4.10	4.09	1.69	29.69
		Epping.....	3.26	.92	.61	1.48	2.41	3.02	5.86	1.08	3.33	3.63	4.09	1.37	1.87	31.06
		Chelmsford.....	1.73	.72	.36	1.34	2.18	5.03	5.04	.80	.80	2.51	3.60	3.79	.82	27.92
		Colchester.....	2.35	.94	.29	1.42	2.33	2.52	4.84	.60	3.03	3.51	4.43	4.43	1.64	27.90
		Sudbury.....	2.06	.86	.44	1.35	2.44	2.53	5.08	.37	3.48	3.51	4.77	4.77	1.23	27.35
		Ipswich.....	1.83	.96	.51	1.14	3.38	2.80	4.42	.74	2.44	3.51	4.65	4.65	1.29	27.67
		Saxmundham.....	1.74	1.00	.53	1.09	2.64	1.21	3.72	.89	2.54	3.93	5.08	5.08	1.69	26.06
IV.	Essex	Yarmouth.....	1.61	1.15	.55	.58	1.69	2.51	4.79	.74	2.40	3.72	6.01	1.64	27.39	
		Swaffham.....	2.40	1.40	.41	.88	1.13	2.08	7.00	.85	2.46	2.58	5.55	5.55	1.73	28.47
		Holt.....	1.45	1.38	.50	.71	1.45	2.48	8.18	.61	1.85	3.22	5.89	5.89	2.17	29.89
		Salisbury.....	4.10	2.62	1.42	1.61	1.74	4.06	4.60	1.77	1.73	5.66	4.21	.96	34.48	
		Ludgershall.....	3.48	2.64	1.62	2.30	2.47	3.33	6.33	1.60	3.39	6.07	6.07	1.44	1.34	39.01
		Trowbridge.....	4.53	2.38	.93	1.17	2.74	2.73	7.87	1.87	3.10	6.03	6.03	3.97	1.19	38.51

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
V.	Dorset	Weymouth (Osmington).....	5.56	2.99	1.17	1.23	2.23	1.89	3.89	2.79	2.36	8.15	5.67	1.35	39.28
"	"	Wimborne (Chalbury).....	5.34	2.69	1.79	1.48	2.40	3.39	3.87	1.91	2.88	7.18	5.03	1.10	39.06
"	"	Shaftesbury .....	4.44	2.74	.86	1.87	2.51	2.78	5.91	1.04	2.53	6.90	5.10	1.41	36.09
"	Devon	Kingsbridge .....	7.64	1.79	1.17	1.81	2.45	3.85	5.00	2.14	7.80	6.80	6.89	2.22	49.56
"	"	Dartmoor Prison .....	16.94	4.71	3.63	3.04	4.69	7.65	7.96	5.04	7.97	9.87	10.19	4.16	85.85
"	"	Bovey Tracey .....	6.58	2.29	1.46	1.95	3.14	3.88	5.26	1.95	4.66	7.48	7.08	2.16	47.89
"	"	Callumpton (Clyst Hydon)	4.28	2.08	1.28	1.56	2.36	2.40	4.11	2.28	3.10	7.51	4.88	.82	36.66
"	"	S. Molton (Rose Ash) .....	6.47	1.58	1.55	2.29	3.37	4.72	4.27	2.05	4.23	7.57	6.98	1.59	46.67
"	Cornwall	Penzance .....	9.54	3.24	1.20	2.54	2.88	3.33	3.40	1.99	4.95	8.77	6.61	3.12	51.57
"	"	St. Agnes .....	7.00	1.87	1.34	1.88	2.74	3.37	2.74	2.20	5.35	6.55	6.05	2.59	42.73
"	"	Stratton (Jacobstow) .....	8.15	1.13	1.84	2.11	2.47	3.81	2.86	2.28	5.76	7.94	6.37	2.38	47.10
"	"	Ilminster .....	4.28	2.21	1.26	1.26	2.42	3.52	4.64	2.65	2.59	7.23	4.81	.85	37.72
"	Somerset	Glastonbury (Street) .....	4.74	2.63	1.06	.98	2.25	2.13	5.83	1.64	2.76	6.62	4.77	.54	35.95
"	"	Dunster .....	4.63	1.86	1.96	2.21	2.65	2.51	2.60	3.58	2.67	8.80	6.73	1.21	41.41
VI.	Gloucester	Clifton .....	5.14	2.26	1.45	2.09	2.87	3.53	5.99	1.78	4.60	6.98	6.09	1.28	44.05
"	"	Stroud (Upfield) .....	4.07	1.93	.98	3.04	2.92	4.00	5.33	1.17	2.83	7.82	4.72	1.63	38.67
"	"	Fairford (The Dean) .....	4.68	1.99	.77	2.19	1.91	3.87	5.35	1.07	2.16	7.82	4.49	.93	37.23
"	"	Moreton-in-Marsh .....	3.39	1.89	.92	2.49	2.38	3.09	5.62	1.34	2.85	7.66	4.74	1.09	37.46
"	Hereford	Ross (Rocklands) .....	5.24	2.15	1.40	2.50	2.42	3.03	7.02	1.76	3.31	5.92	5.70	1.71	42.16
"	Salop	Leobotswood (Woolstaston)	3.99	1.70	1.32	1.53	1.77	3.65	5.29	3.74	3.84	5.85	4.23	1.79	38.70
"	"	Newport .....	2.61	1.58	.59	.67	2.10	2.64	5.81	3.60	4.27	4.69	3.45	1.02	33.03
"	"	Oswestry .....	4.66	1.96	1.37	1.29	3.05	3.75	4.68	3.33	4.60	5.83	3.85	1.62	39.99
"	Stafford	Tanworth .....	3.14	1.06	.63	.69	1.63	3.39	8.26	3.04	3.00	6.19	3.58	1.58	36.19
"	"	Burton .....	2.73	.77	.47	.70	1.73	2.96	5.89	2.34	3.67	5.67	3.93	1.26	32.12
"	"	Stoke .....	3.69	1.11	.80	.51	1.82	3.18	6.75	2.69	3.79	4.65	3.57	1.29	33.85
"	Worcester	Malvern.....	4.18	1.41	.94	1.16	2.47	2.46	5.94	1.66	2.50	6.87	4.96	1.12	35.67
"	"	Tenbury (Orleton) .....	3.16	2.14	.98	1.14	2.56	2.32	6.17	4.08	3.26	5.94	4.04	1.63	37.42
"	"	Stourbridge (Hagley) .....	3.10	1.51	.97	.79	2.22	3.23	6.51	2.45	3.29	5.91	3.70	1.64	35.32
"	Warwick	Leamington .....	3.33	1.44	.61	1.45	3.33	2.37	6.19	1.63	3.54	6.54	4.73	1.33	36.39
"	"	Nuneaton .....	2.96	.82	.54	1.45	1.20	2.86	6.72	2.18	3.86	5.84	3.73	1.22	33.38
VII.	Leicester	Loughborough .....	3.05	1.32	.73	.96	1.84	3.84	8.22	3.61	2.99	5.85	4.19	1.47	38.09
"	"	Harston [Grantham] .....	1.90	1.57	.75	1.15	1.46	2.87	5.97	2.35	2.11	5.63	4.32	1.28	31.34
"	Rutland	Oakham (Burleigh) .....	3.37	1.74	1.34	.87	1.91	4.62	7.60	2.94	2.44	4.01	4.36	2.17	37.37
"	"	Horncastle.....	2.45	1.49	.72	.52	1.51	2.58	3.60	2.19	1.88	4.79	5.00	1.70	28.43
"	Lincoln	Brigg (Appleby Vic.) .....	1.93	1.13	.74	.56	1.59	2.12	4.05	2.04	2.63	4.25	5.06	1.16	27.26

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
VII.	Notts	Mansfield	3.38	1.90	.88	.91	1.52	2.63	4.28	3.45	2.95	5.03	3.99	1.54	32.46
"	Derby	Buxton	5.53	1.64	1.02	1.69	3.28	4.20	6.31	4.45	7.00	6.69	6.95	3.22	51.98
VIII.	Cheshire	Congleton	2.72	.98	.69	.80	1.65	2.97	5.01	2.38	3.88	4.67	3.70	1.25	33.70
"	"	Heaton Chapel	4.22	.94	.71	1.12	1.85	3.30	5.32	5.48	4.99	5.93	4.42	1.39	39.67
"	"	St. Helens	3.65	.96	.65	.64	2.13	3.56	4.34	3.49	4.64	5.32	3.93	1.01	34.32
"	"	Burnley Gas Works	5.04	.85	.95	1.56	2.86	3.36	4.71	1.78	4.63	4.46	4.44	1.79	36.43
"	"	Garstang Parsonage	5.04	1.02	.90	1.02	2.14	5.37	4.21	2.91	4.47	3.83	5.09	2.26	38.26
IX.	York, W.R.	Ulverston	7.91	1.50	1.31	1.52	2.50	4.77	3.07	4.32	7.52	6.73	7.59	3.08	51.78
"	"	Rotherham	2.28	1.14	.80	.59	1.43	2.54	4.67	4.87	2.34	4.54	3.69	1.09	29.98
"	"	Halifax	5.48	1.28	.63	1.17	1.64	3.17	5.73	3.05	4.37	4.58	4.92	1.55	37.58
"	"	Selby (Drax)	2.14	1.09	.50	.39	1.30	2.90	3.58	3.74	1.97	4.18	2.99	.91	25.69
"	"	Leeds (Methley Park)	3.41	1.47	.69	.56	1.72	2.71	3.88	2.31	2.78	3.84	3.89	.77	28.03
"	"	Pateley Bridge	7.44	1.81	1.01	1.80	1.96	3.39	3.75	2.57	3.72	5.49	6.23	2.21	41.38
"	"	Malham Tarn	7.45	1.34	1.54	2.14	3.87	4.69	5.29	4.51	5.21	5.35	7.34	3.46	52.19
"	York, E.R.	Pattingham	1.91	1.10	.64	.89	1.31	2.55	4.03	.94	2.31	3.81	5.12	.96	25.07
"	"	Pocklington	2.94	1.45	.97	.61	1.71	1.96	3.87	2.69	3.08	5.59	6.18	1.67	32.72
"	"	Filey	2.66	.56	.63	.62	.89	2.39	5.76	1.31	2.04	4.48	6.61	1.80	29.75
"	York, N.R.	Northallerton	2.25	1.29	.30	.99	1.24	2.63	4.21	1.75	2.07	2.46	4.00	1.07	24.26
"	"	Grosmont	2.77	1.23	1.45	2.01	1.14	3.85	4.64	2.26	2.16	4.71	7.87	4.01	38.10
X.	Durham	Gainford	2.38	1.21	.84	.84	1.06	1.98	4.29	2.40	3.17	4.37	5.79	1.92	30.25
"	"	Hartlepool	2.50	.72	.44	.83	.88	1.50	3.35	3.34	2.23	3.35	6.39	1.51	27.04
"	"	Wolsingham	4.49	1.98	.71	1.12	1.44	2.15	4.59	2.77	2.96	5.60	6.46	2.51	36.78
"	"	Halwhistle	4.58	1.59	.81	1.23	2.48	2.29	4.41	1.97	3.79	2.86	5.52	2.55	34.08
"	"	Stamfordham	3.30	1.71	.46	.71	.76	1.88	3.74	2.19	3.49	5.21	5.23	1.61	30.29
"	"	Otterburn	2.99	1.62	1.68	1.23	1.20	1.95	2.23	2.55	2.70	4.88	2.88	2.20	28.02
"	"	Howick	2.99	1.76	.78	1.03	.75	2.83	2.33	1.70	3.20	3.56	4.24	2.06	27.23
"	"	Braystones	4.67	1.46	.90	1.06	2.51	3.93	2.76	2.81	4.20	4.47	3.05	2.79	34.61
"	"	Scaleby Hall	4.23	.97	.69	.96	1.70	2.78	3.73	2.13	3.69	3.19	3.36	1.95	29.38
"	"	Kendal	8.43	1.44	1.73	1.69	2.63	5.28	2.41	3.06	5.75	3.32	6.57	3.91	46.22
"	"	Appleby	5.28	.69	1.31	.54	1.61	3.30	3.61	1.71	4.98	2.81	3.12	3.48	32.44
"	"	Brougham Hall	5.43	.22	1.21	.79	.94	3.43	3.42	1.78	3.86	2.49	2.42	2.67	28.66
XI.	Monmouth	Dingestow	4.36	2.01	1.11	2.04	2.70	4.58	5.17	2.37	3.71	5.27	6.18	1.66	41.16
"	"	Abergavenny	5.76	2.22	1.72	2.09	2.83	3.17	6.08	1.97	3.95	7.40	6.93	2.15	46.27
"	"	Cardiff (Pentyrch)	7.54	2.97	2.02	3.08	3.48	6.49	7.22	5.87	5.02	8.09	8.88	2.56	63.22
"	"	Ystalyfera	11.06	4.83	2.63	3.00	5.30	5.67	6.30	9.22	7.52	8.22	8.63	4.96	77.34

Div. I	County	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XI.	Carmarthen	Carmarthen Asylum	9.33	2.52	1.45	3.16	3.27	3.37	6.40	5.93	6.17	6.45	7.37	3.96	59.38
"	Pembroke	Tenby	8.76	2.46	1.56	2.79	2.97	3.84	7.02	5.14	6.67	6.96	8.35	3.21	59.73
"	"	Solva	5.61	1.83	1.13	2.48	1.66	2.06	4.61	3.32	4.28	4.65	5.33	2.53	39.49
"	"	Lampeter	5.91	1.56	1.79	1.87	2.10	2.55	5.21	4.27	5.25	6.68	7.85	1.72	46.76
"	"	Aberystwith (Gogerddan)	5.21	1.93	.87	1.91	2.60	3.36	4.44	4.25	4.98	5.98	5.06	2.50	43.09
"	Brecknock	Brecknock	6.67	2.30	1.99	2.56	2.80	3.56	4.17	2.98	5.41	6.72	8.44	1.88	49.48
"	Radnor	Heyhope	5.24	2.82	1.90	2.08	2.76	3.66	5.89	3.59	4.34	7.24	5.05	2.63	47.17
"	"	Newton (Dolfor)	5.98	3.52	2.70	2.26	2.69	3.74	6.33	3.47	3.99	5.99	5.96	2.63	49.39
"	Montgomery	St. Asaph (Nantllys)	1.97	2.40	.65	.70	2.04	2.14	4.33	2.31	3.46	4.13	3.24	1.79	29.16
"	Flint	Rosset (Trevalyn Hall)	2.75	1.18	.92	.63	1.93	1.95	3.98	2.77	4.22	5.07	3.26	.88	29.54
"	Denbigh	Dolgelly	10.20	2.04	2.71	2.62	4.11	4.05	3.11	3.26	6.88	6.69	7.05	4.78	57.50
"	Merioneth	Bala	7.36	1.93	1.81	1.97	2.75	4.01	4.19	2.82	4.61	5.25	5.50	3.82	46.02
"	"	Port Madoc	5.42	2.79	1.36	2.15	2.07	3.71	2.84	2.56	6.57	6.01	4.93	2.70	43.11
"	Carnarvon	Bodewryd	4.61	2.25	1.20	1.25	1.82	2.64	2.53	3.15	4.91	6.16	4.98	1.96	38.46
"	Anglesey	Douglas	6.52	2.56	1.26	.81	2.47	3.05	4.62	2.02	3.38	5.09	5.78	1.97	39.53
"	Isle of Man	Millbrook	5.31	2.96	.65	.85	.80	2.06	2.51	1.13	2.70	7.62	5.79	1.53	33.91
"	Jersey	Grange Road	5.88	3.42	.65	1.35	1.39	2.69	3.10	1.24	2.96	7.25	7.82	2.43	40.18
"	Guernsey	Vicarage	4.07	2.74	.45	.94	1.28	2.29	3.15	1.77	2.47	6.25	6.50	1.99	33.90
"	Sark	North Balfem	7.72	1.29	1.20	1.10	2.83	3.23	2.40	4.32	7.04	5.72	4.91	2.67	44.43
XII.	Wigtown	Dalbeattie	6.69	1.65	1.93	1.21	2.25	3.81	1.88	1.85	6.68	5.72	5.63	4.07	43.37
"	Kirkcudbright	Carsphairn	15.13	2.08	3.14	1.50	3.42	3.80	2.50	3.70	7.70	5.41	8.61	6.27	63.28
"	"	Annan (Warnanbie)	6.32	1.08	1.16	1.39	1.24	4.08	2.50	2.19	5.49	3.39	3.65	3.45	35.94
"	Dumfries	Moffat (Ericstane)	12.80	2.60	2.60	1.60	2.20	5.50	3.10	3.40	9.40	5.30	7.30	8.00	63.80
"	"	New Castleton (The Flatt)	9.20	1.40	1.80	.90	.50	3.70	1.70	3.70	5.30	2.60	5.30	3.50	39.60
"	Roxburgh	Jedburgh	2.54	.74	.88	1.06	1.36	2.19	3.13	2.19	2.64	2.15	3.95	1.65	24.48
"	"	Wooplaw [Galashiels]	3.83	1.12	1.24	.73	1.54	3.02	2.80	1.25	4.13	4.14	5.31	2.27	31.38
XIII.	Selkirk	Borthwickbrae	7.60	1.50	1.90	1.10	1.80	2.70	3.20	2.20	5.90	3.40	4.60	5.00	40.90
"	Peebles	Glenrath	4.74	1.71	1.46	1.72	2.28	2.63	4.98	2.92	4.24	4.77	5.43	3.75	40.63
"	"	Penicuik	4.45	1.30	1.75	1.40	1.55	2.70	3.30	2.55	4.20	3.60	5.70	3.40	36.30
"	"	Dunse	3.47	1.97	1.45	.79	1.00	2.01	2.43	1.23	3.02	3.08	4.27	2.40	27.12
"	Bewick	East Linton	1.91	1.39	.64	.40	.48	2.73	2.65	.96	2.64	3.93	5.05	1.15	23.93
"	Haddington	Charlotte Square	2.74	1.17	.90	.67	.75	2.00	3.26	1.13	2.67	2.34	4.92	1.81	24.36
"	Edinburgh	Douglas Castle	5.06	2.31	1.33	1.60	1.43	3.56	2.78	2.07	5.65	4.74	3.87	4.18	38.88
XIV.	Lanark	Hamilton (Auchinraith)	4.55	.90	1.37	.86	.83	2.20	1.71	2.23	3.60	4.30	3.76	3.06	29.39
"	"	Girvan	8.70	1.50	1.90	1.60	3.80	3.57	2.10	3.19	7.95	4.83	4.99	4.04	48.23

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.	
XIV.	Ayr	New Cumnock	6.35	1.47	2.12	1.56	2.88	4.17	2.17	2.53	5.26	4.39	5.14	3.74	41.78	
	"	Kilmarnock	5.06	1.32	1.41	.92	1.43	3.20	2.15	3.37	5.66	3.72	3.96	2.50	34.70	
	"	Stanely Reservoir	8.21	2.02	2.05	1.88	1.76	3.32	3.32	1.93	4.13	5.08	5.33	5.34	5.39	46.44
	XV.	Dumarton	12.86	2.62	3.51	3.66	5.30	5.21	5.21	2.26	6.73	6.03	10.43	7.36	9.28	75.25
		Stirling	4.50	1.80	1.20	1.00	1.40	2.40	2.40	2.40	1.50	3.10	4.50	4.50	4.40	32.70
	"	Ben Lomond	14.30	2.70	2.50	1.10	7.60	7.10	7.10	1.40	10.40	7.80	9.00	3.30	12.90	80.10
	"	Pladda	4.65	1.24	1.54	1.24	2.18	1.99	1.99	1.58	3.06	3.01	6.22	5.47	3.90	36.08
	"	Loch Gilphead	10.00	1.90	2.70	3.20	3.90	3.30	3.30	1.70	6.10	5.20	6.90	5.80	6.20	56.90
	"	Oban	7.06	2.85	2.42	2.35	4.80	2.94	2.94	2.97	7.50	3.14	4.93	4.88	6.62	52.46
	"	Airds	6.40	2.30	2.60	2.80	4.80	4.30	4.30	2.70	8.60	3.40	4.40	5.50	6.00	53.80
"	Glenborrodale	7.60	2.60	3.46	.90	1.73	2.48	2.48	1.13	4.98	4.65	3.53	5.49	4.30	42.85	
"	Devaar	6.04	1.45	2.03	.50	2.29	2.52	2.52	1.53	3.25	3.42	9.67	5.74	3.39	41.83	
"	Islay (Eallabus)	6.53	2.10	2.00	1.37	2.58	2.68	2.68	1.42	5.46	4.40	7.47	6.03	4.17	46.16	
"	Jura	6.77	3.58	3.48	2.43	3.27	3.63	3.63	1.96	5.79	2.28	4.12	3.26	5.61	46.18	
XVI.	Tyre (Hynish)	8.91	3.47	1.49	1.54	3.07	3.58	3.58	1.89	4.48	3.39	7.22	4.72	3.63	47.39	
	Crail (Cambo House)	4.45	1.10	1.40	.60	.50	2.00	2.00	1.45	1.15	3.00	3.80	4.30	1.25	25.00	
	Auchtermuchty	5.90	1.72	1.90	.72	1.30	2.23	2.23	2.72	2.09	2.09	3.21	4.61	4.79	33.84	
	Callander (Leny)	10.00	1.80	3.20	2.30	3.50	3.80	3.80	1.50	5.50	6.70	7.60	6.60	10.30	62.80	
	Auchterarder	6.61	1.26	1.83	.63	1.54	2.00	2.00	2.81	2.14	2.79	4.86	5.10	5.11	36.68	
	Grandtully	5.50	.67	1.64	2.17	1.58	2.86	2.86	1.88	2.89	3.29	6.27	3.15	4.00	35.90	
	Dalnaspidal	9.07	2.02	3.37	2.04	4.02	3.10	3.69	3.69	5.64	6.51	8.29	4.71	10.63	63.09	
	Dundee	4.04	1.53	1.85	.81	1.02	3.43	2.23	2.23	1.78	2.84	5.95	4.66	4.66	31.69	
	The Burn	4.90	2.20	2.70	1.20	1.40	3.40	2.80	2.80	3.90	5.50	7.00	5.10	3.10	43.20	
	XVII.	Braemar	4.30	.81	1.34	1.35	1.64	2.00	2.00	3.53	3.20	4.12	5.54	4.07	4.39	36.29
Coldstone School		2.05	.90	.64	1.12	.85	2.45	2.45	4.36	2.34	2.90	5.15	4.24	1.76	28.76	
Inverury		1.90	1.69	1.88	1.75	2.31	3.00	3.00	5.00	3.06	4.50	7.00	4.62	2.31	39.02	
New Pitsligo		3.33	1.54	2.27	1.47	2.27	2.19	2.19	5.42	2.57	5.59	4.69	4.76	3.20	39.30	
Gordon Castle		2.49	1.48	1.46	1.34	1.72	1.99	1.99	6.16	2.16	4.24	2.38	3.71	1.94	31.07	
Elgin (Ashgrove)		3.36	.47	1.21	1.27	1.67	1.46	1.46	5.51	2.57	3.94	2.82	2.69	3.47	30.44	
Nairn		2.61	.57	1.48	.89	.86	1.12	1.12	3.88	1.75	2.70	1.41	2.71	1.85	21.83	
Applecross		6.35	2.59	2.71	1.96	4.60	2.73	2.73	3.44	5.66	4.59	3.38	5.23	4.65	47.89	
Moy		5.97	.68	1.97	1.31	1.42	2.11	2.11	3.46	3.34	2.16	2.27	2.81	2.73	30.23	
XVIII.		Garloch	2.61	1.82	2.33	2.37	3.56	2.97	2.97	4.69	5.35	2.92	2.59	3.81	3.57	38.59
	Lochbroom	4.49	2.30	2.72	1.84	4.17	3.05	3.05	4.77	3.81	4.05	2.97	4.77	4.19	43.13	
	Bernera	4.30	4.20	4.50	4.60	5.40	2.30	2.30	3.40	3.20	3.30	4.30	4.30	5.10	48.90	

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XVIII.	Inverness	Inverie	5.10	2.80	1.80	5.00	7.40	4.10	4.10	11.20	5.50	6.20	6.70	7.80	67.70
"	"	Skye (Sligachan)	12.25	4.50	3.50	1.00	7.00	4.25	3.13	8.00	4.25	7.75	6.75	10.00	72.38
"	"	N. Uist (Lochmaddy)	10.84	4.32	2.86	2.27	6.51	3.72	2.95	6.61	4.06	5.02	11.67	10.17	71.00
"	"	Aviemore	2.17	.63	1.44	.84	1.55	2.58	5.72	4.26	4.13	2.36	3.01	3.94	32.63
"	"	Farraline	3.00	1.50	1.40	.70	1.90	2.60	3.30	4.30	4.40	5.50	2.50	6.30	37.40
"	"	Glenstrathfarrar	6.72	2.00	3.09	2.14	4.88	1.75	4.96	5.52	4.89	4.38	4.20	6.82	51.35
XIX.	Sutherland	Lairg H. R. S.	4.84	1.96	1.19	1.94	3.61	1.39	5.12	2.60	2.09	3.68	2.79	3.14	34.35
"	"	Helmsdale	4.42	1.97	1.33	1.84	1.94	1.83	2.26	2.91	1.88	3.44	4.68	2.69	31.19
"	"	Assynt (Achumore)	7.80	4.50	4.60	3.60	6.50	3.80	6.10	4.40	4.00	5.00	7.90	9.80	68.00
"	"	Wick	2.77	1.55	1.06	2.07	2.11	1.95	2.70	2.59	3.00	3.15	4.04	2.29	29.28
"	Caithness	Balfour	5.60	1.20	.50	2.20	1.00	1.00	2.50	2.20	2.20	2.20	4.10	2.10	26.80
"	Orkney	Bressay (Manse)	5.80	3.50	1.20	1.40	2.60	1.80	3.20	3.05	3.30	5.40	4.50	3.90	39.65
XX.	Shetland	Skibbereen	5.92	2.39	1.62	1.53	3.02	3.14	.95	2.60	8.30	5.88	4.88	2.73	42.96
"	Cork	Cork, (Royal Institution)	7.42	1.75	1.45	1.92	2.23	1.75	1.14	1.59	5.21	4.98	3.99	1.68	34.44
"	"	Fernoy (Glennville)	9.09	1.86	2.25	1.92	2.92	3.96	2.16	3.24	8.29	7.51	5.48	3.28	51.74
"	Kerry	Darrynane	7.36	2.48	2.35	3.12	3.31	5.37	2.04	3.02	10.61	6.96	4.37	2.77	54.18
"	"	Dromore Castle	13.57	2.18	3.61	2.33	4.22	5.97	2.10	4.28	11.90	8.80	6.67	4.97	70.40
"	"	Cara, Lake Side	3.19	1.50	1.20	2.85	2.58	4.51	2.40	3.22	9.20	5.50	4.21	5.10	45.46
"	"	Tralee, Godfrey Place	6.77	.96	1.79	1.14	3.21	4.02	2.53	2.22	8.76	6.76	3.37	4.02	45.55
"	Waterford	Cappoquin	8.04	2.06	1.99	1.66	2.51	3.63	3.37	2.45	6.55	8.26	5.06	2.33	47.91
"	"	Newtown	7.84	2.33	1.31	1.50	2.61	3.27	3.80	2.28	5.56	9.89	4.44	2.03	46.86
"	Tipperary	Clonmel	7.78	2.13	2.70	.92	2.24	3.18	3.37	3.16	6.01	8.58	3.90	2.80	46.77
"	"	Tipperary, Henry Street	5.90	1.39	1.51	1.24	2.05	3.41	4.58	2.42	7.84	7.38	3.56	2.30	43.58
"	"	Gurteen	4.82	1.04	1.23	.85	1.89	3.20	2.27	2.38	7.02	3.64	2.83	2.02	33.19
"	Limerick	Newcastle	4.96	1.00	1.65	1.20	1.52	3.96	1.93	3.17	7.12	5.26	4.20	2.23	38.20
"	Clare	Kilrush	4.21	.92	1.11	1.67	1.91	5.06	2.41	1.59	5.98	6.63	2.93	2.97	37.39
"	"	Killaloe	11.26	1.75	1.34	1.56	3.13	4.97	2.80	3.48	7.45	4.07	4.42	3.93	50.16
"	"	Ennis	5.36	1.35	1.19	2.03	2.26	4.78	2.40	3.15	7.47	5.09	3.67	3.33	42.08
XXI.	Wexford	Wexford (Reclaimed Lands)	7.25	1.70	1.00	.85	1.85	2.56	5.00	2.86	6.38	8.45	3.85	2.00	43.75
"	"	New Ross (Rosbercon Castle)	9.24	2.89	1.39	1.14	2.35	2.20	3.17	1.85	7.00	10.58	3.95	1.27	47.03
"	"	Ballyhyland	6.88	2.64	1.51	.98	2.48	2.62	4.51	2.09	6.62	8.85	5.26	1.89	46.33
"	"	Gorey, Courtown	7.55	2.21	1.12	1.28	1.95	2.33	4.33	1.86	5.52	8.72	4.08	2.23	43.18
"	Kilkenny	Kilkenny, Butler House	4.33	1.27	.91	.90	1.52	2.78	4.05	2.54	5.66	5.90	2.52	1.73	34.11
"	Carlow	Brown's Hill	5.88	2.06	1.15	.83	2.04	2.54	3.62	1.60	4.54	6.68	3.68	1.80	36.47
"	Queen's Co.	Abbey Leix, Blandsford	5.71	1.45	1.20	.69	2.14	2.61	2.73	2.73	5.29	4.44	3.03	2.29	34.31

Div.	County.	Station.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
XXI.	King's Co.	Clonbrin	4.84	1.93	1.27	.58	2.17	3.35	2.18	1.64	4.66	3.58	3.30	1.77	31.27
"	"	Tullamore	4.62	1.44	.78	.81	1.72	3.01	1.60	1.98	4.86	4.49	2.94	1.59	29.84
"	Wicklow	Bray, Fassaroe	5.03	3.11	1.70	1.07	1.65	2.47	3.26	1.48	5.36	8.90	5.45	1.91	41.39
"	Dublin	Glassevin Botanic Gardens	1.89	2.83	.89	.76	.93	3.55	2.87	1.96	3.26	7.14	4.70	1.40	32.18
"	"	Balbriggan	3.96	1.81	1.03	.79	1.65	2.15	2.22	1.58	4.61	6.74	5.44	1.61	33.59
"	Meath	Trim	5.27	2.44	1.30	.59	2.98	3.77	2.32	1.41	7.15	5.09	4.85	1.73	38.90
"	"	Athlone	5.38	1.46	1.02	1.35	2.36	3.07	2.11	3.17	4.97	4.61	3.80	2.54	35.84
"	"	Mullingar (Belvedere)	5.82	2.32	1.18	.78	3.09	3.15	1.79	2.30	4.65	5.01	3.55	2.36	36.00
"	"	Castle Bellingham	4.92	1.86	1.19	.81	1.96	3.16	2.11	2.36	5.40	5.23	5.72	1.89	36.61
"	Louth	Stephenstown	3.79	1.46	1.00	.43	1.39	3.42	2.78	2.47	4.54	5.75	4.59	1.58	33.20
XXII.	Galway	Queen's College	5.52	1.04	1.20	2.19	3.68	3.91	1.13	3.59	1.10	3.57	2.81	2.89	32.66
"	"	Balinasloe	5.71	.90	1.02	1.48	2.54	3.80	2.19	2.30	5.54	3.86	3.43	3.04	35.81
"	"	Clifden Kylemore	10.80	2.93	2.89	3.76	6.11	7.45	4.23	5.39	9.40	8.07	5.99	9.11	76.02
"	"	Tuam	4.58	.83	1.20	1.63	3.03	4.29	2.21	4.54	4.47	4.92	3.74	3.42	38.86
"	"	Holywell	3.50	1.78	.80	.45	2.02	3.15	1.75	3.25	5.15	4.85	5.68	3.65	36.21
"	Roscommon	Westport	4.78	.77	1.75	1.72	2.39	3.64	2.78	3.18	6.32	4.76	3.18	4.28	39.55
"	Mayo	Crosmolina, Enniscoe	6.63	1.33	2.03	3.05	3.41	3.64	3.10	3.37	4.72	4.96	4.36	6.10	46.70
"	"	Bangor, Glenturk Lodge	5.73	1.89	1.82	2.12	4.11	4.64	3.29	2.12	4.81	5.39	5.11	4.24	45.27
"	Sligo	Collooney, Markree	5.39	1.33	1.70	1.02	2.53	4.13	3.26	3.74	4.15	4.21	4.78	2.43	38.67
"	"	Ballinful	2.93	1.06	1.23	1.01	2.17	2.94	3.49	2.68	3.24	4.44	3.56	2.09	30.84
"	"	Carrick-on-Shannon	4.55	1.38	.82	1.22	2.82	5.04	1.96	3.71	4.73	3.93	4.30	1.96	36.42
XXIII.	Leitrim	Killshandra, Drummany	5.13	1.03	.64	.60	1.90	3.04	1.66	1.68	2.54	6.50	3.18	5.07	32.97
"	Cavan	Enniskillen, Lisbellaw	4.48	1.26	1.40	.40	2.75	3.84	2.47	3.27	4.89	5.47	3.54	2.25	36.02
"	Fermanagh	Rockcorry	4.99	1.54	1.23	.34	2.13	4.00	2.60	3.71	4.64	5.83	5.03	2.27	38.31
"	Monaghan	Armagh	3.83	1.50	.93	.14	1.86	3.13	3.75	3.66	4.94	4.82	3.82	1.81	34.22
"	Down	Castlewellan, Foffany	17.73	1.93	3.04	.90	4.25	6.25	6.00	5.86	11.60	12.25	9.30	4.75	83.86
"	"	Newtownards	4.16	.96	1.02	.39	1.84	3.32	2.55	1.90	4.28	5.19	4.37	2.16	32.14
"	"	Belfast, Elmgrove House	4.05	1.08	1.15	.28	1.61	3.09	2.27	2.56	4.00	5.65	4.39	2.10	32.23
"	Antrim	Carnlough	4.21	1.03	1.92	.95	2.39	3.90	2.20	3.57	4.34	7.60	6.91	3.27	42.29
"	"	Bushmills	3.15	1.26	1.41	.43	2.03	2.98	2.05	4.17	3.98	5.19	4.74	2.61	34.00
"	"	Newtown Limavady	3.49	1.16	1.87	.64	1.98	2.20	2.14	3.00	3.79	5.40	5.61	2.24	33.52
"	Londonderry	Pomeroy	9.38	1.97	2.90	1.68	2.41	3.38	3.54	3.82	4.82	5.61	5.35	2.63	47.54
"	Tyrone	Ballyshannon	4.47	1.41	1.14	1.23	1.78	3.43	3.15	3.60	2.35	4.54	3.66	1.93	33.69
"	Donegal	Dunglow	4.20	1.27	1.75	1.40	2.97	3.70	3.47	5.55	2.68	4.47	3.61	3.89	38.96
"	"	Ramelton	4.65	1.14	2.12	1.01	2.10	3.92	2.74	3.62	3.63	3.50	5.05	3.44	36.92

Having given this set of tables, it is certainly less necessary than heretofore, that I should give any detailed summary of them. Have not my readers all the facts which they could desire?

I wish it were not the case, that large folding tables are usually torn. Otherwise, instead of breaking the above tables into seven pages, I would have printed it on one large sheet, about 3 ft. long, as in that form, some features of the monthly distribution of rain would be more readily noticed than in the present paginal form. The advantage is, however, not sufficient to outweigh the high probability of structural damage to the book if that form were adopted.

The foregoing tables give the monthly fall for a quarter of a thousand stations, and 20 pages (75 to 95) have been filled with notes upon the several months by the observers themselves; I shall, therefore, cut my own remarks extremely short.

*January* is chiefly noteworthy for some very heavy falls; that at Mr. Smyth's new station, Foffany, Castlewellan, near Slieve Donard, 17·73 in. is, I believe, the largest amount ever recorded in Ireland.

*February* was excessively dry in Lancashire and East Scotland.

*March* was still drier, the largest total being 4·60 inches in the extreme N.W. of Scotland.

*April*.—Totals of less than an inch again prevalent, especially in the E. and N. of England, and in Ireland.

*May*.—Totals of less than an inch have ceased, except along the east coast north of the Wash, and at a few isolated stations.

*June*.—Rainfall generally near the average; the totals range from 1 in. at Balfour Castle, Orkney, to 7·65 in. at Dartmoor Prison.

*July*.—In this wet month less than an inch fell at Skibbereen, in the S.W. of Ireland, and very small amounts at stations on the west of Scotland. In the Midland counties of England very large totals are reported from stations having usually very moderate amounts—*e.g.*, 8·26 in. fell at Tamworth, and 8·22 in. at Loughborough.

*August*, a dry month generally; stations with less than an inch only from Chelmsford to Patrington (between Hull and Spurn Head). The falls were large at some stations in South Wales, *e.g.*, Ystalyfera, 9·22 in.; and also in the west of Scotland, *e.g.*, Ben Lomond, 10·40 in., and Inverie, 11·20 in.

*September*.—Not in any way remarkable.

*October*.—Dry only in the north of Scotland; remarkably wet in the S.E. of Ireland, *e.g.*, at Tullogher, Co. Kilkenny, the total fall was

12·47 in., of which 8·16 in. fell in the last seven days; and at the adjacent station of New Ross the fall in the month was 10·58 in.

*November.*—The fall not especially noteworthy, except perhaps the excess in North Uist, where 11·67 in. fell.

*December.*—Nothing claiming special notice.

The following epitome of the relation of the fall to the average in different parts of the country supplies, I think, the only other data requisite for the study of the subject.

*Districts in which the Fall in 1875 was,*

Month.	Below the average.	Near the average.	Above the average.
January ...	Nowhere.	Hertfordshire, Cambridge, & Eastern counties.	Everywhere else.
February ..	Generally.	Middlesex, Dorset, & E. York.	West Midland Counties and Wales.
March .....	Everywhere.	Nowhere.	Nowhere.
April .....	W. and N. of England, N. Wales, Scotland, and Ireland.	Kent, Devon, and N. of Scotland.	S. of England, and S. Wales.
May .....	S. E., centre, & N. of England, most of Scotland and Ireland.	Hertfordshire, Essex, and S. Wales.	S. W. of England, and N. W. of Scotland.
June .....	W. & N. E. of England.	Generally.	S. W. Scotland, & Ireland.
July .....	N. W. of England, W. of Scotland, & S. W. of Ireland.	All Ireland, except the S. W.	Generally, except as previously stated.
August ...	Generally.	S. Wales.	W. Midland Counties.
September.	N. of Scotland.	S. E. & centre of England & E. of Scotland.	W. & S. W. of England, Wales, & Ireland.
October ...	N. of Scotland.	N. of England.	Generally.
November.	In the English Lake district, in Skye, and in the W. of Ireland.	Nowhere.	Generally.
December .	Generally; but usually only to so slight an extent that it might be recorded in the next column. There was, however, great deficiency in S. W. England & S. Ireland.	See previous column.	Perthshire, and the Hebrides.

## EXTREMES OF RAINFALL IN 1875.

## ENGLAND.

GREATEST.		LEAST.	
Div.	in.	Div.	in.
X. Seathwaite.....	120·05	VII. Crowle.....	18·96
„ Kirkstone Pass .....	102·10	„ Heydour .....	19·99
„ Helvellyn (Birkside)... ..	101·50	X. Morpeth (Cresswell) .....	21·41
„ Patterdale (Greenside Mine)..	89·92	VIII. Newton .....	21·49
„ Little Langdale (Bridgend) ...	89·32	VII. Lincoln Water Works .....	22·47
V. Dartmoor (Med. Off. Lawn)..	85·85	„ Boultham .....	22·54

## WALES.

GREATEST.		LEAST.	
Div.	in.	Div.	in.
XI. Aberdare (Treherbert) .....	110·53	XI. Holywell .....	21·81
„ Pontypridd (Treorchy).....	103·78	„ Great Orme's Head .....	24·02
„ Pen-y-gwryd .....	103·25	„ Prestatyn .....	26·95
„ Beddgelert (Bryn Gwynant)..	100·14	„ Denbigh (Glen-y-Wern) .....	28·69
„ Neath (Glyncorwg) .....	93·05	„ Kinmel Park .....	28·88
„ Rhiw (Brifdir) .....	92·11	„ St. Asaph .....	29·16

## SCOTLAND.

GREATEST.		LEAST.	
Div.	in.	Div.	in.
XXVIII. Glenquoich .....	106·72	XIII. Dalkeith .....	19·95
„ Loch Shiel (Glenfinnan) .....	94·17	XVIII. South Uist Manse .....	20·60
XV. Loch Lomond (Firkin) .....	91·20	XVII. Acharáidh .....	20·62
XVI. Glen Gyle .....	91·20	XIX. Invershin .....	21·11
XXVIII. Isle of Skye (Broadford) .....	89·90	XVII. Nairn .....	21·83
XVI. Loch Dhu .....	80·70	„ „ (H.R.S.).....	22·14

## IRELAND.

GREATEST.		LEAST.	
Div.	in.	Div.	in.
XXIII. Castletwellan (Foffany).....	83·86	XXIII. Banbridge (Katesbridge) .....	29·53
XXII. Clifden (Kylemore) .....	76·02	XXI. Tullamore .....	29·84
XX. Dromore Castle .....	70·40	„ Dublin (Fitz William Square) .....	29·95
„ Kenmare (Dromore) .....	69·33	XXII. Ballinful (Ardfarmon).....	30·84
XXIII. Newry (Newcastle) .. . . .	60·23	XXI. Dublin (Eccles Street).....	30·99
XXI. New Ross (Tollogher) .. . . .	58·38	„ Rathangan (Cloubrin).....	31·27

COMPARISON OF THE RAINFALL IN 1875 WITH THE AVERAGE  
OF PREVIOUS YEARS.

ENGLAND AND WALES.

Div.	STATION.	COUNTY.	Average			Depth in 1875.	Difference from Average, 1860-5	
			1850-9.	1860-9.	1860-5.		er Amount. cent	
			in.	in.	in.	in.	in.	
I.	Camden Square .....	Middlesex ...	(24·30)	25·68	25·01	28·44	3·43	+ 14
II.	Chichester (Shopwyke) ...	Sussex .....	26·25	29·19	28·41	31·13	2·72	+ 10
„	„ (Chilgrove) ...	„ .....	32·23	33·22	32·77	35·38	2·61	+ 8
„	„ (W. Dean) ...	„ .....	35·30	37·08	37·02	39·30	2·28	+ 6
„	Uckfield Observatory ...	„ .....	30·03	31·24	31·50	29·02	2·48	— 8
„	Ventnor, Isle of Wight ...	Hants .....	28·46	(29·07)	29·26	32·71	3·45	+ 12
III.	Hemel Hempstead .....	Herts .....	26·43	26·39	25·47	29·35	3·88	+ 15
„	Berkhempstead .....	„ .....	28·05	29·28	28·02	33·87	5·85	+ 21
„	Hitchin .....	„ .....	24·72	23·92	23·25	28·93	5·68	+ 24
„	High Wycombe .....	Bucks .....	23·20	25·71	24·29	28·39	4·10	+ 17
„	Althorp .....	Northants ...	20·34	23·35	21·77	36·88	15·11	+ 69
„	Cardington (8 in. gauge) ..	Bedford .....	21·60	22·49	21·87	32·51	10·64	+ 49
IV.	Witham .....	Essex .....	20·55	20·47	20·73	23·25	2·52	+ 12
„	Norwich (Honingham) ...	Norfolk .....	25·99	23·98	23·28	28·61	5·33	+ 23
„	Holkham .....	„ .....	26·13	23·88	23·10	29·75	6·65	+ 29
V.	Plymouth (Ham) .....	Devon .....	44·70	42·89	42·17	46·11	3·94	+ 9
„	Exeter Institution .....	„ .....	26·91	31·76	30·17	38·32	8·15	+ 27
„	Bodmin .....	Cornwall .....	43·48	47·71	46·12	52·90	6·78	+ 15
VI.	Burford .....	Shropshire ...	25·52	26·74	26·25	35·02	8·77	+ 33
„	Shiffnal (Haughton Hall) ..	„ .....	24·02	24·87	23·74	32·48	8·74	+ 37
„	Orleton .....	Worcester ...	28·82	30·90	30·06	37·42	7·36	+ 24
VII.	Spalding, (Pode Hole) ...	Lincoln .....	23·38	25·34	25·11	32·25	7·14	+ 28
„	Welbeck .....	Notts .....	23·29	24·64	24·02	31·48	7·46	+ 31
VIII.	Bolton (The Folds) .....	Lancashire ...	44·01	48·98	48·33	43·94	4·39	— 9
„	„ (Belmont) .....	„ .....	51·19	56·61	55·70	55·90	·20	+ 0
„	Ormskirk (Rufford) .....	„ .....	33·24	35·00	34·81	34·59	·22	— 1
„	Stonyhurst .....	„ .....	43·40	48·56	49·08	44·26	4·82	— 10
„	Holker .....	„ .....	39·17	45·63	44·98	43·17	1·81	— 4
IX.	Redmires .....	York, W.R. ...	37·86	39·68	37·89	45·72	7·83	+ 21
„	Standedge .....	„ .....	49·58	53·70	52·17	48·25	3·92	— 8
„	Leeds (Holbeck, M. & Co.) ..	„ .....	20·91	22·85	21·98	22·55	·57	+ 3
„	York .....	„ .....	22·02	24·48	23·38	24·57	1·19	+ 1
X.	Seathwaite .....	Cumberland ..	126·98	154·05	153·47	118·80	34·67	— 23
„	Keswick (Post Office) ...	„ .....	55·01	62·40	60·56	50·92	9·64	— 16
XI.	Holywell (Maes-y-dre) ...	Flint .....	24·25	24·43	23·58	21·81	1·77	— 8
„	Guernsey* .....	Channel Ids.	34·46	37·18	37·09	36·29	·80	— 2

\* Since the compilation of this table I have discovered that Dr. Hoskins does not conform to Rule IX.; in the following general tables his return for 1875 has been corrected, but here it is left as he forwarded it, because his old observations were conducted on the rejected system.

COMPARISON OF THE RAINFALL IN 1875 WITH THE AVERAGE  
OF PREVIOUS YEARS.

## SCOTLAND.

Div.	STATION.	COUNTY.	Average			Depth in 1875.	Difference from Average, 1860-5	
			1850-9.	1860-9.	1860-65.		Amount.	Per cent
XII.	Mull of Galloway .....	Wigtown.....	in. 22·52	in. 27·66	in. 28·31	in. 26·30	in. 2·01	- 7
„	Little Ross .....	Kirk'udbright	25·27	26·98	27·35	36·43	9·08	+ 33
XIII.	Glencorse .....	Edinburgh ...	36·96	37·45	36·77	36·70	·07	- 0
„	Inveresk .....	„ .....	24·72	29·02	30·05	23·79	6·26	- 21
XIV.	Bothwell Castle .....	Lanark.....	27·76	28·89	28·33	28·12	·21	- 1
„	Cessnock Park .....	„ .....	34·01	37·96	37·98	39·50	1·52	+ 4
„	Largs (Mansfield) .....	Ayr .....	43·06	48·92	48·63	56·50	7·87	+ 16
„	Waulk Glen .....	Renfrew .....	43·94	49·85	48·96	44·95	·01	- 8
XV.	Arddaroch .....	Dumbarton..	66·55	78·32	75·83	75·25	·58	- 1
„	Pladda .....	Bute .....	35·23	40·14	38·12	36·08	2·04	- 5
„	Mull of Cantyre .....	Argyll ... ..	41·19	44·17	44·61	37·21	7·40	- 17
„	Rhinns of Islay .....	„ .....	30·58	33·43	32·66	32·76	·10	+ 0
„	Castle Toward.....	„ .....	47·88	54·55	53·80	46·02	7·78	- 14
„	Tyree (Hynish) .....	„ .....	73·90	79·99	84·77	47·39	37·38	- 44
„	Lismore .....	„ .....	38·44	46·22	46·95	29·92	17·03	- 36
„	Ardnamurchan .....	„ .....	38·50	45·59	47·94	41·48	6·46	- 13
XVI.	Dundee (Hill Head) .....	Forfar .....	31·06	35·19	35·59	49·89	14·30	+ 40
„	„ (Craigton) .....	„ .....	31·87	34·88	35·64	49·74	14·10	+ 40
„	Arbroath .....	„ .....	25·08	29·05	29·71	30·11	·40	+ 1
XVII.	Girdleness [Aberdeen] .....	Kincardine ...	19·71	22·72	22·13	24·41	2·28	+ 10
„	Buchanness... ..	Aberdeen.....	23·40	25·59	22·51	24·99	2·48	+ 11
XVIII.	Cromarty.....	Cromarty ...	23·67	25·94	27·80	16·89	10·91	- 39
„	Barrahead .....	Inverness W.	32·67	31·73	32·62	26·96	5·66	- 17
„	Culloden .....	Inverness, E.	22·70	27·08	26·86	23·34	3·52	- 13
XIX.	Cape Wrath .....	Sutherland...	36·94	39·37	39·59	27·81	11·78	- 30
„	Noss Head .....	Caithness ...	25·57	24·70	23·57	28·45	4·88	+ 21
„	Pentland Skerries .....	„ .....	24·12	28·76	28·92	27·53	1·39	- 5
„	Sandwick .....	Orkney .....	36·14	38·85	36·79	33·06	3·73	- 10
„	Bressay Manse .....	Shetland .....	36·22	40·31	40·40	39·65	·75	- 2

## IRELAND.

XX.	Cork .....	Cork .....	34·23	34·77	34·41	34·44	·03	+ 0
XXI.	Portarlington .....	King'sCounty	26·94	36·86	41·38	31·40	9·98	- 24
„	Tullamore .....	„ ..	24·37	27·94	28·09	29·84	1·75	+ 6
„	Woodstock .....	Kilkenny.....	36·35	39·38	38·83	52·21	13·38	+ 34
XXIII.	Armagh .....	Armagh .....	(28·20)	32·01	32·40	34·22	1·82	+ 6

## ABSTRACT.

England .....	33·77	36·48	35·73	37·89	2·16	+ 12
Scotland .....	34·47	38·39	38·38	35·90	2·48	- 4
Ireland .....	30·02	34·19	35·02	36·42	1·40	+ 4
Mean of the whole .....	32·75	36·35	36·38	36·74	·36	+ 4

## ON THE RAINFALL OF THE BRITISH ISLES DURING THE YEAR 1875.

---

As might be expected from the monthly details of the long spring drought, and from the data respecting the unusually heavy daily falls, which we have given, the total fall in 1875 proves to have been irregularly distributed.

We are glad that the old established stations, which we have used for so many years as guides to the relation of the fall of each year to the average, have nearly all been maintained throughout 1875, and we are therefore able to continue, under almost identical conditions, the comparisons, which we have made yearly for nine years, of the fall in each year, with the average during the six years 1860-65 inclusive.

These tables are given on the preceding pages, and from them the following appear to be legitimate deductions :—

- (1.) The total fall of rain over England generally, has been above the average, although there has been a deficiency in part of Sussex, and on the western side of the Pennine chain from the Mersey to the Solway Firth.
- (2.) The English excess has been greatest (and remarkably great) in the central counties, being more than 20 per cent. at 12 stations ; more than 30 per cent. at five stations ; 49 per cent. at Cardington, Bedford ; and 69 per cent. at Althorp, Northampton.
- (3.) The English stations at which the fall in 1875 was below the average, were either in Sussex, or as stated in (1) ; the most important deficiency being in the English Lake District.
- (4.) This table contains only one Welsh record, the only one which reaches back to 1850 without a break. The return is from a Crosley's gauge, and is probably too small ; but in the absence of any other, it is fortunate that we are still favoured with it, as probably its fluctuations are correct, though its total amount may not be so.

- (5.) There are always some curious inconsistencies in the fluctuations of the amount of rain in Scotland. As few Scottish inland rain records are of unbroken continuity for the 26 years, which alone renders a station available for the purposes of this comparison, we are obliged to include several of the Lighthouse records; and we always fear, lest some of them should abnegate their proper function, and lead us astray, instead of warning us of danger. For 1875, however, we cannot throw the responsibility upon the Lighthouses; there are, perhaps, some doubtful values, such as those from Little Ross and Noss Head, but the bulk of them are consistent, not only with each other, but also with adjacent inland stations, *e.g.*, to take the west coast, there are the following per-centages of deficiency reported:—0, 5, 17, 44, 36, 13, 17 and 30. Surely this run, with not a single + among them, speaks well for these records, and tells unmistakeably of a dry year in the west of Scotland. Similarly, it is not easy to deny the large excess N.E. of Dundee, shown by the Hill Head and Craigton records, and backed by those of Arbroath and Girdleness.
- (6.) For Ireland there are very few records available, and we are not quite sure of even the few which we give, for the fluctuations at Portarlington by no means harmonize with those at other stations; they seem to suggest that a different gauge, which indicated more than it ought, was used for a few years, about 1860—65. There being no doubt as to the excess in 1875 at Woodstock, we are naturally led to the conclusion, that the fall in Ireland, in 1875, was above the average.
- (7.) Finally, to sum up the whole: the Abstract shows an excess for England of 12 per cent., and for Ireland of 4 per cent., while Scotland gives a deficiency of 4 per cent. The arithmetical mean of these values is an excess of 4 per cent., but looking at all the circumstances as to distribution of stations, &c., we are inclined to believe that an excess of 8 per cent. is nearer the truth, and we have, therefore, adopted it for Table V., p. 138.

It will be remembered that we have for a few past years compared the fall in each year with the average 1860—69; we have done so for

1875, and laid down the values on a map, but we do not think it worth while to delay this publication for the purpose of reproducing that map. The facts are very easily described, and may be thus epitomized :—

- (1.) The English districts of excess and defect are almost identical with those above described, but the Sussex deficiency re-appears at Osborne, Isle of Wight. This is strangely inconsistent with the excess shown at Ventnor (p. 152), but both appear to be correct, being supported by the records of adjacent stations.
- (2.) Excesses of 30 per cent. and upwards seem to have prevailed along a belt about 50 miles wide, and reaching from the mouth of the Severn to the Wash.
- (3.) The deficiency along the west of Scotland, and the excess in Forfarshire, are strongly supported.
- (4.) The general tenour of the remarks upon the Irish values is confirmed, and evidence is afforded of a slight deficiency in Antrim, which is probably related to that in the west of Scotland.

## NOTES ON THE GENERAL TABLES.

It is, perhaps, more convenient to gather together the remarks which we have to make upon a few of the entries in the general tables, than to leave them scattered at the bottom of the pages.

We shall only here mention the reasons for attaching the mark of uncertainty to a few records.

*Page 174.*—Div. IV.—Woodbridge Road, Ipswich. The total seems too large; we have been carefully through the daily record and find a constant slight excess. The register seems very carefully kept, and, therefore, probably either the position is not first-rate or the measuring glass is incorrectly divided. We must try to inspect that and the surrounding stations.

*Page 175.*—Div. IV.—Fincham. This return looks too large, but the excess is produced by one very heavy fall, which was at its maximum in that neighbourhood, and the return is probably as accurate as the gauge will afford.

*Page 175.*—Div. IV.—Dereham. Both these records cannot be correct. We think that both are wrong. The latter is a float gauge of a bad pattern, and has probably been stretched by the frost.

*Page 177.*—Div. V.—Lupton. This amount seems too large. There is no obvious reason for its exceeding Strete (Dartmouth) by 13 inches, and Torquay by 10 inches.

*Page 177.*—Div. V.—Grendon. This return is also too large. We have only detected it just as the sheets are being finished off, and can only insert the cautionary query. But we fear that Mr. West's assistant during November, made some mistake as to his decimal points.

*Page 178.*—Div. V.—Polcarne. We have corresponded with the observer respecting this return, and its great difference from the others in the district, but with no conclusive result. Mr. J. Coode believes it to be correct.

*Page 183.*—Div. VII.—Heydour. This return is only 2 in. more than that for 1874, while at the surrounding stations the difference is about 8 in.

*Page 183.*—Div. VII. The gauges belonging to the Manchester, Sheffield, and Lincolnshire Railway Company, having been in operation for many years, had become out of repair. We understand that they were renovated during 1875, and that some one has been appointed to attend to them for the future. We do not know what his qualifications may be, but we trust that they are more than either purely mechanical, or purely clerical. The Company are, by a long series of precedents, pledged to keep up their system; we trust that they will see that it is done well. This year several of their records are very small.

*Page 185.*—Div. VIII.—Macclesfield. The Manchester, Sheffield, and Lincolnshire Railway return seems much too small.

*Page 186.*—Div. VIII.—Blackburn Water Works Office. We cannot understand this small record; Mr. Bateman's assistant reports the gauge to be unaltered.

*Page 190.*—Div. IX.—Middleton. *Possibly* too large. See page 132.

*Page 192.*—Div. X.—Deadwater. This return is much in excess, owing to large records for January and December, which seem rather improbable; but there is no station near, and the fall at that altitude, 2000 ft., is liable to differ much, and unaccountably.

*Page 201.*—Div. XV.—Corran. This total is relatively in excess of adjacent stations, owing to the large fall in August (12.61 in.), 2.15 fell on 23rd.

**GENERAL TABLES**  
OF  
**TOTAL RAINFALL IN 1875,**  
AT ABOUT  
**1800 STATIONS**  
IN THE  
**BRITISH ISLES.**

SUGGESTIONS  
FOR SECURING UNIFORMITY OF PRACTICE AMONG  
RAINFALL OBSERVERS.

---

N.B. New Rules are printed in this type.

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 funnel 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  $\cdot 01$ .

XII.—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.

XVI.—OVERFLOW.—It would seem needless to caution observers on this head, but as a recent foreign table contains *six instances on one day* in which gauges were allowed to run over, it is evidently necessary that British observers should be on the alert. 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.

## ARRANGEMENT OF 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 page 147 of *British Rainfall*, 1872.

The counties follow the same order as in the reports of the beforementioned officers.

An alphabetical list of the counties is given, with the page or pages on which all returns from each will be found.

The stations in each county are arranged 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 added occasionally to fix accurately the site of Observation. 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.

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.

⌘ is employed to indicate gauges originally provided out of the funds of the British Association.

In the column of altitudes several symbols are used, their meaning is as follows:— $\bar{\bar{A}}$ , that a series of levels have been taken from the gauge to an Ordnance bench mark;  $\bar{I}$ , that the height is estimated or ascertained approximately from the same source;  $\bar{L}$ , that levels have been taken from the gauge to the sea, or to some datum other than Ordnance mean sea level;  $\bar{B}$ , that the altitude has been taken by the barometer; and  $\bar{?}$ , that the height is uncertain.

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## ENGLAND AND WALES.

## DIVISION I.—MIDDLESEX.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which ·01 or more fell.
		Diameter.	Height Above Ground	Height Above Sea Level		
		ft.	in.	feet.	inches.	
MIDDLESEX.						
Hampton Wick (The Grove) ...	T. J. Nelson, Esq. ....	5	1 1	27	27	134
Teddington (Gomer House) .....	R. D. Blackmore, Esq. ...	5	0 10	26	24	152
Ealing (Castle Bar Road) .....	C. Jones, Esq. ....	5	0 1	120	30	153
D Hanworth (Riversdale) .....	G. Anderson, Esq. ....	5	1 4	40	70	...
D Chiswick (Roy. Hort. Soc.) .....	Mr. Farquhar .....	8	0 9	25	45	160
D Westminster (Spring Grdns), S. W.	Sir J. W. Bazalgette, CE	8	6 0	35	26	130
" " " .....	" " " .....	12	65 11	95	02	130
" " " .....	" " " .....	8	66 4	95	79	130
London (Guildhall, E.C.) .....	W. Haywood, Esq. C.E	8	51 0	98	39	164
" { " " } .....	" " " .....	8	2 6	49	76	164
" { Warrington Cres., W. } .....	K. J. Marks, Esq. ....	8	0 10	80	19	181
" { " " " } .....	" " " .....	5	0 10	80	27	...
" { " " " } .....	" " " .....	5	64 5	144	69	158
" { " " " } .....	" " " .....	8	64 5	144	67	153
" (Regent's Park R. Bot. Soc)	W. Sowerby, Esq. ....	8	1 0	126	06	182
" (Springfield Rd., N.W.)	Mr. H. S. Wallis .....	6	6 0	123	73	...
" (Rochester Square) N.W. ...	J. Nickolls, Esq. ....	5	1 0	100	60	...
D † " (Camden Square), N.W. ....	G. J. Symons, Esq. ...	8	0 6	111	44	185
* Upper Clapton (Hadham Ho.) ...	J. Parnell, Esq. ....	5	1 1	98	35	164
Hampstead (Roslyn House) .....	C. H. L. Woodd, Esq. .	8	1 4	307	18	...
† " (Squire's Mount) .....	Rogers Field, Esq. C.E.	5	1 0	388	43	160
" (The Pryors) .....	" " " .....	5	1 0	327	68	157
Child's Hill (Helenslea) .....	A. J. Woodhouse, Esq. .	5	1 0	250	79	176
* Kentish Town Reservoir Bank ...	G. J. Symons, Esq. ...	5	0 10	200	34	...
D † Highgate Nurseries .....	J. Cutbush, Esq. ....	5	1 0	394	94	152
D Harrow (Northwick House) .....	H. St. J. Joyner, Esq. .	5	0 6	200	06	174

## DIVISION I.—MIDDLESEX—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which 0.1 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level.	1875	
			ft. in.	feet.	inches.	
MIDDLESEX—(con.)						
Harrow Weald Vicarage .....	Rev. R. J. Knight ...	5	1 1	300 T	30.20	135
D† Tottenham (Grove Ho.) .....	C. Ashford, Esq. ....	5	1 0	55 T	29.10	160
D† Muswell Hill .....	J. W. Scott, Esq. ....	5	0 9	310 T	30.20	184
D Pinner Hill .....	W. A. Tooke, Esq. ...	5	3 8	410 T	28.90	164
D Uxbridge (Harefield Park) .....	W. F. Vernon, Esq. ...	8	0 8	296 T	31.24	159
D Enfield (Nag's Head Lane) .....	J. Muir, Esq., C.E. ...	...	3 0	89	32.85	187
" Chase .....	T. Paulin, Esq. ....	5	1 0	...	35.37	171
D " " .....	" " " .....	8	1 0	...	35.13	171
" " .....	" " " .....	5	5 6	...	34.55	171

## DIVISION II.—SOUTH-EASTERN COUNTIES.

## SURREY.

D Haslemere .....	J. W. Penfold, Esq. ...	8	4 0	481 T	37.38	168
Godalming (Dunsfold) .....	Mr. W. Underwood ...	5	2 6	166	26.51	...
Haslemere (Weycombe) .....	G. B. Buckton, Esq. FRS	5	4 0	583 T	37.97	...
D Dorking (Holmwood) .....	A. Sconce, Esq. ....	5	1 2	320 T	34.33	126
" " ( " ) ...monthly	" " " .....	...	...	320 T	33.27	...
Chilworth (Postford House) .....	J. Pares, Esq. ....	5	1 6	200 T	28.65	...
D Redhill (Earlswood) .....	G. Grabham, Esq., M.D.	5	1 2	...	30.90	...
Guildford (Guildown) .....	Miss J. P. Hadden ...	5	0 11	220 T	28.06	141
Dorking (Sandy Cross) .....	F. Taylor, Esq. ....	5	1 0	290 B	34.44	...
D " (Horsham Road) .....	Miss Wilkinson .....	5	1 0	234 T	34.26	184
D " (West Street) .....	Mrs. W. A. Marsh ...	10	35 0	234 T	30.95	156
" (Brookmead) .....	T. L. M. Winter, Esq.	4	1 0	200 T	29.33	...
" (The Denbies) (Foot) ...	G. Cubitt, Esq., M.P. ...	...	...	266 T	29.63	...
" " (Top) ...	" " " .....	5	1 0	610 T	32.04	...
Redhill (Oxford Road) .....	W. H. Tyndall, Esq. ...	8	1 0	300 T	30.16	173
Reigate (Wray Park) .....	Mr. A. Rosling .....	5	0 6	340 T	31.94	164
D Nutfield Priory .....	J. Fielden, Esq., M.P. ...	8	1 2	...	30.51	163
Caterham (Upwood Gorse) .....	J. Tomes, Esq., F.R.S.	7	1 0	720 T	36.16	106
† Weybridge Heath .....	W. F. Harrison, Esq. ...	8	0 6	150 T	27.07	...
D Croydon (Church Road) .....	G. Corden, Esq. ....	5	1 0	152 T	26.87	152
D " (Tanfield Lodge) .....	J. Weston, Esq. ....	5	0 8	155 T	28.88	173
D " (Bramley Hill, Beechholme) .....	W. T. Reynolds, Esq.	5	1 0	...	28.63	163
D " (Waddon House) .....	P. Crowley, Esq. ....	8	1 3	...	28.94	152
D* " (Addi-combe) .....	E. Mawley, Esq. ....	8	0 9	202 T	27.10	172
* " ( " ) ...monthly	" " " .....	8	0 9	202 T	27.60	...
D Surbiton (Ewell Road) .....	G. Dines, Esq. ....	5	1 0	94 T	26.59	166
D " (Grove Road) .....	C. Mostyn, Esq. ....	8	1 0	21	25.50	...
D Thames Ditton (Seetling Wells) .....	G. Lott, Esq. ....	10	0 2	25	27.64	166
D Wimbledon .....	T. Devas, Esq. ....	12	3 0	160 T	26.57	158
Balham .....	B. Haughton, Esq., C.E.	5	1 0	...	26.48	144
D Richmond (Halford House) .....	J. Billett, Junr., Esq. ...	5	0 9	50 T	25.25	166
D Kew Observatory .....	The Kew Committee ...	11	1 9	19 T	25.39	159
D Brixton (Vaughan Road) .....	Sir J. W. Bazalgette ...	5	1 0	41 T	28.32	157
D Peckham (Asylum Road) .....	" " " .....	5	...	15 T	27.35	167
Kennington Road .....	A. H. Thorns, Esq. ...	8	5 0	19 T	23.48	153

## DIVISION II.—SOUTH-EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which "01 or more fell.
		Diameter.	Height Above Ground.			
			ft.	in.	feet.	inches.
KENT.						
D Dymchurch .....	H. D. Good, Esq., C.E.	8	1	0	12 $\nabla$	28·90 157
D Tenterden .....	J. Ellis Mace, Jr., Esq.	8	1	5	190 $\nabla$	31·56 160
Benenden (East End).....	" " "	8	1	9	193 $\nabla$	30·36 ...
† Cranbrook (Hartley) .....	G. Pile, Jun. Esq. ....	5	4	0	405 $\nabla$	32·20 169
D † Hythe .....	H. B. Mackeson, Esq..	8	0	6	12 $\nabla$	38·03 180
Folkestone (Priory Leas) .....	R. B. Johnstone, Esq.	5	4	3	92 $\nabla$	31·57 ...
D † Tunbridge Wells .....	Mr. Townhend .....	8	0	2	403 $\nabla$	33·12 151
D † Dover (Russell Street) .....	H. J. Poulter, Esq. ...	5	2	2	30 $\nabla$	34·76 140
" (Buckland) .....	Mr. J. Donaldson .....	5	...		50	32·28 ...
D Acrise .....	G. C. Woollett, Esq....	8	0	6	484 $\nabla$	43·32 174
D Ashford (Beaver Green) .....	T. Nickalls, Esq. ....	5	1	0	155 $\nabla$	33·37 175
D " (East Hill) .....	J. S. Burra, Esq. ....	8	1	0	122	34·92 146
D " (High Street) .....	T. Thurston, E-q.....	6	6	0	176 $\nabla$	36·05 143
D Tunbridge (St. Stephens) .....	W. C. Punnett, Esq....	5	2	0	96 $\nabla$	28·08 136
Staplehurst Park.....	Mr. W. Wilson .....	5	1	0	...	29·96 171
Edenbridge (Falconhurst Court).	J. G. Talbot, Esq., M.P.	5	1	0	400 $\nabla$	30·35 163
D † Maidstone (Linton Park).....	Mr. J. Robson .....	8	0	6	296 $\nabla$	30·25 157
† " (East Sutton Park)...	Mr. T. Skinner .....	8	1	2	387 $\nabla$	31·13 ...
D † " (Hunton Court) .....	Mr. P. Goddard.....	8	0	6	80 $\nabla$	26·67 116
D " (East Farleigh) .....	J. Case, Esq. ....	5	1	0	140 $\nabla$	29·71 151
Charing (Otterden) .....	Rev. W. A. Paxton ...	5	1	0	507 $\nabla$	33·90 ...
† Sandwich (Walton House Eastry)	Colonel Rae .....	5	1	0	53 $\nabla$	27·95 ...
D Canterbury (Chilham) .....	J. Marten, Esq.....	5	1	0	330 $\nabla$	35·31 155
Faversham (Throwley Parsonage)	Rev. F. Neame, Junr.	5	1	0	275 $\nabla$	34·81 124
D Selling (Gosmere) .....	W. Butcher, Esq. ....	...	1	0	...	32·74 110
D Canterbury (Bridge Street) .....	Mr. J. Reid .....	5	1	6	52 $\nabla$	30·65 162
Aylesford (Preston Hall) .....	Mr. Bradley .....	8	1	0	...	32·87 ...
† Faversham (Brogdale) .....	W. C. Stunt, Esq.....	5	4	0	140 $\nabla$	25·72 125
Seven Oaks (River Hill) .....	J. T. Rogers, Esq.....	8	4	0	525 $\nabla$	29·51 116
D " (Riverhead Vic.) ...	Rev. J. B. Murdoch ...	5	0	6	300 $\nabla$	33·36 156
D East Malling (Clare House) .....	J. M. Clabon, Esq. ...	5	3	4	130 $\nabla$	29·19 128
† Selling (Harefield) .....	E. Neame, Esq.....	5	1	0	217 $\nabla$	34·92 179
† Sheldwich .....	Rev. B. S. Malden ...	5	1	0	259 $\nabla$	33·06 ...
D Stourmouth .....	Rev. R. Drake .....	5	1	0	12 $\nabla$	26·28 ...
Ramsgate (The Vale).....	M. Jackson, Esq. ....	5	1	0	90	26·70 137
D † Margate (Acol) .....	E. S. Lendon, Esq. ...	5	1	0	60 $\nabla$	25·47 118
D " (Cecil Square) ...	W. Lane Sear, Esq. C.E.	5	6	6	37 $\nabla$	24·84 128
D Sittingbourne .....	G. Payne, Junr., Esq..	5	1	1	38	25·56 109
D † Bromley Common, S.E. ....	Rev. A. Rawson .....	8	1	0	250 $\nabla$	30·74 172
† Foot's Cray (Sidcup) .....	Miss Berens .....	5	0	8	231 $\nabla$	26·52 ...
D Beckenham (The Hall) .....	C. O. F. Cator, Esq....	8	0	5	169 $\nabla$	29·76 162
" ( " ) .....	" " " .....	5	50	0	220 $\nabla$	26·99 150
" ( " )...monthly	" " " .....	5	0	3	168 $\nabla$	28·58 ...
D † " (Foxgrove).....	Percy Bicknell, Esq...	5	0	5	141 $\nabla$	27·46 152
D † " " .....	" " " .....	5	4	0	145 $\nabla$	26·11 149
D Forest Hill (Church Road) .....	Edwin E. Glyde, Esq..	5	1	0	142	28·05 170
D † Dartford (The Downs).....	R. F. Jarvis, Esq.....	5	2	4	162 $\nabla$	23·97 119
D † Eltham Green (Garden) .....	E. J. C. Smith, Esq....	5	1	0	80 $\nabla$	28·15 162



## DIVISION II.—SOUTH-EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which "01 or more fell.
		Diameter	Height Above Ground.		1875	
			ft. in.	feet.	inches.	
EAST SUSSEX—(con.)						
Lewes (Stanmer Park) .....	Mr. W. Holman .....	5	1 0	280	33·98	...
Hailsham .....	Rev. J. Clyde Harvey..	5	1 0	105	27·61	103
W† Poyning (Dyke House) .....	Mr. W. Thacker .....	5	1 6	680	38·57	174
W „ (Fulking) .....	Mr. J. Thacker .....	5	1 0	100	37·87	...
D Winchelsea .....	Mr. Budden .....	5	1 0	110	31·00	160
D „ (The Friars).....	Miss Stileman .....	5	1 1	115	30·09	159
† Framfield (The Grange) .....	Capt. T. G. Drake, R.N.	8	1 2	185 B	30·85	113
D† Uckfield Observatory .....	C. L. Prince, Esq. ....	12	6 0	149 A	29·02	133
† Newick (Ketches) .....	Miss I. Shiffner.....	8	0 5	192 T	26·50	134
D Salehurst Vicarage .....	Rev. A. Orr .....	5	2 6	125	31·13	135
D† Buxted Park.....	Col. Harcourt .....	8	0 10	193 T	30·58	160
D† Maresfield (Forest Lodge) .....	Captain W. Noble.....	8	1 2	247 A	30·42	184
D† Hayward's Heath (Asylum) ...	Rev. T. E. Crallan ...	5	1 0	281 T	29·29	161
Domons (Northiam) .....	J. Rock, Esq.....	8	1 0	210	31·08	...
D Ticehurst .....	F. Wilton, Esq.....	8	4 0	380 T	33·59	178
D† Crowboro' Beacon Observatory.	C. L. Prince, Esq. ....	8	0 6	777 A	37·42	153
Balcombe Place .....	J. A. Hankey, Esq. ...	8	1 8	300 B	31·38	138
Forest Row (Ashdown Cottage)..	H. J. Slack, Esq. ....	8	1 0	395 A	32·61	...
East Grinstead .....	W.V.K. Stenning, Esq.	5	1 3	356 A	32·79	165
HAMPSHIRE.						
ISLE OF WIGHT.						
Ventnor (Roy. N. Con. Hosp.)...	Dr. Williamson .....	8	3 3	75	30·57	160
D† St. Lawrence .....	Rev. C. Malden .....	5	1 0	75 A	31·95	157
D† Ventnor (Belgrave House) .....	Dr. Martin.....	12	3 0	150 A	32·71	156
D Newport .....	E. G. Aldridge, Esq....	5	12 9	57 A	33·68	148
D† Ryde .....	R. Taylor, Esq. ....	12	7 0	20 A	31·46	133
D† Osborne .....	J. R. Mann, Esq. ....	8	0 8	172 A	28·48	156
Christchurch (Carbery) .....	F. Moser, Esq. ....	8	0 9	98 A	34·39	153
Lymington (Wainsford).....	H. Fawcett, Esq. ....	5	1 0	58 A	32·24	150
D Southampton (Cadland).....	J. Laurie, Esq. ....	8	4 6	52 T	35·79	198
Netley Hospital .....	.....	...	...	...	33·78	...
Southampton, Ordnance Survey } Office .....	Col. Bayley, R.E. ... }	5	0 4	74 A	33·17	158
D „ (Woolston Lodge)..	F. Ekless, Esq. ....	5	1 0	90	32·75	...
„ (Eling House) .....	W. C. Spooner, Esq....	5	1 0	20	36·46	...
† „ (Red Lodge).....	R. C. Hankinson, Esq.	5	0 6	200	32·82	193
D Botley (Moorhill, Shedfield).....	Adl. Sir T. S. Pasley, Bt.	8	2 0	160 A	34·20	183
D Bishop's Waltham (Swanmore Ho)	B. P. Shearer, Esq. ...	5	0 4	390 T	36·47	185
D Droxford Rectory .....	Rev. S. Bridge .....	...	0 8	180	35·95	173
Fordingbridge (Wood Green) ...	H. Hinxman, Esq. ...	5	1 2	...	32·18	...
D† Winchester (Otterbourne) .....	J. B. Yonge, Esq. ....	5	1 3	115 A	33·63	127
Romsey (Michelmarsh Rectory)...	Rev. H. G. Merriman	5	1 6	273 A	33·73	127
Petersfield (Liss Place) .....	G. E. Coryton, Esq. ...	7	0 7	250 A	34·58	...
D† Alresford (Arle Bury) .....	F. Marx, Esq. ....	4	1 6	238 A	35·76	156
† Alton (East Tisted Rectory).....	Rev. F. Howlett .....	5	1 1	420	38·91	139

## DIVISION II.—SOUTH-EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which -01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level		
			ft. in.	feet.	inches.	
HAMPSHIRE—(con.)						
D† Selborne (The Wakes) .....	T. Bell, Esq., F.R.S. ...	6	4 0	400 $\nabla$	37·71	...
D† Alton (Ashdell) .....	F. Crowley, Esq. ....	8	3 6	396 $\nabla$	38·34	...
D Andover (The Vicarage) .....	Rev. H. B. Bousfield ...	...	0 8	245 $\uparrow$	34·35	133
Dogmersfield Park .....	Sir H. B. Mildmay, Bt	5	1 6	...	32·01	...
D Aldershot .....	Mr. J. Arnold .....	8	0 6	325	35·32	147
" (Bourley—2 miles W.)	" " " .....	8	1 0	370	36·15	159
D Basingstoke (Chapel Hill) .....	G. Stephens, Esq. ....	5	1 0	328 $\uparrow$	32·68	188
D Litchfield Rectory .....	Rev. H. B. Heberden ..	5	0 8	400 $\nabla$	37·22	177
Rotherwick (Tylney Hall) .....	C. E. Harris, Esq. ....	5	0 8	330 $\uparrow$	31·83	...
D† Basingstoke (Sherborne St. John)	Rev. D. W. Chute ...	5	1 2	276 $\uparrow$	34·54	153
D† " (The Vyne) .....	W. Wiggett Chute, Esq.	8	1 2	236 $\uparrow$	33·48	153
† " (" " ) .....	" " " .....	3	1 2	236 $\uparrow$	33·95	153
Hartley Grange .....	W. Walkinshaw, Esq.	5	1 0	220 $\nabla$	32·50	...
Hartley Westpall .....	Rev. J. Keate, M.A. ...	8	0 9	233 $\nabla$	32·64	...
D† Strathfield Turgiss .....	Rev. C. H. Griffith ...	5	3 0	200 $\nabla$	31·68	156
† Heckfield (Park Corner) .....	J. Martineau, Esq. ....	5	1 2	258 $\uparrow$	32·77	...
† Strathfieldsaye .....	Mr. J. Bell .....	8	1 0	160 $\uparrow$	34·08	127
BERKS.						
Swallowfield (Beech Hill Vic.) ...	Rev. C. S. Turner .....	5	1 0	226 $\nabla$	32·26	154
D Sunningdale (Lynwood) .....	Admiral Sir F. W. Grey	8	0 9	264 $\nabla$	29·77	159
D† Reading (Russell Street) .....	Dr. Workman .....	5	2 0	159 $\nabla$	31·74	169
" (The Acacias) .....	A. Palmer, Esq. ....	5	3 0	146 $\uparrow$	32·22	152
Newbury (Greenham) .....	Capt. J. Ward, R.N. ...	5	1 0	260 $\nabla$	31·80	157
D " (Welford Park) .....	Mr. C. Ross .....	5	0 11	335 $\nabla$	38·44	200
D Reading (Purley) .....	Hon. R. Boyle .....	5	1 0	40 ?	33·65	151
Maidenhead (Kimber Cottage) ...	Mr. J. Silver .....	8	1 2	93 $\nabla$	29·00	...
D Streatley Vicarage .....	Rev. J. Slatton .....	10	0 4	150 $\nabla$	34·84	174
D Maidenhead (Cookham Vic.) .....	Rev. R. W. Rogers ...	5	1 3	90 $\uparrow$	29·21	183
D " (The Halls, Cookham) .....	F. W. E. Jowers, Esq.	5	1 6	108	29·78	174
D Shrivenham (Ashbury Vic.) .....	Rev. H. Miller .....	5	1 0	479 $\nabla$	36·16	165
D*† Wantage .....	E. C. Davey, Esq. ....	5	12 8	320 $\nabla$	33·52	138
Wallingford (The Castle) .....	J. Kirby Hedges, Esq.	5	0 9	175 $\nabla$	31·93	122
D† Long Wittenham .....	Rev. J. C. Clutterbuck	12	1 0	170 $\nabla$	32·50	146

## DIVISION III.—SOUTH MIDLAND COUNTIES.

## HERTS.

D Watford (Oaklands) .....	E. Harrison, Esq. ....	5	5 6	273 $\uparrow$	30·44	171
Hoddesdon (Field's Weir) .....	Beardmore & Barnes ...	20	3 0	82 $\nabla$	27·15	133
Hertford (Bayfordbury) .....	W. C. Baker, Esq. ....	8	0 4	250	29·66	143
St. Albans (Gorhambury) .....	Mr. J. Thompson .....	6	2 6	...	30·10	136
D Hemel Hempstead (Nash Mills) ...	Messrs J Dickinson & Co	12	3 9	237 $\uparrow$	29·35	158
Gt. Berkhamstead (Ashlyns) ...	W. Longman, Esq. ...	...	0 6	600 ?	34·42	124
D " " (High Street) .....	W. Squire, Esq. ....	8	1 6	370 $\nabla$	33·87	172
Tring (Cowroast) .....	H. Thomas, Esq. ....	10	4 2	315 $\nabla$	35·48	143

## DIVISION III.—SOUTH MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which "01 or more fell.
		Diameter,	Height Above Ground.			
			ft.	in.	feet.	inches.
HERTS.—(con.)						
Harpenden (Rothamstead) .....	Messrs. Lawes & Gilbert	5	2	0	420 T	30·06 171
" ( " ) .....	" " "	72x87	2	0	420 T	32·09 169
" ( " ) <i>new g.</i> .....	" " "	72x87	0	9	420 T	34·94 171
D Welwyn Rectory .....	Rev. C. L. Wingfield..	5	0	4	...	30·61 174
D Kensworth [Dunstable] .....	T. Jones, Esq. ....	5	1	0	902 T	33·39 116
D Ware (Much Hadham) .....	Rev. H. S. Mott ....	5	1	0	222 B	27·10 146
Stevenage .....	Rev. J. O. Seager.....	8	2	0	319 L	29·00 168
D Buntingford (Aspenden Rectory)	Rev. A. P. Sanderson..	5	1	1	329 T	28·56 130
D † Hitchin .....	W. Lucas, Esq. ....	8	1	0	238 T	28·93 173
D Royston .....	H. Wortham, Esq. ...	8	0	6	269 T	26·36 151
BUCKINGHAMSHIRE.						
Datchet (Riding Court) .....	C. S. Cantrell, Esq. ...	5	1	0	62	26·10 ...
D Slough (Stoke) .....	Mr. W. Hatfield ....	5	1	0	200	30·17 123
High Wycombe .....	H. S. Wheeler, Esq....	8	0	9	225 T	28·39 ...
D Great Missenden (Dell Cottage).	Mr. J. Begbie.....	6	1	0	...	33·83 ...
Aylesbury (Serena Terrace) ...	J. Copcutt, Esq., C.E... 12	1	0	...	...	35·75 105
D " (Peverel Court) .....	J. E. Bartlett, Esq. ...	...	2	0	290	27·45 140
D † Winslow (Addington Manor)...	E. Hubbard, Esq., M.P.	8	1	0	309 T	33·50 178
D † Buckingham (Adstock) .....	J. E. S. Weston, Esq..	5	0	9	...	34·79 176
† " (Castle Fields) ...	E. Parrott, Esq.....	5	1	1	318 T	35·09 155
† " (School Lane).....	Mr. W. Walker.....	8	1	9	269 T	33·56 168
Stony Stratford (Thornton) .....	Mr. W. Sturdy .....	5	1	6	...	35·08 ...
Newport Pagnell .....	R. Littleboy, Esq.....	5	2	0	...	33·72 ...
OXFORD.						
Henley-on-Thames (Greys) .....	Rev. N. Pinder .....	5	1	8	370 T	33·93 ...
Thame (Aston Rowant).....	T. Taylor, Esq. ....	8	1	0	395 B	29·79 ...
D † Oxford (Magd. Col. Laboratory)	E. Chapman, Esq., M.A.	5	1	0	188 T	32·40 173
D " (Radeliffe Observatory)	Rev. R. Main, F.R.S... 10	0	11	208 T	32·98 175	
" " .....	" " " .....	10	22	0	229 T	31·00 167
" " .....	" " " .....	12	24	0	231	28·91 147
D Enstone (Chadlington) .....	W. Searle, Esq. ....	5	5	0	800	36·09 131
D Upper Heyford .....	Rev. C. B. Mount.....	9	1	2	324 T	33·75 158
B † Bicester (Stratton Audley Pk)	G. Glen, Esq.....	5	2	5	381 T	33·34 ...
Chipping Norton (Kingham).....	Rev. J. W. Lockwood..	5	3	6	442 B	35·23 ...
D Banbury (Broughton Lodge) ...	E. C. Morrell, Esq. ...	5	0	6	442	35·69 180
D † " (High Street).....	T. Beesley, Esq.....	6	7	0	350 B	34·32 177
NORTHAMPTON.						
Thorpe Mandeville.....	Rev. W. L. Browning	5	1	0	580	37·05 163
Towcester.....	Mr. J. C. Harvey .....	5	1	0	...	34·88 159
" (Easton Neston) .....	Mr. E. Slarke .....	...	...	...	...	36·23 159
D Daventry (Helidon Vicarage) ...	Rev. H. S. Holthouse..	5	1	0	600 T	34·91 176
Weedon Beck Vicarage .....	Rev. J. S. Winter.....	8	1	6	280 T	36·59 ...
" " .....	R. Capell, Esq. ....	5	4	0	265 T	37·25 154
Castle Ashby .....	R. Scriven, Esq. ....	5	1	0	...	30·53 170

## DIVISION III.—SOUTH-MIDLAND COUNTIES—(continued.)

STATIONS	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which "01 or more fell
		Diameter.	Height Above Ground.	Height Above Sea Level.		
		ft.	in.	feet.	inches.	
NORTHAMPTON ( <i>con.</i> )						
D Northampton (St. Giles's Street)	H. Terry, Esq. ....	5	5 0	253 $\pi$	33.53	174
" (The Holly's) ....	Alderman Macquire ...	8	1 6	232	34.62	...
D " (Gold Street) ....	S. Law, Esq. ....	5	6 6	230 $\pi$	32.76	174
D " (Althorp House) ...	Mr. W. F. Jakeman ...	8	3 10	310 $\pi$	36.88	147
Chapel Brampton .....	W. P. Rankin, Esq. ...	...	...	...	36.54	...
D Wellingboro' (Croyland Abbey) ..	E. Sharman, Esq. ....	5	0 2	...	32.38	181
Hargrave .....	H. S. Gill, Esq. ....	...	4 2	200	36.32	...
D Kettering (Barton Seagrave) ...	J. B. Tibbits, Esq. ...	8	1 2	300	33.93	130
" .....	J. Wallis, Esq. ....	8	1 3	300 B	37.53	165
D Naseby (Woolleys) .....	Mr. H. Harris .....	5	5 0	567 B	35.18	165
Rothwell .....	Dr. J. Moore .....	...	...	...	36.45	...
" (Braybrooke) .....	J. Marriott, Jun., Esq.	5	4 3	...	36.55	...
D Oundle (Wadenhoe Rectory) ...	Rev. H. H. Gillett ...	8	1 3	186 L	30.95	126
Rockingham Castle .....	Mr. J. Brown .....	5	1 3	400 L	37.39	147
D Peterborough (Springfield Ho.) ..	H. Whitwell, Esq. ...	8	2 0	25	26.50	151
" (Westgate) .....	W. Thomsen, Esq. ...	5	1 0	32 $\pi$	27.43	165
D Easton [Stamford] .....	C. Day, Esq. ....	5	1 0	220 ?	32.63	190
HUNTS.						
D St. Neots (Tetworth Hall) .....	Miss Kaye .....	5	0 6	114 T	30.74	165
" (Waresley) .....	Rev. W. M. H. Elwyn ..	8	1 0	193 $\pi$	30.96	156
Godmanchester (Farm Hall) .....	G. I. Bevan, Esq. ....	8	0 6	30 ?	28.32	160
Huntingdon .....	Mrs. C. Margetts .....	5	0 4	52 T	28.79	133
* " (Wistow) .....	Rev. T. Woodruff .....	5	1 2	...	29.27	...
Conington Castle .....	J. M. Heathcote, Esq. ..	5	1 0	...	31.64	...
Whittlesea Mere .....	R. Lunn, Esq. ....	8	1 0	...	26.82	...
BEDFORD.						
D Leighton Buzzard (The Cedars).	Mr. W. Abrahams ...	6	1 0	300 T	36.36	...
D Aspley Guise (Oaklands) .....	E. E. Dymond, Esq. ....	5	1 1	433 T	31.32	173
" ( " ) <i>monthly</i> .....	" " " " .....	5	1 1	433 T	32.22	...
D " (Hayfield House) ..	S. Douglas, Esq. ....	5	1 1	...	32.26	140
Silsoe .....	H. Trethewy, Esq. ...	5	1 2	...	29.36	...
Ampthill .....	W. S. Slinn, Esq. ....	5	1 1	375	31.67	...
" (Lidlington) .....	Rev. J. Jenkyns .....	4	1 0	...	30.68	...
D Woburn (Hulcote Rectory) .....	Rev. B. Chernocke Smith	5	1 0	...	32.48	159
Biggleswade .....	C. T. Newbery, Esq. ...	5	28 0	...	28.39	...
D Potton (Wrestlingworth) .....	H. J. King, Esq. ....	5	1 0	...	27.92	144
D Sandy Rectory .....	Rev. J. Richardson ...	5	0 7	...	28.98	149
" (The Lodge) .....	A. W. Peel, Esq., M.P.	5	1 0	...	29.09	163
Cardington .....	Mr. J. McLaren .....	8	0 0	106	32.51	...
D " (Staff gauge) .....	" " " " .....	12	3 6	109	31.39	155
" .....	" " " " .....	8	36 0	142	27.32	...
Bedford .....	D. Robie, Esq. ....	5	1 0	115 T	28.18	145
" (Clapham Park) .....	Miss Howard .....	...	...	200 ?	29.94	...
Tempsford .....	Col. W. Stuart .....	5	0 9	140 B	29.73	...

## DIVISION III.—SOUTH MIDLAND COUNTIES.—(continued).

STATIONS	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which 41 or more fell	
		Diameter.	Height Above Ground.				Height Above Sea Level
			ft.	in.	feet.	incl es.	
CAMBRIDGE.							
D Guilden Morden [Royston].....	J. G. Johnson, Esq. ...	5	1	2	...	25·94	148
Abington Pigotts [ " ].....	G. Pigott, Esq. ....	8	0	6	130 B	25·31	171
D Pampisford Hall .....	Mr. Morley .....	5	1	0	113 A	26·30	194
D Granchester Mill.....	J. Nutter, Esq. ....	5	4	0	31 A	26·25	165
Cambridge (W. W. Cherryhinton)	H. Tomlison, Esq., C.E.	5	1	0	35 A	24·97	183
D " (Beech House).....	J. Nutter, Esq. ....	8	4	0	40 A	26·59	169
D " (Merton Villa).....	G. Warren, Esq. ....	5	1	0	30 A	25·92	175
D " (Sidney Street).....	Mr. W. E. Paine .....	8	5	1	83 A	25·20	164
D † " (Observatory).....	Professor Adams, F.R.S.	5	1	0	85 A	27·46	189
D Ely (Stretham) .....	Mr. Edwin Stanley ...	9	4	9	...	25·22	140
D Chatteris (Aylesby House) .....	A. S. Ruston, Esq. ...	8	0	6	...	27·06	167
" (Horseway Lock) .....	R. Lunn, Esq. ....	8	1	0	...	20·38	...
March .....	" " "	9	6	6	...	23·25	...
" .....	R. Dawbarn, Junr. Esq.	5	1	0	...	25·08	149
* " (Stags Holt) .....	W. C. Little, Esq. ...	5	1	0	15 ?	28·45	...
Stanground Sluice .....	R. Lunn, Esq. ....	8	1	0	...	25·72	...
Elm (Coldham Hall) .....	H. J. Little, Esq. ....	5	1	0	15	31·74	151
Upwell (Marmont Priory Lock)..	R. Lunn, Esq. ....	8	1	0	...	26·94	...
Wisbech (Euximoor House) .....	H. West, Esq. ....	5	0	5	...	28·01	151
D " (Harcroft Ho.) .....	A. Peckover, Esq. ....	8	0	8	11 T	30·83	166
D † " (Observatory) .....	S. H. Miller, Esq.....	8	0	6	10 T	29·69	169
† " " (monthly) .....	" " "	5	0	6	10 T	28·88	...
† " " .....	" " "	8	8	0	18 A	28·80	169
† " " .....	" " "	20x10	35	0	45 T	23·91	...

## DIVISION IV.—EASTERN COUNTIES.

ESSEX.							
D Shoeburyness .....	Capt. Fairford Ellis, RA	5	4	7	13	22·90	122
Barking (Loxford Hall) .....	Mr. J. Douglas .....	5	0	9	...	23·37	101
Walthamstow .....	W. R. Birt, Esq. ....	5	1	5	70 T	29·19	...
Brentwood (Sawyer's Hall Farm)	Rogers Field, Esq., C.E.	5	1	0	270 T	27·07	...
Maldon (Cold Norton) .....	C. Clarke, Esq. ....	5	1	2	...	25·41	133
D " (Purleigh).....	Rev. G. F. Tamplin ...	5	4	0	80 ?	24·23	137
Epping (The Hemnalls).....	J. Nicholl, Esq.....	8	0	8	345 T	31·06	134
Chelmsford .....	F. Chancellor, Esq.....	8	1	0	86 A	27·92	132
D Harlow (Sheering).....	Rev. E. Hill .....	5	1	0	214 A	26·41	199
D " (Moor Hall) .....	Mr. Huntley .....	8	1	6	273 A	28·40	176
Witham (Dorward's Hall).....	H. Dixon, Esq. ....	5	1	6	20 ?	23·25	...
D Dunmow (High Roding) .....	Rev. E. Maxwell .....	5	1	0	252 T	25·28	171
D " .....	H. E. Cockayne, Esq... 12	0	0	0	250 A	25·43	141
* Colchester (Birch Hall) .....	Mr. W. Ingle .....	5	1	0	80	27·90	153
D Stanstead [Bishops Stortford] ...	Harford Green, Esq....	...	0	6	...	30·91	112
Braintree (Bocking) .....	S. Tabor, Esq. ....	12	2	0	200 T	26·86	140
" ( " Place) .....	S. Courtauld, Esq.....	6	1	0	...	27·63	193
Manningtree (Wix) .....	Rogers Field, Esq., C.E.	5	1	0	90 T	26·68	131

## 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 Sea Level	1875	
			ft. in.	feet.	inches.	
ESSEX—(con.)						
D Dedham (Lower Park) .....	W. H. Penrose, Esq. ....	8	0 10	49 $\bar{\pi}$	26.49	176
Hedingham Castle .....	L. A. Majendie Esq., M.P. ....	8	1 0	...	27.58	128
D † Saffron Waldon (Audley End) .....	Mr. J. Bryan .....	5	1 0	163 $\bar{\pi}$	26.67	180
† " " ( " River Bank) .....	" " .....	5	1 0	151 $\bar{\pi}$	25.44	...
D " " .....	J. G. Bellingham, Esq. ....	5	1 0	180 $\bar{\pi}$	26.16	167
" " (Ashdon) .....	Rev. J. T. Walker .....	6	1 0	300 $\bar{\pi}$	27.57	...
SUFFOLK.						
D Nayland (Tendring Hall) .....	Mr. G. L. Rushmore ...	8	0 8	135 $\bar{\pi}$	24.74	107
D Hadleigh (Boxford) .....	Rev. J. Byng .....	8	0 10	...	25.92	155
" " ( " ) .....	" " .....	8	0 10	...	25.79	...
D " .....	J. T. Muriel, Esq. ....	5	6 0	40	27.10	177
D Sudbury .....	J. Alexander, Esq. ....	5	3 10	116 $\bar{B}$	27.35	167
D Ipswich (Bishop's Hill) .....	G. A. Biddell, Esq. ...	5	1 0	104 $\bar{\pi}$	27.67	155
D " (Woodbridge Road) .....	S. Alexander, Esq. ....	5	1 1	90	31.87	160
D Hadleigh (Aldham) .....	T. F. Lloyd, Esq. ....	5	2 6	...	29.06	172
D Woodbridge (Grundisburgh) ...	P. Harris, Esq. ....	5	3 9	...	27.51	164
Ash Bocking Vicarage .....	Rev. M. B. Cowell ...	5	7 3	231 $\bar{T}$	25.52	112
Saxmundham (Carlton Hall) ...	Mr. Knights .....	8	5 0	...	26.06	158
D Bury St. Edmunds (Drinkstone Pk) .....	Mr. Nichol .....	8	1 2	250	29.70	123
D † " " (Abbeygate St.) .....	T. C. Hinnell, Esq. ...	6	45 0	...	30.59	150
D Stowmarket (Wetherden Rec.) ...	Rev. C. J. Goodhart ...	8	0 6	185 $\bar{T}$	26.72	173
D † Bury St. Edmunds (Beech Hill) .....	H. Turner, Esq. ....	6	1 0	...	31.26	146
† " " (Westley) ...	R. Burrell, Esq. ....	5	1 2	...	29.07	...
D † " " (Barton Hall) .....	Mr. W. Allan .....	5	1 0	...	28.41	154
D † " " (Culford) .....	Mr. P. Grieve .....	5	1 6	...	29.18	152
† Ixworth .....	Rev. W. Steggall .....	5	1 10	...	30.89	167
D † " (Walsham-le-Willows) ..	Miss Martineau .....	5	0 11	...	29.71	...
† " (Barningham) .....	J. Fison, Esq. ....	8	0 10	125 $\bar{P}$	25.66	...
D Halesworth .....	Miss Burleigh .....	5	1 0	60 $\bar{L}$	26.74	123
† Lowestoft (Gisleham) .....	Rev. H. Jodrell .....	5	1 2	36 $\bar{T}$	23.84	...
† " (Carlton Colville) .....	G. Edwards, Esq. C.E. ...	8	0 9	6 $\bar{T}$	25.87	...
D † " (Somerleyton Hall) ...	Mr. Rix .....	8	0 9	60	25.14	150
D † " ( " Rectory) .....	Rev. C. J. Steward ...	8	1 0	30	26.37	176
NORFOLK.						
D Diss .....	T. E. Amyot, Esq. ....	5	1 0	96	26.59	165
Harleston (Rushall Vicarage) ...	Rev. C. Gape .....	5	1 1	123	26.85	183
D † Geldeston [Beccles] .....	E. T. Dowson, Esq. ...	5	1 0	40 $\bar{B}$	24.68	167
D " Rectory [Beccles] ...	Rev. D. Gillett ...	5	1 0	55	26.63	171
D † West Tofts [Brandon] .....	Mr. R. Martin .....	5	1 6	91 $\bar{T}$	29.01	174
Long Stratton .....	Rev. J. M. Du Port ...	5	0 6	...	29.80	...
Wymondham (Mulbarton) .....	" " " .....	...	...	...	28.75	...
Hingham .....	" " " .....	...	...	...	28.61	...
D † Downham Market (W. Dereham) .....	Mr. C. Blanchfield ...	5	0 11	20	28.63	184
Thetford (Ovington) .....	Rev. C. J. Evans .....	5	1 9	...	28.02	164
D † Stoke Ferry (Wereham) .....	F. R. Hawkes-Mason Esq. ...	5	6 0	66 $\bar{T}$	26.26	162
Outwell Sluice .....	R. Lunn, Esq. ....	9	...	...	23.79	...

## DIVISION IV.—EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which .01 or more fell.	
		Diameter.	Height Above Ground.				Height Above Sea Level
			ft.	in.	feet.	inches.	
NORFOLK—(con.)							
†Downham Market (Fincham)...	Rev. W. Blyth .....	3	4	0	50 †	31·31	...
Barnham Broom .....	Rev. J. M. Du Port ...	8	1	0	160 †	28·26	...
Swaffham (Pickenham Hall).....	E. A. Applewhaite, Esq	5	1	0	160 †	28·72	158
Yarmouth (Halvergate Hall) ...	Miss Gillett .....	5	3	3	48 †	27·39	...
Norwich (Eaton) .....	J. Pymar, Esq. ....	6	1	0	...	28·95	...
„ (Postwick) .....	Rev. J. M. Du Port ...	...	...	...	...	30·46	...
„ (St. Catherine's Close)...	Mrs. Evans.....	5	2	3	120	29·09	154
D „ (Literary Institution)...	The Secretary.....	12	30	0	53 †	26·55	159
† „ (Thorpe St. Andrews)...	W. Birkbeck, Esq.....	5	1	0	137 †	32·27	189
†Acle (Rectory) .....	Rev. R. W. Kennion...	8	0	9	40 †	28·90	...
D† Filby .....	Mr. Crisp .....	5	2	4	11	28·83	131
D Sprowston (Oak Lodge) .....	T. C. Hardy, Esq.....	5	1	0	...	28·39	181
D Norwich (Cossey) .....	H. Culley, Esq.....	5	1	0	...	27·78	186
D† „ (Honingham Hall).....	Lady Bayning .....	5	0	6	88 †	28·61	179
„ (Honingham) .....	Rev. J. M. Du Port ...	12	1	3	90	29·02	...
† Mattishall .....	„ „ „ .....	8	1	2	165 †	28·45	183
† Hockering.....	„ „ „ .....	8	1	2	140 †	27·60	...
‡ * Swaffham (Grammar School)	C. J. Drury, Esq. ....	5	1	10	239 †	28·47	179
„ .....	Rev. J. M. Du Port ...	...	...	...	...	29·00	...
† Dereham .....	G. H. Cooper, Esq. ...	8	3	0	161 †	33·34	160
D „ .....	Mr. W. T. Gidney.....	9	3	0	160 †	26·21	142
St. Germans (Outlet Syphons)...	R. Lunn, Esq. ....	8	...	...	...	28·88	...
Swaffham (Dunham) .....	Rev. J. M. Du Port ...	...	...	...	...	29·72	...
Drayton .....	„ „ „ .....	5	1	2	...	29·66	...
D Reepham (Hackford).....	W. D. Bircham, Esq...	5	1	0	...	30·18	184
Cawston .....	Rev. T. H. Marsh.....	5	1	0	110	31·08	...
D North Walsham (Worstead) .....	Mrs. Cooke.....	5	0	10	...	32·68	164
D Lynn (Austin Street).....	E. L. King, Esq. ....	5	1	6	...	26·06	178
D „ (North Wootton) .....	Rev. W. W. Clarke ...	5	1	2	35	26·65	164
D† „ (Hillington Rectory) .....	Rev. H. Folkes .....	8	1	0	90 †	27·97	166
D† „ ( „ School) .....	„ „ „ .....	5	3	6	94 †	28·02	163
D „ ( „ Hall) .....	Mr. Platt .....	5	1	0	74	30·61	...
Colkirk .....	Rev. J. M. DuPort ...	5	1	2	200 †	29·29	...
D Hindringham .....	Mr. S. Cushing .....	...	1	0	...	31·62	162
Holt (Letheringsett Hall) .....	W. H. C. Hardy, Esq.	8	1	0	...	29·89	145
D Cromer (Colne Lodge) .....	J. Cooper, Esq., M.D...	5	1	3	100 †	28·21	164
D Burnham (Westgate) .....	W. H. Spencer, Esq ...	3	5	10	13	30·25	151
Holkham .....	J. Davidson, Esq. ...	8	0	0	39 †	29·75	177
D „ .....	„ „ „ .....	12	4	0	43 †	29·73	177
D Wells .....	H. R. Rump, Esq.....	5	1	0	16 †	28·00	186
D Hunstanton .....	Mr. Nisbet .....	11	3	8	60 †	24·50	...

## DIVISION V.—SOUTH-WESTERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth o	Days on which 0.1 or more fell
		Diameter	Height		Rain.	
			Above Ground.	Above Sea Level	1875	
		ft.	in.	feet.	inches.	
WILTS.						
D Landford .....	J. R. Wigram, Esq. ...	5	1 10	160 T	34.93	178
D † Salisbury (Alderbury) .....	Rev. R. S. Hutchings..	5	0 8	263	34.48	170
D † „ (West Dean) .....	Rev. W. L. W. Eyre...	5	1 0	139 B	32.07	139
„ (Wilton House).....	Mr. Challis.....	8	0 5	180 T	35.33	151
„ (Roche Court) ...	C. W. Bell, Esq. ....	5	1 2	420 ?	37.97	...
D Salisbury Plain (Chiltern Ho.)...	R. Hayward, Jun., Esq.	11	4 0	380 ?	33.62	164
D „ „ (Orcheston).....	Rev. J. Wardale .....	6	0 8	263 T	35.10	156
Warminster (Downside).....	W. J. Stent, Esq. ....	8	1 6	...	40.06	153
D Imber Vicarage .....	Rev. W. Slatter.....	5	4 0	415 ?	35.90	176
D Ludgershall [Andover] .....	Rev. W. H. Awdry ...	8	0 8	422 T	39.01	165
D † Trowbridge (Sunnyside) .....	W. J. Mann, Esq. ....	5	1 1	190 T	38.51	168
D Pewsey.....	Mr. J. P. Robins .....	...	...	...	38.36	154
Devizes (Bishops Cannings) .....	Rev. C. W. Hony .....	5	1 0	500	39.54	...
D † Marlborough (The Green) .....	Rev. T. A. Preston ...	5	1 0	472 T	39.71	180
D „ (Mildenhall).....	Rev. C. Soames .....	5	1 0	467 T	38.22	173
Corsham .....	C. T. Mayo, Esq. ....	5	1 1	...	45.55	...
D Calne (Compton Bassett) .....	Mr. J. Allen .....	8	1 0	400 T	39.07	175
D † Chippenham (Tytherton).....	Major Gritton .....	5	1 2	157 B	36.02	191
D Swindon (Draycot Foliat) .....	T. Arkell, Esq. ....	5	1 2	...	37.49	170
D „ (Penhill) .....	„ „ .....	5	0 10	400 ?	35.65	158
Thames' Head [Cirencester].....	J. H. Taunton, Esq., C.E.	8	4 0	350 T	38.80	168
DORSET.						
D † Weymouth (Osmington Lodge)..	Major Hall .....	5	1 0	225 ?	39.28	182
† Abbotsbury .....	Mr. A. Dight .....	5	3 6	150	35.29	112
D † Lyme Regis .....	H. Tucker, Esq.....	5	4 6	146 B	42.30	193
D Blandford (Longthorns).....	J. Mansel-Pleydell, Esq.	5	0 4	340 B	38.60	132
D „ (Whatcombe) .....	„ „ .....	5	0 4	300	41.62	128
D „ (Bingham's Melcombe)	Rev. C. W. Bingham...	5	1 3	300 ?	44.64	176
D Wimborne (West Borough) .....	W. Wyke Smith, Esq.	5	1 6	66	43.03	156
Beaminstor .....	Rev. A. Codd.....	5	1 0	...	45.38	197
Cerne Abbas (Melbury).....	Mr. T. C. Elliott .....	12	2 9	...	42.24	135
D * Wimborne Minster (Chalbury).	Rev. G. H. Billington.	5	2 0	338 T	39.06	176
Ashmore Rectory .....	Rev. T. Davidson .....	5	1 0	725	40.48	204
D Shaftesbury .....	T. Ackland, Esq. ....	5	1 3	722 T	38.09	144
DEVON.						
† Kingsbridge (Bolt Tail) .....	(58) W. Balkwill, Esq.....	5	1 0	297 L	40.32	...
D † „ (Fore St. Hill) (56)	G. Fox, Esq. ....	5	1 0	63 B	49.56	179
D Dartmouth (Strete) .....	Dr. Madden .....	8	1 0	200	41.56	197
Newton Ferrers .....	Rev. Duke Yonge.....	5	1 0	112	45.03	196
D Plymouth (Stonehouse).....	Rev. P. H. Newnham	5	1 0	20	45.52	193
† „ (Old Town St.) ... (52)	Mr. A. P. Balkwill ...	5	35 0	150	38.53	...
D „ (Navigation School) ..	J. Merrifield, Esq. LL.D	8	9 2	75 T	41.70	188
† „ (Saltram Gardens) (51)	Mr. J. Snow .....	5	0 3	96 T	53.74	...
† „ (Ham) .....	(53) Rev. C. T. C. Trelawny	5	2 0	94 T	46.11	129
D † Ivybridge .....	(49) Dr. Liddell.....	10	3 0	175 B	59.44	188

NOTE.—The numbers in parentheses on this and following pages refer to Maps inserted between pages 148 & 149, of *British Rainfall, 1872*.

DIVISION V.—SOUTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which ·01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level.		
		ft.	in.	feet.	inches.	
DEVON—(con.)						
† Plympton St Mary (Ridgew'y) (50)	Miss B. T. Phillipps ...	5	0 6	116 N	54·55	179
Brixham (Lupton) .....	Mr. J. Gibson .....	12	4 0	...	54·27	176
Paignton (Hollacombe) .....	J. Greenfield, Esq. ...	5	7 0	70 P	37·98	189
D B A † Torquay (Lamorna).....(43)	W. Pengelly, Esq., F.R.S	5	0 9	200 N	44·38	203
" (Tor Crest Hall) ...	T. R. R. Stebbing, Esq.	5	0 9	420 B	44·30	190
" ( " " ) ...	" " " "	5	3 9	423	41·18	187
† Dartmoor (Lee Moor) .....	W. L. Martin, Esq. ...	5	0 9	860 N	72·61	...
D " (Holne Vicarage) (33)	Rev. J. Gill .....	5	1 0	650	76·59	217
D Abbots Kerswell (Court Grange)	Capt. M. A. Hare, R.N.	5	1 0	...	43·93	203
D † Ashburton (Druid House) ... (32)	Fabyan Amery, Esq. ...	5	1 0	570 T	61·80	198
D Kingsteignton ('Teignbridge Ho.)	F. H. Plumtre, Esq.	5	1 0	27	40·84	183
D † Dartmoor (Med. Officer's Lawn).	Dr. Power .....	5	0 8	1389 N	85·85	229
D † " (Prison Garden) ... (34)	" " .....	5	0 10	1387 N	79·53	216
† Teignmouth (Landscape).....(29)	Mrs. Clark .....	5	0 6	200 N	44·82	...
D " (Brookbank) ... (66)	G. W. Ormerod, Esq.	5	1 2	74 L	42·42	194
D † Ilsington (Middlecott Ho.) (23)	Alfred Lyon, Esq. ....	9	3 6	639 T	55·73	177
† Tavistock (Public Library) (38)	Mr. W. Reynolds . ...	8	20 0	283 T	53·33	186
† * " (Mount Tavy).....(37)	H. Clark, Esq. ....	5	1 0	316 T	57·11	...
D B A † " (Kilworthy Lane) (67)	W. Merrifield, Esq. ...	5	1 0	362 T	55·78	184
D Dartmoor (Widdecombe Grendon)	F. West, Esq. ....	...	0 10	950	82·42	...
† Milton Abbot (Endsleigh) ... (26)	Mr. Cornelius.....	5	1 0	180 P	54·91	...
D † Bovey Tracey .....	J. Divett, Esq. ....	5	0 6	94 N	47·89	210
D † Exmouth (Budleigh Salterton) ..	R. Walker, Esq. ....	5	4 0	33	41·05	184
Coryton, Lew Down .....	Mr. T. Symons .....	5	4 0	445	47·99	194
D Polapit Tamar [Launceston] ...	E. Coode, Esq. ....	12	3 0	...	37·73	204
Sidmouth (Fore Street) .....	S. Chick, Esq. ....	10	25 0	43 N	31·32	162
† " (Sidmount).....	Dr. Radford .....	5	1 0	149 N	37·09	180
† " ( " ) .....	" " " "	5	8 6	195 N	35·19	178
† Seaton (White Cliff Glen) .....	T. F. A. Byles, Esq. ...	5	2 0	125	42·93	...
D † Cleveland [Lyme Regis] .....	E. L. Ames, Esq. ....	5	1 11	463 N	42·54	180
† Topsham (Clyst St. George) .....	Rev. H. T. Ellacombe.	5	1 3	76 T	35·75	...
D † Exeter (Devon & Exeter Inst.) (17)	Mr. E. Parfitt .....	6	13 7	155 N	38·32	150
D Honiton (Gittisham) .....	C. Hardy, Esq. ....	5	1 0	...	43·20	179
† B A Okehampton (Oaklands) (19)	W. H. Holley, Esq. ...	5	1 0	521 T	53·52	217
D B A Holsworthy (Clawton) ... (16)	W. W. Melhuish, Esq.	5	1 1	400 P	46·48	197
D † Exeter (Bramptord Speke) ... (13)	W. H. Gamlen, Esq. ...	5	1 0	140 T	41·62	211
" ( " " ) .....	" " " "	8	0 3	140 T	41·70	...
D Zeal Monachorum .....	Rev. H. J. A. Fothergill	5	0 9	600	43·29	155
Cullompton (Clyst Hydon) .....	Rev. J. Huyshe.....	...	1 0	200 N	36·66	...
D " (Strath Culm) .....	C. R. Collins, Esq. ....	8	0 6	159 N	41·71	155
D Chulmleigh (Eggesford) .....	Mr. W. A. Spreadbury	8	1 2	400 T	46·57	...
Tiverton (Springfield) .....	H. Stokes, Esq. ....	5	1 0	350	47·45	222
D " (Exe Villa) .....	H. S. Gill, Esq. ....	5	0 9	230 L	44·75	208
D Chulmleigh (Witheridge).....(8)	Miss Benson .....	11	1 0	...	37·37	157
D † Torrington (Langtree Wick) ...	Miss Nunes .....	5	1 0	451 T	53·96	215
† " ( " " ) monthly	" " " "	5	1 0	451 T	53·19	...
D † " .....	Rev. S. Buckland .....	5	1 0	325	49·26	199
'Tiverton (Cove) .....	W. N. Row, Esq. ....	11	0 4	450 P	48·64	...

## DIVISION V.—SOUTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which ·01 or more fell.	
		Diameter.	Height Above Ground.				Height Above Sea Level
			ft.	in.	feet.	inches.	
DEVON—(con.)							
D S. Molton (Meshaw) .....(62)	Rev. W. H. Karslake	8	0	6	472 L	45·88	205
„ (Rose Ash) .....(60)	Major Davy	8	0	6	650 T	46·67	...
Bampton (Huntsham) .....	C. A. W. Troyte, Esq.	8	0	6	600 B	52·85	179
† Bideford (Horwood) .....	Rev. J. Dene	5	1	0	288 T	41·55	193
†* „ (Northam) .....(5)	Rev. J. D. Churchward	5	1	3	173 T	44·48	191
D South Molton (East Street) .....	N C Hatherly, Esq M.D.	5	1	0	430 B	51·25	205
D „ „ (Castle Hill) ... (4)	Mr. D. Wilson	12	3	1	300	50·41	164
† Barnstaple .....	Mr. Knill	8	1	0	31 T	45·34	...
D „ „ (Arlington Court) ...	Sir Bruce Chichester Bt.	5	1	1	613	61·34	187
D † Ilfracombe Hotel .....(1)	Mr. W. Tattam	12	9	0	34	37·87	174
† Martinhoe .....	Rev. C. Scriven	5	1	0	825	47·08	...
Lynton (Lee Abbey) .....	C. F. Bailey, Esq.	...	...	...	320	50·97	...
D Lynmouth (Glenthorpe) .....	Mr. T. Willcocks	...	...	...	...	51·94	161
CORNWALL.							
Land's End (Mayon House) .....	J. Symons, Jun., Esq.	5	3	0	308	44·37	124
† Penzance (South Parade) .....	W. H. Richards, Esq.	12	3	0	94 T	51·57	...
D „ „ (St. Clare) .....	Rev Preben. Hedgeland	5	1	0	218	52·05	231
D „ „ (Poltair).....	Col. Trelawny	5	0	6	243 B	60·04	242
Falmouth (Penmorva) .....	W. P. Dymond, Esq....	5	1	0	254	47·80	...
D Camborne (Crowan) .....	Mr. J. T. Rodda.....	5	0	6	519 L	48·28	187
D „ „ .....	„ „ „ .....	11	1	4	330 L	48·33	179
Falmouth (Carclew) .....	Mr. G. Palmer	5	0	6	...	51·53	199
Redruth (Tehidy Park) .....	Mr. Mill.....	5	0	6	100 T	45·04	...
Truro (Strangways Terr.).....	C. Barham, Esq., M.D.	8	2	0	71 B	43·62	200
D † „ „ (Royal Institution) .....	Mr. Newcombe	5	40	0	56 T	44·86	200
† „ „ (Penarth) .....	N. Whitley, Esq.	10	1	0	190 T	41·37	202
D Probus (Lamellyn).....	H. Tresawna, Esq.	5	0	6	...	49·42	181
32 St. Agnes.....	Mr. Opie.....	5	1	2	278 B	42·73	171
St. Austell (St. Mewan) .....	Rev. G. L. Woolcombe	5	1	0	275	54·17	182
* „ „ (Cosgarne) .....	C. Truscott, Junr., Esq.	5	1	0	194 T	54·67	192
D †* „ „ (Trevarna).....	W. Coode, Esq. ....	5	0	6	300 T	56·76	186
D* „ „ (Trevarrick) .....	C. Truscott, Jun., Esq.	5	1	0	169 T	55·13	194
D „ „ (Polcarne) .....	J. Coode, Esq. ....	5	1	0	206 T	56·33	188
Par Station (Penellick) .....	W. E. Geach, Esq. ...	5	0	9	240 B	38·29	...
St. Johns [Devonport] .....	Rev. J. H. Kirwan ...	5	1	0	20	45·08	183
St. Enoder (Retyn) .....	J. K. Martyn, Esq. ...	8	2	6	150 P	46·24	185
D † Newquay .....	Mr. W. H. Tregidgo...	6	1	9	90 B	36·83	164
D † Liskeard (Dean Terrace) ... (47)	S. W. Jenkin, Esq. C.E.	5	1	1	375 T	61·78	209
„ „ (St. Cleer) .....(68)	„ „ „ .....	5	1	1	620 T	55·65	...
D † Saltash (Pentillie Castle)...(46)	Mr. C. Edwards	5	1	3	150 B	58·45	186
D † Callington (Hingston Down) (39)	Captain Richards	5	3	0	850 T	60·02	205
† Bodmin (Castle Street) .....	Capt. Liddell, R.N. ...	8	2	4	338 T	52·90	...
D † „ „ ( „ „ ).....	„ „ .....	5	1	0	338 T	55·72	210
† „ „ ( „ „ ) (weekly) .....	„ „ .....	5	0	1	338 T	58·42	...
D † „ „ (Fore Street) .....	A. Hambly, Esq. ....	8	2	6	336 T	56·11	213
† „ „ (Warleggan) .....	Rev. D. Clements	8	2	6	650	58·24	...
D † Wadebridge (Treglines S Minver)	Mr. T. Liddell, Jun....	10	3	0	140 T	37·39	181

## 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	1875	
			ft. in.	feet.	inches.	
CORNWALL—(con.)						
D † Launceston (Altarnun).....(28)	C. U. Tripp, Esq. ....	5	1 0	570 B	63·95	203
D „ (South Petherwyn Vic.)	Rev. C. G. May.....	5	0 4	470 B	57·37	207
† „ (Hexworthy)...(27)	H. M. Harvey, Esq....	5	2 7	410 T	49·83	185
† Camelford (Lanteglos Rect.) ...	Rev. J. J. Wilkinson..	5	1 10	460	53·60	...
Boscastle (Barn Park) .....	H. A. Hambly, Esq....	5	3 0	257	29·38	176
32 Jacobstow .....	Rev. F. T. Batchelor..	5	1 0	200	47·10	177
SOMERSET.						
Crewkerne (Seaborough) .....	A. F. Stevens, Esq. ...	5	1 0	...	44·38	154
Chard (Cricket St. Thomas) .....	Viscount Bridport.....	5	1 0	440 B	46·93	202
D Crewkerne (Bincombe House) ...	F. J. Sparks, Esq. ...	5	1 2	250 T	41·72	162
Yeovil (West Coker) .....	Mr. A. Spurr .....	5	1 6	236 T	36·64	179
D Ilminster (White Lackington) ...	Rev. G. T. Gowring...	5	1 0	136 T	37·72	186
D „ (South Petherton).....	W. Blake, Esq. ....	8	0 6	200 ?	33·34	176
„ ( „ „ ) (monthly)	„ „ .....	5	1 2	...	31·14	...
Ilebwers (Walrond Park) .....	J. Ostler, Jun., Esq....	5	0 8	116 T	33·39	140
Ilchester .....	J. W. Bourne, Esq. ...	8	2 6	30	29·48	119
D Langport (Long Sutton) .....	R. W. Fry, Esq. ....	5	1 0	60	30·36	146
D * Wellington (Sunnyside) .....	W. Elworthy, Esq. ...	5	1 0	...	36·14	180
D * Taunton (Fullands School) .....	W. Reed, Esq. ....	5	1 4	...	33·76	150
D „ (College School) .....	Rev. W. Tuckwell.....	5	1 0	80	33·52	161
D „ (The Mount) .....	H. Alford, Esq. ....	5	1 1	88 B	35·11	184
D „ (Hovelands Terrace)...	G. Gillett, Esq. ....	8	1 6	150	36·51	187
D „ (Lydeard House) .....	C. Smith, Esq. ....	5	1 0	...	39·24	118
Wiveliscombe .....	Mrs. Boucher.....	5	1 2	...	46·85	219
D Cothelston .....	Mr. J. Clarke.....	5	1 0	...	44·72	160
D Glastonbury (Street) .....	W. S. Clark, Esq.....	8	1 0	70	35·95	177
D Minehead (Exford).....	Rev. J. G. Howes.....	5	1 2	930	62·21	239
D Dunster (The Priory) .....	Rev. J. Utten Todd ...	5	1 0	150 B	41·41	157
Wells (Dinder) .....	Rev. T. J. Bumpsted	8	2 6	140 B	42·90	175
D Burnham .....	Captain Estlin .....	5	1 0	18 T	34·10	171
D Frome (Mells Rectory) .....	Mrs. Horner .....	5	1 0	342 T	49·09	210
E. Harptree (Sherborne Reservoir)	Bristol Water Works	5	1 0	338	57·34	...
Chew Magna .....	„ „ „	5	1 0	160	42·26	...
D † Bath (Gay Street) .....	Dr. Barter .....	5	1 3	145 T	39·81	181
D † „ (Literary Institute) .....	C. P. Russell, Esq.....	6	8 0	75 T	37·55	162
D „ (Weston) .....	.....	5	10 0	190 L	39·44	183
D Batheaston Reservoir.....	A. Mitchell, Esq. ....	12	2 0	226 T	38·85	141
Backwell .....	T. W. Huthwaite, Esq.	5	1 0	230 B	46·74	152
Barrow Gurney Reservoir.....	Bristol Water Works	5	1 0	320	45·65	...

## DIVISION VI.—WEST MIDLAND COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which 40 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level.		
			ft. in.	feet.	inches.	
<b>GLOUCESTER.</b>						
Bristol (Small St.) .....	Bristol Water Works	12	25 0	40	40·46	...
† Clifton (South Parade) .....	Dr. G. F. Burder .....	8	0 6	192 $\pi$	44·05	175
D Fairford (Kempsford) .....	R. A. Iles, Esq. ....	5	0 9	...	34·83	150
D Nailsworth (Spring Hill) .....	E. P. Westley, Esq. ...	8	2 0	160 ?	46·15	192
D Berkeley (Salter-street).....	J. H. Cooke, Esq. ....	5	8 0	60	37·16	160
D Minchinhampton (The Coigne)..	Hon. R. Henley Eden	8	1 6	640	46·18	177
D Cirencester (The Firs) .. .....	J. Bravender, Esq. ...	5	0 8	352 $\pi$	40·79	143
Stroud (Brimmscombe Port) .....	J. H. Taunton, Esq., C.E.	8	10 0	200 $\pi$	36·74	140
„ (Cairns Cross).....	Mr. W. B. Baker .....	5	1 0	120 $\tau$	42·36	150
D „ (Upfield) .....	Miss Stanton .....	5	1 0	226 $\pi$	38·67	179
„ (Castle Villa).....	J. Bateman, Esq. ....	5	1 0	240 $\beta$	41·18	...
D Fairford (Hatherop Rectory) ..	Rev. R. P. Davies.....	8	1 4	412 $\pi$	39·36	154
„ (The Dean) .....	H. Arkell, Esq.....	5	...	...	37·23	...
D Frampton-on-Severn (Saul Lodge)	W. B. Clegram, Esq. C.E.	5	3 6	42 $\pi$	36·31	190
Northleach (Yanworth) .....	T. Arkell, Esq. ....	5	1 0	...	35·23	...
„ (Sherborne Park) ..	Hon. R. Henley Eden	4	0 8	445	39·77	...
Gloucester (Quedgeley House)...	Capt. Hayward .....	5	...	...	35·37	...
„ (Witcomb Court).....	A. Bubb, Esq.....	8	2 0	250	38·10	...
D „ ( „ Water Works)	T. Small, Esq. ....	8	3 0	297 $\pi$	38·45	138
Huntly (Rectory) .....	Rev. H. Miles .....	5	0 8	210 $\beta$	38·30	...
Cheltenham (Battledown) .....	Sir Brook Kay, Bt. ...	5	0 9	450	36·91	...
„ (Montpellier Lodge)	Rev. H. Kynaston.....	5	1 0	200	36·97	...
„ (Prestbury).....	G. Makgill, Esq.....	5	1 0	271 $\pi$	38·42	151
„ (Hewletts Res.) .....	W. McLandsboro', Esq.	8	0 6	422	38·00	127
„ (Keynsham Bank)...	D. J. Humphries, Esq.	8	6 6	232 $\pi$	37·54	166
„ (Chelt Sew. Wks.)...	W. Arkell, Jun., Esq...	8	2 0	154 $\pi$	38·40	159
D Moreton-in-Marsh (Frogmore)...	W. Arkell, Jun., Esq...	5	1 0	...	37·46	152
<b>HEREFORD.</b>						
D Ross (Rocklands) .....	J. M. Herbert, Esq. ...	8	1 10	97 $\beta$	42·16	173
D „ (Goodrich) .....	Mr. A. Martin .....	8	0 10	188	39·70	147
D† „ (The Graig) .....	H. Southall, Esq. ....	5	1 0	200 $\beta$	38·57	185
D* „ (Sellack Vicarage).....	Rev. W. C. Ley.....	5	0 6	...	37·15	178
Longtown Vic. [Abergavenny]...	Rev. C. L. Eagles.....	5	0 8	...	52·90	159
Bryngwyn .....	J. Rankin, Esq.. .....	5	0 10	420 $\beta$	41·69	177
D Much Marcle (Caerswall) .....	T. Charles, Esq.....	5	3 0	423 $\beta$	37·81	188
Hereford (Whitfield) .....	Mr. W. Wheatley.....	5	0 6	427	43·15	186
Ledbury (West Bank) .....	T. E. Wheatley, Esq... Rev. T. West.....	5	1 0	350	36·13	150
D Hereford (Fownhope Vicarage)..	Rev. T. West.....	5	1 1	192 $\beta$	37·55	176
D† „ (Richmond Place).....	E. J. Isbell, Esq. ....	8	5 8	188 $\pi$	34·46	198
„ (Davison's Nursery) ...	„ „ „ .....	8	1 0	203 $\pi$	35·80	132
„ (Hagley Park) .....	A. Hutchinson, Esq... P. Ballard, Esq.. .....	5	0 6	300 $\beta$	35·82	...
„ (Tupsley) .....	P. Ballard, Esq.. .....	5	1 1	242	33·88	...
D „ (Stretton) .....	Rev. H. C. Key .....	5	1 0	198 $\tau$	36·91	...
„ (Credenhill Court).....	F. W. Herbert, Esq... Rev. H. W. Phillott...	5	1 6	250	33·14	...
D Staunton-on-Wye .....	Rev. H. W. Phillott...	5	1 1	255 $\beta$	41·48	185
Leominster (Hampton Court) ...	J. H. Arkwright, Esq.	8	1 4	...	33·98	160

## DIVISION VI.—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		1875
			ft.	in.	feet.	inches.	
HEREFORD—(con.)							
D Kington (Lynhales)	S. Robinson, Esq.	8	1	0	...	43·66	...
D Bromyard Vicarage	Rev. Nash Stephenson	8	0	8	440 L	37·70	191
D Leominster (West Lodge)	E. P. Southall, Esq.	5	1	0	260 T	33·86	184
D Stoke Bliss	Rev. G. E. Alexander..	5	1	2	400 B	38·01	175
Wigmore	Rev. E. Barton	5	0	10	...	35·94	183
SHROPSHIRE.							
Burford [Tenbury]	Lord Northwick	5	1	2	190	35·02	...
D Ludlow (Knowbury)	Rev. J. B. James	6	0	6	1000 ?	36·18	...
D Wenlock (Staunton Long Vic.)	Rev. M. Hopton	8	1	2	524 B	35·13	...
Bishop's Castle (Welsh Street)	E. Griffiths, Esq.	5	1	3	700 B	39·48	191
D " (More Rectory)	Rev. A. S. Male	5	1	0	640 T	39·21	192
Church Stretton (Cardington)	Rev. W. Elliot	5	1	0	700	36·17	178
D " (Woolstaston)	Rev. D. Carr	5	1	0	807 T	38·70	212
D Much Wenlock (Larden Hall)	Miss F. Rouse Boughton	8	1	3	658 T	37·57	198
D Shiffnal (Haughton Hall)	Rev. J. Brooke	5	3	6	353 T	32·48	169
Wellington (Old Hall School)	Dr. J. E. Cranage	...	1	6	...	32·00	...
Shrewsbury	Marshall & Co.	10	5	6	240	23·84	104
" (Fitz Manor)	R. Middleton, Esq.	5	2	6	287 B	28·82	...
D Newport (Cheswell Grange)	T. Radcliffe, Esq.	...	1	0	250	33·03	...
D Wem (Sansaw Hall)	F. G. Tippinge, Esq.	5	1	0	310 T	31·04	182
Oswestry (Hengoed)	Rev. A. R. Lloyd	5	6	0	470 T	39·99	...
Market Drayton (Buntingsdale)	Mrs. Tayleur	5	1	0	...	28·70	138
" (Nort'n-in-Hales)	Rev. F. Silver	8	1	0	335 T	30·81	120
" (Adderley)	Rev. Athelstan Corbet	5	0	6	245 ?	28·45	183
Whitchurch	A. B. George, Esq. M.D.	5	3	0	...	36·51	126
STAFFORD.							
D Wolverhampton (Merridale Road)	J. Thrustans, Esq.	5	1	0	428 T	38·33	176
" (Town Hall)	A. Morgan, Esq., C.E.	5	15	6	482 T	38·13	177
D " (Thorganby Villa)	G. C. Broom, Esq., C.E.	8	3	4	460	36·92	200
D " (Wrottesley)	Mr. E. Simpson	8	1	0	500	34·57	160
D Patshull Gardens	Mr. T. W. Dell	...	1	5	400	32·89	151
D Tamworth (Lichfield Street)	W. Arnold, Esq.	5	1	0	160 ?	36·19	161
Lichfield (St. Michael's)	Rev. J. J. Serjeantson..	5	0	6	325 T	37·70	...
D Weston-under-Lyziard [Shiffnal]	Hon. Rev. J. Bridgeman	3	0	10	...	34·38	196
D Penkridge (Rodbaston)	H. Ward, Esq.	5	0	10	...	35·00	190
D Shushions Manor	T. James, Esq.	5	1	0	325 L	33·03	181
Burton-on-Trent	J. Matthews, Esq.	5	8	0	154 T	32·12	167
" " (Grammar School)	C. U. Tripp, Esq.	5	1	0	150	35·51	183
D " " (Horninglow)	R. W. Abbotts, Esq.	5	4	0	150	31·83	185
D Stoke (Barlaston)	W. Scott, Esq.	5	0	6	500 T	33·85	171
D † Cheadle (The Heath House)	J. C. Philips, Esq.	5	1	0	647 T	37·35	205
D † " (Teau Vicarage)	Rev. G. T. Ryves	5	1	0	470 T	39·01	...
Stoke (Stanley Reservoir)	† Trent & Mersey Naviga.	5	3	1	550 T	32·18	119
" (Etruria)	" " "	5	4	2	440	36·21	163
Alstonfield Vicarage	Rev. W. H. Purchas	5	1	0	...	43·79	173
Leek (Rudyard)	Trent & Mersey Naviga	5	12	7	500 T	35·33	118

† Returns supplied by T. W. Horn, Esq., C.E.

## DIVISION VI.—WEST MIDLAND COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875.	Days on which ·01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level		
			ft in.	feet.	inches.	
STAFFORD—(con.)						
Knypersley [Congleton] .....	Trent & Mersey Navga.	5	14 0	500 T	34·09	140
Wincle [Macclesfield] .....	” ” ”	5	3 0	500 T	44·54	143
WORCESTER.						
D Blockley .....	R. B. Belcher, Esq. ...	5	1 0	...	39·76	181
Northwick Park .....	Lord Northwick .....	8	1 6	...	38·05	...
D Evesham (Lansdowne) .....	R. Burlingham, Esq. ...	6	4 6	124 B	33·96	130
West Malvern .....	A. H. Hartland, Esq. ...	8	1 6	850 B	40·43	186
D Great Malvern (Wells Road) ...	W. Sandoe, Esq. ....	5	0 7	650 L	35·67	168
D Worcester (Sebright Lawn) .....	Mrs. Burgess .....	5	0 8	112 T	35·87	144
D Tenbury (Orleton) .....	T. H. Davis, Esq. ....	5	0 9	200 T	37·42	193
D Kidderminster (Winterfold) .....	J. Harward, Esq. ....	10	5 6	327 T	31·57	184
D Stourbridge (Hagley Rectory) ...	Hon. Mrs. Lyttleton ...	8	0 5	636 T	35·32	188
Moseley [Birmingham] .....	T. L. Plant, Esq. ....	5	4 0	487 T	38·02	170
WARWICK.						
Radway (Ivy Lodge) .....	Rev. G. Miller .....	5	1 1	530 T	35·82	166
D Henley-in-Arden (Arden House) ...	G. R. Dartnell, Esq. ...	5	2 2	400 P	36·44	159
Leamington (Upper Parade) ...	S. U. Jones, Esq. ....	5	0 8	195 T	36·32	168
D ” (Brereton Villa) ...	G. H. M. Whish, Esq. ...	5	1 0	207	36·39	173
” (Blackdown Hill) ...	A. S. Field, Esq. ....	5	0 9	300 T	32·58	130
D Rugby School .....	A. Sidgwick, Esq. ....	8	3 0	383 T	35·66	178
D Coventry (Priory Row) .....	J. Gulson, Esq. ....	8	1 6	279 T	34·61	180
D ” (Coundon) .....	R. Caldicott, Esq. ....	5	1 0	350 T	35·32	194
Bickenhill Vicarage .....	Rev. W. R. Capel .....	5	1 2	371 T	36·71	168
D Willey Rect. [Lutterworth] .....	B. P. M. Tayler, Esq. ...	8	1 0	350 T	37·04	204
D Birmingham (Botanic Gardens) ..	Mr. Latham .....	5	5 2	...	36·09	184
† ” (Bloomsbury Street) .....	D. Smith, Esq. ....	8	0 8	340 T	39·36	...
D Nuneaton (Stretton House) .....	T. J. Scott, Esq. ....	5	0 6	...	33·38	168
D † Oscott (St. Mary's College) ...	Rev. S. Whitty .....	5	0 6	461	35·71	187

## DIVISION VII.—NORTH MIDLAND COUNTIES.

## LEICESTER.

Market Harboro' (Fairfield Rd.)	S. Watson Cox, Esq. ...	5	1 0	...	38·09	145
Bruntingthorpe .....	Rev. F. H. Bridges ...	5	1 6	...	33·90	...
Lutterworth (Ashby Magna) .....	Rev. E. Willes .....	5	1 0	380 P	36·06	...
Market Harboro' (Arnesby Vic.)	Rev. W. P. Orton .....	8	1 2	400 P	33·27	137
† ” ” (Fleckney) ...	J. B. Putt, Esq. ....	5	0 8	411 T	36·59	...
” ” (Kibworth) ...	T. Macaulay, Esq. ...	...	2 0	...	37·86	165
D † Leicester (Town Museum) .....	W. J. Harrison, Esq. ...	5	1 0	238 T	34·36	193
” (Belmont Villas) .....	H. Billson, Esq. ....	8	1 3	240	34·68	181
D † Thornton Reservoir .....	C. Tebbutt, Esq. ....	10	2 8	420 P	35·21	146
D Thurstaston (Cropston) .....	” ” .....	8	1 0	...	35·86	184
Syston (Grove House) .....	J. Hames, Junr., Esq. ...	5	5 6	...	31·35	...
D Melton Mowbray (Dalby Hall) ...	Mr. G. Jones .....	8	2 6	480 B	33·35	162

## DIVISION VII.—NORTH-MIDLAND COUNTIES—(continued).

STATION.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ≥1 or more fell.	
		Diameter	Height Above Ground.				1875
	ft.		in.	feet.	inches.		
LEICESTER—(con.)							
D Ashby-de-la-Zouch.....	G. H. Gibson, Esq. ...	5	1	0	440 N	34·79	176
Loughborough (Cedar Cottage)...	J. Giles, Esq. ....	5	0	9	400 P	38·09	...
D Melton Mowbray (Coston Rect.)	Rev. A. M. Rendell ...	5	1	0	300 P	34·03	183
D Waltham-le-Wolds.....	Mr. E. Ball .....	5	1	6	500 T	34·87	188
D Harston [Grantham] .....	C. Beasley, Esq. ....	...	1	3	...	31·34	188
D † Belvoir Castle .....	W. Ingram, Esq.....	8	1	0	237 T	28·22	153
RUTLAND.							
Ayston Hall .....	Rev. J. H. Fludyer ...	5	1	0	...	37·74	...
D Tickencote .....	W. Hayes, Esq.....	5	1	0	166 N	31·38	167
D Tolethorpe Hall [Stamford].....	C. O. Eaton, Esq.....	8	0	8	100 P	30·67	164
Burley-on-the-Hill .....	Mr. W. Temple .....	8	1	0	...	37·37	161
Ryhall .....	Rev. C. Potchett .....	5	1	2	...	31·37	134
D Market Overton .....	Miss H. E. G. Wingfield	8	0	11	...	33·45	187
LINCOLN.							
Stamford (Barn Hill Ho.).....	Dr. Newman .....	5	1	0	116 T	29·64	...
* Bourne (Wytham-on-the-Hill) ...	A. C. Johnson, Esq. ...	5	1	0	167 P	30·15	156
Long Sutton (Tydd Gote).....	Mr. J. Tilson .....	5	4	0	...	27·89	...
Spalding (Pode Hole).....	Mr. A. Harrison .....	12	0	3	20 N	32·25	...
† Grantham .....	J. W. Jeans, Esq. ....	8	0	6	179 N	27·72	139
Sleaford (Heydour).....	Rev. G. F. Deedes ...	5	2	10	...	19·99	...
D Boston .....	W. H. Wheeler, Esq. C.E	5	6	6	24 N	25·55	158
D Stubton [Newark] .....	G. Neville, Esq.....	5	4	6	...	26·35	146
D Lincoln (Navenby).....	Rev. J. Hays .....	8	0	6	...	25·57	176
Horncastle (Miningsby).....	W. H. Wheeler, Esq. C.E	5	0	6	131 T	29·21	141
D Lincoln (Longhills) .....	A. S. Leslie Melville, Esq	5	0	9	110 P	26·15	159
D " (Branston Hall) .....	Mr. W. Wright.....	5	1	0	136 N	24·44	129
" (Boultham) .....	J. H. Teague, Esq. ...	5	1	3	18 N	22·54	110
" .....	M. S. & L. R. Co. † ...	9	3	6	26	25·74	158
D 32 Horncastle (Bucknall).....	W. Carter, Esq. ....	5	1	6	...	25·31	137
" (Queen Street) ...	H. George, Esq., M.D.	5	1	0	100	28·43	144
D Spilsby (Partney) .....	Rev. T. Owston.....	5	1	0	...	29·93	175
" (Langton) .....	R. Mackinder, Esq. ...	5	1	2	100 B	33·65	...
Lincoln (Water Works).....	J. H. Teague, Esq. ...	5	1	3	25 N	22·47	113
" (Skellingthorpe Hall) ...	R. C. B. Coupland, Esq.	5	1	1	...	23·79	124
D Louth (Cawkwell) .....	Mr. G. Wilson .....	5	1	0	290	34·11	181
Gate Burton.....	M. S. & L. R. Co.....	9	3	6	96	26·18	151
D Market Rasen (Faldingworth) ...	Rev. Irvin Eller .....	8	1	3	100	26·93	143
† Louth.....	T. W. Wallis, Esq. ...	5	6	0	111 N	32·33	182
" (Westgate).....	Dr. F. Fawcett .....	5	0	9	110	34·10	187
" (The Cedars).....	J. Bennett, Junr., Esq.	5	5	6	120	32·73	...
D † " (Calcethorpe).....	D. Grant Briggs, Esq.	8	0	10	380 N	32·84	204
† " ( " ).....monthly	" " " " .....	5	0	10	380 N	32·30	...
Market Rasen .....	M. S. & L. R. Co.....	9	3	6	111 N	24·91	116

† 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).

STATION.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which ·01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea level.		
			ft. in.	feet.	inches.	
LINCOLN—(con.)						
Gainsborough .....	M. S. & L. R. Co. ...	...	...	76	24·33	124
Stockwith .....	" " "	9	3 6	21	26·46	115
Brigg .....	" " "	9	3 6	16	23·96	121
Grimsby .....	" " "	9	15 0	42	24·23	159
Barnetby .....	" " "	9	3 6	51	25·46	137
Crowle (Keadby) .....	" " "	...	...	10	18·96	117
D Ulceby (Killingholme) .....	Rev. J. Byron .....	5	1 4	60 $\pi$	29·36	188
Appleby .....	Rev. J. E. Cross .....	5	0 9	60 L	27·26	...
Ferriby Sluice.....	" " " .....	5	0 9	10	25·65	...
New Holland .....	M. S. & L. R. Co.....	9	3 6	18	27·50	176
NOTTS.						
D Nottingham (Highfield House)...	E. J. Lowe, Esq., F.R.S.	8	0 0	162	34·88	203
" ( " " ) .....	" " " .....	8	25 0	187	33·18	...
D " (The Park) .....	M. O. Tarbotton, Esq..	8	1 0	183 $\pi$	31·71	167
" (Gedling) .....	Hn & Rv O. W. Forrester	5	3 0	130 ?	32·16	162
Southwell (Oxton) .....	H. Sherbrooke, Esq....	2	2 0	...	29·84	...
D " .....	Miss Gaster .....	5	0 6	200	28·61	173
D Mansfield (Grove House) .....	R. Tyrer, Esq. ....	5	0 9	350 $\pi$	32·46	205
Ollerton (Whitemoor) .....	H. Horncastle, Esq. ...	5	1 0	175 ?	24·59	157
D Welbeck Abbey .....	Mr. W. Tillery .....	5	4 6	88 $\pi$	31·48	150
Worksop .....	M. S. & L. R. Co. ...	9	3 6	127	27·52	150
D " (The Mount) .....	J. Ellis, Esq. ....	5	2 0	200 $\pi$	30·76	177
Retford.....	M. S. & L. R. Co.....	9	3 6	52	24·33	160
D " (Babworth).....	Mr. J. Douglas .....	5	1 0	...	25·22	147
DERBY.						
Bretby Park [Burton] .....	Mr. W. Brown .....	5	4 0	340	36·94	163
Winshill [ " ] .....	J. Matthews, Esq.....	5	1 0	272	32·71	163
D Trent College .....	C. U. Tripp, Esq. ....	5	1 0	150 ?	31·94	177
Derby (Findern).....	B. W. Spilsbury, Esq.	...	...	...	33·00	...
" (Mickleover) .....	Mr. J. Campbell ...	5	2 2	280	35·39	107
" (Spondon) .....	J. T. Barber, Esq.....	5	0 7	262 T	34·77	...
D " (West Hallam) .....	Rev. C. J. Newdigate	5	3 6	357 ?	30·68	141
" (Duffield).....	Mr. W. Bland .....	5	1 0	200 ?	35·48	166
Milford.....	B. Cooper, Esq.....	...	6 0	190	36·49	186
† Matlock (Willersley Gardens) ..	Mr. J. Tissington .....	6	1 3	440 T	38·95	...
† " Bath .....	R. Chadwick, Esq.....	5	1 6	500 T	40·16	...
Chesterfield .....	M. S. & L. R. Co.....	9	3 6	248	34·79	111
D " (Linacre Reservoir).....	C. E. Jones, Esq. ....	8	5 6	490 $\pi$	31·29	156
Brampton (St. Thomas' Rect.)...	Rev. J. M. Mello .....	5	3 0	314 $\pi$	28·48	...
† Buxton (Axe Edge) .....	E. J. Sykes, Esq. ....	8	1 0	1620 B	37·83	...
" (Poole's Cavern) .....	" " " .....	8	5 0	1085 T	52·34	169
† " (Devonshire Hospital)...	" " " .....	8	5 0	989 $\pi$	51·98	182
" " " .....	" " " .....	5	1 0	...	51·26	182
† Stony Middleton .....	Rev. U. Smith .....	5	4 0	692 B	36·53	140
Kilnarsh (Norwood) .....	M. S. & L. R. Co.....	9	3 6	238 T	30·04	157
Comb's Moss .....	" " " .....	9	3 6	1669 T	41·55	...

## DIVISION VII.—NORTH-MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which ·01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level.		
			ft. in.	feet.	inches	
DERBY—(con.)						
Comb's Reservoir .....	M. S. & L. R. Co.....	9	3 6	710 †	39·35	200
† Chapel-en-le-Frith .....	Mr. " " " .....	9	3 6	965 †	37·65	183
BA Burbage House .....	Mr. J. Farrar.....	5	2 10	1277 †	35·40	...
BA Bamford .....	J. H. Moore, Esq.....	5	0 3	530 †	33·27	...
Castleton .....	Miss Hall .....	...	1 0	700	44·45	...
† Woodhead .....	M. S. & L. R. Co.....	9	3 6	878 †	46·24	195

## DIVISION VIII.—NORTH-WESTERN COUNTIES.

## CHESHIRE.

D Nantwich (Cholmondely Cas.)...	Mr. J. Malcolm.....	8	1 6	42	33·56	181
Crewe .....	R. Lord, Esq., M.D....	5	1 0	150	27·26	191
Chester (Pulford Hall) .....	R. Massie, Esq.....	5	3 0	60 †	29·69	190
D Congleton (Buglawton Vic.).....	Rev. W. Besant.....	8	5 0	347 †	30·70	178
Bosley Minns .....	M. S. & L. R. Co. ....	9	3 6	1210 †	29·43	142
" Reservoir.....	J. " " " .....	9	3 6	590 †	29·72	140
D Chester (Newton Nurseries) .....	J. Dickson & Sons.....	8	1 0	62 †	30·35	185
D Middlewich (Bostock Hall) .....	Major France Hayhurst	5	2 9	157 †	31·26	...
D Siddington (Thornycroft Hall)...	Mr. Povey .....	5	3 0	377 †	30·77	163
Macclesfield .....	M. S. & L. R. Co.....	9	3 6	539 †	24·43	108
" (Park Green) .....	Mr. J. Dale .....	8	2 1	449 †	34·46	190
D Chelford .....	C. Nichols, Esq.....	5	1 6	260 †	35·34	159
D Northwich (Highfield) .....	J W Sandeman, Esq. CE	8	3 5	...	32·46	182
" (Winnington) .....	H. Neumann, Esq. ...	8	1 6	56	32·02	174
D Frodsham (Foxhill) .....	J. Reynolds, Esq.....	5	0 10	230 †	30·52	200
D Neston (Hinderton) .....	Reginald Bushell, Esq.	5	1 0	215 †	32·18	175
" ( " ) .....	" " " .....	8	1 0	215	32·08	...
Bollington (Spond's Hill) .....	M. S. & L. R. Co.....	9	3 6	1279 †	35·13	...
Whaley .....	" " " .....	9	3 6	602 †	38·41	215
Lyme Park .....	J F Bateman Esq F.R.S.	...	...	680	48·29	...
Altrincham (Barrington House)..	J. Newton, Esq., C.E..	5	1 0	105	36·08	...
D Thelwall (Highfields).....	T. G. Rylands, Esq. ...	5	1 0	118 †	30·62	181
† Birkenhead (Bidstone Obs.) .....	J. Hartnup, Esq. ....	8	0 6	182	29·37	175
Marple Aqueduct .....	M. S. & L. R. Co.....	9	3 6	321 †	29·64	158
" Top Lock .....	" " " .....	9	3 6	543 †	31·74	168
Godley Reservoir.....	J.F. Bateman, Esq. FRS	...	...	500	32·17	...
Mottram Hill End .....	M. S. & L. R. Co. ....	9	3 6	680 †	35·23	175
" Matley's Field.....	" " " .....	9	3 6	399 †	34·23	158
Newton .....	" " " .....	9	3 6	396 †	21·49	159
Arnfield Reservoir .....	J.F. Bateman, Esq. FRS	...	...	575	38·35	...
" Tintwistle .....	J. Baxendell, Esq.....	5	2 0	540	40·48	233
D Staleybridge (Swineshaw).....	Mr. C. Beaver .....	8	3 0	884 †	44·55	176
† Rhodes Wood Reservoir .....	J.F. Bateman, Esq. FRS	12	1 0	520	40·73	...
† Woodhead .....	" " " .....	12	0 10	680	45·89	...
" .....	J. Baxendell, Esq.....	...	1 0	780	50·10	22
† Torrside Reservoir .....	J.F. Bateman, Esq. FRS	12	1 6	600	43·87	...

## DIVISION VIII.—NORTH 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.	1875	
			ft. in.	feet.	inches.	
LANCASHIRE.						
D Warrington (Bewsey Street).....	L. W. Reynolds, Esq...	5	1 0	49 $\nabla$	32.36	...
D " (Arpley).....	R. Vawser, Esq., C.E..	10	10 0	33 $\nabla$	32.92	194
" (Cemetery) .....	" " .....	10	1 0	32 $\nabla$	35.53	...
D Liverpool (Allerton Greenhill)...	G. H. Sing, Esq. ....	5	1 2	125 $\nabla$	34.93	207
" (Grove Park).....	J. R. Darsie, Esq. ....	3	6 0	200	31.16	154
D " (Walton-on-the-hill).....	A. R. Andersson, Esq.	5	1 11	119 $\nabla$	32.63	198
D Heaton Chapel (Roseleigh) .....	J. Curtis, Esq. ....	8	2 3	235 $\nabla$	39.67	199
Denton Reservoir .....	J.F.Bateman, Esq.FRS	...	...	324	31.41	...
Gorton .....	" " " .....	...	...	263	32.53	...
D Manchester (Withington) .....	J. King, Junr., Esq....	5	1 0	110 $\nabla$	32.26	182
D " ( " ) .....	" " " .....	5	1 0	...	32.17	187
† " (Old Trafford) .....	G. V. Vernon, Esq. ...	8	2 7	106 $\nabla$	35.49	170
D " (Plymouth Grove).....	J. F. Roberts, Esq.....	8	3 9	150 $\nabla$	35.01	191
" (Eccles) .....	T. Mackereth, Esq.....	10	3 0	136 $\nabla$	37.89	205
" ( " ) .....	" " " .....	5	34 0	170 $\nabla$	32.92	205
Salford (Town Hall) .....	" " " .....	5	11 0	117 $\nabla$	35.02	210
Manchester (Ardwick) .....	J. Casartelli, Esq.....	9	3 0	140 $\nabla$	35.29	171
† " (Piccadilly) .....	M. S. & L. R. Co.....	9	40 0	194 $\nabla$	33.74	172
Fairfield .....	" " " .....	9	6 0	312 $\nabla$	33.67	177
D St. Helen's (Rainford Hall) .....	G. McKibbin, Esq.....	5	0 9	147 $\nabla$	34.32	152
Manchester (Prestwich Res.) ..	J.F.Bateman, Esq.FRS	...	...	347	40.10	...
Oldham (Waterhouses) .....	M. S. & L. R. Co.....	9	3 6	345 $\nabla$	34.94	172
" (Gas Works) .....	J.F.Bateman, Esq.FRS	5	4 0	600 $\nabla$	37.99	...
" (Brushes Clough).....	" " " .....	5	4 0	950 $\nabla$	48.73	...
" (Piethorne) .....	" " " .....	5	4 0	800 $\nabla$	36.26	...
Bolton-le-Moors (The Folds).....	H. H. Watson, Esq....	10	3 6	286 $\nabla$	43.94	...
D " (The Freehold) .....	W. Musgrave, Esq.....	9	6 6	352 $\nabla$	46.08	196
" (Heaton) .....	R.H.Swindlehurst, Esq	6	1 3	500	41.20	...
D " ( " ) .....	J. S. Holdsworth, Esq	10	3 6	497 $\nabla$	43.86	199
" (Hurst Bank).....	J. Watkins, Esq. ....	5	3 1	442 $\nabla$	41.69	162
" (Moss Bank) .....	R. H. Ainsworth, Esq.	8	1 2	570	48.04	203
D " (Halliwell New Road).....	W. Tyson, Esq. ....	5	1 4	549	46.60	194
" (Belmont) .....	R. H. Swindlehurst, Esq	6	0 9	800	55.90	...
D Wigau (Water Works) .....	J. L. Hunter, Esq., C.E.	8	1 6	225 $\nabla$	37.70	177
Entwistle.....	R.H.Swindlehurst, Esq	6	1 0	700	48.70	...
D Rochdale (Drake Street) .....	T. H. Hayle, Esq.. ...	4	3 7	473 $\nabla$	39.15	203
" (Nayden Dane) .....	C. E. Cawley, Esq.M.P.	5	1 6	900 $\nabla$	43.86	...
D Ormskirk (Rufford) .....	J. Porter, Esq. ....	5	0 8	38 $\nabla$	34.59	199
Southport.....	J. Baxendell, Esq. ...	5	2 8	23 $\nabla$	41.87	190
Chorley (Whittle-le-Woods) .....	Theodore Hare, Esq....	5	2 6	...	34.63	175
D " (Withnell Hall) .....	J. Shackleton, Esq. ...	5	0 6	545	39.69	194
D Over Darwen (St. James Vic.)...	Rev. W. H. Blamire...	5	1 0	600 $\nabla$	45.01	198
Haslingden (Holden Wood).....	T. Rigby, Esq. ....	...	1 0	700	61.46	171
" .....	J. Rawstron, Esq.....	5	1 1	750	37.50	...
Oswaldtwistle.....	W. Gourlay, Esq.....	6	0 6	635	48.72	205
Rawtenstall (Clough Bridge Res.)	T. Rigby, Esq. ....	8	1 0	900 $\nabla$	46.49	221
Blackburn (W. Works Office).....	J.F.Bateman, Esq.FRS	...	...	400	26.24	...
" (Pickup Reservoir) ...	" " " .....	...	...	720	39.30	...

## DIVISION VIII.—NORTH-WESTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which •01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level		
			ft. in.	feet.	inches.	
LANCASHIRE—(con.)						
Blackburn (Guide Reservoir) ...	J.F. Bateman, Esq. FRS ...	...	...	650	39·70	...
Huncoat (Burnley Road Res.) ...	T. Duxbury, Esq. ....	...	2 6	650	39·88	...
D Burnley (Rosegrove Cemetery) ...	W. B. Bryan, Esq., C.E.	8	0 8	493 $\pi$	39·55	192
D " (Corporation Offices) ...	" " " "	8	29 9	410 $\pi$	37·73	184
D " (Gas Works) .....	" " " "	8	21 0	388 $\pi$	36·43	204
D " (Greenhill) .....	" " " "	8	4 0	583 $\pi$	37·02	182
" (Brierfield) .....	" " " "	8	0 8	402 $\pi$	38·72	...
" W. Works (Swindon) ...	J. Emmett, Esq. ....	18	18 0	750 $\pi$	43·22	...
D " (Padiham) .....	W. B. Bryan, Esq., C.E.	5	0 8	352 $\pi$	36·06	200
Blackpool (South Shore) .....	G. Sharples, Esq. ....	10	1 8	29	33·93	...
D Eccleston (Elswick Lodge) .....	S. King, Esq. ....	10	1 4	50 $\Gamma$	37·78	204
D Stonyhurst College .....	Rev. S. J. Perry, F.R.S	11	1 3	376 $\pi$	44·26	185
Alston .....	R. N. Hunter, Esq., C.E.	8	1 2	320 $\pi$	38·09	...
Preston W. Works, Knowl Green .....	" "	8	1 2	400 $\Gamma$	39·09	...
Jeffrey Hill .....	" "	8	1 2	900 $\Gamma$	45·37	...
Loud-scales .....	" "	8	1 2	400 $\Gamma$	38·02	...
Spade Mill .....	" "	8	1 2	400 $\Gamma$	38·00	...
Clitheroe (Downham Hall) .....	R. Assheton, Esq. M.P	10	1 6	464 $\pi$	40·37	...
Garstang (The Parsonage) .....	Rev. T. B. Armitstead	5	1 0	71 $\Gamma$	38·26	...
D " (Calder Mount) .....	C. Wilson, Esq. ....	5	10 0	100 $\Gamma$	42·54	191
D " (Vale House) .....	J. Jackson, Junr., Esq.	6	4 3	455 $\pi$	42·95	199
" (Grizedale) .....	J. Bradley, Esq. ....	10	1 0	480 $\Gamma$	43·08	...
D Lancaster (South Road) .....	W. Roper, Esq. ....	12	3 6	114 $\pi$	36·56	179
D† " (Caton) .....	Rev. A. Christopherson	5	1 0	117 $\pi$	38·40	173
" (Hest Bank) .....	T. Ransome, Esq. ....	12	2 2	58	34·71	...
Melling (Hornby Castle) .....	W. P. Blacow, Esq. ...	12	3 2	100 $\Gamma$	39·84	152
Arkholme (Storr's Hall) .....	F. F. Pearson, Esq. ...	5	1 0	220 $\Gamma$	40·19	...
Barrow .....	E. Slade, Esq. ....	8	2 0	60 $\pi$	35·59	196
Carnforth (Silverdale, Cove Ho.)	Rev. C. C. W. Shepheard	5	1 0	56	38·94	...
Cartmel (Flookburgh) .....	T. R. Croasdale, Esq. ...	5	2 4	70 $B$	40·86	140
D† " (Allithwaite) .....	Mr. W. R. Nash .....	5	1 0	90 $\Gamma$	41·40	189
† " (Holker) .....	Mr. W. Fox .....	8	4 8	155 $\pi$	43·17	197
Grange (Bay Villa) .....	Amos Beardsley, Esq. ...	8	3 0	25 $\pi$	45·13	156
" (Nutwood) .....	Rev. E. Massie .....	5	3 0	100	41·82	206
D* Ulverston .....	J. H. Matthews, Esq. ...	5	5 6	131	51·78	183
D Powka Beck .....	J. Lewis, Esq. ....	12	1 6	500 $\Gamma$	55·45	182
Broughton-in-Furness .....	Rev. F. A. Malleson ...	5	1 3	40 $\Gamma$	56·54	132
D " (Woodland Rectory) ...	Rev. E. C. Shawfield ..	5	3 9	100 $\Gamma$	55·19	204
Coniston (Torver Rectory) .....	Rev. T. Ellwood .....	...	...	...	71·37	...
† " (Lanehead) .....	Mrs. Bywater .....	5	1 0	287 $\Gamma$	71·44	208
† Monk Coniston Park .....	V. Marshall, Esq. ....	10	4 11	150 $\pi$	68·50	...
D " " " .....	" " " "	5	1 0	305	80·73	218
Coniston (The Parsonage) .....	Rev. C. Chapman .....	5	1 0	205	84·00	186
Hawkshead .....	W. Lane, Esq. ....	5	1 2	275 $\Gamma$	70·56	189
Low Wray .....	Rev. W. R. Morris ...	5	1 0	220 $\Gamma$	64·27	202
Brathay Hall [Ambleside] .....	G. Redmayne, Esq. ...	5	1 6	...	70·92	190

## DIVISION IX.—YORKSHIRE.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which "01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level		
			ft. in.	feet	inches.	
WEST RIDING.						
D Sheffield (Richmond Hill).....	W. D. Gainsford, Esq.	5	2 10	460 T	31·86	147
"   (Brincliffe Rise) .....	A. Chadburn, Esq. ...	5	1 0	500 T	38·53	172
"   (Edge) .....	M. S. & L. R. Co.....	9	3 6	336 T	39·75	177
D "   (Broomhall Park) .....	D. Doncaster, Jun. Esq.	10	2 0	330 T	35·60	206
D † Redmires .....	J. Gunson, Esq.....	10	5 0	1100 T	45·72	208
"   .....	"   "   .....	8	4 0	1100 T	44·49	...
D Rivelin.....	"   "   .....	10	4 0	564 T	36·57	187
"   .....	"   "   .....	8	4 0	564 T	37·07	...
D Crookes .....	"   "   .....	10	2 0	629 T	34·43	178
"   .....	"   "   .....	8	2 0	629 T	33·50	...
Sheffield Station .....	M. S. & L. R. Co. ....	...	...	188	29·29	162
"   (Tinsley Locks) .....	"   "   "   .....	...	...	143 T	33·23	173
D Tickhill .....	G. G. Phillips, Esq....	8	1 0	61 T	29·24	175
D Rotherham (Ulley Reservoirs)...	Mr. L. Berry .....	5	1 0	184 T	27·00	175
† Rotherham (Moorgate Grove)...	R. Chrimes, Esq. ....	5	1 0	262 T	29·98	190
D "   (Wath-upon-Dearne)	W. M. Burnan, Esq....	8	0 8	180 T	28·54	175
"   (West Melton) .....	Rev. J. Boyd .....	6	0 10	172	27·65	146
Elsecar .....	M. S. & L. R. Co.....	9	...	175 T	31·46	167
Doncaster .....	"   "   "   .....	9	...	35 T	24·93	146
D "   (Magdalens) .....	Mr. J. Howorth.....	5	4 6	46 T	28·81	170
Worsborough .....	M. S. & L. R. Co.....	9	...	225 T	31·87	194
† Dunford Bridge Station .....	"   "   "   .....	9	3 6	954 T	43·64	165
D † "   "   (Reservoir) .....	Mr. G. Whitfield .....	12	2 0	1100 T	50·58	221
Penistone.....	M. S. & L. R. Co.....	9	3 6	717 T	33·36	148
"   (Hazlehead) .....	"   "   "   .....	...	...	868	36·14	151
† Carlcotes .....	"   "   "   .....	9	3 6	1075 T	45·81	176
Barnsley .....	"   "   "   .....	9	...	175 T	29·63	170
"   .....	W. Greenwood, Esq....	8	15 4	352	29·46	186
D "   (Church Street).....	Dr. Sadler .....	5	3 10	350 T	32·32	206
Penistone (Ingbirchworth Res.)	W. Greenwood, Esq....	8	1 4	853	42·55	217
† Saddleworth Station.....	E. Greenwood, Esq....	10	5 0	640 T	36·12	...
Denshaw .....	J. F. Bateman, Esq. FRS	5	4 0	1050 T	46·17	...
Strines Dale [Oldham] .....	"   "   "   .....	5	4 0	800 T	40·22	...
† Marsden (Standedge).....	E. Greenwood, Esq....	8	1 0	1150 T	48·25	...
Ackworth School .....	W. B. Fletcher, Esq....	5	1 6	135 T	28·79	180
D Goole .....	T. Kendall, Esq.....	11	3 4	...	24·93	179
† Meltham (Harden Moss) .....	J. B. Abbey, Esq.....	8	1 0	1200 T	51·89	...
† "   Grange .....	"   "   "   .....	8	1 0	925 T	45·48	...
D Slaithwaite (Blackmoorfoot).....	J. Stanway, Esq....	8	1 0	800	40·92	184
Golcar (Bank Field) .....	J. E. Ramsden, Esq....	5	0 8	400 T	43·42	189
Longwood (Bilberry Edge) .....	J. B. Abbey, Esq....	8	1 0	1100	44·54	...
D † Huddersfield (Dalton).....	J. W. Robson, Esq. ...	8	0 6	350 T	35·97	191
D "   "   .....	"   "   "   .....	8	1 0	350 T	36·22	191
D Mirfield (Cote Wall) .....	E. B. W. Balme, Esq....	...	0 9	200	31·17	150
Rastrick .....	A. Clay, Esq.....	5	1 3	410	35·49	203
D Wakefield (Borough Cemetery)..	E. Lynam, Esq.....	5	0 10	89 T	30·25	190
D Todmorden (Stansfield Hall) ...	J. Fielden, Esq., M.P..	8	1 10	582 T	51·03	218
† Halifax (Warley Moor).....	J. E. Lambert, Esq....	7	0 6	1425	46·60	...

## DIVISION IX.—YORKSHIRE—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which ·01 or more fell.	
		Diameter.	Height Above Ground.				
			ft.	in.	feet.	inches	
WEST RIDING—(con.)							
† Halifax (Victoria) .....	J. E. Lambert, Esq....	5	1	0	795	41·23	...
† " (Gibbett) .....	" " " .....	5	5	0	568	41·50	...
† " (Ramsden Wood) .....	" " " .....	8	1	2	816	53·25	...
" (Bermerside Observatory) .....	J. Gledhill, Esq. FRAS	8	0	6	490	38·19	170
† " (Moorside) .....	L. J. Crossley, Esq. ...	8	1	0	429	37·58	193
† " (Midgley Moor) .....	J. E. Lambert, Esq....	7	0	6	1350	49·30	...
† " (Ovenden Moor) .....	" " " .....	7	0	6	1375	46·20	...
† " (Walshaw Dean) .....	" " " .....	8	0	3	1380	50·40	...
† " (Ogden) .....	" " " .....	8	1	3	990	45·24	...
D Batley (Corporation W. W.) <i>upr.g.</i>	J F Bateman Esq F.R.S.	...	...	...	1488	59·40	...
" ( " ) <i>lwr.g.</i>	" " " .....	...	...	...	917	52·70	...
D Wakefield (Stanley Vic.) .....	Rev. R. Burrell .....	5	1	0	100	27·57	191
D Methley Park .....	J. Richardson, Esq. C.E.	5	0	9	98	28·03	126
D Selby (Drax) .....	Rev. E. Spink .....	5	3	4	15	25·69	121
" Tong (Rye Croft Crosshills) .....	G. Parkinson, Esq. ...	8	1	0	405	36·98	181
D South Milford Rectory .....	Rev. F. J. Young .....	5	1	4	60	29·80	183
D Bradford (Mechanics' Institute) ...	J. Holbrey, Esq. ....	5	75	0	400	29·49	168
" (The Exchange) .....	J. McLandborough Esq	8	65	6	395	30·28	173
" (Westgate Hill) .....	E. Mirfield, Esq. ....	5	2	6	725	34·13	...
" (Stubden) .....	A. R. Binnie, Esq. C.E.	8	1	0	1075	49·09	234
" (Doe Park) .....	" " " .....	8	0	9	810	44·64	236
" (Chellow Dean) .....	" " " .....	10	5	0	650	28·58	118
" (Queensbury) .....	W. Foster, Esq. ....	5	5	4	1050	43·12	192
" (Heaton Res.) .....	A. R. Binnie, Esq. C.E.	8	1	0	530	36·29	120
D Leeds (Leventhorpe Hall) .....	J. T. Leather, Esq. C.E.	10	3	0	90	23·50	...
† " (Holbeck) .....	Messrs. Marshall & Co.	10	32	0	127	22·55	120
D " ( " ) .....	" " " .....	5	1	8	95	27·06	171
" ( " ) W. Works Depot) .....	E. Filliter, Esq., C.E....	8	0	9	93	27·39	184
" (Woodhouse Moor) .....	" " " .....	8	0	9	307	28·28	187
D " (Roundhay Elmete Hall) .....	J. Kitson, Esq. ....	5	1	0	400	31·27	179
D " (Weetwood Hall) .....	H. C. Marshall, Esq....	5	0	7	400	28·87	203
" ( " ) Reservoir) .....	E. Filliter, Esq., C.E.	8	0	9	328	28·32	194
D " (Allerton Hill) .....	T. Fenwick, Esq., C.E.	5	0	7	418	29·32	141
D " (Crag Wood, Horsforth) .....	James Fox, Esq., C.E.	5	0	10	350	31·75	208
" (Eccup) .....	E. Filliter, Esq., C.E.	8	0	9	340	30·12	192
D Bashall Lodge [Clitheroe] .....	W. Garnett, Esq. ....	5	1	10	217	47·86	178
" Harewood (Arthington) .....	E. Filliter, Esq., C.E.	8	0	9	139	28·22	182
D Thornton-in-Craven .....	T. Wilson, Esq. ....	5	5	4	456	41·08	238
D Ilkley (Ashburn) .....	J. I. Dymond, Esq. ...	8	0	6	400	38·81	221
" Slaidburn (Whiteholme) .....	Mrs. Birchall .....	5	1	3	475	51·93	150
" Wetherby (Ribston) .....	Mr. Jones .....	5	1	3	...	27·62	120
D York (Phil. Soc. Gardens) .....	C. Wakefield, Esq. ...	8	1	9	53	24·38	170
† " (Cherry Hill) .....	H. Richardson, Esq....	5	1	6	50	25·05	...
" (Bootham) .....	J. F. Fryer, Esq. ....	5	0	6	50	24·57	...
" Bell Busk (Coniston Cold Vic.) .....	Rev. J. Stansfeld .....	...	3	0	452	32·86	...
" Otterburn-in-Craven .....	W. Gomersall, Esq. ...	5	1	0	510	42·63	127
" Harrogate .....	J. Coupland, Esq. ....	8	0	6	380	30·67	181
" Barden Reservoir .....	A. R. Binnie, Esq. C.E.	8	1	2	746	41·13	195

## 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.	1875	
			ft. in.	feet.	inches.	
WEST RIDING—(con.)						
D Nun Monkton (Rectory) .....	Rev. S. J. Crawhall ...	8	1 0	46	25·16	179
Settle .....	J. Hargraves, Esq. ...	5	2 0	525 A	43·47	...
D† „ (Langcliffe) .....	Rev. T. McIntyre .....	8	2 0	623 T	41·58	221
Pateley Bridge (Grimwith Res.)	A. R. Binnie, Esq. C.E.	8	1 0	890 A	43·11	200
D „ „ (Fog Close Ho.)	E. Warburton, Esq. ...	5	2 4	431 A	41·38	206
D B A „ „ (Castle Stead)...	Mr. A. C. Young .....	5	1 0	410 A	40·61	197
D B A Malham Tarn .....	Mr. Coulthard .....	5	1 0	1250	52·19	202
D Arncliffe .....	Rev. W. Boyd .....	8	2 9	750 T	58·35	229
Ingleborough .....	J. Farrer, Esq. ....	10	6 2	...	36·18	...
D Ripon (North Lodge) .....	F. D. Wise, Esq. ....	5	1 0	120	28·99	...
D Hubberholme (Buckden) .....	Rev. W. R. Metcalfe...	10	2 7	800	62·06	225
Wharfedale (Oughtershaw Hall)	C. H. L. Woodd, Esq.	8	2 6	1250 T	67·56	...
„ „ ( „ Swarthghyll)	„ „ .....	8	2 0	1350 T	69·80	...
Dent (Stone House) .....	Mrs. Nixon .....	5	1 0	800 T	59·76	214
D Sedbergh (Thorne Hall).....	Miss Elam .....	5	1 1	400 T	46·64	211
EAST RIDING.						
D Patrington .....	W. B. Pugh, Esq. ....	5	0 3	10 A	25·07	201
D† Hull (York Parade, Beverley Rd.)	H. Smith, Esq. ....	8	3 10	11 T	28·87	178
D „ (People's Park) .....	Mr. E. Peak .....	5	0 6	6	31·08	189
D „ (Derringham) .....	W. Lawton, Esq. ....	5	1 0	9 A	28·67	165
D Cottingham .....	J. H. Hill, Esq. ....	8	1 3	27 T	28·75	180
D Beverley (Alexandra Terrace) ...	T. Dyson, Esq. ....	12	8 0	64 A	27·57	156
D Market Weighton (Holm-on-the-Wolds)	Mrs. Harland .....	5	4 0	154 T	27·93	...
„ „ (Middleton) .....	Rev. H. D. Blanchard.	5	1 0	150 T	35·92	166
D Pocklington (Warter).....	J. Coxon, Esq. ....	5	1 10	230 T	32·72	204
„ (Gt. Givendale).....	Miss Singleton .....	5	4 3	473 A	33·80	...
Lowthorpe (The Elms) .....	H. Onslow Piercy, Esq.	5	1 0	63 A	29·45	185
D Langton [Malton] ..	Rev. A. Shadwell .....	10	1 0	150 A	29·15	168
Ganton Hall [Scarborough] .....	Mr. Boulton .....	5	1 0	250 B	31·87	161
NORTH RIDING.						
Flaxton Grange .....	H. Richardson, Esq. ...	5	1 0	90	24·87	...
† Malton .....	H. Hurlley, Esq. ....	10	1 0	75 T	28·49	...
D B A *Filey Reservoir .....	Mr. D. Philliskirk ...	5	0 9	183	29·75	135
Aysgarth (Walden Head) .....	Rev. F. W. Stow .....	3	1 0	...	42·90	...
„ „ (Nell Bank, Walden) ..	„ „ „ .....	3	1 0	...	47·84	...
D Bedale (Thorpe Perrow) .....	Mr. W. Culverwell ...	5	1 6	170	27·89	164
† Wensleydale (Hestholme) .....	Rev. F. W. Stow .....	5	1 0	465 A	37·20	...
D† „ „ „ .....	„ „ „ .....	12	3 0	467 A	36·32	190
D „ „ (Carperby).....	J. Willis, Junr., Esq. ...	6	1 0	720	41·26	195
Leyburn (Wensley) .....	G. W. Wray, Esq. ....	7	2 3	650 A	33·11	...
D† Hawes (The Vicarage) .....	Rev. Dr. Parker .....	5	1 0	801 A	54·60	240
D† „ (Hardraw Vicarage) ...	Rev. R. Pink .....	5	1 0	790 A	51·58	231
D „ (Lunds Church) .....	„ „ .....	5	1 0	1100	60·35	204
B A *Northallerton .....	Dr. Hodgson .....	5	1 3	133 T	24·26	...
Catterick (Tunstall) .....	H. C. Marshall, Esq. ...	5	1 0	350	29·69	...



## DIVISION X.—NORTHERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which more fell ·01
		Diameter.	Height Above Ground	Height Above Sea Level	1875	
			ft. in.	feet.	inches.	
NORTHUMBERLAND—(con.)						
Newcastle (Philos. Soc.).....	W. Lyall, Esq. ....	8	1 7	105 T	32·19	...
" (Crawhall Terrace) ...	W. Smurthwaite, Esq.	2	6 0	82	30·23	...
D " (Town Moor).....	Mr. W. Neill.....	5	0 6	201 T	32·93	215
North Shields (Wallsend) .....	J. W. Dees, Esq. ....	10	0 6	100 T	31·00	...
D† " (Rosella Place) ...	R. Spence, Esq.....	8	1 0	126 T	28·99	183
" (Low Lights) .....	J. R. Procter, Esq. ...	8	3 4	22 T	30·19	180
D " (Tynemouth) .....	P. J. Messent, Esq. ...	5	2 8	65 T	26·72	178
" (Clementhorpe) ..	J. R. Procter, Esq. ...	5	1 0	155 T	28·60	179
" (Billy Mill Res.)...	T. Milnes Favell, Esq.	5	0 6	197 T	26·51	...
* " (Whitley) .....	Rev. R. F. Wheeler...	5	3 0	82 T	28·15	...
" ( " , Convalescent Ho.)	C. Roope, Esq. ....	5	1 0	38	28·09	140
D " (Earsdon).....	John Taylor, Esq.....	5	2 10	185 T	28·46	165
Humshaugh.....	Rev. H. Taylor .....	5	1 0	286 T	30·25	177
Bingfield House .....	J. Coppin, Esq. ....	5	1 0	445 T	32·41	183
Stamfordham .....	Rev. J. F. Bigge .....	8	1 0	400 T	30·29	...
Whittle Dean .....	D. D. Main, Esq. ....	10	...	...	28·40	...
Newcastle and Gateshead W. Works Hallington.....	" " " .....	10	0 6	469 T	34·86	...
" (Fawcett) .....	" " " .....	10	0 6	563 T	30·77	...
North Tyne (Green Crag) ...	" " " .....	10	0 6	800 T	33·31	...
" (Valley) .....	" " " .....	10	0 6	300	29·53	...
Gunnerton Burn (Camphill)..	" " " .....	10	0 6	676 T	33·36	...
Swinburn (Woodford) .....	" " " .....	10	0 6	500 T	34·16	...
Bellingham (Hesleyside) .....	W. H. Charlton, Esq..	5	0 8	373 T	33·65	170
D Morpeth (Meldon Park).....	Mr. J. Finlay .....	5	1 0	...	31·23	191
" (Cresswell) .....	Rev. J. E. Leefe.....	8	1 3	96 T	21·41	...
Bellingham (Otterburn) .....	Rev. T. Wearing .....	10	1 0	500	28·02	...
D Rothbury (Whitton Tower) .....	Rev. Dr. Ainger .....	5	1 4	410 T	32·67	...
" (Cragside) .....	Mr. W. Bertram .....	8	1 0	400 T	31·72	...
Deadwater .....	Mr. Scott .....	3	1 6	2000 T	262·90	...
Alwinton (Harbottle).....	T. Thompson, Esq.....	5	1 0	500 T	33·34	121
D Howick .....	Earl Grey, K.G. ....	8	0 10	121 T	27·23	189
Chievot (Broadstruther).....	G. P. Hughes, Esq. ...	8	2 2	1692 T	36·50	...
Ilderton (Lilburn Tower) .....	E. J. Collingwood, Esq	10	6 0	300 T	28·85	...
Belford (Middleton Hall) .....	J. T. Leather, Esq.C.E.	10	3 0	240 T	25·13	...
* Wooler (Milfield) .....	G. A. Grey, Esq. ....	5	0 6	200 T	26·32	...
CUMBERLAND.						
Bootle Rectory .....	Rev. A. Wilkin.....	8	1 0	87 T	43·27	177
Whitehaven (Braystones) .....	J. D. Watson, Esq ...	10	3 8	36 T	34·61	...
† Seathwaite .....	Mr. Birkett .....	4	0 6	422 T	120·05	...
D† " .....	" " .....	5	1 0	422 T	118·80	186
† " .....	" " .....	8	1 0	422 T	115·75	...
† Wythburn Vicarage...monthly(20)	Rev. Basil Lawson ...	8	1 0	574 T	85·75	...
† Helvellyn (Birkside) .....	G. J. Symons, Esq. ...	8	1 0	1800 T	101·50	...
† Watendlath .....	" " " .....	8	1 0	867 T	71·00	...
D† Keswick (Barrow House) ... (46)	S. Z. Langton, Esq. ...	8	0 6	282 T	62·59	215
D Whitehaven (The Barracks) .....	Major Fawcett .....	5	1 1	21 T	40·18	187
" (Croft Hill) .....	H. A. Fletcher, Esq....	8	1 6	480	39·08	...

NOTE.—The numbers in parenthesis on this and following pages refer to the Map inserted between pages 148 and 149 of *British Rainfall, 1872*.

## 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 Sea Level		
			ft. in.	feet.	inches.	
CUMBERLAND—(con.)						
D Loweswater (Waterend) .....	Mrs. Jackson .....	5	1 0	432 T	46·18	200
† Hallsteads .....	(36) A. Marshall, Esq. ....	10	4 0	490 T	53·80	...
D † Keswick (Deer Close) .....	(47) H. C. Marshall, Esq. ...	7	1 9	300 T	50·85	188
D † " (Derwent Island) ..	(14) " " "	5	0 7	280 T	45·73	200
D † " (Post Office) .....	(16) Mr. Crosthwaite .....	8	6 6	270 T	50·92	193
BA* " ( " ) .....	(16) " " "	5	1 0	270 T	49·53	...
† " (Brow Top) .....	Mr. J. Barker .....	5	0 8	407 T	49·01	186
† Bassenthwaite (Mirehouse) .....	Mrs. Spedding .....	5	0 6	310 T	42·51	197
D Cockermouth (Whinfell Hall) ...	W. Robinson, Esq. ...	5	2 0	265 T	46·09	203
Workington (Stainburn) .....	C. Litt, Esq. ....	8	1 0	101 T	35·46	181
D Cockermouth (Derwent House) ..	Dr. Dodgson .....	5	0 6	144 T	37·09	188
D " (Higham) .....	T. A. Hoskins, Esq. ...	6	0 6	478 T	37·86	200
" (Broughton Grange) .....	G. S. Wilson, Esq. ...	5	1 3	202 T	36·59	195
D Penrith (The Friarage) .....	J. Robertson, Esq. M.D.	5	1 0	350	31·46	162
D " (The Luham, Edenhall) ..	G. Varty Smith, Esq. ...	...	1 1	300	27·97	181
D Blencowe School .....	T. Fawcett, Esq. ...	8	0 9	601 B	35·87	193
D Maryport (Netherhall) .....	H. P. Senhouse, Esq. ...	8	0 6	27 T	31·98	161
D Wigton (Brookfield) .....	M. Lidbetter, Esq. ...	5	0 9	124	30·19	203
" (Brayton Hall) .....	Mr. J. Hammond .....	8	1 6	220	28·81	...
D Alston (Love Lady Shield) .....	T. W. Dickinson, Esq. ...	...	1 0	1145	46·85	254
D Silloth (The Rectory) .....	Rev. F. Redford .....	8	3 0	28 T	28·82	177
D † Carlisle (Cemetery) .....	Mr. T. Bell .....	8	0 8	114 T	28·03	188
D † " (Scotby) .....	A. Sutton, Esq. ....	8	5 5	140 T	24·98	146
D " ( " ) .....	" " "	4	0 9	140	25·97	141
D " (Scaleby Hall) .....	R. A. Allison, Esq. ...	5	1 0	112 T	29·38	152
D Brampton (Croft House) .....	F. Minton Haines, Esq. ...	5	1 2	370	32·71	162
Kirkandrews-on-Esk Rectory ...	Rev. F. Taylor .....	5	0 6	100 T	41·43	...
WESTMORELAND.						
D Kirkby Lonsdale (Casterton) .....	S. Morris, Esq. ....	8	1 0	305 T	44·42	199
" " (Biggins House) .....	Miss Tomlinson .....	12	3 6	400	40·98	...
" " (Whelprigg) ...	Mrs. Gibson .....	5	4 6	475 T	45·09	195
" " .....	Mr. W. Harrison .....	5	1 2	209	42·55	...
D Churchtown (Crosthwaite) .....	W. Garnett, Esq. ....	5	1 3	150 T	51·58	203
D Kendal (Kent Terrace) .....	R. J. Nelson, Esq. ....	5	1 6	146 T	46·22	175
" (Highgate) .....	E. Hayton, Esq. ....	8	5 0	180 T	48·04	191
D " (Underfell) .....	F. Wilson, Esq. ....	8	4 0	300 T	47·82	177
" ( " ) .....	" " "	8	1 0	300 B	47·30	177
" ( " ) .....	" " "	8	1 0	300 B	48·98	177
D " (Hawesmead) .....	G. Braithwaite, jr., Esq. ...	8	0 5	175 T	48·83	209
D Stavely (Reston Hall) .....	T. K. Atkinson, Esq. ...	10	3 0	...	54·63	199
Bowness (Matson's Grounds) .....	G. Healey, Esq. ....	12	0 8	451 T	60·40	223
D Windermere (The Wood) .....	G. B. Crewdson, Esq. ...	8	3 2	322 T	63·37	202
Troutbeck (Holehird) .....	J. M. Dunlop, Esq. ...	...	...	...	57·46	...
D Ambleside (Brathay Vic.) .....	Rev. H. S. Callender ...	5	1 3	150 T	72·61	213
Ravenstonedale (Brownber) .....	J. Fothergill, Esq. ...	5	3 0	835 T	40·23	185
D Little Langdale (Bridgend) ..	(49) E. B. W. Balme, Esq. ...	...	0 9	385	89·32	196
D Elterwater (Woodlands) .....	(50) E. Tucker, Junr., Esq. ...	5	0 9	244 T	85·20	217



DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—*continued*).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which ·01 or more fell.	
		Diameter	Height Above Ground.				Height Above Sea Level
			ft.	in.	feet.	inches.	
<b>GLAMORGAN—(con.)</b>							
Merthyr Tydfil (Thomas Town)...	T. J. Dyke, Esq. ....	5	4	0	550 $\bar{\pi}$	57·65	177
D Ystalyfera .....	Dr. D. Thomas .....	8	1	2	250	77·34	159
<b>CARMARTHEN.</b>							
† Carmarthen (Gaol) .....	G. Stephens, Esq. ....	8	0	6	92 $\bar{\pi}$	60·87	215
D† „ (Joint Co. Asylum) .....	Dr. Hearder .....	8	0	6	189	59·38	202
Llandilo (Golden Grove) .....	Rt. Hon. Viscount Emlyn	6	0	6	...	62·05	214
Dynevor Castle .....	Rt. Hon. Lord Dynevor	8	1	0	236 $\bar{\tau}$	58·24	193
Narberth (Tegfynydd) .....	H. S. Morgan, Esq. ...	5	1	0	158	59·78	144
<b>PEMBROKE.</b>							
Pembroke (Stackpole Court) .....	Rt. Hon. Earl of Cawdor	5	0	6	60 $\bar{\tau}$	52·96	139
Tenby (Ivy Tower) .....	John Leach, Esq. ....	5	1	0	180 $\bar{\tau}$	59·73	205
D* Haverfordwest (High Street) ...	E. P. Phillips, Esq. ...	5	1	0	95 $\bar{\tau}$	58·43	182
D Solva .....	E. Robinson, Esq. ....	5	1	0	90 $\bar{B}$	39·49	180
Llechryd (Castle Malgwyn) .....	Mr. W. Hutchison .....	5	...	...	...	46·69	183
<b>CARDIGAN.</b>							
Lampeter (St. David's College) (63)	Prof. Scott .....	8	5	0	420	46·76	...
D Aberystwith (Goginan) .....	H. Trenwith, Esq. ....	5	2	6	290	44·36	179
D† „ (Gogerddan) ... (93)	Sir Pryse Pryse, Bt. ...	5	1	0	80 $\bar{B}$	43·09	186
<b>BRECKNOCK.</b>							
Crickhowell (Glanusk Park) .....	Mr. Ireland .....	8	0	6	300 $\bar{P}$	51·73	...
D Brecknock .....	J. Kirk, Esq. ....	5	2	0	437 $\bar{\pi}$	49·48	162
„ (Watton Mount) .....	G. Overton, Esq. ....	5	4	6	450 $\bar{\tau}$	43·75	...
<b>RADNOR.</b>							
D Rhayader (Nantgwilt) .....	R. L. Lloyd, Esq. ....	5	1	0	767 $\bar{B}$	65·31	210
† Heyope Rectory .....	Rev. W. W. Griffith ...	5	1	0	690 $\bar{\tau}$	47·17	192
<b>MONTGOMERY.</b>							
† Llanidloes (Ystrad-olwyn-fawr) ..	Mr. J. Jones .....	8	1	0	950	58·70	...
† „ (Dolenog) .....	T. F. Roberts, Esq. ...	5	2	0	550 $\bar{\pi}$	47·89	...
Newtown (Dolfor) .....	W. B. Pugh, Esq. ....	5	0	3	1027	49·39	205
D Churchstoke (Mellington Hall) ...	P. Wright, Esq., F.C.S	5	1	6	...	32·61	178
D Carno (Tybrite) .....	Miss Marsh .....	...	1	0	...	50·73	193
D† Machynlleth (Plas) .....	Mr. Johnstone .....	5	1	0	44 $\bar{\tau}$	56·26	182
† Garthbibio (Llest fawr) .....	Mr. J. Jones .....	8	1	0	990 $\bar{\tau}$	58·40	...
<b>FLINT</b>							
Treiddyn (Nant-y-ffrith) .....	T. V. Kyrke, Esq. ....	5	1	0	850	40·28	...
Mold (Bryn Alyn) .....	Rev. R. B. Cooke .....	5	1	2	483 $\bar{\pi}$	34·06	...
D Hawarden [Chester] .....	Dr. Moffat .....	8	0	6	270	32·43	174
Holywell (Maes y dre) .....	J. Williams, Esq. ....	10	5	0	400	21·81	...
St. Asaph (Nantlys) .....	P. P. Pennant, Esq. ...	5	1	0	273 $\bar{B}$	29·16	...
D† Prestatyn (Nant) .....	T. G. Dixon, Esq. ....	5	1	2	30 $\bar{P}$	26·95	179

## DIVISION XI.—MONMOUTH, WALES, AND THE ISLANDS—(continued).

STATIONS.	AUTHORITIES.	Diameter.	Rain Gauge.		Depth of Rain.	Days on which 01 or more fell.
			Height Above Ground.	Height Above Sea Level		
			ft.	in.	feet.	inches.
<b>DENBIGH.</b>						
D† Ruabon (Wynnstay).....	Mr. Middleton .....	12	3	0	484 T	45·10 213
Llangollen (Plasberwyn) .....	Lt.-Col. Tottenham ...	...	...	...	...	38·46 156
Wrexham (Plas Power).....	Mr. J. Clark .....	5	1	0	472 A	37·60 178
" (Brymbo) .....	C. E. Darby, Esq.....	6	6	3	632 L	35·03 ...
D Rosset (Trevalyn Hall).....	Capt. Boscawen.....	5	1	0	58 A	29·54 177
Denbigh (Glan-y-Wern) ... (84)	Lt.-Col. Humberston...	5	1	0	...	28·69 143
D " (Dyffryn Aled)..... (82)	P. W. Yorke, Esq. ...	5	1	0	550	37·78 172
D Llanerch Park [St. Asaph] (44)	Whitehall Dod, Esq....	5	1	0	107 A	28·55 191
" Gardens [ " ] (44)	Mr. Cartwright.....	5	1	0	130	31·11 203
D Llanfair (Garthewin) .....	B. W. Wynne, Esq. ...	5	1	0	300 ?	37·28 186
D Abergele (Kinmel Park)..... (80)	Lady F. Hughes .....	...	0	6	300	28·88 ...
D Colwyn Bay (Bryn Euryn) (76)	Mr. T. Hutchings.....	5	1	0	100 ?	31·12 176
<b>MERIONETH.</b>						
D†* Dolgelly (National School) (21)	Major Mathew .....	5	1	0	43 T	57·50 199
† <del>37</del> * " (Brithdir) .....	J. Hill, Esq. ....	5	1	6	465 T	64·46 ...
Bala .....	Major Mathew .....	5	1	0	544	46·02 183
Trawsfynydd .....	" " .....	5	0	7	700	57·81 202
D Llanderfell (Palé Gardens) ... (88)	Mr. T. Ruddy .....	8	1	0	606	45·28 207
Penrhyndeudreath .....	E. Mathews, Esq.....	...	...	...	100	49·19 240
†* Rhiw brifdir .....	Major Mathew .....	5	10	0	1100	92·11 217
<b>CARNARVON.</b>						
* Pwllheli (Bodfaen) .....	Major Mathew .....	5	4	9	80	47·01 196
* Llanystumdwy (Talarvor) ... (16)	" " .....	5	3	0	50	30·08 164
* Llangybi (Cefn) .....	" " .....	5	1	1	200	48·21 176
†* Port Madoc .....	" " .....	5	2	0	10	43·11 152
Beddgelert (Bryn Gwynant) (66)	J. Wyatt, Esq. ....	9	3	0	264 B	100·14 190
Pen-y-gwryd .....	Mr. H. Owen.....	8	...	...	860	103·25 164
Carnarvon (Cocksidia)..... (39)	Major Mathew .....	5	1	1	120	36·39 203
† Llanfairfechan .....	R. Luck, Esq.....	5	0	8	150 B	37·41 137
D† Llandudno (Warwick House) (29)	Dr. Nicol.....	8	0	8	99 A	31·35 168
" (Great Orme's Head) (64)	R. Price, Esq. ....	12	6	0	250	24·02 ...
<b>ANGLESEA</b>						
D Amlwch Bodewryd .....	Rev. W. W. Williams	5	1	6	170 B	38·46 232
<b>ISLE OF MAN.</b>						
Calf of Man.....	Bd. of Northern Lights	...	...	...	...	24·11 ...
D Douglas (Derby Square) .....	P. Killey, Esq. ....	5	1	1	79	39·13 187
" .....	H. Story, Esq. ....	8	0	8	120	39·53 160
Point of Ayre .....	Bd. of Northern Lights	...	...	...	...	25·98 125
<b>JERSEY.</b>						
D St. Aubin's Bay (Millbrook).....	P. Langlois, Esq.....	5	1	0	50	33·91 184
<b>GUERNSEY.</b>						
D Guernsey (York Place) .....	Dr. Hoskins, F.R.S. ...	12	12	0	204 B	35·64 188
D " (Grange Road) .....	Dr. Mansell .....	5	1	0	174 B	40·18 196
<b>SARK.</b>						
D Sark Vicarage.....	Rev. T. L. V. Cachemaille	5	1	0	340 L	33·90 184

## SCOTLAND.

## DIVISION XII.—SOUTHERN COUNTIES.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which "01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level		
		ft.	in.	feet.	inches.	
<b>WIGTOWN.</b>						
Mull of Galloway .....	Bd. of Northern Lights ...	...	...	...	26·30	...
<sup>D</sup> <del>BA</del> *Wigton (N. Balfern) .....	T. MacLelland, Esq. ...	5	0 11	75 $\bar{\pi}$	44·43	179
Kirkcowan .....	A. Buchan, Esq. ....	...	...	...	54·08	...
Corsewall.....	Bd. of Northern Lights ...	...	3 4	22 ?	33·84	149
<b>KIRKCUDBRIGHT.</b>						
Little Ross .....	Bd. of Northern Lights ...	...	3 3	130 ?	36·43	157
Dalbeattie (Colvend Manse) .....	Rev. J. Fraser .....	...	...	...	33·70	...
Twynholm (Cally) .....	A. Buchan, Esq. ....	5	...	90	47·99	...
Kirkbean (Woodside Cott.) .....	Mr. J. Foulds .....	5	3 0	30 ?	43·24	176
<del>BA</del> *Dalbeattie .....	J. Grieve, Esq. ....	5	0 8	60 ?	43·37	176
<sup>D</sup> New Abbey (St. Mary's) .....	Rev. W. Downie .....	3	0 4	54	41·47	...
<sup>D</sup> Cargen [Dumfries].....	P. Dudgeon, Esq. ....	3	0 4	80 $\bar{\pi}$	43·14	168
Irongray (Drum Park) .....	" .....	3	0 4	250 ?	55·25	...
<sup>D</sup> New Galloway.....	R. McKay, Esq. ....	8	20 0	220 $\bar{\pi}$	50·71	184
<sup>D</sup> " " (Waterside) .....	J. Dalziel, Esq. ....	5	0 6	215 $\bar{\tau}$	56·69	169
<sup>D</sup> <del>BA</del> *Carsphairn .....	J. Hannah, Esq. ....	5	3 10	574 $\bar{\tau}$	63·28	149
<b>DUMFRIES.</b>						
<sup>D</sup> Annan (Warmanbie) .....	Mr. Elliot .....	8	3 0	100 $\bar{\tau}$	35·94	169
<sup>D</sup> Dumfries (Crichton Asylum).....	Dr. Gilchrist .....	8	0 6	159 $\bar{\tau}$	39·16	181
" (Ashbank) .....	T. Corrie, Esq. ....	...	...	...	43·20	...
Westerkirk School.....	J. Little, Esq. ....	3	0 6	420 $\bar{\tau}$	44·70	...
" (Carlesgill).....	" .....	6	1 6	370 $\bar{\tau}$	49·80	...
Closeburn (Wallace Hall) .....	C. T. Ramage, Esq. ...	3	0 10	207 $\bar{\tau}$	30·10	...
<sup>D</sup> Kirkpatrick Juxta (Broomlands)	Mr. Burgess .....	3	0 3	346	69·15	143
Durrisdeer (Drumlanrig Castle)	A. Buchan, Esq. ....	...	...	191	56·40	...
Moffat (Ericstane) .....	Mr. Welsh .....	...	...	550	63·80	...
Sanquhar (Wanlockhead) .....	Mr. G. Dawson.. ..	3	0 5	1330 $\bar{\tau}$	65·73	...
<b>ROXBURGH.</b>						
New Castleton (The Flatt).....	J. Elliot, Esq. ....	3	0 6	350 $\bar{\tau}$	39·60	...
" " (Kirndeane).....	Miss Elliot .....	3	0 6	400 $\bar{\tau}$	48·20	...
<sup>D</sup> Saughtree .....	Mr. J. J. Bell.....	5	4 6	760 $\bar{\tau}$	43·87	151
Hawick (Wolfelee).....	A. Buchan, Esq. ....	5	...	604	34·86	...
" (Goldielands) .....	Prof. Elliot .....	3	0 8	530 $\bar{\tau}$	33·35	...
" (Kirkton) .....	Mr. J. Welsh .....	...	0 6	759 $\bar{\pi}$	33·20	...

## DIVISION XII.—SOUTHERN COUNTIES—(continued).

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which ·01 or more fell.
		Diameter.	Height Above Ground.			
			ft.	in.	feet.	inches.
ROXBURGH—(con.)						
D*Hawick (Silverbut Hall).....	Mr. D. Elder .....	5	4	0	512 $\nabla$	28·75 185
*Jedburgh (Sunnyside) .....	G. Hilson, Jun., Esq... ..	5	10	0	360 $\nabla$	24·48 122
"    (Timpendean) .....	T. E. Boog, Esq .....	...	...	...	...	26·10 ...
St. Boswell's (Elliston) .....	The Hon. G. Dalrymple .....	5	1	0	350	29·99 183
Kelso (Springwood Park) .....	Sir G. Douglas, Bt ... ..	10	1	0	130 L	24·15 196
D Melrose (Dingleton Mains) .....	Miss Turnbull .....	5	5	0	500 ?	30·45 183
"    (Abbey Gate) .....	Mr. A. Dodds .....	5	0	6	280 T	30·42 241
D Wooplaw [Galashiels] .....	J. Murray, Esq.....	5	1	0	880 $\nabla$	31·38 205
"    "    .....	"    "    .....	3	1	0	880 $\nabla$	30·90 ...

## DIVISION XIII.—SOUTH-EASTERN COUNTIES.

SELKIRK.						
Borthwickbrae [Hawick] .....	W. E. Lockhart, Esq.. ..	8	0	2	800 T	40·90 ...
Bowhill .....	Mr. Mathison .....	7	11	0	537 T	31·12 ...
Galashiels (Abbotsford Rd.).....	Dr. Somerville .....	5	0	6	410 T	33·29 224
PEEBLES.						
D Glenrath .....	Mr. S. Linton.....	5	1	2	764 $\nabla$	40·63 143
Peebles (The Glen) .....	A. Buchan, Esq. ....	...	...	...	...	31·28 ...
Linton (Bordlands) .....	"    "    "    .....	...	...	...	...	33·11 ...
Cairnmuir .....	"    "    "    .....	12	0	5	1150	39·44 ...
D Penicuik (N. Esk Reservoir) . .	Mr. J. Garnock .....	11	0	6	1150 $\nabla$	36·30 161
BERWICK.						
Coldstream (Swinton Manse) ...	Rev. R. Home .....	5	1	0	200 $\nabla$	28·02 162
D Marchmont House .....	Mr. P. Loney.....	5	1	0	500 T	32·51 196
Lauder (Thirlestane Castle) .....	A. Buchan, Esq. ....	3	0	3	558 T	29·50 ...
Dunse (Mungo's Walls).....	Mr. J. Thomson .....	3	0	6	267	27·12 189
"    (Feindhill) .....	A. Buchan, Esq. ....	...	...	...	...	36·21 ...
St. Abb's Head .....	Bd. of Northern Lights .....	...	0	4	211 ?	22·70 117
HADDINGTON.						
Yester .....	A. Buchan, Esq. ....	12	1	0	425	30·35 ...
Tranent (Tyneholme).....	"    "    .....	...	...	...	284	27·77 ...
Dunbar (Thurston).....	"    "    .....	6	4	0	327	25·30 ...
D East Linton.....	Mr. J. Storie .....	3	0	3	90 T	23·93 177
North Berwick (Seacliffe) .....	A. Buchan, Esq.....	8	5	0	80	22·63 ...
EDINBURGH.						
D Glencorse.....	W. H. Cameron, Esq....	...	0	6	787	36·70 147
Harlaw.....	"    "    "    .....	...	...	...	...	32·80 ...
Clubbiedean .....	"    "    "    .....	...	...	...	...	32·80 ...
Swanston .....	"    "    "    .....	...	0	6	555	31·80 ...
Colinton (Fernelaw) .....	J. Leslie, Esq., C.E. ...	11	0	6	500	34·10 ...

## DIVISION XIII.—SOUTH-EASTERN COUNTIES—(continued.)

STATION.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875	Days on which -01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea level		
			ft. in.	feet.	inches.	
EDINBURGH—(con.)						
Colinton (Bonally).....	W. H. Cameron, Esq....	...	...	...	36·10	...
† Dalkeith .....	A. Buchan, Esq. ....	4	0 4	183	19·95	...
D Inveresk .....	Mr. McAuslane .....	9	3 0	60 †	23·79	142
Edinburgh (Charlotte Square)...	J. Leslie, Esq., C.E. ...	11	0 6	230	24·36	...
„ ( „ „ ).....	„ „ „ „ .....	12	63 0	300	17·96	...
„ (Cumin Place).....	A. Buchan, Esq. ....	...	...	...	27·21	...
Costorphine (Meadowfield) .....	Miss Paterson .....	8	9 4	155 †	23·79	177
Inchkeith .....	Bd. of Northern Lights	...	...	...	14·02	129
LINLITHGOW.						
Linlithgow (Rockville) .....	A. Buchan, Esq.....	5	0 4	...	38·23	...
Abercorn .....	Rev. D. Playfair .....	5	0 10	130	28·67	...

## DIVISION XIV.—SOUTH-WESTERN COUNTIES.

LANARK.						
Biggar (Wiston).....	Mr. W. Core .....	3	0 0	860 †	41·95	...
D „ (Cambus Wallace).....	Captain Paul .....	6	0 6	748 †	30·09	197
Douglas (Newmains) .....	Mr. J. Russell .....	3	0 4	783 †	38·88	181
Lanark (Garrison Tower) .....	J. M. Mackenzie, Esq.	5	1 0	120	33·89	...
D „ (Ridge Park) .....	C. Lindsay, Esq.....	5	0 4	634 †	29·89	180
D Carnwath .....	Mr. W. Currie .....	3	0 1	700 †	34·01	164
Hamilton (Auchinraith) .....	R. Ker, Esq. ....	10	4 9	150 †	29·39	...
„ (Bothwell Castle) .....	Mr. A. Turnbull .....	10	18 0	146 †	28·12	157
Cambuslang (Bushy Hill).....	Dr. Muirhead .....	6	0 10	147 †	34·50	187
D Glasgow (Cessnock Park).....	R. Hart, Esq.....	10	4 4	29 †	39·50	...
„ (Observatory) .....	Professor Grant, F.R.S.	5	0 1	180 †	44·29	...
D Airdrie (Hillend House) .....	Mr. W. Ritchie .....	6	4 8	620 †	36·43	111
AYR.						
D Girvan (Pinmore) .....	Hugh Hamilton, Esq..	5	1 0	187 †	48·23	190
„ (Turnberry) .....	Bd. of Northern Lights	...	...	...	38·73	127
D B A Patna (Hole House).....	Mr. P. Murdoch .....	5	1 0	446 †	36·59	176
D New Cumnock (Whitehill) .....	W. Lennox, Esq. ....	5	1 0	860 †	41·78	197
Ayr (Auchinlee) .....	Mr. J. Drennan.....	...	4 0	36	34·51	...
D Old Cumnock .....	J. Ballantine, Esq. ....	5	1 3	380 †	38·75	187
D B A Muirkirk (Irondale House)...	J. Wilson, Esq.....	5	1 0	745 †	41·16	179
Kilmarnock (North Craig).....	J. M. Gale, Esq., C.E.	12	0 6	310	36·36	...
„ (Annanhill) .....	W. H. Dunlop, Esq. ...	10	0 10	165 †	34·70	..
Largs (Mansfield) .....	Mr. McMaster .....	10	0 6	30	56·50	...



## 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	1875	
			ft. in.	feet.	inches.	
ARGYLL—(MAINLAND)—(con.)						
D Lochgilphead (Callton Môr).....	Mr. J. Russell .....	3	4 0	65	52·20	234
Inverary Castle .....	Mr. J. Caie.....	4	0 2	30	56·00	...
D B A Dalmally .....	J. B. Lawes, Esq., F.R.S.	5	1 0	200 P	77·36	239
B A Loch Awe .....	" "	5	...	100 P	63·70	...
Oban (Manor House).....	Admiral Otter ..	5	1 8	10 L	52·46	...
Morven (Beach) .....	R. C. Macfie, Esq. ...	6	0 6	...	66·04	...
Appin (Aird's).....	Mr. Warden .....	6	0 3	38 A	53·80	...
Blackmount (Forest Lodge) .....	A. McDowall, Esq. ...	...	...	...	60·50	...
Loch Sunart (Glenborrodale) ...	J. J. Dalgleish, Esq....	5	0 2	60 L	42·85	155
Ardnamurchan .....	Bd. of Northern Lights	...	3 6	82 P	41·48	169
Loch Eil (Corran) .....	" "	...	0 4	14 P	57·87	130
ARGYLL—(INSULAR.)						
Cantire, Mull of .....	Bd. of Northern Lights	...	...	279 P	37·21	..
" (Campbeltown, Devaar)..	" " "	...	3 4	75 P	41·83	152
" (Skipness Castle) .....	Mrs. Graham .....	6	1 6	20 L	45·30	...
D B A Islay (Ardbeg) .....	Mr. C. Hay .....	5	1 0	7 P	44·20	207
" (Rhinn) .....	Bd. of Northern Lights	...	3 0	74 P	32·76	151
" (Lochindaal) .....	" " "	...	...	...	41·68	124
D * " (Eallabus) .....	R. Ballingal, Esq.....	5	1 0	67 L	46·16	198
" (McArthurshead) .....	Bd. of Northern Lights	...	...	...	46·63	108
D B A " (Gruinart School House)..	Mr. D. Mac Gilp .....	5	1 0	214 A	42·39	181
" (Rhuvaal) .....	Bd. of Northern Lights	...	...	...	41·00	167
Jura (Lowlandmansbay) .....	" " "	...	...	...	51·24	157
" (Fladda).....	" " "	...	...	...	46·18	182
Lismore (Mousedale).....	" " "	...	3 4	37 P	29·92	154
Mull (Quinish) .....	J. N. Forsyth, Esq. ...	...	...	...	49·24	...
" Sound of .....	Bd. of Northern Lights	...	...	...	66·80	132
Tyree (Hynish) .....	" " "	...	...	...	47·39	166

## DIVISION XVI.—EAST MIDLAND COUNTIES.

## KINROSS.

Loch Leven Sluice .....

A. Buchan, Esq. .... 0 6 360 37·60 ...

## FIFE.

Burntisland .....	Rev. G. H. Forbes ...	...	...	...	29·04	164
Dunfermline (Craigluscar).....	W. Chisholm, Esq.....	10	0 10	460 A	41·70	...
" (Outh) .....	L. Dalgleish, Esq.....	5	0 2	890 T	44·85	166
D Leven (Nookton) .....	W. McG. Miller, Esq.	5	0 6	80 A	31·37	194
Elie ...	A. McDowall, Esq. ...	5	0 10	30	27·90	...
Falkland (Lothrie Reservoir) ...	A. Buchan, Esq. ....	...	...	...	42·98	...
St. Andrews (Cambo House).....	Sir T. Erskine, Bt.....	3	0 8	50 T	25·00	...
B A Auchtermuchty .....	Dr. Troup .....	5	1 0	179 A	33·84	181

## 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	1875.	
			ft. in.	feet.	inches.	
<b>FIFE—(con.)</b>						
Kilmany (Mountquharrie House)	D. Gillespie, Esq. ....	...	...	...	26·90	...
Leuchars (Ballmullo).....	A. Buchan, Esq. ....	...	...	...	29·18	...
<b>PERTH.</b>						
D Culross (West Grange).....	J. J. Dalgleish, Esq....	5	0 2	116 $\nabla$	36·59	123
Bridge of Allan [Stirling] .....	A. Buchan, Esq. ....	...	...	...	37·48	...
Menteith (Cardross Ho.) .....	H. D. Erskine, Esq. ...	8	1 0	120 L	40·80	...
Aberfoyle.....	Glasgow Water Works	8	0 6	60	60·80	...
Ledard .....	" " "	...	...	1500	68·70	...
Dunblane (Kippenross).....	J. Stirling, Esq. ....	6	0 4	150	38·20	...
Loch Dhu.....	Glasgow Water Works	8	0 6	325	80·70	...
" Drunkie .....	" " "	8	0 6	420	67·30	...
" Vennachar.....	" " "	8	0 6	275	59·40	...
Lanrick Castle .....	A. Glover, Esq. ....	3	0 9	...	46·05	147
Bridge of Turk .....	Glasgow Water Works	8	0 6	270	74·90	...
Loch Katrine (Tunnel Hill Top)	" " "	8	0 6	830	77·60	...
Callander (Leny) .....	J. B. Hamilton, Esq....	3	0 4	340 $\nabla$	62·80	...
" (The Gart).....	A. Buchan, Esq. ....	...	...	...	47·04	...
Between Glen Finlas & Ben Ledi	Glasgow Water Works	8	0 6	1800	56·80	...
Glen Gyle .....	" " "	...	...	380	91·20	...
Muthill (Orchill) .....	A. Buchan, Esq. ....	...	...	...	51·90	..
Auchterarder House .....	Mr. Maclean .....	8	2 3	162	36·68	...
D " (Colquhalzie) ...	Mr. R. Morton .....	8	0 5	150 ?	40·49	152
Stronvar (Balquhidder).....	Mr. P. Colquhoun.....	...	...	...	76·47	..
" (Lochearnhead) .....	A. Buchan, Esq. ....	...	...	...	63·45	...
Crieff (Ochertyre).....	" " "	...	...	...	46·54	...
Perth Academy .....	Dr. Miller, F.R.S.E....	15	64 5	83 $\nabla$	27·39	...
" (Inchbank) .....	" " "	10	1 6	24 $\nabla$	36·69	...
Scone Palace .....	Mr. J. Halliday.....	6	2 6	80 L	32·91	141
D <del>32</del> Dunkeld (H.R.S.) .....	The Station Agent ...	5	1 0	225	41·19	146
Meigle (Arthurstone) .....	P. Carmichael, Esq. ...	5	2 3	187 $\nabla$	33·84	...
" ( " ) <i>new gauge</i>	" " "	5	2 3	196 T	34·19	...
D <del>32</del> Aberfeldy (Grandtully H.R.S)	The Station Agent.....	5	...	...	35·90	169
Pitlochrie (Bonskeid).....	A. Buchan, Esq. ....	...	...	...	35·35	...
Kinloch Rannoch .....	Mr. P. Cameron.....	5	1 0	692 $\nabla$	46·02	190
D <del>32</del> Dalnaspidal (H.R.S.) .....	The Station Agent.....	5	1 6	1450	63·09	186
<b>FORFAR.</b>						
D † Dundee (Westfield Cottage) ...	C. Clark, Esq. ....	5	5 6	50 T	31·69	216
D † " (Eastern Necropolis)...	Mr. W. R. McKelvie...	3	0 5	167 T	31·85	149
Broughty Ferry (Douglas Ho.)...	Mr. K. Graham.....	5	5 6	60 $\nabla$	33·71	183
D † Craigton .....	† Dundee Water Works	5	0 3	481	52·86	143
† " .....	" " "	11	0 3	481	49·74	...
† Crombie Reservoir .....	" " "	11	0 3	522 T	47·21	...

† Information supplied by J. Watson, Esq.

## DIVISION XVI.—EAST MIDLAND COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Diameter	Rain Gauge.		Depth of Rain. 1875.	Days on which ·01 or more fell.	
			Height Above Ground	Height Above Sea Level			
			ft.	in.	feet.	inches.	
FORFAR—(con).							
† Hill Head .....(monthly)	Dundee Water Works	11	0	3	570 T	49·89	...
D Arbroath .....	A. Brown, Esq., LL.D.	8	2	0	60 T	30·11	164
Montroseness .....	Bd. of Northern Lights	...	...	...	...	29·85	122
Montrose (Bridge Street) .....	J. Scott, Esq. ....	8	0	3	25	32·89	...

## DIVISION XVII.—NORTH EASTERN COUNTIES.

## KINCARDINE.

Lawrencekirk (Johnstone Lodge)	A. Buchan, Esq. ....	5	...	...	382	37·76	...
The Burn [Brechin] .....	Col. McInroy .....	6	0	6	250	43·20	...
Fettercairn .....	A. C. Cameron, Esq. ...	5	0	3	230 T	41·28	191
„ (Arnhall) .....	J. Vallentine, Esq. ....	6	0	2	240	40·90	152
Girdleness [Aberdeen] .....	Bd. of Northern Lights	...	4	7	86	24·41	...

## ABERDEEN.

D Braemar .....	Mr. J. Aitken .....	8	0	9	1114 T	36·29	205
Drumoak (Drum Castle) <i>monthly</i>	Mr. G. Gammie .....	5	1	8	275 T	46·16	...
Cromar (Logie Coldstone School)	Rev. J. G. Michie .....	5	4	0	608 T	28·76	204
D „ ( „ „ Manse)	Rev. G. Davidson .....	5	1	0	694 T	30·25	206
D „ ( „ „ Loanhead)	A. Farquharson, Esq. ...	5	1	0	743 T	28·23	204
„ (Tillypronie) .....	Mr. R. Littlejohn .....	...	1	0	1120	31·00	219
Aberdeen (Rose Street) <i>new gauge</i>	A. Cruickshank, Esq. ...	5	0	5	95 T	34·67	...
* „ (Grammar School) ...	Rev. A. Beverley .....	5	4	8	98 T	35·44	...
„ (Hammerfield, Cuparstone Rd)	„ „ „ .....	5	1	0	120 T	35·62	220
„ ( „ „ ) <i>monthly</i>	„ „ „ .....	5	1	0	120 T	37·07	...
D Midmar (Blackstock) .....	Mr. J. Barron .....	5	0	8	570 T	36·34	179
Lumphphan (Corse House) .....	Mr. J. Berry .....	5	3	0	833 T	32·96	...
Monymusk (Cluny Castle) .....	Mr. McDonald .....	5	0	1	280 T	31·83	179
D <del>B</del> * Alford (Bogside, Leochel C.)	W. Bruce, Esq. ....	5	3	0	882 T	38·06	181
Inverury (Kenmay) .....	Rev. G. Peter .....	8	0	7	300	37·80	...
„ ( „ „ ) .....	„ „ „ .....	8	0	4	300	37·23	...
„ (Manse) .....	Rev. J. Davidson .....	9	0	0	220	39·02	...
Ellon (Tillydesk) .....	W. Hay, Esq. ....	11	0	4	349 T	37·02	...
Peterhead (Buchanness) .....	Bd. of Northern Lights	...	...	...	...	24·99	...
„ „ „ .....	A. Buchan, Esq. ....	...	...	...	...	32·80	...
D Old Deer .....	J. Walker, Esq. ....	5	2	0	135 T	37·81	221
„ „ (Manse) .....	Rev. J. Peter .....	8	0	6	146 T	34·78	...
Turriff (New Byth) .....	A. Henderson, Esq. ...	5	0	6	391 T	40·08	...
D New Pitsligo .....	Mr. D. Sturrock .....	3	0	3	501 T	39·30	177
Kinnairdhead .....	Bd. of Northern Lights	...	3	4	64 <sup>p</sup>	42·89	105

## BANFF.

D <del>B</del> * Keith (H.R.S.) .....	The Station Agent .....	5	1	0	364	33·19	184
Gordon Castle .....	Mr. Webster .....	8	1	6	70	31·07	...

## DIVISION XVII.—NORTH EASTERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875.	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
<b>ELGIN OR MORAY.</b>						
Grantown .....	Mr. W. Duncan.....	5	1 1	712 $\bar{\pi}$	31·65	166
D $\bar{\pi}$ Rothes (Wester Elchies) .....	J. Gavin, Esq. ....	8	1 3	607 $\bar{\pi}$	30·27	171
D $\bar{\pi}$ Forres (H.R.S.) .....	The Station Agent.....	5	1 0	20	26·08	...
Elgin (Ashgrove) .....	W. Topp, Esq. ....	8	0 3	33	30·44	133
„ (Institution).....	Mr. J. Martin .....	6	0 6	50 $\bar{\pi}$	29·78	...
„ (Highfield) .....	A. Cameron, Esq. ....	...	...	...	27·95	106
D $\bar{\pi}$ Burghead (H.R.S.).....	The Station Agent.....	5	1 1	18	25·57	127
Covesea Skerries.....	Bd. of Northern Lights	...	...	...	19·39	121
<b>NAIRN.</b>						
$\bar{\pi}$ Nairn (H.R.S.).....	The Station Agent.....	5	1 0	60	22·14	161
D „ .....	J. H. Brown, Esq.....	5	2 0	47	21·83	151
D „ (Acharéidh) .....	A. Clarke, Esq. ....	8	1 0	60 $\bar{\pi}$	20·62	169

## DIVISION XVIII.—NORTH-WESTERN COUNTIES.

<b>WEST ROSS.‡</b>						
D*Loch Alsh (Inverinate House)...	Mrs. Matheson .....	5	3 0	150	71·18	162
D $\bar{\pi}$ Strome Ferry (H.R.S.) .....	The Station Agent.....	5	1 0	40	55·01	117
„ „ (Duncraig) ...	Mr. Lorraine .....	5	1 0	124 $\bar{\pi}$	31·60	...
$\bar{\pi}$ Applecross Gardens.....	Mr. D. McCowan .....	5	0 9	70 $\bar{\pi}$	47·89	216
Strathconan.....	Mr. J. Watson .....	5	2 0	449 $\bar{\pi}$	46·44	228
$\bar{\pi}$ Gairloch (Auchtercairn) .....	Mr. K. Mackenzie.....	5	6 0	13 $\bar{\pi}$	38·59	194
Loch Vraon .....	J. D. Baldry, Esq., C.E.	8	0 7	750	51·95	...
Lochbroom (Loch Drome).....	„ „ „	8	0 7	850	56·70	...
Braemore House.....	„ „ „	8	0 7	750	53·70	...
„ Lodge.....	„ „ „	8	0 7	100	53·01	...
D $\bar{\pi}$ *Lochbroom .....	Mr. M. Macleay .....	5	0 8	48	43·13	209
Isle of Lewis (Stornoway) .....	Bd. of Northern Lights	...	3 4	31 $\bar{\pi}$	26·10	...
D „ („ Lewis Castle)	Mr. Smith .....	...	1 0	90	45·19	238
„ (Bernera).....	Mr. J. Macdonald .....	6	0 6	300	48·90	...
„ (Butt of Lewis) ...	Bd. of Northern Lights	...	3 6	...	33·77	206
<b>EAST ROSS.‡</b>						
Dingwall (Moy House).....	W. C. Preston, Esq. ...	5	0 7	75 $\bar{\pi}$	30·23	173
D $\bar{\pi}$ „ (H.R.S.).....	The Station Agent.....	5	1 1	3	25·52	...
Cromarty .....	Bd. of Northern Lights	...	3 4	28 $\bar{\pi}$	16·89	...
D *Invergordon Castle .....	B. B. Æ. McLeod, Esq.	5	2 0	20 $\bar{\pi}$	24·41	130
D $\bar{\pi}$ „ (H.R.S.).....	The Station Agent.....	5	1 0	18	23·09	...
$\bar{\pi}$ Alness (Ardross Castle).....	Mrs. Matheson .....	5	1 0	450 $\bar{\pi}$	35·24	203
D $\bar{\pi}$ *Tain (Fearn) .....	R. Gordon, Esq.....	5	1 0	58 $\bar{\pi}$	22·84	166
D „ (H.R.S.) .....	The Station Agent .....	5	1 0	...	23·80	184
D „ (Springfield) .....	Mr. McLardy.....	5	3 6	80 $\bar{\pi}$	24·80	167
Tarbetness .....	Bd. of Northern Lights	...	3 4	61 $\bar{\pi}$	16·84	...

‡ Including Cromarty.



## DIVISION XIX.—NORTHERN COUNTIES—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain. 1875.	Days on which ·01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level		
			ft. in.	feet.	inches.	
<b>CAITHNESS.</b>						
D Wick (Pulteney House).....	Rear Adml. Rutherford	5	0 11	70	29·28	180
„ (Nosshead).....	Bd. of Northern Lights	...	3 4	127 ?	28·45	183
Thurso (Holburnhead) .....	„ „ „	...	0 4	60 ?	27·24	...
Dunnethead .....	„ „ „	...	...	...	34·97	100
Pentland Skerries .....	„ „ „	...	3 3	72 ?	27·53	154
<b>ORKNEY.</b>						
D Ronaldshay (Roeberry).....	J. W. Gray, Esq. ....	5	1 2	150	28·64	213
Hoy (Cantickhead) .....	Bd. of Northern Lights	...	...	...	40·60	128
„ (Graemsay Sound, East) ...	„ „ „	...	3 4	27 ?	28·32	123
„ ( „ „ West) ...	„ „ „	...	...	...	32·30	170
Pomona (Tankerness) .....	S. Leitch, Esq. ....	5	0 9	...	28·66	...
Shapinsay (Balfour Castle) .....	Col. Balfour .....	4	0 6	50	26·80	...
D † Pomona (Sandwick) .....	Rev. C. Clouston, LL.D.	11	2 0	78	33·06	215
Stronsay (Auskerry) .....	Bd. of Northern Lights	...	...	...	25·60	...
Sanda (Start Point) .....	„ „ „	11	0 6	29 ?	34·79	...
† * Papa Westray .....	Rev. C. Clouston, LL.D.	5	...	80 ?	35·88	227
North Ronaldsay .....	Bd. of Northern Lights	...	3 4	21 ?	33·41	155
<b>SHETLAND.</b>						
Bressay Lighthouse .....	Bd. of Northern Lights	5	0 4	60	37·90	102
„ Manse .....	Rev. Dr. Hamilton ...	8	1 0	10	39·65	...
Stourhead.....	Bd. of Northern Lights	...	...	...	62·00	145
D † * East Yell .....	Mr. A. D. Mathewson..	5	1 0	278	43·51	300

## IRELAND.

## DIVISION XX.—MUNSTER.

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which -01 or more fell.
		Diameter	Height Above Ground	Height Above Sea Level	1875.	
			ft. in.	feet.	inches.	
<b>CORK.</b>						
BA Skibbereen .....	F. P. E. Potter, Esq....	5	...	...	42·96	...
D Cork (Queen's College) .....	Professor England ...	10	6 0	65	40·86	...
D „ (Royal Institution) .....	Dr. Caulfield .....	10	50 0	70	34·44	163
Fermoy (Glenville) .....	H. Hudson, Esq., M.D.	8	2 0	514 T	51·74	211
„ (Gas Works).....	G. Anderson, Esq.....	5	1 1	...	38·16	145
D „ (St. James' Place).....	A. Campbell, Esq.....	5	1 0	114 T	39·74	238
<b>KERRY.</b>						
D BA Caherciveen(DarrynaneAby.)	D. O'Connell, Esq. ...	5	1 1	12 T	54·18	175
Dromore Castle .....	R. J. Mahony, Esq. ...	5	1 3	80	70·40	206
Kenmare (Dromore) .....	R. McClure, Esq. ...	5	0 9	200	69·33	...
Cara (Lake side).....	J. B. Kennedy, Esq....	5	0 4	125 T	45·46	...
BA Tralee (Godfrey Place) .....	H. Stokes, Esq., C.E.	5	30 0	50	45·55	216
<b>WATERFORD.</b>						
Cappoquin .....	Sir J. Keane, Bt. ....	5	1 0	253 T	47·91	186
Waterford(Brook Lodge) .....	C. Perceval Bolton, Esq.	5	3 8	175	47·65	194
D „ (Newtown) .....	Mr. E. Garnett .....	9	4 6	60 P	46·86	194
„ (Roanmore Lodge) ...	H. A. Nevons, Esq. ...	5	1 0	79	41·40	193
D „ (Portlaw) .....	S. B. Pim, Esq. ....	24	25 0	50	44·47	156
„ (Curraghmore) .....	Mr. G. Fairbairn .....	...	...	...	45·31	...
„ (Gas Works) .....	G. Anderson, Esq.....	5	...	...	44·01	127
<b>TIPPERARY.</b>						
D Clonmel (Glenam) .....	Miss Grubb .....	5	1 10	80 T	46·77	212
D Cahir (Tubrid) .....	T. Palmer, Esq., M.D.	5	1 0	280	39·09	190
D BA Tipperary (Henry Street) ...	J. Dowling, Esq. M.D.	5	1 0	...	43·58	222
D Gurteen [Shinrone] .....	Miss Smith .....	5	1 0	267 T	33·19	217
<b>LIMERICK.</b>						
BA Jane Ville .....	R. Harding, Esq. ....	5	1 0	504	49·92	176
BA Newcastle (Baile au Teampul)	H. Murray Gun, Esq.	5	...	...	38·20	...
<b>CLARE.</b>						
BA Kilrush .....	Mrs. G. Elliott .....	5	...	...	37·39	128
D Killaloe .....	E. J. Mayne, Esq. ...	10	5 0	...	50·16	211
D Ennis .....	J. Hill, Esq. ....	10	3 2	21 T	42·08	189
D BA Miltown Malbay .....	M. Malohan, Esq.....	5	1 0	300 P	43·98	236

## DIVISION XXI.—LEINSTER.

<b>WEXFORD.</b>						
Wexford (Reclaimed Lands).....	C. W. Palliser, Esq. ...	10	1 0	1 T	43·75	149
New Ross (Rosbercon Cas.) .....	A. E. Graves, Esq. ...	6	2 6	60 T	47·03	133
D „ (Longraigue) .....	J. Deane, Esq. ....	5	1 1	210	51·86	221
D Enniscorthy (Ballyhyland) .....	J. Moffat, Esq. ....	5	1 0	420 B	46·33	222
D Gorey (Courtown) .....	Earl of Courtown .....	5	3 0	80 P	43·18	193

## DIVISION XXI.—LEINSTER—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which ≥0.1 or more fell.	
		Diameter	Height Above Ground		Height Above Sea Level		1875.
			ft.	in.	feet.	inches.	
<b>KILKENNY.</b>							
New Ross (Tullogher) .....	D. A. Milward, Esq. ...	5	1	0	500 N	58.38	204
Inistioge (Woodstock) .....	Rt. Hon. W. F. Tighe	5	4	6	400 T	52.21	193
D B A Stoneyford (Inisnag) ...	Rev. J. Graves .....	5	1	0	220 N	33.96	...
D B A Kilkenny (Butler House) ...	C. E. James, Esq, M.D.	5	1	0	200	34.11	216
<b>CARLOW.</b>							
D Bagnalstown (Fenagh) .....	D. W. P. Beresford, Esq.	5	1	0	340 N	35.57	191
D Carlow (Browne's Hill) .....	R. C. Browne, Jun., Esq.	5	1	0	291 N	36.47	202
<b>QUEEN'S COUNTY.</b>							
Abbey Leix (Blandsfort) .....	J. L. Bland, Esq. ....	5	2	6	590 P	34.31	199
<b>KING'S COUNTY.</b>							
D Birr Castle .....	Earl of Rosse .....	8	0	8	180 N	32.85	206
D Portarlinton .....	Dr. Hanlon .....	5	1	2	240 L	31.40	265
D Rathangan (Clonbrin) .....	Mrs. W. Gresson .....	5	1	3	224 T	31.27	191
Tullamore .....	H. J. B. Kane, Esq. ...	10	3	0	235	29.84	190
<b>WICKLOW.</b>							
D † Bray (Fassaroe) .....	E. Barrington, Esq. ...	10	5	0	250	41.39	204
<b>DUBLIN.</b>							
D † Dublin (Fitz William Square) ...	Dr. J. W. Moore .....	5	3	4	54 T	29.95	205
D „ (Eccles St.) .....	H. A. Cosgrave, Esq. ...	5	3	4	70	30.99	198
D „ (O. S. O. Phoenix Park)	Lieut. Rowe, R.E. ....	31	10	0	170 N	32.83	207
D Glasnevin (Botanic Gardens) ...	D. Moore, Esq. ....	9	0	11	65 N	32.18	187
D Kilsallaghan (Corrstown House)	H. A. Cosgrave, Esq MA	5	3	4	280	33.93	217
D Balbriggan .....	Rev. S. P. Warren ...	5	1	0	57 T	33.59	...
„ .....	„ „ „ .....	5	1	0	57 T	33.17	...
<b>MEATH.</b>							
D Ulonee (Williamstown) .....	W. Johnston, Esq. ...	5	1	0	200	32.05	211
Trim .....	P. Malone, Esq., C.E.	10	4	2	180	38.99	204
<b>WESTMEATH.</b>							
D Athlone (Twyfard) .....	J. Hodson, Esq. ....	5	4	0	188	35.84	235
D Belvedere (The Gardens) .....	C. Brinslay Marlay, Esq.	5	1	0	360	36.00	206
<b>LOUTH.</b>							
D Castle Bellingham (Drumcashe.)	Mrs. Macan .....	8	1	3	225 T	36.61	244
Stephenstown .....	Col. Fortescue .....	5	0	11	75	33.20	206
D Dundalk (Farndreg) .....	J. Barton, Esq., C.E. ...	5	1	0	90 N	35.39	191
„ (Ravensdale Park) .....	Rt. Hon. Lord Clermont	8	1	0	360	53.00	206

## DIVISION XXII.—CONNAUGHT.

**GALWAY.**

Gort (Cregg Park) .....	R. J. Lattey, Esq. ...	5	3	0	130 N	38.84	183
D Galway (Queen's Coll.) .....	Prof. Curtis .....	16	9	0	30	32.66	189
D B A Ballinasloe .....	W. H. Kempster, Esq.	5	0	6	150 P	35.81	213
Ahascragh (Clonbrock) .....	Rt. Hon Lord Clonbrock	10	5	9	200	40.97	...
Clifden (Kylemore) .....	A. Armstrong .....	5	0	1	105	76.02	242
Tuam (Gardenfield) .....	H. Kirwan, Esq. ....	5	6	0	136 T	39.48	...



## DIVISION XXIII.—ULSTER—(continued.)

STATIONS.	AUTHORITIES.	Rain Gauge.			Depth of Rain.	Days on which '01 or more fell.
		Diameter.	Height Above Ground.	Height Above Sea Level.	1875	
			ft. in.	feet.	inches.	
ANTRIM.						
D Aghalee [Lurgan] .....	Lancelot Turtle, Esq. ...	5	1 0	105 $\bar{\pi}$	33·63	172
" " [ " ] .....(monthly)	" " " " .....	9	1 0	105 $\bar{\pi}$	33·53	...
D† Belfast (Queen's College) .....	Mr. W. Taylor .....	11	7 4	68 $\bar{\pi}$	31·98	169
D† " (Linen Hall) .....	Mr. F. A. Maitland .....	11	4 0	12	31·20	199
" (Elmgrove House) .....	J. Barbour, Esq. ....	5	1 0	16 ?	32·23	198
D " (New Barnsley) .....	J. Firth, Esq. ....	5	1 0	200 ?	35·39	208
† " (Old Park) .....	W. Girdwood, Esq. ....	5	4 0	224 $\bar{\pi}$	35·84	195
D† " (Antrim Rd.) .....	G. Thompson, Esq. ...	7	7 0	144	30·69	177
$\bar{\pi}$ Crumlin .....	Mr. G. Dixon .....	5	1 0	...	33·62	184
D White Abbey (Abbeyville) .....	Rev. R. W. Bland ...	8	2 0	64	35·49	186
Larne (Carnlough) .....	J. Reside, Esq. ....	5	1 0	8	42·29	186
$\bar{\pi}$ Ballymoney (Church Street)	Mr. J. Craig .....	5	1 0	150	31·34	119
D $\bar{\pi}$ Bushmills .....	Mr. D. Elliott .....	5	1 0	33	34·00	206
LONDONDERRY.						
D *Garvagh (Mon-ydig) .....	H. R. Morrison, Esq. ...	5	1 0	121 T	35·30	187
Londonderry .....	D. Watt, Esq. ....	8	0 6	80	36·10	...
D Newtown Limavady (Drenagh)..	C. T. McCauslands, Esq.	5	1 0	80	33·52	219
Bellarena .....	Sir F. Heygate, Bt. ...	5	1 0	12 T	32·60	209
TYRONE.						
D Aghnacloy Archdeaconry .....	Rev. T. G. Stokes ...	5	4 6	255 $\bar{\pi}$	40·25	176
$\bar{\pi}$ Moy (Benburb) .....	Mr. S. Robinson .....	5	1 0	...	40·26	158
D Dungannon (Donaghmore) .....	J. Brown, Esq. ....	5	1 0	300	37·10	...
" (Pomeroy) .....	Rev. St. A. Brenan ...	5	1 0	...	47·54	225
D $\bar{\pi}$ Stewartstown (The Square)...	A. Johnston, Esq. ....	5	1 4	350	37·44	178
D Cookstown (Ballymully Glebe)...	Rev. T. H. Porter, D.D.	5	1 0	200	35·59	193
D Omagh (Edenfell) .....	Major Buchanan .....	8	1 0	275	34·80	207
D Cookstown (Lissan) .....	Sir N. A. Staples, Bart.	...	0 4	300	44·25	254
D Newtown Stewart (Drumquin) ...	Rev. G. Hennessy, B.A.	5	1 0	...	41·40	240
DONEGAL.						
D $\bar{\pi}$ Ballyshannon .....	H. Allingham, Esq. ...	5	1 1	7	33·69	197
Raphoe (Convoy) .....	Major Montgomery ...	5	1 0	110	38·65	213
" " " " .....	" " " " .....	5	4 0	109	37·52	213
$\bar{\pi}$ Letterkenny (Glen Doen) ...	Rev. Dr. H. Kingmill ...	5	1 8	108 $\bar{\pi}$	49·55	...
Dunglow (Templecrone) .....	Rev. A. Delap .....	8	0 8	10	38·96	210
$\bar{\pi}$ Ramelton .....	J. A. Mahony, Esq. ....	5	1 2	21	36·92	202
D " (Ballyare) .....	G. M. W. Hill, Esq. ...	5	1 0	60	33·90	143
D " (Killygarvan) .....	Rev. C. H. Cochrane ...	5	...	14	36·52	150
Buncrana (Rockfort) .....	T. Colquhoun, Esq. ....	5	1 0	15	36·62	222
Dunfanaghy (St. Helen's) .....	C. B. Wolseley Esq. M.D.	5	3 0	38 T	36·37	211
D Moville .....	Rev. F. Smith .....	12	4 0	100 $\bar{\pi}$	41·09	223

## FINANCIAL.

PROBABLY my readers have but hazy notions of wherein the cost of the rainfall system consists. Of course, the principal outlay is for printing, stationery, postage, and salaries; but there are in addition a host of little items, trivial in themselves, but amounting in the aggregate to a very large sum. It would be out of place to enlarge upon these petty details, but I may mention a few of them if only to show their variety. I have, then, to pay observers in the more inaccessible and thinly-peopled districts, and even in one case to rent the ground on which the gauges stand. I have to pay the travelling and other expenses incidental to rain gauge examination; frequently to supply gauges and measuring glasses, as well as experimental apparatus; and to defray the cost of calculations which are beyond the capabilities of my staff to execute in the time at our disposal.

As mentioned in the early part of this work, the British Association have discontinued their grant. I informed my correspondents of the fact, and asked them to make up the £100 among themselves. Several have very promptly acted upon the suggestion, and increased their subscriptions, but I am afraid that many have put the circular in the waste-paper basket without reading it. I think so for two reasons (1); because to such a staff as I have the honour of working with, an extra hundred pounds is no object at all, and yet, not half of it has been raised; and, (2), because several subscribers whom I know to be equally able and willing to help, have either paid the same as in previous years, or less. This I am certain they would not have done, had they read the circular.

While, however, I should be able to do better work\* with more money, I am quite conscious that the sums entrusted to me, and acknowledged below, are a silent, and yet eloquent, proof, that an increasing body of my fellow-countrymen appreciate the work I have undertaken, and approve of my mode of conducting it.

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\* For example, had I at disposal even a tenth of the sum annually granted to the Meteorological Committee, such questions as that at Ipswich, p. 157 would be settled in 24 hours, by the immediate dispatch of an assistant with the necessary testing apparatus.

*List of all Sums of £1 and upwards received in payment for Books, Diagrams. &c., or as Contributions to the General Expenses of Rainfall Investigations in 1876.*

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

	£	s.	d.		£	s.	d.
Abbotts, R. W., Esq. ....	3	10	0	Bumpstead, The Rev. T. J.....	1	0	0
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Aire and Calder Navigation ...	1	11	0	Burgess Wilson, Mrs. ....	1	11	0
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Andersson, A. R., Esq. ....	2	2	0	Colin, Esq. ....	1	0	0
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Baker, W. C., Esq. ....	1	1	0	Churchward, Rev. M. D. ....	1	5	0
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Giles, J., Esq.....	1	10	0	Main, D.D., Esq. ....	1	0	0
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"   W. F., Esq. ....	1	11	0	Maxwell, Rev. E.....	1	12	0
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Heberden, Rev. W. ....	1	0	0	Mitchell, F. J., Esq.....	1	1	0
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Ker, R., Esq. ....	1	1	0	Peckover, A., Esq. ....	1	1	0
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"    G. G., Esq.....	1	0	0	Stone, W. H., Esq. ....	1	0	0
Piggott, Rev. E. V.....	1	0	0	Stuart, Col. ....	1	0	0
"    G., Esq. ....	1	0	0	Tarbotton, M. O., Esq., C.E....	1	1	0
Plant, T. L., Esq. ....	1	1	0	Taylor, F., Esq.....	1	0	0
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Rendell, Rev. A. M. ....	1	0	0	Ward, H., Esq.....	1	10	0
Reynolds, J. Esq. ....	1	1	0	Waring, Major ....	1	10	0
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Robson, J., Esq. ....	1	0	0	Watkins, J., Esq.....	1	11	0
"    J. W., Esq. ....	2	0	0	West, F., Esq. ....	1	5	0
Rowe, W. N., Esq. (4 years)...	2	0	0	Weston, Rev. G. F. ....	1	0	0
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"    W., Esq. ....	1	1	0	White, J., Esq.....	1	0	0
Sharples, G., Esq.....	1	0	0	Wigram, J. R., Esq. ....	1	0	0
Shiffner, Miss I.....	1	1	0	Williams, Rev., W. W. ....	1	0	0
Shearer, B. P., Esq. ....	1	0	0	Wilson, Frank, Esq.....	1	1	6
Slade, F., Esq.....	1	10	0	"    Thomas, Esq .....	1	5	0
Smith, Harold, Esq.....	2	4	0	Wingfield, the Rev. C. L. ....	1	0	0
"    R., Esq. (3 years) ....	1	0	0	Wood, J. G., Esq.....	1	0	0
Smyth, J., Jun., Esq., C.E....	1	10	0	Woodhouse, A. J., Esq. ....	1	16	0
Soames, Rev. C. ....	1	10	0	Wortham, H., Esq. ....	1	10	0
Southall, E. P., Esq. ....	1	6	6	Wright, Philip, Esq., F.C.S...	1	0	0
"    H., Esq. ....	1	0	0	Yonge, J. B., Esq. ....	1	0	0
Spence, R., Esq. ....	1	1	0				

## SUPPLEMENTARY TABLE OF IMPERFECT RETURNS.

DIV.	COUNTY.	STATION.	OBSERVER.	Rain Gauge.			Depth of Rain.
				Diameter.	Height Above Ground	Height Above Sea Level.	1875
				ft.	in.	feet.	inches.
II.	Kent .....	Southboro' (TheParade)	Mr. Paige.....	5	...	...	28·8
"	Susséx .....	Warbledon Rectory ...	Rev.G.E.Haviland {	5	1 1	182	31·7
III.	Buckingham ...	Filgrave Rectory .....	Rev. J. Tarver .....	5	1 1	280	
"	Oxford .....	Watlington (Swyne- combe House) .....	Mrs. Rush Keene ...	5	0 4	700	31·8
"	Northampton ...	Kings Sutton .....	W. A. Willes, Esq....	5	1 0	400	34·6
"	Bedford.....	Stotfold (Three Counties Asylum).....	E. Swain, Esq., M.D.	5	0 9	220	28·9
IV.	Essex.....	Waltham Gunpowder Factory .....	Col. H. J. Hay .....	8	4 0	70	27·1
V.	Wiltshire .....	Malmesbury (Charlton Park) .....	Lady Howard .....	5	0 10	300	39·5
"	Devon .....	Exeter (High Street)...	W. H. Ellis, Esq. ...	10	44 3	180	38·7
"	" .....	" ( " " )...	" " " .....	5	47 11	183	38·7
"	" .....	" (Manston Ter.)...	Miss Dymond .....	5	0 0	165	40·1
VI.	Gloucester .....	Bristol (Canon's Marsh)	A. S. Nash, Esq.....	5	12 6	21	41·1
"	" .....	" (Cotham Park)	W.F.Denning, Esq. {	5	0 8	230	43·1
"	" .....	" (Ashley Down)	" .....	5	0 8	?200	
VII.	Rutland .....	Thistleton .....	Rev. C. Allison {	5	0 6	...	34·4
"	" .....	Oakham (Greetham) ...	Holmes .....	5	0 6	...	
"	Derby .....	Belper .....	J. G. Jackson, Esq....	5	0 8	222	33·4
"	" .....	Grassmoor Colliery.....	E. Bromley, Esq... {	5	9 1	...	27·1
"	" .....	" .....	" .....	5	19 10	...	
VIII.	Lancashire .....	Bolton (Smithill Hall)...	R.H. Ainsworth, Esq.	8	1 2	523	44·4
"	" .....	Weeton Reservoir .....	J. Bradley, Esq.....	10	1 0	150	29·3
IX.	Yorkshire .....	Swaledale (SummerLdg)	Mr. J. Broderick.....	5	1 0	1075	58·2
X.	Northumberland	Brenckburn Priory.. ...	C. H. Cadogan, Esq {	5	1 0	250	33·1
"	" .....	Wooler (Middleton Hall)	" .....	8	1 0	250	
"	" .....	Gowbarrow .....	G. P. Hughes, Esq... {	5	1 0	510	27·0
"	Cumberland .....	Matterdale .....	G. J. Symons, Esq... {	8	1 0	...	44·3
"	" .....	" .....	" .....	8	1 0	...	45·1
"	" .....	Kirkandrews-on-Eden.	Mr. E. Craigton .....	...	0 7	...	28·8
"	Westmoreland ...	Easedale Tarn .....	Mr. R. Hayton .....	8	1 0	...	94·3
XI.	Monmouth .....	Llanfrechfa Grange ...	F. J. Mitchell, Esq... {	5	4 0	326	62·0
"	" .....	Piercefield Park .....	H. Clay, Esq. ....	5	1 6	300	57·6
"	Glamorgan .....	Aberdare (Abernant) ...	E. Jones, Esq.....	6	1 0	420	66·9
"	Denbigh .....	Gwynfryn.....	Miss M. G. Edwards	4	0 6	240	30·0
XV.	Argyll .....	Stonefield .....	C. G. Campbell, Esq.	5	0 10	90	63·2
XX.	Tipperary .....	Nenagh (Luska Lodge)	G. A. Waller, Esq....	5	...	...	31·4
"	" .....	" (Carobane) ...	H. Koe, Esq. ....	5	1 2	150?	40·2
"	" .....	" (Castle Lough)	A. Parker, Esq. ....	5	1 3	120?	38·2
"	Limerick .....	Limerick (Kilcornan)...	Mr. P. Sweeny .....	5	...	...	40·7
"	Clare .....	Corofin .....	J. W. Macnamara, Esq	5	1 0	...	40·2
XXI.	Kilkenny .....	Castlecomer .....	Mr. T. Mahony .....	5	2 0	...	36·6
"	Kildare .....	Naas Ballymore Eustace	Mr. P. Homan.....	5	1 3	...	35·6
"	Meath .....	Navan (Balrath) .....	R. W. Walsh, Esq. C.E.	5	...	...	34·5
XXII.	Leitrim .....	Drumkeeran, (Spencer Harbour) .....	Mr. Fortescue .....	5	...	...	48·0
"	" .....	" .....	Mr. Faucett .....	5	...	...	56·8
"	Fermanagh .....	Irvinestown, EglintonLo	Dr. Irvine .....	5	...	...	39·0
XXIII.	Armagh .....	Newtownhamilton .....	Dr. Anderson .....	5	2 3	680?	43·1
"	Down .....	Rathfriland .....	Dr. May .....	5	...	...	41·6
"	Londonderry ...	Knockan .....	H. F. Stevenson, Esq.	5	1 0	300	35·1
"	Donegal .....	Inver Glebe .....	Rev. F. Carre .....	5	1 0	200	41·4

*List of Stations of which the Records were quoted in 1874, but are not in 1875, with the reasons for their omission.*

**EXPLANATION.**—The Stations are quoted in the order of their sequence in the printed tables, and the causes of omission are indicated as follows:—

NR—No reply; NO—Not observed; T—Terminated; RI—Return imperfect.

Islington, Compton Terr.	T	Barnstaple, Bratton,		St. Bees .....	T
Farnham, Culverlands...	T	Fleming .....	RI	Gowbarrow Fell.....	RI
Guildford Roy. Gram. Sch	T	Helston St., Ruan Rec....	NR	Matterdale Common.....	RI
Chobham, Northbourne..	T	" .....	RI	Keswick, Shu-le-Crow...	T
Croydon, Dingwall Road.	T	Falmouth Observatory ...	NR	Carlisle, English Street...	NR
Beulah Hill, Norbury ...	T	" Lansdown Rd.	T	Grasmere, Easedale Tarn	RI
Goudhurst Vicarage .....	RI	Wadebridge, Guinea Port	T	Llanfrechfa Grange .....	RI
Hythe, Lyminge .....	T	Yatton, Chelvey.....	T	Chepstow, Piercefield Pk.	RI
Chatham, Sch. of Mil. Eng.	NR	Bristol, Canons Marsh ...	RI	Usk, The Priory .....	T
Eastbourne, Meads Rect.	RI	" Cotham Park ..	NR	Tredegar, Ebbw Vale ...	NR
Pevensy Vicarage .....	T	Gloucester Park House	NO	" Sirhowy .....	NR
Battle .....	T	" County Asylum	RI	Monmouth .....	NR
Bournemouth, Holmwood	NR	Ross, Brockhampton ...	NR	Aberdare, Abernant .....	RI
Lymington .....	T	Leominster, Leysters ...	RI	Aberdaron, Sarn .....	T
Portsmouth.....	NR	Ludlow, Mill Street .....	NR	Scilly .....	NR
Fareham .....	T	Coalbrookdale, Horsehay	NO	Newton Stewart .....	NR
Havant, Leigh Park.....	T	Shrewsbury.....	NO	Langholme School.....	RI
Alresford, Wester Court.	NR	Ellastone [Ashbourne]...	T	Riccarton.....	RI
Wokingham, Bearwood..	NO	Leek, Westwood Hall ...	NO	Milne Graden .....	RI
Abingdon.....	NR	Upton-on-Severn .....	T	Haddington, Millfield ...	RI
Hatfield, North Mimms..	RI	Bromsgrove, Ford House	T	Cobbinshaw Reservoir ...	RI
Great Berkhamstead,		" School ...	RI	Ratho, The Villa .....	NR
Northchurch .....	T	Leicester, Dane Hills ...	RI	" Bonnington.....	NR
Watlington.....	RI	Thistleton Rectory .....	RI	Lanark, Baronald .....	RI
King's Sutton.....	RI	Horncastle .....	T	Mearns, Netherplace.....	NR
Newbottle Manor [Ban-		Lincoln, Hartsholme Hall	RI	Paisley, Ferguslie House	RI
bury] .....	NR	Louth .....	NR	Shaw's Water Works,	
Stotfold, Baldock .....	RI	Ruddington Grange .....	T	Lock Thom .....	RI
Cheveley Park .....	NR	Derby .....	T	Stirling, Polmaise Gdns.	RI
Wisbeach Elm, The Limes	NO	" Long Lane Vicarage	T	Arran, Sannox Manse ...	NO
Waltham Abbey .....	RI	Belper .....	RI	Cantire Tarbert, Stone-	
Coggeshall, Feering Ho.	T	Liverpool, West Derby		field .....	RI
Ramsey, Fulton Hall ...	T	Sandfield Park .....	NR	Islay, Bowmore .....	NR
Wickham Market .....	T	Manchester, Helmshore.	T	Tyree, Heynish Farm ...	NR
Norwich, St. Clement's		Shore Top, Outwood.....	NR	Balfour .....	RI
Hill .....	NO	Oldham, Royton.....	T	St. Andrew's, Feddinch	
Acle, Lingwood .....	NO	Bolton-le-Moors, Chorley		Mains .....	NR
Norwich, Salhouse .....	RI	Street .....	NR	Cupar Asylum .....	RI
Bower Chalk .....	T	Rivington .....	NR	Strathfillan .....	T
Salisbury, Lower Wood-		Stonyhurst College .....	RI	Perth, Gen. Prison .....	RI
ford .....	T	Cartmel, Broughton .....	NR	Logiealmond Lodge .....	T
Marlborough College ...	T	Hawkshead, Highfield...	NR	Meigle, Belmont Castle...	T
" Kingsbury St.	NO	Snaith, Balne Vicarage...	T	Aberfeldy H.R.S.....	RI
Kimmeridge .....	NO	Halifax, Well Head.....	T	Pitlochrie H.R.S.....	RI
Bridport, St. Andrew's		Batley .....	NR	Struan H.R.S. ....	RI
Villas .....	RI	Ripon, Littlethorpe .....	NR	Montrose Museum.....	NR
Plymouth, Drake's Rsvr.	NR	Thorganby, Thicket Priory	T	Aberdeen, Skene Street..	RI
Hemerdon .....	NO	Hornsey, East Gate House	NR	Tomintoul .....	RI
Dartmoor, Head Weir	NO	Greta Bridge, Thorpe		Mulben, H.R.S. ....	RI
" Prison Reservoir	T	Grange.....	T	Sumburghead.....	RI
" Widdecombe Vic.	NO	Durham, St. Cuthbert's		Killarney, Killarney Ho.	RI
Exmouth, East Budleigh	T	College.....	T	Cloughjordan, Deer Park	NR
Werrington Vicarage,		Hartburn, Wallington ...	T	Black Rock, Rockville...	T
[Launceston].....	NO	Rothbury, Brenckburn		Buninnadden, Doo Castle	RI
Exeter, High Street.....	RI	Priory .....	RI	Carrickfergus, White Ab-	
" Manston Ter. ...	RI	Alnwick, Glanton Pyke..	T	bey .....	NR
Tiverton, Loxbear Rec..	NR	Wooler, Middleton Hall	RI	Antrim, The Manse .....	NR
		Whitbeck.....	NR		