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CUTTINGS.

THIS magazine is so largely occupied with original matter that we can rarely insert anything else; but it seems a pity never to relax—so we are reprinting a few items which we think will be of general interest.

ELECTRIC SNOW.

The story of a very remarkable snow-storm, is told, says "Science Siftings," by Lieutenant John P. Finley, one of the best informed meteorologists in the United States, who encountered the storm in making an ascent of Pike's Peak. He says that the storm could be described as a "shower of cold fire." In reality it was so charged with electricity as to present a scene more easily imagined than described. At first the flakes discharged their tiny lights only on coming into contact with the hair of the mule on which the lieutenant was mounted. Presently they began coming thicker and faster, each flake emitting its spark as it sank into drifts of the snow, or settled on the clothing of the lieutenant, or the hair of the mule. As the storm increased and the flakes became smaller, each of the icy particles appeared as a trailing blaze of ghostly white light; and the noise produced by the constant electric explosions conveyed an expression of Nature's power which Lieutenant Finley will never forget. When the storm was at its height and each flake of snow was like a drop of fire, electric sparks were shaken in streams from the Lieutenant's finger tips as well as from his ears, beard and nose, and a wave of his arms was like the sweep of flaming sword-blades through the air, every point of snow touched giving out its little snap and flash of light. This phenomenon, though rather rare, is by no means new to meteorologists, it having been recorded several times before. By some authors, it seems to have been treated as a sort of phosphorescence, but if Lieutenant Finley's description is correct there can be no doubt that in this case each flake was charged with electricity.—*Globe.*

Lieutenant Finley is so skilled an observer that the above may be implicitly trusted. As regards the streams of sparks from his finger tips, we once had the privilege of being shown by Prof. Mascart the electric installation of the Grand Opera at Paris, and in a brilliantly lighted basement, he showed us the electric energy present, by holding his hand within a foot or so of a driving-band, when each separate finger had at its extremity a brush discharge from

2 to 3 inches long. In the dark they would probably have been twice or thrice as long. Trying it ourselves, we saw the same blue flame, and found it quite painless. Electric engineers are doubtless accustomed to it, but to have St. Elmo's fire on our finger tips was to us a new experience.

A COMPASS PLANT.

On some of the prairies in America is found what is called the compass plant, of great value to travellers. The long leaves at the base of its stem assume a vertical position, and point north and south. Travellers on dark nights have only to feel the edges of the leaves to ascertain the points of the compass.

If the leaves "assume a vertical position" how do they "point north and south"?

TREES AND CHANGE OF TEMPERATURE.

It looks as if we were gradually but surely passing to a lower general temperature in these latitudes. Observation does not, it is true, show that the mean temperature is lower than it was a century ago; but the disappearance of many plants which formerly flourished on this island and in Central Europe seems to indicate that such a change is in progress. A writer in *La Semaine Horticole* draws attention to certain changes which have occured and are occurring in France at the present time, which favour the idea that the climate is becoming cooler. Many trees that formerly flourished in the North of France are no longer found there, and can only be met with in the extreme south, while several have entirely disappeared from the country. The lemon, once so general and prevalent in Languedoc, no longer grows there, and an orange tree cannot be found in Roussillon, where orange groves existed long ago. The Italian poplar so common and so picturesque in ancient French etchings, is now rarely found on French soil, and only in the southern part of the Republic. France was of old the fruit garden of Europe; but the changes of temperature have greatly limited the number and variety of fruits which can be grown in that country, and considerably restricted the area in which they flourished.—*English Mechanic, 17th December, 1897.*

THE RAINBOW WONDERS OF WINDERMERE.

"About the first week in October," writes Wordsworth in his "Guide to the Lakes," "the rich green which prevailed through the whole summer is usually passed away, the brilliant and various colours of the fern are then in harmony with the autumnal woods; bright yellow or lemon colour at the base of the mountains, melting gradually through orange to a dark russet-brown towards the summits, where the plant, being more exposed to the weather, is in a more advanced state of decay."

Wordsworth was a faithful observer of the changes of the varying year at the English Lakes, but he would have been obliged to confess that there is no rule without an exception, and that this year the exception holds good. It is true that a Spanish chestnut here and there or a wild cherry upon an upland slope has changed colour, but to-day is the 4th of October, and there is hardly a speck of amber in the woods. A greener autumn can hardly be imagined; yet for all the mellow mistfulness of to-day the wind is going eastward; and if the heavens be clear to-night, and Cassiopeia be bright at the Zenith, we may have

all the larches yellow, and all the brackens gleaming gold to-morrow morn. So runs my diary for October the 4th.

But the heavens were not clear; the mists gathered in a fleecy cloud bed upon the bosom of the lake, and gradually floated upward till all that we could see from our cottage on the Furness Fell were the purple tops of the Fair field range, and the summit of Woden's fell—the Wansfell or Wonsfell of our modern day.

"The morning rose in memorable pomp," the flush of dawn fell upon the steady cloud-pack of mist in the valley, and in a moment as it seemed the quiet sea of vapour was stirred into life; there were writhings innumerable, and the whole mass of soft restfulness became convulsed with passionate movement. Then from beneath the ascending vapour, the sun, reflected in the water, "gleamed upward like the flashing of a shield," and we went down through the roses and the dahlias and the giant lilies still untouched by frost, through the woodland still un-umbered by the touch of October, down through the bracken slopes as green as June, towards the lake shore of Winandermere. Half an hour ago it had seemed as if there would never be sun any more, so densely obscured was the great day star by the white mists that steamed upward. Now we were rejoicing in sunshine that seemed as bright as August noon, by a lake that shone as fair and blue almost as an Italian water-flood. There was no ripple on the mere, and when we pushed out into middle lake, so marvellous were the reflections of fell and wood, so transparent the depths, that one could hardly tell whether we were upon water or suspended in middle air.

Suddenly my companion cried, "Look at the rainbows! look at the rainbows!" Gazing south towards "Belle Isle," one saw the whole water iris-hued, as if all the rainbows that had ever sprung from earth to heaven, had melted into the bosom of the lake, and filled the sunny depth with liquid iridescence.

Slowly we rowed towards them, and the rainbows stayed for us till our boat pushed into the lucent flood, and then as we moved forward on each side our wake, the rainbows curved and quivered, and sprang like horns of multi-coloured light to right and left, and lengthening out, shone far astern. On we went, wondering at the glory and the glow. Our boat's motion seemed momently to kill the marvellous prismatic flood, but it was only for a moment that the rainbows faded, and again, beyond the ripple and the washing of our oars, there sprang into being new rainbow-tinctured beauty of liquid purple shot with green, and orange, and rose, and behind us, as well as before us, the lake mirror lay one mighty opal, one flood of lucent pearl and fire.

Beyond the rainbow lustres far away the lake seemed to have been silvered over with frost; one could have staked one's life, unless one's eyes were playing one false, that the ice-king had been at work, and the thin ice mirrors he had made were powdered with the hoary rime. But as one neared it the phantom ice-floe faded, and nothing but liquid rainbows for the keel to cleave and fashion again to wondrous loveliness, and the finest dust like floating meal remained where before we might have supposed was a fair field for the skater's joy and curler's game.

It was rainbows, rainbows all the way! and what was the cause of this October glory of rainbow flood? It was nothing in the world but a smooth lake surface and the fine dust of the pollen of a humble water-plant—some say

the pollen of the American water-weed Vallisneria, others aver it is the gold dust of the water-lobelia, which, floating upward through the tranquil water on a calm October day, lies on the surface of the polished lake-mirror with power to change the face of the water into such a refracting and diffracting medium as to splinter all the sun into iridescence, and unravel the beam of white light into the colours of the prism.

It seems that the water must be of a certain temperature to encourage the plant to send forth its prism-makers to the surface. No breath in Heaven must stir if the lake-mirror is to work its magic charm. Only on rare days such as was October the 5th could Windermere be clad in rainbow hue. One may live by the shore of the lake for another fifteen years before one may be fortunate enough to witness again the glorious phenomenon of yesterday, or be privileged to push one's shallop through a league of liquid iris, or row through miles of rainbow.—*Daily News, 12th October, 1898.*

The writer's language is as brightly coloured as are the phenomena he describes. They are, perhaps, hardly meteorological facts, but so little over the border line that we may be excused for quoting the account. We have also another reason for reproducing it. We do not impeach the accuracy of the antecedent account, but we once saw on Derwentwater a sight equally beautiful, of which we assumed another explanation. It also was on a very calm day, in early autumn; we were in a small boat, nearly in the centre of the lake, and merely using an oar occasionally to prevent drifting, when we noticed, away to the N., lying on the lake, not a mere rainbow, but a spectrum far more brilliant than any rainbow we ever saw. We thought, but it might have been fancy, that we could trace variations in its brilliancy when wavelets, produced by dipping our oars, had reached its apparent position; and having only the "dangerous" knowledge (*i.e.*, very little) of optics, we thought that we quite understood it, and contented ourselves with admiring, instead of investigating, it.

Our theory, which perhaps some one versed in optics will demolish, was, that as our eyes were so near the level of the water, the crests of the wavelets acted as a diffraction-grating and broke up the sunlight into its component parts. That seems to be the idea of the writer in the *Daily News*, but he brings in the pollen as the diffracting agent.

PERSIAN RAINFALL.

It appears, from a Consular report from Meshed, Persia, that the rainfall there last year was only 9·58 inches, the number of wet days being 44. The year, nevertheless, was one of the wettest on record, and absolutely the wettest since the beginning of the present decade. The average annual rainfall seems to be no more than between 4 and 5 inches. In 1891, it reached 5·73, and in 1895, 8·78. But in 1893, a year of general drought, it was only 3·46 in. Those in search of a dry climate, therefore may be recommended to turn their attention to Meshed. A really wet day, such as we rarely experience in Newcastle, but such as is a common occurrence in Cumberland and Westmoreland, yields as much moisture in a few hours as Meshed gets in a twelvemonth, and would cause the inhabitants of the Persian city to think that the Day of Judgment had come.—*Newcastle Chronicle, 26th October, 1897.*

THE MOON AND THE WEATHER.

To the Editor of the Meteorological Magazine.

SIR,—I fear I must not consider myself a "thoughtful meteorologist," as I am prepared to assert most emphatically that the moon has no influence upon the motion of high and low pressure areas; also, if Prof. Hazen has waded through as much matter on the subject of the moon's influence on the weather, and of the same character, as I have, his "vehemence," I think, is easily explained.

We know the moon's radiant heat to be infinitesimal, and we are able to calculate so accurately the effect of the mutual attraction of the earth, sun and moon, that we can foretell the time and position of a solar eclipse many years hence with the greatest precision.

Although much may remain to be discovered, it cannot be said that we are ignorant of the two chief ways in which the moon might influence the weather. The heat is so small that it may certainly be neglected. The same science which enables us to assign to the moon its precise position in the sky for hundreds of years to come enables us also to assert that the only result of the moon's attraction on our atmosphere is a small aërial tide—a tide which is so small that it can hardly be detected by the barometer. Air being non-magnetic, we can hardly conceive of any magnetical action, and an electrical effect seems equally improbable.

To prove an inherently improbable event very strong evidence is required, but the evidence offered for most of these theories is of the flimsiest description. In fact, a careful search would unearth many pairs of mutually destructive theories—that it rains most at the time of new moon; that it rains least at the time of new moon, &c.

We have, roughly, one hundred years record of the weather, and were there any real connection between it and the moon, it seems likely that it must indisputably have appeared before now.

Careful search for any sort of weather connection should not be discouraged; but if the authors of these theories would study the laws of probability, and apply them rigidly before publishing, it would save the waste of much paper. Take any purely chance numbers, such as the figures after the decimal in a daily temperature column, or the numbers given by a throw of dice. It is very unlikely that the average of ten throws with the left hand will coincide with the average of ten throws with the right hand; and if the numbers be extended to fifty, there may even then be a fair difference between the averages. The averages of alternate figures in the temperature column will show the same discrepancy. Similarly with the moon; if the rainfall for fifty lunations be greater or less at full moon than at new moon, it by no means follows that there is a connection between the fall of rain and the age of the moon, since *à priori* we may naturally expect to find a difference. Considering the many independent elements of variation both of the moon and of the weather, it would be odd if some accidental coincidences in the changes of the various elements did not occasionally happen.

September 2nd, 1899. W. H. DINES.

REVIEWS.

Lightning and the Electricity of the Air, prepared under the direction of WILLIS L. MOORE, U.S. Weather Bureau, by ALEXANDER G. MCADIE and ALFRED J. HENRY. Bulletin No. 26. Weather Bureau, Washington, 1899. 8vo. 74 pages, many engravings and plates.

IN the States this can be bought for half a dollar, we wish that some enthusiast would import a few hundred copies, sell some at half a crown each, and stir up our educational authorities to distribute the remainder to our schools, and thus instruct the children and save lives.

We do not suggest that the pamphlet could itself be put into children's hands,—but that a master would find in it good material for teaching his pupils the general features of atmospheric electricity, thunderstorms, and injury by lightning; while the excellent photographs would give them an object lesson which would prevent their ever running under a tree for "shelter!" However, we suppose that such knowledge would not secure "marks," and therefore probably another generation will be allowed to "shelter" in the worst place possible.

No one, however, must run away with the idea that this is a mere elementary or "paste and scissors" pamphlet. It does contain much that has been said before, it would be useless if it did not; but each of its two sections is extremely well arranged and supported by the best available data.

The lack of esteem for prophets in their own country is proverbial, it is therefore with some satisfaction that we see the following paragraph in Mr. McAdie's paper:—

In 1882 appeared the report of the Lightning Rod Conference; in many respects the most important contribution to the literature of the subject yet made. While so many foreign governments, and in particular France, had by means of officially constituted boards taken a governmental interest in the protection of the people from the dangers of lightning, the English speaking people of the world, aside from the few directions officially issued for the protection of magazines and lighthouses, remain without any authoritative utterance upon the subject: and while this conference itself did not have strictly official sanction, it carries, from the character of its make-up, a weight certainly as great as, if not greater than, an official board. It was simply a joint committee of representative members of the Institute of British Architects, the Physical Society, the Society of Telegraph Engineers and Electricians, the Meteorological Society, and two coöpted members. As might have been anticipated from such auspices, the report is an excellent one, and must stand for years as the embodiment of the most widely gathered information and well considered decisions. The report is emphatically one based upon experience.

The famous free-for-all discussion which occurred at the British Association Meeting in 1888, as far as our judgment goes, simply proved that the decisions of the conference could not at present be disregarded. As the president of the meeting, Sir William Thomson, said, "we have very strong reason to feel

that there is a very comfortable degree of security, if not of absolute safety, given to us by lightning conductors, made according to the present and orthodox rules."

Part II. deals chiefly with injury by lightning, and statistics as to the number of deaths, of fires, &c., in different years, and in different countries. It contains three beautiful photo-electros of damaged trees, a walnut and two oaks. These induce us to mention an opinion which we have long held, viz., that it is easy for anyone who hardly knows an oak when he sees it growing, to pick out, from a series of photos of trees struck by lightning, all the oaks. We should be glad if any of our readers who have photographed damaged trees would favour us with copies. We would see whether it were possible to reproduce a series of types. For instance, Mr. Henry intimates that when a maple is struck it is rare for any injury, except a groove, to be perceptible, whereas an oak is splintered like a birch broom. We used to think that this disruptive action was caused by the conversion of the sap into high pressure steam, but we gave up that idea after examining the rafter of a house which had been split into shreds, like wooden matches, although the wood was absolutely dry and sapless; this showed that the cause must be electrical repulsion between the particles of wood all similarly electrified. But if so, why is oak so splintered? and why is not maple, or poplar?

Nedboriagttagelser i Norge udgivet af det Norske Meteorologiske institut. Aargang I., II. og III. Two parts. Kristiania, 1899. Fol., 152 and 218 pages, 2 maps and 4 tracings.

Two excellent works; but Dr. Mohn was a regular attendant at the Official Meteorological Congresses, at which we thought that it was decided that it was desirable that meteorological publications should be uniform in dimensions, and here we have two handsome publications which will not go comfortably on anybody's shelves, and which are sure to suffer accordingly. They are 16 inches high by 11 inches broad, and we can see no reason whatever for these unusual and uncomfortable dimensions.

Having recorded our protest—which, moreover, applies to others besides Dr. Mohn—we turn to the more pleasant duty of reporting what the volumes contain.

Part I. gives the daily rainfall from July 1st, 1895, to December 31st, 1897, at about 200 Norwegian stations.

Part II. gives monthly summaries for all the stations at work during 1895–97 (about 400), and also various remarks, summaries, and an introduction.

On pages 206–209 there is a very useful table which gives the total rainfall in each year from 1867 to 1895 inclusive, at every station at which any record was kept for any one or more of those

years. There are only seven returns for the first year (1867), and of these Kristiania, Mandal, Skudenes, Bergen and Aalesund are perfect for the whole period of 29 years.

It will be useful to give some data for these stations.

	Kristiania	Mandal.	Skudenes.	Bergen.	Aalesund.
Latitude N.	63° 7′	58° 2′	59° 9′	60° 23′	62° 28′
Longitude E.	7° 45′	7° 27′	5° 16′	5° 21′	6° 10′
Altitude (feet)	52	56	13	72	46
Mean R. (in.)	22·95	52·20	45·00	73·09	43·54
Max. Total (in.)	38·82	75·04	57·95	111·58	66·59
,, Year	1877	1891	1877	1887	1893
,, % of Mean	169	144	129	159	153
Min. Total (in.)	16·26	31·02	31·46	43·82	27·21
,, Year	1871	1875	1875	1870	1872
,, % of Mean	71	59	70	60	62

Bergen has long been known to have a large rainfall, and it will be seen that the average is 73 inches. Apparently the wettest place in Norway is Farstveit,* in Lat. 60° 50′ N. and Lon. 5° 56′ E., about 350 feet above sea level, at which place the average rainfall is 90 inches, or about half that of the wettest English station.

We congratulate Dr. Mohn upon this useful publication, and upon the beauty of the typography and of the maps.

Meteorologiske Middeltal og Extremer for Faroerne, Island og Grønland. [Meteorological Means and Extremes for the Faroe Islands, Iceland and Greenland.] Appendix to the danske meteorologiske Instituts Aarbog, 1895, II. Del. Copenhagen, 1899, 4to, 32 pages, 1 map.

We thank Dr. Paulsen heartily for this very useful paper, but we wish that he had added a few more pages of text. He is, of course, familiar with the instruments used at these nine stations, with their mounting, and with the environments of each, but there is not a word upon the subject in the text, nor any reference to any other work in which such information is given—so that those who have not visited the stations are left very much in the dark.

We have applied some rather severe tests to the barometric records and they seem to be excellent; we, therefore, assume that the other elements are equally trustworthy, except where distinct warning to the contrary is given—as for example, in the statement that at four of the stations there was no *maximum* thermometer.

As this paper deals chiefly with means and extremes, dates are of minor importance, but we should certainly have given for each

* At the head of a Fjord some 50 miles N.E. of Bergen.

station the years upon which the records are based. We *infer* that the latest year is in all cases 1895, and that therefore, *e.g.*, at Berufjord the "23 years" were 1873-95, but we cannot be sure. We regret this omission, because in preparing the following table we should have liked to show whether the greatest, and the least rainfall, occurred in the same year, or in different years at the respective stations. However, we give what we can :—

Details as to Rainfall.

	Faroe.	Iceland.				Greenland.			
	Thorshavn.	Berufjord.	Grimsey.	Stykkis-holm.	Vestmanno.	Ivigtut.	Godthaab.	Jacobshavn.	Upernivik.
Latitude N.	62° 2′	64° 40	66° 34′	65° 5′	63° 26′	61° 12′	64° 11′	69° 13′	72° 47′
Longitude W.	6° 44′	14° 15′	18° 3′	22° 46′	20° 18′	48° 11′	51° 46′	50° 55′	55° 53′
Altitude (feet)	31	59	8	37	26	16	37	41	12
No. of Years	25	23	16–22	18–23	15	21	19–23	21–23	21
Mean yearly Rain (in.)...	62·73	43·76	14·72	24·57	49·83	48·61	26·45	8·50	8·90
Max. yearly Rain (in.)...	77·01	68·39	25·85	29·50	62·48	72·50	35·61	14·68	17·77
,, ,, ,, % of Mean	123	156	176	120	125	149	135	173	200
Min. ,, ,, (in.)...	52·28	22·50	6·59	14·95	37·25	20·87	15·66	5·26	3·35
,, ,, ,, % of Mean	83	51	45	61	75	43	59	62	38
Max. in 24 hours (in.)...	2·46	4·31	1·35	2·04	2·46	5·88	3·30	1·43	2·07
Month, Wettest	I.	XII.	X.	IX.	IX.	X.	IX.	VIII.	VIII.
,, Driest	VI.	VII.	IV.	IV.	V.	IV.	IV.	II.	VI.

Remarks.

Double figures as to the number of years are given for four stations. We presume that at these stations some monthly records have been lost; so that the final yearly mean is the total of twelve monthly means, which are based, some upon one number of years, some upon another.

We do not know the reason for the rapid decrease in the fall of rain with increase of latitude in Greenland. It will be seen that taken to the nearest inch it is in—

Lat. 61° ... 49 inches.	Lat. 69° ... 9 inches.
,, 64° ... 26 ,,	,, 73° ... 9 ,,

Is it possible that at these latter Arctic stations, where the fall must be chiefly snow, the mode of measuring it needs more care than it receives? A fall of 3⅓ inches in a whole year would not provide many icebergs for the N. Atlantic,

We are also doubtful as to the record of rainfall at Grimsey; it is an Island station, perhaps a lighthouse, exposed, and wind swept. The return is much the lowest of the four, and is about half that

reported for Reikiavig by Dr. Thorsten for 1829–37, in *Collectanea Meteorologica.*

As regards seasonal rainfall, the figures, though irregular, seem to show that the wettest month is generally in the latter half of the year, most frequently in September. The driest month is usually in Spring, most frequently in April. The mean annual temperature at Upernivik is 16°·2 F., and the lowest observed is —41°·1 F., *i.e.*, 73° below freezing point. At Jacobshavn it was once rather colder, viz., —43°·6 F.

THUNDERSTORM ON AUGUST 15TH.

THUNDERSTORMS prevailed between 2 and 7 p.m. on this date over an area which (roughly) may be said to have been bounded on the S.E. by a line reaching from Salisbury to Norwich, and on the N.W. by a line from Gloucester to Boston.

As heavy rains have lately been very scarce, we give all the returns exceeding an inch, in the order of their amount. We are inclined to think that the largest amount is too *small*, our impression being that the gauge ran over.

	in.	
Wallingford	3·10	
Dorchester, Oxfordshire	2·37	
(1) Manor Ho., Long Wittenham, Berks	2·35	(1) 1·75 in. fell in 50 mins.
(2) Letcombe Regis, Wantage, Berks	2·25	(2) All fell between 2 & 5 p.m.
Drayton, Wallingford	2·20	
Lovegrove's Cottage, Long Wittenham	2·17	
(3) Pyrton Manor, Watlington, Oxon	2·04	(3) All fell between 3 & 8 p.m.
Dorchester, Oxfordshire (Mr. Latham)	1·97	and 1·58 in. fell between
Sedgbrook, Northampton	1·61	3 and 3.45 p.m.
Abingdon, Berks	1·53	
Swaffham, Norfolk	1·52	
Milton, Didcot, Berks	1·50	
(4) Culham, Abingdon	1·25	(4) Storm from S.W., 2 to
Elm, Wisbech	1·22	5 p.m.
Magdalen College, Oxford	1·10	
Alconbury	1·04	
St. Giles, Oxford	1·00	

Taking merely the district round Abingdon, there seems to have been an area of 135 square miles with an average fall of 1½ inches. This would equal (taking 1 in. of rain per square mile as 14 million gallons) 2,835,000,000 gallons of water deposited in about 3 hours, or about 13 million tons weight. How many locomotives would have been required to deliver that load in three hours?

RESULTS OF METEOROLOGICAL OBSERVATIONS AT CAMDEN SQUARE FOR 40 YEARS, 1858–97.

AUGUST.

YEAR.	RAINFALL.				TEMPERATURE.										CLOUD.
	Total.		Max. Fall.	Falls of 1 in. or +	Dry. Mean, 9a.&9p.	Wet. Mean, 9a.&9p.	Shade Max		Shade Min		Sun Max. Black.		Grass Min.		
	Depth	Days					Abs.	Aver	Abs.	Aver	Abs.	Aver	Abs.	Aver	Aver
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	in.		in.		°	°	°	°	°	°	°	°	°	°	0–10
1858..	1·10	7	·61	0	61·6	57·4	84·5	74·9	42·4	52·4	..	..	..	..	4·8
1859..	2·65	14	·46	0	63·0	59·3	87·1	74·1	46·9	54·7	..	..	..	..	4·9
1860..	4·48	26	·77	0	58·1	55·0	70·3	66·6	44·8	51·8	..	..	38·7	48·9	7·4
1861..	·94	9	·24	0	62·6	58·8	89·5	75·6	46·2	53·8	..	..	40·0	48·7	5·0
1862..	2·74	11	·94	0	59·2	55·6	79·6	70·9	43·7	51·4	..	..	34·3	46·9	6·0
1863..	1·44	13	·54	0	61·8	57·8	83·8	73·3	45·1	54·2	..	..	37·8	49·9	6·3
1864..	1·33	6	·57	0	59·9	55·7	89·4	74·4	38·2	49·0	..	..	31·9	45·7	4·7
1865..	4·10	16	1·01	1	59·4	57·1	78·7	71·7	43·4	51·8	..	..	36·8	47·7	5·3
1866..	2·76	17	·87	0	59·5	56·6	80·0	71·6	40·7	52·3	..	..	34·9	44·2	6·7
1867..	2·63	10	·89	0	62·9	59·2	88·2	73·4	40·9	54·4	..	..	35·6	49·7	5·6
1868..	2·28	12	·53	0	63·7	59·3	88·2	73·9	46·0	54·7	..	..	44·8	53·0	6·9
1869..	1·26	9	·28	0	61·0	56·2	89·0	73·3	42·0	51·5	..	..	36·5	48·1	5·5
1870..	2·69	8	·85	0	60·9	57·1	82·5	73·4	40·5	53·5	134·0	119·2	36·4	49·2	4·8
1871..	·85	7	·62	0	65·1	60·0	90·0	77·9	46·2	54·2	127·5	119·4	42·6	52·2	2·0
1872..	2·05	12	·38	0	61·2	57·4	83·0	72·6	43·4	52·8	127·8	114·9	43·2	51·9	4·7
1873..	2·87	16	·87	0	62·1	58·4	86·4	73·9	47·7	54·6	132·7	120·2	43·2	51·2	5·4
1874..	1·32	16	·28	0	60·7	57·3	84·0	72·2	45·5	52·1	129·3	112·2	44·3	50·2	5·9
1875..	1·79	12	·66	0	62·5	59·0	86·1	74·7	45·3	55·0	131·0	116·2	41·8	51·8	5·5
1876..	1·79	12	·42	0	63·3	58·6	92·3	76·0	43·8	54·4	131·2	119·7	38·0	50·6	4·9
1877..	2·23	17	·55	0	62·6	57·9	82·9	72·8	42·4	55·0	130·0	118·4	39·3	52·4	5·8
1878..	6·72	22	1·41	1	62·3	59·1	79·4	72·6	50·1	55·8	127·8	116·2	47·3	52·8	7·2
1879..	5·11	16	·82	0	60·1	56·9	78·3	69·9	44·8	53·8	131·9	108·7	40·6	50·9	6·9
1880..	·45	4	·21	0	62·6	59·3	82·6	74·5	47·8	55·9	131·4	115·4	44·8	53·8	6·3
1881..	4·89	19	·84	0	59·1	55·5	84·6	69·3	42·3	51·3	126·3	110·6	37·8	47·7	6·5
1882..	1·48	12	·39	0	60·1	56·1	80·8	70·6	45·0	52·7	128·3	111·8	40·2	49·3	6·3
1883..	·93	10	·39	0	62·1	57·6	82·7	73·4	46·9	54·2	124·8	113·2	37·2	49·6	5·6
1884..	·89	10	·30	0	65·6	59·9	92·0	77·1	45·7	54·5	125·4	112·2	38·7	52·7	3·6
1885..	·85	12	·25	0	57·8	53·6	79·3	69·2	43·3	51·0	122·7	105·4	36·7	45·9	6·0
1886..	·76	12	·14	0	61·8	57·9	88·4	73·9	44·6	54·6	124·4	114·6	39·0	49·7	5·1
1887..	3·15	8	1·44	1	61·9	56·3	88·5	74·4	42·5	52·5	129·2	113·9	40·3	49·9	5·0
1888..	3·61	14	1·39	1	59·2	55·8	84·6	69·3	43·9	52·1	126·6	109·1	38·4	48·0	5·8
1889..	1·80	16	·31	0	59·7	56·2	84·4	70·5	44·2	52·6	125·9	110·2	40·2	49·0	5·7
1890..	1·55	13	·40	0	59·1	55·7	79·7	69·9	40·4	52·5	124·6	111·4	38·4	50·3	5·9
1891..	4·75	22	1·44	1	58·8	55·6	75·8	68·2	43·2	52·7	126·2	110·8	39·3	49·1	7·1
1892..	3·06	17	1·71	1	61·5	57·4	82·1	72·6	43·1	53·7	126·7	113·3	37·3	49·4	5·6
1893..	1·61	11	·78	0	65·5	59·5	93·6	77·1	44·8	56·4	131·9	117·8	39·0	52·3	4·9
1894..	2·85	18	·90	0	59·7	56·4	79·3	69·2	44·3	53·3	124·9	107·5	41·9	50·7	7·0
1895..	3·09	18	·67	0	61·4	57·6	81·3	72·2	46·0	54·2	123·8	113·3	41·0	50·3	5·1
1896..	1·92	14	·37	0	59·6	55·5	77·1	69·9	45·4	51·6	123·9	109·9	40·1	46·9	5·8
1897..	2·92	16	·76	0	62·8	58·6	88·4	73·6	48·1	54·8	130·1	116·2	42·4	49·9	5·2
Mean ...	2·39	13	·68	0·2	61·3	57·4	84·0	72·6	44·3	53·3	127·9	113·6	39·5	49·8	5·6
Extremes	6·72	26	1·71	1	65·6	60·0	93·6	77·9	50·1	56·4	134·0	120·2	47·3	53·8	7·4
	·45	4	·14	0	57·8	53·6	70·3	66·6	38·2	49·0	122·7	105·4	31·9	44·2	2·0

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, MARCH, 1899.

STATIONS. (*Those in italics are South of the Equator.*)	Absolute. Maximum. Temp.	Date.	Absolute. Minimum. Temp.	Date.	Average. Max.	Min.	Dew Point.	Humidity.	Absolute. Max. in Sun.	Min. on Grass.	Total Rain. Depth.	Days.	Aver. Cloud.
	°		°		°	°	°	0-100	°	°	inches		
London, Camden Square	61·1	29	19·9	21	50·2	32·1	35·8	84	106·7	20·8	·50	8	5·1
Malta	76·9	23	44·9	29	65·8	51·9	49·5	80	133·9	39·9	·84	7	2·6
Cape of Good Hope	93·6	1	53·1	22*e*	78·9	59·7	56·4	73	...	...	·43	1	2·5
Mauritius	85·3	29	70·2	15	83·0	73·9	71·5	81	163·8	65·3	12·13	24	6·3
Calcutta	99·7	18	62·7	4	94·7	70·2	64·0	58	152·5	52·5	·01	1	1·0
Bombay	89·4	29	70·0	2	86·5	73·7	70·2	72	132·4	61·8	·00	0	0·4
Ceylon, Colombo	93·2	14*a*	70·0	9	91·2	73·7	72·2	79	153·9	67·5	·88	6	3·0
Melbourne	98·2	15	48·0	20	78·2	56·8	51·7	61	153·4	43·0	2·98	7	4·6
Adelaide	103·3	8	51·4	22	83·2	61·0	51·1	50	156·0	44·9	1·26	7	3·8
Sydney	90·4	23	56·8	21	77·6	62·5	59·7	66	141·5	45·9	1·76	14	3·5
Wellington	76·0	20*b*	41·9	15	67·5	54·1	50·7	69	127·0	35·0	4·58	12	4·2
Auckland	77·0	1	52·0	10	70·7	57·6	53·9	70	137·0	49·0	2·20	16	4·0
Trinidad	90·0	20*c*	64·0	7, 24	87·0	67·2	68·0	72	164·0	61·0	1·00	9	...
Grenada	86·0	21*d*	68·4	2	81·3	71·2	68·9	77	154·0	...	2·85	16	2·0
Toronto	56·8	11	4·9	21	34·3	21·5	23·7	79	73·8	1·5	4·28	16	6·6
New Brunswick, Fredericton	50·8	6	11·7	15	34·7	14·7	16·5	65	...	...	4·52	15	6·5
Manitoba, Winnipeg	29·2	24	−34·8	6	16·1	−9·8	...	...	...	...	·36	4	4·4
British Columbia, Esquimalt	54·8	29	28·0	25	48·5	35·7		...	...	...	2·45	15	6·4

a—18. *b*—23. *c*—27, 28. *d*—28. *e*—24.

REMARKS.

MALTA.—Adopted mean temp. 56°·7, or 0°·8 above average. Mean hourly velocity of wind 12·3 miles, or 1·4 above average. Mean temp. of sea 62°·0. H on 26th.
J. F. DOBSON.

Mauritius.—Mean temp. of air 0°·5, of dew point 1°·6, and rainfall 3·87 in. above, their respective averages. Mean hourly velocity of wind 10·3 miles, or 0·3 above average; extremes, 43·5 on 6th and 0·0 on 13th; prevailing direction E.S.E. to E. by N. and variable. L on 7th, T on 15th, 17th, 27th and 28th, and L T on 18th and 30th.
T. F. CLAXTON.

CEYLON, COLOMBO.—Mean temp. of air 80°·2, or 1°·7 below, of dew point 0°·6 below, and rainfall 4·08 in. below, their respective averages. Mean hourly velocity of wind 6·6 miles; prevailing direction S.W. TSS occurred on 6 days; L on the 1st only.
H. O. BARNARD.

Adelaide.—Mean temp. of air 1°·7, and rainfall ·25 in., above the average of 42 years.
C. TODD, F.R.S.

Sydney.—Temp. 0°·7 above, humidity 9·6 below, and rainfall 3·44 in. below, their respective averages.
H. C. RUSSELL, F.R.S.

Wellington.—Fine in the early part of the month, with N.W. and S.E. winds; strong wind from N.W. on 1st and 2nd; middle of month heavy R, 2·75 in. on 13th, then fine till end of the month when it was showery, with light, variable wind or calm, and warm nights. Temp. 1°·3 below, and rainfall 1·04 in. above, their respective averages.
R. B. GORE.

Auckland.—Fine and dry during the early part and middle of the month. Heavy N.E. gale from 23rd to 28th, with heavy rain on 27th and 28th. Mean temp. and rainfall slightly under the average of 32 years.
T. F. CHEESEMAN.

TRINIDAD.—Rain ·87 in. below the average of 30 years.
J. H. HART.

SUPPLEMENTARY TABLE OF RAINFALL, AUGUST, 1899.

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

Div	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
I.	Uxbridge, Harefield Pk..	·60	XI.	Builth, Abergwesyn Vic.	2·38
II.	Dorking, Abinger Hall .	·88	,,	Rhayader, Nantgwillt ...	2·59
,,	Birchington, Thor	·81	,,	Lake Vyrnwy	2·29
,,	Hailsham	·71	,,	Corwen, Rhug	1·74
,,	Ryde, Thornbrough	·55	,,	Criccieth, Talarvor	1·09
,,	Emsworth, Redlands ...	·97	,,	I. of Anglesey, Lligwy..	·92
,,	Alton, Ashdell	1·52	,,	I. of Man, Douglas	1·31
III.	Oxford, Magdalen Coll..	2·02	XII.	Stoneykirk, Ardwell Ho.	1·85
,,	Banbury, Bloxham	·82	,,	New Galloway, Glenlee	1·16
,,	Northampton, Sedgebrook	2·11	,,	Moniaive, Maxwelton Ho.	3·14
,,	Stamford, Duddington..	·84	,,	Lilliesleaf, Riddell	1·13
,,	Alconbury	1·62	XIII.	N. Esk Res. [Penicuick]	·95
,,	Wisbech, Bank House...	1·15	XIV.	Glasgow, Queen's Park..	1·38
IV.	Southend	·78	XV.	Inverary, Newtown	2·25
,,	Harlow, Sheering..... ...	...	,,	Ballachulish, Ardsheal...	2·91
,,	Colchester, Lexden	·34	,,	Islay, Gruinart School ...	1·41
,,	Rendlesham Hall	·02	XVI.	Dollar.....	1·50
,,	Scole Rectory	1·09	,,	Balquhidder, Stronvar...	2·08
,,	Swaffham	2·03	,,	Coupar Angus Station...	·57
V.	Salisbury, Alderbury ...	1·84	,,	Dalnaspidal H.R.S.....	...
,,	Bishop's Cannings	1·38	XVII.	Keith H.R.S.....	2·07
,,	Blandford, Whatcombe .	1·32	,,	Forres H.R.S.	1·59
,,	Ashburton, Holne Vic...	2·27	XVIII.	Fearn, Lower Pitkerrie..	·44
,,	Okehampton, Oaklands.	1·78	,,	S. Uist, Askernish	2·02
,,	Hartland Abbey	2·81	,,	Invergarry.....	·15
,,	Lynton, Glenthorne ...	2·65	,,	Aviemore H.R.S.	·78
,,	Probus, Lamellyn	1·59	,,	Loch Ness, Drumnadrochit	1·02
,,	Wellington, The Avenue	1·93	XIX.	Invershin	·80
,,	North Cadbury Rectory	1·32	,,	Durness.....	3·11
VI.	Clifton, Pembroke Road	1·44	,,	Watten H.R.S.....	1·16
,,	Ross, The Graig	1·06	XX.	Dunmanway, Coolkelure	2·41
,,	Wem, Clive Vicarage ...	1·08	,,	Cork, Wellesley Terrace	2·01
,,	Wolverhampton, Tettenhall	1·46	,,	Killarney, Woodlawn ..	2·33
,,	Cheadle, The Heath Ho.	1·39	,,	Caher, Duneske	1·61
,,	Coventry, Priory Row...	1·17	,,	Ballingarry, Hazelfort...	3·77
VII.	Grantham, Stainby	·99	,,	Limerick, Kilcornan ...	1·10
,,	Horncastle, Bucknall ...	·59	,,	Miltown Malbay	5·04
,,	Worksop, Hodsck Priory	·85	XXI.	Gorey, Courtown House	2·02
VIII.	Neston, Hinderton	1·50	,,	Moynalty, Westland ...	...
,,	Southport, Hesketh Park	1·51	,,	Athlone, Twyford	2·52
,,	Chatburn, Middlewood.	2·34	,,	Mullingar, Belvedere ...	2·57
,,	Duddon Val., Seathwaite Vic.	2·81	XXII.	Woodlawn	2·96
IX.	Melmerby, Baldersby ...	1·44	,,	Crossmolina, Enniscoe ..	2·30
,,	Scarborough, Observat'y	1·45	,,	Collooney, Markree Obs.	2·92
,,	Middleton, Mickleton ...	1·21	,,	Ballinamore, Lawderdale	3·00
X.	Haltwhistle, Unthank H.	·50	XXIII.	Warrenpoint.....	1·65
,,	Bamburgh	·83	,,	Seaforde.....	1·60
,,	Keswick, The Bank	1·96	,,	Belfast, Springfield	1·84
XI.	Llanfrechfa Grange	1·76	,,	Bushmills, Dundarave..	2·26
,,	Llandovery	2·60	,,	Stewartstown	2·09
,,	Castle Malgwyn	1·37	,,	Killybegs	2·68
,,	Brecknock, The Barracks	1·07	,,	Horn Head	1·59

AUGUST, 1899.

Div.		STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL. Total Fall.	Difference from average 1880-9.	Greatest Fall in 24 hours. Dpth	Date	Days on which ·01 or more fell.	TEMPERATURE. Max. Deg.	Max. Date	Min. Deg.	Min. Date.	No. of Nights below 32°. In shade.	On grass.
			inches.	inches.	in.								
I.	ENGLAND.	London (Camden Square) ...	·70	— 1·18	·49	31	6	91·2	15	48·6	21	0	0
II.		Tenterden	1·09	— ·77	·38	31	8	86·0	15	48·0	21	0	...
,,		Hartley Wintney	·68	...	·25	29	5	89·0	15	42·0	22	0	0
III.		Hitchin	1·27	— ·55	·72	15	8	86·0	15	45·0	21	0	...
,,		Winslow (Addington)	1·13	— ·84	·42	30	7	90·0	25	43·0	11*d*	0	...
IV.		Bury St. Edmunds (Westley)	1·02	— 1·18	·51	15	7	77·0	15*c*	49·0	11	0	...
,,		Norwich (Brundall)	·76	...	·25	15	7	84·0	15	46·0	11	0	0
V.		Winterbourne Steepleton ...	2·67	...	1·32	29	7	82·0	24	42·4	22	0	0
,,		Torquay (Cary Green)	3·26	...	1·32	7	9	77·2	19	52·6	22	0	...
,,		Polapit Tamar [Launceston]..	1·35	— 1·13	·60	29	10	81·7	14	44·1	11*e*	0	0
VI.		Stroud (Upfield)	·94	— 1·15	·39	29	9	86·0	3	54·0	31	0	...
,,		ChurchStretton(Woolstaston)	1·26	— 1·50	·62	29	6	83·0	24	47·5	9	0	...
,,		Worcester (Diglis Lock)	...	...	...	...	...	...	...	...	...	...	...
VII.		Boston	·69	— 1·43	·15	28*a*	8	87·0	25	45·0	9, 11	0	...
,,		Hesley Hall [Tickhill].....	·94	— 1·22	·28	31	9	89·0	25	43·0	11	0	...
,,		Breadsall Priory	·64	...	·11	15*b*	9	86·0	25	46·0	9	0	...
VIII.		Manchester(PlymouthGrove)	...	...	...	...	...	...	...	...	...	...	...
IX.		Wetherby (Ribston Hall) ...	·95	— 1·39	·25	27	8	...	...	...	...	...	...
,,		Skipton (Arncliffe)	1·40	— 2·93	·44	27	11	...	...	...	...	...	...
,,		Hull (Pearson Park).	·68	— 1·96	·40	27	4	87·0	1	42·0	12	0	...
X.		Newcastle (Town Moor)	·87	— 1·84	·25	28	9	...	...	...	...	...	...
,,		Borrowdale (Seathwaite).....	3·94	— 4·51	1·44	29	14	...	...	...	...	...	...
XI.	WALES.	Cardiff (Ely).....	1·44	— 2·17	·44	29	8	...	...	...	...	...	...
,,		Haverfordwest	2·25	— ·67	·67	7	10	82·0	2	46·1	11	0	0
,,		Aberystwith (Gogerddan) ...	3·26	...	1·25	6	6	88·0	24	42·0	10	0	...
,,		Llandudno.....	2·44	+ ·08	·76	28	14	86·0	24	51·0	9	0	...
XII.		Cargen [Dumfries]	2·71	— ·28	·78	29	8	83·0	2, 25	45·0	9, 10	0	...
XIII.		Edinburgh (Blacket Place)...	·55	...	·28	29	8	82·7	24	47·0	10	0	0
XIV.		Colmonell	1·68	...	·60	6	11	88·0	1	39·0	8	0	...
XV.		Tighnabruaich	2·18	...	·71	29	9	70·0	1, 2	46·0	8, 9	0	...
,,		Mull (Quinish).....	1·86	— 2·29	·74	29	11	...	...	...	...	...	...
XVI.		Loch Leven Sluices	1·30	— 1·64	·40	30	6	...	...	...	...	...	...
,,		Dundee (Eastern Necropolis)	·55	— 2·02	·25	29	7	83·0	22	45·0	29	0	...
XVII.		Braemar	1·30	— 2·03	·82	30	8	79·7	23	34·5	10	0	2
,,		Aberdeen (Cranford)	·58	...	·19	29	7	85·0	1	35·0	9	0	...
,,		Cawdor (Budgate)	·82	— 1·43	·27	30	9	...	...	...	...	...	...
XVIII		Strathconan [Beauly]	1·21	— 2·09	·35	14	6	...	...	...	...	...	...
,,		Glencarron Lodge.....	2·72	...	·83	16	12	80·8	24	42·0	9	0	...
XIX.		Dunrobin	...	...	...	...	...	...	...	...	...	...	...
,,		S. Ronaldshay (Roeberry) ...	2·09	— ·47	·55	30	8	69·0	22	43·0	18	0	...
XX.		Darrynane Abbey.....	2·68	...	1·05	24	13	...	...	...	...	...	...
,,		Waterford (Brook Lodge) ...	...	...	...	...	...	...	...	...	...	...	...
,,		Broadford (Hurdlestown) ...	2·14	...	·43	29	15	...	...	...	...	...	...
XXI.		Carlow (Browne's Hill)	1·57	— 1·40	·29	27	11	...	..	...	...	...	...
,,		Dublin (FitzWilliam Square)	3·78	+ 1·26	2·23	5	10	77·8	24	49·1	10	0	0
XXII.		Ballinasloe	2·58	— ·60	·61	5	12	79·0	1	46·0	12	0	...
,,		Clifden (Kylemore)	6·38	...	·96	26	11	...	...	...	...	..	...
XXIII		Waringstown	1·60	— 1·51	·60	18	10	89·0	1	40·0	28*f*	0	...
,,		Londonderry (Creggan Res.).	2·11	— 2·01	·42	29	14	...	...	...	...	...	...
,,		Omagh (Edenfel).....	3·32	— ·17	1·09	29	11	81·0	22	43·0	15	0	0

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

a—and 30. *b*—and 27, 31.. *c*—and 25. *d*—and 22. *e*—and 12. *f*—and 29.

METEOROLOGICAL NOTES ON AUGUST, 1899.

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

ENGLAND.

TENTERDEN.—Very dry and hot; splendid harvest weather. Six days with temp. over 80°, and only seven below 70°. Duration of sunshine 270 hours. Grass was much burnt up. TS on 5th; L on 15th and 31st.

HARTLEY WINTNEY.—The driest August known, and remarkable for extreme heat, cloudless days and starlight nights. The severity of the protracted drought was keenly felt; the period of 93 days from May 25th to August 27th yielded only 1·24 in. of R, or ·018 in. per diem. R 2·48 in. below the average. Sunshine was registered each day at 9 a.m. until the 29th. The temp. in shade at 9 a.m. on 24th and 25th was respectively 79°·2 and 80°·0. Distant T on 3 days, and L on 3rd, 4th and 5th. Ozone on 5 days. Swifts last seen on 11th.

WINSLOW, ADDINGTON.—Very hot and dry, with little R until 30th. There have been Augusts with less R than this, but they were all preceded by very wet Julys, notably in 1880, when the R in August was only ·84 in., but in July 8·24 in. On 15th there was a heavy TS, lasting over five hours, with vivid L but little R. During the TS on 30th the L entered the chimney of a house near Winslow, breaking its way through an iron stove-pipe into the room, but did no further damage.

BURY ST. EDMUNDS, WESTLEY.—Splendid month for the harvest. R below half the average. Ponds and wells getting very low. Many complaints of want of water. TS on 15th; distant T on 4 days.

NORWICH, BRUNDALL.—An exceedingly dry month, with an unusually large number of fine, bright and sunny days. The max. temp. was frequently considerably lower than further inland, owing to the prevalence of E. and N.E. winds. Severe TS on the evening of 15th; T and L on 28th and 30th.

WINTERBOURNE STEEPLETON.—A month of great heat, with a long absolute drought of 20 days, but good rains fell both at the beginning and the end. Mean daily temp. 62°·9, being the highest in any month since record commenced in 1893. A splendid harvest season, and the root crops, from the heavy R which fell at intervals, look well. T and L on 3rd; L on 6th.

TORQUAY, CARY GREEN.—Mean temp. 65°·9, or 4°·4 above, and R ·51 in. above, the average. Duration of sunshine 306 hours 25 mins., being 113 hours 35 mins. above the average. One sunless day.

POLAPIT TAMAR [LAUNCESTON].—A very dry month, in fact the driest August in 19 years. Exceptionally high shade temp. prevailed throughout, the mean max. being 75°·5. T on 5 days; L on 3 days.

STROUD, UPFIELD.—TSS on 3rd, 6th, 15th and 30th.

WOOLSTASTON.—Intensely hot and dry, the drought continuing till 28th. An excellent harvest well gathered in, but grass and root crops almost burnt up. Mean temp. 64°·1.

BOSTON.—Although the max. temp. was not so great as on some previous occasions, the mean temp. of this month was the highest recorded, being 5°·7 above the average. On 14 days the max. temp. in shade exceeded 80°.

BREADSALL PRIORY.—Exceptionally dry and hot. T on 15th.

ARNCLIFFE VICARAGE.—Unusually dry, with great heat.

WALES.

HAVERFORDWEST.—One of the finest Augusts and certainly the warmest during 50 years. The temp. exceeded 80° on each of the first three days, and was between 70° and 80° on 24 days. A special feature was the high night

temp., 4 nights having a temp. above 60°, 23 between 50° and 60°, and only 4 below 50°. From 9th to 24th absolute drought prevailed with cloudless skies. Vegetation has suffered severely, the grass lands being almost burnt up. Violent TS from 5.30 to 7 p.m. on 7th, flooding the lower parts of the town.

GOGERDDAN.—Very hot and dry throughout.

LLANDUDNO.—T and L on 4th, 5th and 31st.

SCOTLAND.

CARGEN [DUMFRIES].—The warmest August since observations commenced in 1860. Higher daily temp. was registered in 1868, 1869 and 1870, but the mean max. of 73°·0 in 1899 has never been exceeded. On only 11 days was the max. temp. below 70°. Upwards of half the R fell on the four days 27th to 30th. Easterly and southerly winds prevailed, always light. Harvest operations commenced in the middle of the month under most favourable conditions.

EDINBURGH, BLACKET PLACE.—R the same as in 1880, the only smaller fall in August being ·45 in. in 1796. Partial drought for 35 days ended on 28th. Mean temp. 61°·5, which has been exceeded in only five Augusts since 1764. The air was very calm throughout. TS with no R on 25th. Fog on 14th and 23rd.

COLMONELL.—R 2·44 in. below, and mean temp. 62°·2, or 4°·2 above, the average of 23 years, the mean temp. being the highest in that period and equal to that of 1893. T on 4 days. L on 25th.

TIGHNABRUAICH.—A model summer month.

BRAEMAR.—T and L from 6 to 8 p.m. on 25th ; a house struck. T and L at 8 p.m. on 30th.

ABERDEEN, CRANFORD.—Very warm and dry, the temp. on some nights varying from 60° to 68°. A heavy W.N.W. gale from 4 p.m. on 16th till 2 a.m. on 17th, destroyed garden plants and stripped trees of foliage. The tents filled with exhibits at the Horticultural Exhibition were blown down.

S. RONALDSHAY, ROEBERRY.—A very fine month, but with a great deal of fog. Mean temp. 56°·0, or 1°·7 above the average of 9 years. Mean max. 61°·0, min. 51°·0.

IRELAND.

DARRYNANE ABBEY.—The first three weeks very hot and dry, and the last ten days cooler and showery.

BROADFORD, HURDLESTOWN.—R 2·08 in., and rainy days 6, below the average of 14 years, and the smallest on record. Want of R was much felt in many places, but not here. Crops of all kinds very good. L on 3rd. S.E. gale on 26th.

DUBLIN, FITZWILLIAM SQUARE.—The hottest August for many years. Mean temp. 63°·4, or 3°·7 above the average, and 0°·4 above that of August, 1893, the record hitherto. Mean temp. reached 70° on 18 days. It was a month of paradoxes—the R was much in excess, rainy days much in defect ; the weather was dry, the air was damp ; E. and W. winds were the most prevalent. High winds on 9 days, but never reaching the force of a gale. T on 4 days, and L on 4 days. Violent TSS on 4th, 5th and 6th, the R accompanying that on 5th being 2·23 in. Fog on 7 days. Solar parhelia were seen on 24th.

BALLINASLOE.—TSS on 4th and 6th.

CLIFDEN, KYLEMORE HOUSE.—TS on 5th.

OMAGH, EDENFEL.—The magnificent spell of summer weather which commenced on July 25th and lasted till August 24th with but four rainy days, was finally followed by a week's copious R, bringing the month's total close to the average. It is many years since so abundant a harvest of all crops was so well secured.