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SEPTEMBER, 1895.

THE very exceptional weather of September was occasioned by the persistence of anti-cyclonic conditions over Western Europe. In the early part of the month the centre of the high pressure area was well to the east of France, and irregular distribution of pressure over the British Isles on the 5th and 6th produced thunderstorms and rain very generally. On the 11th and 12th a depression passed across the North of Scotland, and falls of rain exceeding an inch occurred at many stations. From the 13th to 17th the centre of high pressure lay over England, but on the 18th, a cyclone coming in from the Atlantic apparently forced it eastwards. From the 19th to 21st the centre again extended to England, but thence to the end of the month, during the period of great heat, it was to eastward, but generally extending well to the north.

RAINFALL.

That the rainfall for the month was generally very small is clearly shown by the regular table on p. 146, where we find only one plus sign (at a station on the west coast of Scotland—roughly speaking, furthest from the centre of high mean pressure for the month), but the well-known irregularity of distribution of thunderstorm-rains makes it difficult to convey a clear idea of the fall.

Of the 50 stations in the table above referred to, thirteen had less than one-quarter of the average rainfall :—

STATION.	COUNTY.	Rainfall in.	Rainy days.	Per cent. of average.
Cargen [Dumfries]	Kirkcudbright	·22	3	6
Waringstown	Down	·29	5	9
Jedburgh, Sunnyside	Roxburgh	·29	6	11
Maidstone, Hunton Court	Kent	·35	2	14
Newcastle, Town Moor	Northumberland.	·44	5	16
Leicester, Barkby	Leicester	·44	6	17
Boston	Lincoln	·48	3	17
Polapit Tamar [Launceston]	Devon	·66	10	18
Ballinasloe	Galway	·57	7	20
Weymouth, Langton Herring	Dorset	·54	4	22
Bury St. Edmunds, Westley	Suffolk	·58	3	22
Omagh, Edenfel	Tyrone	·76	7	22
Haverfordwest	Pembroke	·98	10	22

Seventeen more stations had less than half the average :—

Station.	County.	Rainfall in.	Rainy days.	Per cent. of average.
Winslow, Addington	Bucks	·69	5	26
Dublin, Fitzwilliam Square	Dublin	·54	7	27
Tenbury, Orleton	Worcester	·70	7	27
Dundee, Eastern Necropolis	Forfar	·80	10	32
Stroud, Upfield	Gloucester	·98	10	34
Cardiff, Ely	Glamorgan	1·29	9	35
Hesley Hall [Tickhill]	Nottingham	·78	6	36
Hitchin	Hertford	·92	5	37
Wetherby, Ribston Hall	York	·97	5	39
Loch Leven Sluices	Kinross	1·10	6	39
Carlow, Browne's Hill	Carlow	1·10	8	39
Aberystwith, Gogerddan	Cardigan	1·70	7	40
Londonderry, Creggan Res.	Londonderry	1·53	11	41
Manchester, Plymouth Grove	Lancashire	1·44	6	42
Church Stretton, Woolstaston	Shropshire	1·08	10	43
Hull, Pearson Park	York	1·08	7	44
Borrowdale, Seathwaite	Cumberland	5·35	14	46

As out of the 50 stations there are only 41 for which the average is available, it may be taken as a rough generalization that over one-third of the kingdom the rainfall of the month was less than one-quarter of the average, and over three-quarters of the kingdom was less than half.

DROUGHT.

That there was no remarkable intensity of drought is shown by the following table, the stations in which were selected for their fairly representative geographical distribution, without reference to their total rainfall :—

Droughts in September, 1895.

Absolute Droughts.—Periods of more than 14 consecutive days absolutely without rain.
Partial Droughts.—Periods of more than 28 consecutive days, the aggregate rainfall of which does not exceed 0·01 in. per diem.

Station and County.	Absolute Droughts.			Partial Droughts.			
	Began.	Ended.	Lasted.	Began.	Ended.	Lasted.	Amount
			Days.			Days.	in.
London, Camden Square, *Middlesex.*	Sept. 11	Sept. 30	20	None.	...	...	..
Denver, ... *Norfolk.*	Sept. 7	Sept. 30	24	None.	...	...	...
Torquay, Cary Green, ... *Devon.*	Aug. 27	Sept. 10	15	Aug. 14	Sept. 29	47	·27
	Sept. 12	Sept. 29	18				
Bamburgh, ... *Northumberland.*	None.	...	...	Aug. 27	Sept. 30	35	·35

At the following stations, neither an absolute nor a partial drought occurred : Ross, The Graig, *Hereford* ; Leicester, Barkby, *Leicester* ; Preston, Haighton, *Lancashire* ; Hull, Pearson Park, *York, E.R.* ; Haverfordwest, *Pembroke* ; Llandundno, *Carnarvon* ; Edinburgh, Blacket Place, *Edinburgh* ; Keith, H.R.S., *Banff* ; Caher, Duneske, *Tipperary* ; Omagh, Edenfel, *Tyrone.*

It will thus be seen that at 10 out of the 14 stations neither partial nor absolute drought occurred, and that the four absolute and two partial droughts recorded are not of remarkable duration.

TEMPERATURE.

As regards temperature, the records for September, 1895, appear to be much more remarkable, but we have not readily available for comparison the results of back years at a large number of stations.

The first table gives the daily maxima at 29 stations from the 23rd to the 29th, and includes all days in the latter half of September, on which we have records of 80° or upwards from British stations. There was another period of high temp. about the 9th, but although some stations recorded the absolute max. for the month on that date, the heat was neither so prolonged nor so remarkable as in the latter half of the month :—

Maximum Temperatures, September 23rd to 29th, 1895.

STATIONS	23rd.	24th.	25th.	26th.	27th.	28th.	29th.
	°	°	°	°	°	°	°
Kensington (Edith Road)	68·7	85·8	81·9	83·9	82·7	80·4	77·3
London (Old Street), E.C.	77·0	74·7	76·2	72·2	81·6	80·1	76·8
,, (Regent's Park, Roy. Botanic Soc.)	70·2	82·8	79·0	80·0	80·0	77·8	75·0
,, (Camden Square) (*Stevenson Screen*)	73·7	83·2	81·0	82·4	82·3	79·2	77·1
,, (,, ,,) (*Glaisher* ,,)	73·3	82·8	80·6	82·4	82·6	79·2	77·1
West Norwood (Thornlaw Road)	81·2	85·5	81·4	81·8	80·7	77·7	74·9
Brixton (Acre Lane)	79·0	86·0	83·0	85·0	84·0	81·0	78·0
Greenwich (Royal Observatory)	80·8	87·3	84·0	84·2	83·2	80·5	77·6
Dungeness	70·0	74·0	72·0	71·0	71·0	69·0	68·0
Great Berkhampstead (Rosebank)	77·9	82·2	79·4	81·7	82·1	79·6	76·2
Winslow (Addington Manor)	79·2	84·2	79·2	80·2	81·0	77·7	72·2
Oxford (Radcliff Observatory)	78·0	82·0	79·0	82·0	83·0	81·0	76·0
Cambridge Observatory	78·0	84·0	83·0	82·0	82·0	80·0	77·0
Chelmsford	74·3	78·4	80·9	79·4	77·1	75·6	73·9
Norwich, (Brundall)	77·2	75·8	79·0	80·0	75·0	77·0	72·6
Weymouth, (Langton Herring)	70·0	71·0	67·0	75·0	72·0	73·0	73·0
Cheltenham (Southam Villa)	78·0	82·2	77·6	81·3	83·0	81·4	78·0
Ketton Hall [Stamford]	80·0	85·0	84·0	82·0	84·0	82·0	79·0
Bolton, (The Park)	73·3	78·0	75·2	76·3	79·2	81·1	76·6
York (Philosophical Society)	74·0	81·0	80·0	82·0	81·0	82·0	82·0
Pembroke (St. Ann's Head)	69·0	66·0	64·0	71·0	72·0	74·0	72·0
Llandudno	73·0	71·6	73·6	76·4	77·5	82·4	81·4
Edinburgh (Blacket Place)	69·8	68·0	78·3	73·3	73·1	68·7	59·1
Nairn (School House)	69·0	65·0	77·0	68·0	75·0	63·0	67·0
Parsonstown	74·0	72·0	70·0	76·0	77·0	75·0	77·0
Seaforde	64·0	67·0	66·0	68·0	67·0	69·0	67·0
Jersey	77·0	82·0	72·0	81·0	85·0	84·0	76·0
Paris	87·0	89·0	88·0	88·0	89·0	86·0	84·0
Berlin	70·0	73·0	64·0	68·0	72·0	72·0	73·0
Brussels	81·0	84·0	85·6	86·0	82·0	77·0	77·0

It will be noticed that there is an excess of records for the neighbourhood of London, the reason for which will be mentioned later.

A second table gives the absolute maxima at additional stations provided with Stevenson screens :—

September 23rd to 29th.

STATIONS.	Max. temp	Date	STATIONS.	Max. temp	Date.
	°			°	
Wallington	84·7	24	Cheadle(The HeathHouse)	78·5	24
Birchington (Thor)	81·0	25	Worcester (Diglis Lock)..	83·0	27, 29
Oxford (Mag. Coll. Laboratory)	80·0	27	Workop (Hodsock Priory)	82·2	24
Ashburton (Druid House)	76·7	27	Belper (Northfield).....	79·6	24
Tavistock (Rose Villa)	82·7	27	Driffield (York Road).....	78·0	26
Ross (The Graig)	81·2	27	Killarney (Woodlawn) ...	76·0	28

At Camden Square the results for September are—

	Absolute Max.	Average Max.	Average Min.	Mean of Max. & Min.
1895	82°·8	73°·7	51°·5	62°·6
Average 36 years ...	77°·0	67°·2	49°·6	58°·4
Excess of 1895 ...	5°·8	6°·5	1°·9	4°·2

In the 36 years the average max. has been exceeded only by 76°·4, in 1865, and the mean of the max. and min. by 65°·5, in the same year. The average min. has been exceeded six times, but this would naturally be expected, as comparatively clear skies and considerable radiation at night are component parts of a fine warm month.

The absolute max. has been exceeded in six years, but in considering this element, due allowance must be made for the lateness of the date on which the reading occurs. This will be most clearly shown by setting out all readings above that of September 24th, 1895.

1858	...	85·0 on 12th.	1868	...	84·0 on 4th.
1865	...	84·0 ,, 7th.	,,	...	86·5 ,, 6th.
,,	...	85·0 ,, 8th.	,,	...	91·0 ,, 7th.
,,	...	84·8 ,, 15th.	1872	...	83·1 ,, 3rd.
,,	...	85·0 ,, 16th.	1880	...	83·3 ,, 3rd.
			,,	...	88·3 ,, 4th.
			1886	...	84·2 ,, 1st.

The latest of these dates is the 16th, or eight days earlier than the max. in September, 1895.

In September, 1865, the temp. rose above 80° on ten days, and in September, 1868, on five days, in no other year was 80° recorded on as many days as in 1895. So that although the max. of September, 1895, is unprecedented at so late a date, the month, as a whole, must clearly yield precedence to 1865.

The Greenwich values for the month, given by the Astronomer Royal in a letter to the *Times*, are :—

	Absolute Max.	Average Max.	Average Min.	Mean temp.
1895	87°·3	75°·4	51°·3	62°·2
Average 50 years ...	—	67°·3	49°·1	57°·2
Excess of 1895 ...	—	8°·1	2°·2	5°·0

For the nine days, September 23rd to October 1st, the mean max. was 17°·2 above the average, and the mean temp., 11°·3 above the

average. In September, 1895, there were ten days on which the temp. rose above 80°, a greater number than in any previous September from 1841.

The maxima for each of the eight days (September 23rd to 30th), and the mean temperatures for each of the seven days (September 24th to 30th) exceed those for the corresponding days in any year from 1841.

Reference has already been made to the disproportionate number of London stations quoted in the table of maxima from September 23rd to 29th, the object being to show the great variation in the temperatures recorded in different parts of the metropolis. It will be seen that the difference of pattern of stand cannot account for it, as at Camden Square the mean in the Stevenson screen for the seven days is in excess of that on the Glaisher by only 0°·1, and it will further be seen that the maxima at Greenwich (where also a Glaisher pattern stand is used) were generally above those at other stations, thus by no means supporting the suggested heating up of the interior of a Stevenson screen.

On 23rd	the values	range	from	81°·2	at	West Norwood	to 68°·7 at Kensington.
,, 24th	,,	,,		87·3	,,	Greenwich	,, 74·7 ,, Old Street.
,, 25th	,,	,,		84·0	,,	,,	,, 76·2 ,, ,,
,, 26th	,,	,,		85·0	,,	Brixton	,, 72·2 ,, ,,
,, 27th	,,	,,		84·0	,,	,,	,, 80·0 ,, Regents Park.
,, 28th	,,	,,		81·0	,,	,,	,, 77·7 ,, WestNorwood.
,. 29th	,,	,,		78·0	,,	,,	,, 74·9 ,, ,, ,,

The range on the 23rd and 24th is very striking, and the Old Street values suggest that London smoke resisted the penetration of the heat for several days. The following letter from the Observer at Kensington throws considerable light on the matter :—

SIR,—I do not know whether a few lines showing the curious differences of temperature produced by fog at stations near together may be of interest to your readers. Yesterday (September 23rd) the max. at the London Station (Brixton) was 79°. My max. was 68°·7. A thin white fog prevailed all day, though the sun shone through it pretty strongly. A difference of 10° or more is not uncommon in winter fogs, but I have never seen anything like this in summer.—Yours faithfully,

G. VON U. SEARLE.

Edith Road, West Kensington.

FOREIGN.

In his monthly *résumé* for September, 1895, M. E. Renou, of the Observatory of Parc St. Maur, Paris, says :—"The true daily mean temperature (65°·6) appears to be the highest that has been observed for a century and a half, but it is difficult to make absolute comparisons with the old observations, because of the different positions of the instruments. For September, 1865, the mean of the daily max. and min. gives 66°·9 ; at the Parc St. Maur the same calculation for this year gives 67°·1."

"It is unprecedented to record 11 days of maxima above 86°, but this number of days has been the same at Vendôme, in a very good position. Although during a century and a half no higher maximum than 89°·4 had been recorded, the maximum on September 7th, 1895, reached 95°·9."

"The insignificant rainfall (·004 in.) is also unprecedented."

Speaking of Brussels, M. Lancaster, in *Ciel et Terre*, says:—"During 60 years before 1895 September has only once been warmer than the summer months, viz., in 1841. September, 1895, was probably the most beautiful, the warmest, and the driest for two centuries. The mean temperature (64°·2) exceeded the average for September by 5°·9 and the average for July by 0°·5, and the highest mean previously recorded (63°·0 in 1865) by 1°·2. On 15 days the maximum attained 77°, compared with an average of 1·3 days and a previous maximum of 7 days."

OBSERVERS' NOTES.

In conclusion, we quote a few extracts from letters received from our correspondents:—

Tenterden, Kent.—We have had no September to compare with this since 1865. Mean max. temp., 73°; mean min., 51°; 6 days over 80°; max., 84°·5 in Stevenson screen. Two hotter days occurred in September, 1886, but earlier in the month. Temp. above 70° on 9 days, against 8 in 1884 and 1886.—J. ELLIS MACE.

Hitchin, Herts.—Tuesday, the 24th, was the hottest day at present this year, 82°·5. The mean temperature of the month was 60°·4, the average for September being 54°·8. Since 1849 we have once had a higher mean in September, that was in 1865, when it was 60°·5, but the maximum in that month never reached 80°. With the exception of 1891, when we had 80°, 81° and 80° consecutively, I have no previous record of 80° or upwards in Sept.—W. LUCAS.

Hillington Rectory, Norfolk.—The highest temperature recorded was 83°·3 on the 25th; 80°·3 was registered on the 24th, and 80°·1 on the 26th. (The highest during the month was 84°·5 on the 2nd.) It is very rare here for readings to exceed 80° in September. The only instances since 1863 are:—

1868	.....	80 on 6th, and 83 on 7th.
1871	.....	80 on 1st.
1880	.....	84 on 3rd, and 85 on 4th.
1884	.....	84 on 17th.
1891	.....	82 on 10th, and 81 on 11th.

In September, 1888, the temperature did not rise to 68°. The mean of maxima during the week 22nd to 28th was 78°·3; of mimima 49°; mean of all readings 62°·9, 10° above average. Sunshine was very abundant. There was no rainfall, but 0·02 in. was yielded by dew, which was very heavy.—H. FOLKES.

Heath Lodge, Cheltenham, Gloucester.—In the early part of September, 1868, we had six days above 80°; on the 7th the maximum was 88°. In 1880 the 2nd, 3rd and 4th of September were above 80°, that on the 4th being 89°. The occurrence of a hot period so late in the month as in 1895 is unusual.

Sept. 23	.....	82·2	Sept. 27	.....	87·0
,, 24	.....	86·0	,, 28	.....	85·7
,, 25	.....	80·5	,, 29	.....	82·0
,, 26	.....	85·0			

The highest minimum was 62°·0 on the 25th.—M. A. SMELT.

The Graig, Ross, Hereford.—The temperature rose above 70° on 19 days, and above 80° on 4 days. The average max. was 72°·2; the only other September with an average max. above 70° since 1859 being 1865, when it was 73°·3. The only falls of rain of consequence were on the 6th and 24th, and the drought was beginning to be felt at the close.—H. SOUTHALL.

Hodsock Priory, Notts.—The mean temp., 59°·4, is 3°·9 above the average, and the highest in September in 19 years. Though the absolute max. (82°·2 on 24th) has once been exceeded, temperatures of 80° have never before been recorded in the second half of the month.—H. MELLISH.

Blacket Place, Edinburgh.—The maximum shade temperature recorded to-day (September 25th), namely, 78°·3, is absolutely the highest registered so late in the season during 55 years. In the following table will be found a list of all the September days on which the temperature exceeded 75° in the shade :—

Year.	Date.	Temp.	Year.	Date.	Temp.
1841	12	77·0	1868	6	81·7
,,	13	76·0	,,	7	77·0
1844	1	77·0	1873	27	76·2
1846	11	78·0	1890	8	76·0
,,	12	78·0	,,	7	75·1
,,	14	76·6	1891	10	77·0
1848	23	76·0	,,	12	79·8
1857	5	78·0	1895	25	78·3
,,	6	77·9			

It will be seen that only two higher maxima are on record, viz. September 6th, 1868, 81°·7, and September 12th, 1891, 79°·8 The average temperature of to-day (66°·7) is a phenomenally high mean for the time of year. Forbes, in his "Climate of Edinburgh," gives 64°·5 as the highest mean for any day in the second half of September, the period dealt with being the forty years 1795–1805, 1821–1850. I have examined the Edinburgh observations taken subsequent to 1850, as well as a number of other older registers, but no instance of such extreme heat as we have experienced to-day has been registered so far on in September. September 28th, 1802,

was possibly warmer, the thermometer at noon standing at 75° in the shade, but there was no registering instrument in use at that time.—R. C. MOSSMAN.

OCTOBER, 1895.

It is remarkable that a September with a period of heat in some respects unprecedented, should be followed by an October including a period as unprecedentedly cold.

At Camden Square the min. in shade for October, 1895, is 26°·6 on the 28th. Frost occurred in shade on seven days in the month, and those seven days were consecutive, from 24th to 31st. Looking back through the 38 years over which the observations extend we find that the absolute minimum has been lower in only three Octobers :—

26°·2	on October	5th, 1873.
25°·4	,,	26th, 1887.
23°·8	,,	28th, 1890.

That in only one other October has frost in shade been recorded on seven days (in 1887), and that the greatest number of consecutive days with temp. falling to freezing point in previous Octobers, is four, in 1859, and in 1873.

A comparison of the seven days, 24th to 30th of September, with the corresponding seven days of October, is very striking :—

	Mean. 9 a.m.	9 p.m.	Max.	Min.	Mean. temp.
	°	°	°	°	°
1895, September 24th to 30th...	63·5	61·9	80·3	54·9	65·0
1895, October 24th to 30th ...	32·9	36·6	44·8	28·2	35·9
Fall of temp. in one month ...	30·6	25·3	35·5	26·7	29·1

BELGIAN RAINFALL.

We are very glad to find that M. Lancaster did not, by the expression "strictly comparable," intend to imply that the rainfall at Uccle could be treated as a continuation of the Brussels register, but that the gauges and the conditions of exposure are similar at the new observatory to what they were at the old one. As the sentence stood, on p. 143, we did not see any indication that M. Lancaster realized the fact that the difference between the mean fall in the old locality, and in the new one (which he now puts at 30 mm. [1·18 in.]) must be allowed for, before any determination as to secular change can be arrived at. Now that he has cleared up this point, we have nothing more to say, except that we shall be glad to welcome Part II. of his great work.

THE BRITISH ASSOCIATION AT IPSWICH.

(*Concluded from p.* 141).

MILLER CHRISTY, F.L.S.—*About Rockall.*

The author said that very few persons seemed to know of the existence of Rockall, although it is a British possession. It is a lonely rock of pyramidal shape, 184 miles west-half-south from St. Kilda, in the Outer Hebrides, and 290 miles from the nearest point of the Scottish mainland. The rock, which at its base has a circumference of about 250 feet, is composed of coarse dark-coloured granite, and is said to be highly magnetic. Its summit is always whitened by the dung of sea-birds, and persons sighting the Rock from a distance almost invariably take it for a vessel in full sail. Owing to the prevalence of the Atlantic swell, it is only possible to land upon the Rock in the finest weather. To the man of science, Rockall presents many points of considerable interest. It is highly desirable that some effort should be made to examine the rock, and to investigate its organic inhabitants in a thoroughly scientific manner. Even if there is no naturalist both willing and able to make the journey to Rockall, surely there are plenty of yachtsmen who would be glad to have a definite and useful object for a cruise. To such he suggested a trip to Rockall, and he would be glad to give all the information required concerning the matters to which special attention should be given by any intelligent person visiting the Rock.

The Chairman said that for purposes of meteorological observation residence on the island would be necessary. Seeing that at some seasons of the year landing is very difficult, any person landing should be prepared for a long stay.

Mr. G. J. Symons said that some years ago application was made to the Royal Meteorological Society for financial assistance in establishing a station on the island; but the Society came to the conclusion that nothing could be done without considerable expenditure, inasmuch as buildings as strong as a lighthouse and a cable connecting with the mainland would be necessary.

Dr. H. R. Mill asked whether it would not be advisable to have preliminary observations made by self-recording instruments before approaching the Government to establish a meteorological station.

Mr. Dickson stated that Rockall lay in the track of the greater number of cyclones approaching the British Islands, and that telegraphic information from it would be of great importance for weather warnings.

The Chairman closed the discussion by advising Mr. Christy to keep "pegging away" at the subject, and, if possible, bring it to the attention of someone who might be inclined to follow the example of the Prince of Monaco.

DR. THISELTON DYER.—*Exhibition of Photographs and Specimens of a Cedar Struck by Lightning.*

This was a very fine Deodar completely ruined by a single stroke. The wood was not splintered so much as oaks usually are.

PROF. SCHUSTER, F.R.S.—*Some Observations with Lord Kelvin's Portable Electrometer.*

During a recent visit to the Engadine, Prof. Schuster has made observations on the atmospheric electricity near the ground at different heights above sea-level. The readings were taken with Lord Kelvin's portable electrometer, which worked very satisfactorily and seems well adapted for such purposes. In all cases positive charges were found, increasing with height, but in an apparently erratic fashion. The normal positive charge at the foot of a glacier was found to be strengthened by a wind blowing down it, and Lenard's observa-

tions on the negative electricity of waterfalls were all confirmed. The daily curve of atmospheric potential in the valley of Pontresina shows a maximum at 11 a.m., dipping a little and rising again to an afternoon maximum at 5 p.m., then rapidly descending as the evening breeze sets in. Discussion on the paper related chiefly to the behaviour and temperature errors of portable electrometers, the latter being somewhat large and quite unexplained. Prof. Ayrton suggested a crucial experiment to determine whether atmospheric electricity is due to an actual distribution in the air, or to induction from the earth's surface.

PROF. MICHIE SMITH.—*Indian Thunderstorms.*

This paper gave the results of observations made at Madras. There, he said, sheet lightning occurs every evening for several months, always near the horizon and directed towards the south-west. The time of occurrence varies from day to day, but is always evening, and generally not later than 9 p.m. It is not a reflection of distant lightning flashes, but consists of an actual discharge of electricity from cloud to cloud, or between two portions of the same cloud, and it takes place in the upper portions of low-lying clouds. When morning lightning occurs its direction is north-east. Hence the lightning is always to be looked for in the regions of still air, where the land and sea breezes meet. The time of occurrence depends on the hour when the sea breeze sets in, the display being about three hours later than this. Cumulus clouds rise together in pairs, and the discharge takes place between them, sometimes possibly within them. He thought that the electrical conditions of the clouds might be accounted for by the fact that the sea breeze is moist and dustless, while the land breeze is dry and dusty. It is known that the air is negatively electrified relatively to the ground when the air and earth are both dusty, while the sea breeze brings a strong positive electrification. The equalization of the electric conditions of these clouds will result in sheet lightning. The presence of dust in the clouds is shown when they sink rapidly; the dust is then seen at their edges, and gives the iridescent or nacreous appearance frequently observed.

Mr. John Aitken said that his observations on the Rigi confirmed Professor Michie Smith's theory. He believed that thunderstorms resulted from an influx of pure air into dusty regions; the thunderstorm was the effect of purifying the air, not the cause of it. In support of this view he gave an instance of thunderstorms occurring for several days in succession without any apparent purification of the air; eventually the air was purified and the thunderstorms ceased.

Professor Schuster said he had counted 25 new theories of thunderstorms, all put forward during the past 12 years; in some years as many as four or five theories had been proposed. In connection with the electrification of air he thought Lenard's observation of the electricity of waterfalls was important; Lenard found that the air coming from a spray of a fall of pure water was charged negatively, that from salt water, on the other hand, is positively electrified. This accounts for the positive charge of the sea breeze. He thought the dust in air was generally gathered up locally, excepting that at high levels, as in the case of the Krakatoa erupton. He supposed Professor Michie Smith would not deny the possibility of nacreous clouds being due to a current of air rising through the stationary cumulus cloud. He had often observed nacreous clouds in England, when the light was favourable; but he had connected them with cirrus rather than cumulus clouds, and attributed their iridescence to ice particles instead of dust.

Professor Michie Smith, in reply, said that the iridescence of nacreous

clouds occurred so near the edge of the cumulus and fitted it so closely, that he regarded the phenomenon as produced by it.

G. J. SYMONS.—*Notes on Autumn Floods of* 1894.

The facts quoted in this paper having all been given either in the paper read before the Royal Meteorological Society by Messrs. Symons and Chatterton, or in *British Rainfall*, 1894, it is unnecessary to set them out, but the author concluded by pleading strongly for some organised system of preserving records of floods, by collecting the inscriptions on such iron plates as are at present to be found on some rivers, marking the flood levels by insuring a more methodical record in future, and other similar means.

The President of the Section (Mr. Vernon Harcourt) supported Mr. Symons's suggestions respecting flood marks and records, and urged that further steps should be taken to prevent floods on rivers, and that communication should be systematically established between the different points on a river, in order that the sluices might be opened in time to avert flooding.

Mr. Symons, in replying, mentioned that in France there was along the rivers an almost perfect system of taking and recording levels, and of telegraphing down when floods were approaching.

W. H. WHEELER.—*The Effect of Wind and Atmospheric Pressure on the Tides.*

The author has been making observations on this subject for many years. From an analysis of two years' tides at the Port of Boston (Lincoln), excluding occasions when the element of wind would affect the case, he found that out of 152 observations, 61 gave results opposite to that which would have been expected by the readings of the barometer alone; for a high barometer was frequently accompanied by a high tide, and a low barometer by a low tide. On the other hand it was found, with few exceptions, that when the wind blows with any force along a coast in the same direction as the main stream of the flood tide, the tides at all the ports along the coast will be higher than the calculated height given in the tide-tables; and when the wind blows against the flood tide, high-water will be lower than calculated. According to figures quoted in the paper, the effect of wind is such as to affect the tide as much as 5 to 6 feet, and a difference of as much as 8 feet has been observed between two succeeding tides. An analysis of the register of tides at Boston Dock for two years showed that 24 per cent. of those recorded were sufficiently affected by the wind to vary 6 inches from the calculated height. Thirty varied by 2 feet, seven by 3 feet, six by 3½ feet, three by 4 feet, two by 4½ feet, one by over 5 feet, and one by 6 feet 3 inches. From the observations Mr. Wheeler has deduced the approximate rule that with a given force of wind of 3 on the Beaufort scale a tide will be raised or depressed by half an inch for every foot of range. With a force of from 4 to 6, the variation may be expected to be 1 inch for every foot, with a gale force of 7 to 8 it will be 1½ inches, and if the gale increases to 10 it will be 2 inches. It will be seen that the subject is one which possesses not only scientific interest, but considerable practical importance to mariners; and as far as we are aware, Mr. Wheeler is the first who has obtained quantitative results of this nature. In the discussion which followed, it was pointed out that the time element would have to be given its due value.

W. H. WOOD.—*On the Zodiacal Light considered as an Atmospheric Phenomenon.*

W. H. WOOD.—*On the Local Origin of the Aurora Borealis.*

We are unable to obtain abstracts of these two papers.

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, APRIL, 1895.

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		
England, London	67·1	29	29·1	1	57·9	40·8	41·2	77	113·6	25·4	1·34	13	6·4
Malta	80·4	27	51·3	2	70·3	56·5	54·0	77	133·5	45·6	·12	2	4·9
Mauritius	83·4	3	63·8	27	81·1	71·4	68·5	79	133·0	54·8	2·62	12	5·6
Calcutta	99·4	28	66·6	8	92·2	73·9	72·2	71	158·2	60·4	1·76	4	3·7
Bombay	93·0	19	74·1	6	88·5	77·1	73·4	74	140·8	64·8	·00	0	0·9
Ceylon, Colombo	93·2	29	73·0	...	90·9	75·6	73·8	80	146·5	68·0	9·34	24	6·3
Melbourne	84·9	19	39·9	13	70·0	51·3	48·9	71	135·1	31·1	1·55	11	2·3
Adelaide	86·9	2	45·4	11	71·7	55·6	51·1	64	143·2	38·8	4·18	16	5·9
Sydney	79·0	20	50·8	24	70·9	58·1	58·0	80	134·0	43·6	2·32	13	4·6
Wellington	66·0	7	41·0	4*b*	59·2	47·9	45·1	73	121·0	28·0	11·23	19	5·2
Auckland	71·0	21	43·0	10	65·4	52·5	46·6	66	128·0	40·0	1·78	14	5·0
Jamaica, Kingston	90·3	20	67·8	14	86·5	71·1	69·7	78	...	...	·98	8	4·4
Trinidad	92·0	27*a*	64·0	1	89·5	69·1	68·8	68	174·0	63·0	2·52	8	...
Grenada	85·6	27	72·0	12*c*	82·6	74·1	67·6	67	148·6	...	4·05	15	2·7
Toronto	69·1	19	23·7	...	51·2	35·5	32·9	66	...	16·2	1·52	12	5·6
New Brunswick, Fredericton	66·7	21	11·2	12	51·1	28·7	27·8	60	...	...	3·15	10	4·6
Manitoba, Winnipeg	70·7	17	19·2	25	62·1	32·6	...	...	...	...	·62	8	6·3
British Columbia, Esquimalt	63·4	21	30·2	5	54·4	39·0	42·3	83	...	...	2·02	16	6·8

a—and 28; *b*—18 and 30; *c*—and 30.

REMARKS.

MALTA.—Adopted mean temp. (62°·0), 2°·2 above the average. Mean hourly velocity of wind 10·6 miles. Temp. of sea rose to 65°·4. Lightning was seen on the 20th. J. F. DOBSON.

Mauritius.—Mean temp. of air 0°·5 below, of dew point 0°·2 above, and rainfall 3·18 in. below, their respective averages. Mean hourly velocity of wind 8·2 miles, or 2·3 below average; extremes, 19·9 on 1st, and 1·7 on 8th and 10th; prevailing direction, E.S.E. Thunder and lightning on 4th. Lightning on 16th and 17th, and thunder on 20th. C. MELDRUM, F.R.S.

CEYLON, COLOMBO.—Thunderstorms occurred on 18 days. D. G. MANTELL.

Adelaide.—Mean temp. 0°·5 below the average of 38 years. Rainfall 2·51 in. above the average. C. TODD, F.R.S.

Sydney.—Mean temp. same as the average; humidity 2 above, and rainfall 3·53 in. below, their respective averages. H. C. RUSSELL, F.R.S.

Wellington.—Showery in the early part; but on the 12th heavy rain commenced, with a gale from S.E., and continued without ceasing until the night of 15th, the total fall being 9·90 in. A few fine days followed, but the last part of the month was showery. Altogether most unpleasant and stormy. Mean temp. 3°·4 below, and rainfall 7·71 in. above, the average. R. B. GORE.

AUCKLAND.—An unusually dry and cool month, the rainfall being barely more than half the average, and the mean temp. 3° below the average. A strong N.E. gale from the 13th to the 15th, and S.E. gale on 27th and 28th. T. F. CHEESEMAN.

JAMAICA, KINGSTON.—Mean hourly velocity of wind 4·3 miles. Rainfall a little below the average. R. JOHNSTONE.

TRINIDAD.—Rainfall ·49 in. above the average of 30 years. J. H. HART.

SUPPLEMENTARY TABLE OF RAINFALL, OCTOBER, 1895.

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

Div.	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
II.	Dorking, Abinger Hall .	3·61	XI.	Lake Vyrnwy	5·17
,,	Birchington, Thor	2·82	,,	Corwen, Rhug	3·42
,,	Hailsham	3·87	,,	Carnarvon, Cocksidia ...	6·34
,,	Ryde, Thornbrough	4·02	,,	I. of Man, Douglas	5·79
,,	Emsworth, Redlands ...	3·46	XII.	Stoneykirk, Ardwell Ho.	4·86
,,	Alton, Ashdell	3·50	,,	New Galloway, Glenlee	4·32
III.	Oxford, Magdalen Col..	2·78	,,	Melrose, Abbey Gate ...	...
,,	Banbury, Bloxham	3·32	XIII.	N. Esk Res. [Penicuick]	3·85
,,	Northampton, Sedgebrook	2·50	,,	Edinburgh, Blacket Pl..	3·30
,,	Alconbury	2·19	XIV.	Glasgow, Queen's Park..	2·95
,,	Wisbech, Bank House...	2·66	XV.	Inverary, Newtown	3·40
IV.	Southend	2·88	,,	Islay, Gruinart Schools..	3·43
,,	Harlow, Sheering..... ...	2·20	XVI.	Dollar.....	3·03
,,	Colchester, Lexden	1·80	,,	Balquhidder, Stronvar...	2·94
,,	Rendlesham Hall	2·66	,,	Ballinluig	2·02
,,	Diss	2·52	,,	Dalnaspidal H.R.S.....	4·53
,,	Swaffham	2·11	XVII.	Keith H.R.S.....	7·90
V.	Salisbury, Alderbury ...	3·36	,,	Forres H.R.S.	4·60
,,	Bishop's Cannings	3·97	XVIII.	Fearn, Lower Pitkerrie..	3·24
,,	Blandford, Whatcombe .	4·33	,,	Loch Shiel, Glenaladale	...
,,	Ashburton, Holne Vic...	5·23	,,	N. Uist, Loch Maddy ...	4·77
,,	Okehampton, Oaklands.	7·60	,,	Invergarry.....	4·79
,,	Hartland Abbey	6·78	,,	Aviemore H.R.S.	3·80
,,	Lynmouth, Glenthorne.	8·48	,,	Loch Ness, Drumnadrochit	3·93
,,	Probus, Lamellyn	7·99	XIX.	Invershin	3·03
,,	Wellington, Sunnyside..	...	,,	Scourie	10·03
,,	Wincanton, Stowell Rec.	3·36	,,	Watten H.R.S.....	3·68
VI.	Clifton, Pembroke Road	4·25	XX.	Dunmanway, Coolkelure	5·81
,,	Ross, The Graig	2·68	,,	Fermoy Gas Works	2·10
,,	Wem, Clive Vicarage ...	2·86	,,	Killarney, Woodlawn ...	4·00
,,	Cheadle, The Heath Ho.	2·39	,,	Caher, Duneske	3·13
,,	Worcester, Diglis Lock	2·24	,,	Ballingarry, Hazelfort...	3·20
,,	Coventry, Coundon	3·75	,,	Limerick, Kilcornan ...	4·68
VII.	Ketton Hall [Stamford]	1·75	,,	Ennis	3·07
,,	Grantham, Stainby	3·74	,,	Miltown Malbay	3·86
,,	Horncastle, Bucknall ...	2·09	XXI.	Gorey, Courtown House	2·60
,,	Worksop, Hodsck Priory	2·62	,,	Athlone, Twyford	3·19
VIII.	Neston, Hinderton	4·75	,,	Mullingar, Belvedere ...	3·14
,,	Preston, Haighton	...	,,	Longford, Currygrane...	2·86
,,	Broughton-in-Furness ...	7·27	XXII.	Woodlawn	3·62
IX.	Ripon, Mickley.....	3·34	,,	Crossmolina, Enniscoe ..	6·79
,,	Melmerly, Baldersby ...	2 95	,,	Collooney, Markree Obs.	5·14
,,	Scarborough, South Cliff	...	,,	Ballinamore, Lawderdale	...
,,	Middleton, Mickleton ...	3·62	XXIII.	Lough Sheelin, Arley...	2·56
X.	Haltwhistle, Unthank...	3·96	,,	Warrenpoint.....	3·02
,,	Bamburgh	4·69	,,	Seaforde..	3·29
,,	Keswick, The Beeches...	...	,,	Belfast, Springfield	4·94
XI.	Llanfrechfa Grange	3·70	,,	Bushmills, Dundarave..	6·90
,,	Llandovery	5·03	,,	Stewartstown	3·78
,,	Castle Malgwyn	4·47	,,	Buncrana	7·81
,,	Builth, Abergwessin Vic.	6·81	,,	Louge Swilly, Carrablagh.	7·82
,,	Rhayader, Nantgwillt ...	6·49			

OCTOBER, 1895.

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.	Date	Min. Deg.	Date.	No. of Nights below 32°. In shade.	On grass.
			inches.	inches.	in.								
I.	ENGLAND.	London (Camden Square) ...	2·84	— ·05	1·14	5	14	74·4	1	26·6	28	7	11
II.		Maidstone (Hunton Court)...	3·07	— ·39	·80	8	11	...	...	...	...	...	...
,,		Strathfield Turgiss	3·69	+ ·85	1·13	5	16	71·1	1	21·2	26	10	19
III.		Hitchin	2·49	— ·58	·73	8	14	72·0	1	24·0	25*d*	9	...
,,		Winslow (Addington)	2·65	+ ·44	·85	8	15	74·0	1	19·0	28	9	12
IV.		Bury St. Edmunds (Westley)	2·34	— ·93	·34	5, 10	14	70·0	1	21·0	27	...	...
,,		Norwich (Brundall)	4·00	...	·63	8, 29	23	75·0	1	25·0	29	6	14
V.		Weymouth(LangtonHerring)	3·27	— ·27	·89	7	16	68·0	1	29·0	29	5	...
,,		Torquay (Cary Green)	3·91	...	·77	8	16	67·4	1	30·0	24	4	7
,,		Polapit Tamar [Launceston]..	6·45	+ 1·62	1·02	30	21	69·1	1	22·6	24	7	12
VI.		Stroud (Upfield)	3·24	+ ·21	·85	5	19	68·0	1	25·0	27	8	...
,,		ChurchStretton(Woolstaston)	2·49	— 1·28	·67	21	16	64·5	1	22·0	24	11	11
,,		Tenbury (Orleton)	2·41	— ·80	·65	21	15	67·5	1	21·5	28	11	15
VII.		Leicester (Barkby)	3·05	— ·10	·84	8	19	75·0	1	18·0	23	13	18
,,		Boston	2·73	— ·38	1·02	8	15	75·0	1	25·0	24	8	...
,,		Hesley Hall [Tickhill].....	2·55	— ·55	·85	8	15	71·0	1	24·0	26*c*	10	...
VIII.		Manchester(PlymouthGrove)	3·46	+ ·09	·68	2	19	71·0	1	25·0	24*d*	11	14
IX.		Wetherby (Ribston Hall) ..	3·74	+ ·61	·98	10	13	...	...	...	...	...	...
,,		Skipton (Arncliffe)	5·94	— ·09	1·26	3	20	..	...	...	...	...	...
,,		Hull (Pearson Park).	3·24	— ·41	·80	8	17	71·0	1	23·0	26	10	14
X.		Newcastle (Town Moor)	4·00	+ ·88	1·09	15	18	...	...	...	...	...	...
,,		Borrowdale (Seathwaite).....	10·78	+ ·19	1·66	2	18	...	...	...	...	...	...
XI.	WALES.	Cardiff (Ely).....	4·70	+ ·16	1·13	5	17	...	...	...	...	...	...
,,		Haverfordwest	5·34	+ ·19	1·24	1	24	66·3	1	31·0	28	2	14
,,		Aberystwith (Gogerddan) ...	6·96	+ 1·61	1·21	1	19	68·0	1	...	...	...	...
,,		Llandudno.....	6·28	+ 2·89	·85	1	24	68·0	1	32·0	29	1	...
XII.	SCOTLAND.	Cargen [Dumfries]	3·61	+ ·35	·80	1	12	71·2	1	21·2	28	12	...
,,		Jedburgh (Sunnyside).....	5·19	+ 2·54	·73	13*a*	18	73·0	1	23·0	27*c*	12	...
XIV.		Colmonell	4·84	...	1·00	1	18	70·0	1	21·0	22	13	...
XV.		Lochgilphead (Kilmory).....	4·85	+ ·06	·86	11	15	...	...	24·0	22	14	...
,,		Mull (Quinish).....	4·23	— 1·06	·76	11	19	...	...	...	...	...	...
XVI.		Loch Leven Sluices	2·30	— ·66	·60	2	10	...	...	...	...	...	...
,,		Dundee (Eastern Necropolis)	1·50	— ·74	·35	1	13	64·1	12	26·6	28	8	...
XVII.		Braemar	3·41	— ·20	1·30	1	26	67·9	1	25·7	18	17	25
,,		Aberdeen (Cranford)	6·37	...	1·88	1	25	63·0	13	26·0	27	13	...
XVIII		Strathconan [Beauly]	5·15	+ ·50	1·00	3	14	...	...	...	...	...	...
,,		Glencarron Lodge.....	11·20	...	2·72	11	25	73·0	1	25·5	29	12	...
,,		Cawdor [Nairn]	5·01	+ 2·28	1·06	2	22	...	...	...	...	...	...
XIX.		Dunrobin	5·91	+ 2·60	1·14	24	18	60·0	13*b*	30·0	28	5	...
,,		S. Ronaldsay (Roeberry).....	3·87	+ ·14	·69	24	26	57·0	1	30·0	27	4	...
XX.	IRELAND.	Darrynane Abbey.....	5·58	...	·71	2	21	...	...	...	...	...	...
,,		Waterford (Brook Lodge) ...	2·41	— 1·41	·60	1	11	67·0	2	25·0	28	8	...
,,		O'Briensbridge (Ross)	4·05	...	·69	3	15	...	...	...	...	...	...
XXI.		Carlow (Browne's Hill)	2·43	— ·86	·71	1	13	...	...	...	...	...	...
,,		Dublin (FitzWilliam Square)	2·84	— ·54	·59	1	16	65·8	1	29·6	29	5	12
XXII.		Ballinasloe	3·24	+ ·25	·80	14	18	60·0	4	23·0	23	12	...
,,		Clifden (Kylemore)	6·88	...	1·20	1	19	...	...	...	...	...	...
XXIII		Waringstown	3·95	+ 1·24	·78	1	15	71·0	1	24·0	22	11	14
,,		Londonderry (Creggan Res.).	7·64	+ 3·97	·77	1	25	...	...	...	...	...	...
,,		Omagh (Edenfel)	4·54	+ 1·44	·54	1	22	59·0	1	29·0	16	9	14

+Shows that the fall was above the average ; —that it was below it.
a—and 14. *b*—and 19. *c*—and 28. *d*—and 27.

METEOROLOGICAL NOTES ON OCTOBER, 1895.

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

ENGLAND.

STRATHFIELD TURGISS.—The weather was very unsettled, with high temp. until the 10th of the month, when it became colder and finer. On the 26th and 28th the min. on the grass touched the lowest reading recorded at this station for the corresponding date in October since the record commenced in 1861, viz., 20°·1 on 26th and 19°·7 on 28th. Swallow last seen on 1st.

HITCHIN.—The coldest October since 1873.

ADDINGTON.—The min. shade temp. of the month (19°) has only once been equalled, viz., on October 28th, 1890. Although a nice quantity of rain fell, the land at the close was still very hard and dry. There was very little wind, and hardly any fog.

BURY ST. EDMUNDS, WESTLEY.—The month was normal till the 24th, when sharp frost set in, which continued till the end of the month with unusual severity. Distant T on 2nd, and T on 5th.

NORWICH, BRUNDALL.—Remarkable for giving the highest and lowest temperatures ever registered by me in the month of October; 75°·0 on 1st, and 25°·0 on 29th. The previous highest was 74°·6 in 1886, and the previous lowest 28°·2 in 1890. The shade temp. fell below 32° each night from 24th to 29th inclusive, and the grass min. below 20° from 26th to 29th inclusive, the lowest being 17°·0 on 28th. S on 29th. L on 23rd, 25th, 26th, and 28th.

LANGTON HERRING.—The first eight days of the month were wet, followed by a dry period of 12 days. S, sleet, and R fell on the 25th, 26th, and 28th. Very great and sudden variations of temperature occurred throughout the month. The great heat of the last week of September lasted to October 1st, when the max. was 68° and the 9 a.m. temp. 64°. On the 2nd the 9 a.m. temp. was 51°, and on the 17th was 10° lower than on the previous day. Another sudden fall occurred on the 22nd, when the max. (40°) was 12° below that of the 21st. From the 22nd to the 30th inclusive the temp. did not rise above 47°, the average min. of the seven days, 24th to 30th, being only 31°. Mean temp. of the month 47°·3, 2°·7 below the average of 23 years. T and L on 2nd, and T on 25th, 27th, 28th, and 29th.

TORQUAY, CARY GREEN.—R ·43 in. below the average. Mean temp. 49°·6, or 1°·8 below the average. Duration of sunshine 100 hours 50 minutes, or 15 hours below the average; 4 sunless days.

POLAPIT TAMAR.—A marked contrast to the previous month, both as regards temp. and rainfall. The last fortnight was very cold, an inch of S falling on 26th, which in October is most unusual. The mean temp. was 13° below that of September. T on 2nd, 4th, and 15th; T and L on 25th; H on 8 days.

STROUD, UPFIELD.—S.W. gale in morning on 3rd. S fell to a depth of more than half an inch on 21st, melting rapidly, and to a depth of about three-quarters of an inch at night on 26th.

WOOLSTASTON.—The first three weeks were pleasant and genial, but on the 21st S fell heavily to a depth of nearly 6 inches, and it was intensely cold till the end of the month. T and very vivid L on 27th. Mean temp. 44°·2.

TENBURY, ORLETON.—A very cold month, the mean temp. being more than 4° below the average of 34 years, and colder than any October since 1887. Severe frost from the 23rd to 30th inclusive. S on the 22nd and 27th.

LEICESTER, BARKBY.—A great contrast to September, the mean temp. (44°·3) being exactly 15° lower. More than the average R fell; still, the land absorbed it nearly all. S fell on the 26th.

MANCHESTER, PLYMOUTH GROVE.—Very unsettled from the 1st to the 9th; fine autumn weather on 10th and 11th, and from 16th to 20th. Slight S on the 24th and 26th; fog on 28th, and dense fog on 29th; the last ten days very

winterly. On the 24th the min. on grass was 18°, the lowest in October in 28 years, with the exception of 17° on October 27th, 1890.

HULL, PEARSON PARK.—Fog on 1st, 18th, 25th, and 29th. Showers of H, sleet, and S on 26th.

WALES.

HAVERFORDWEST.—The change from the sultry heat and bright sunshine which characterized September was sudden and abrupt. Tempestuous weather prevailed during the first ten days, with a considerable fall of temp. The weather then improved, and the air was still and calm up to the 14th; the temp. then again fell, and weather of a most winterly character set in; several times the Precelly range was white with snow from end to end, and very sharp ground frosts prevailed from the 22nd to the close. Wind generally N.N.W. to N.E. Much T, L, and H.

GOGERDDAN.—Very stormy throughout the month, and very cold during the last ten days, with H and S.

SCOTLAND.

CARGEN.—Warm weather continued until the 1st, from which date the temp. fell rapidly, and the mean (43°·5) has only once been lower (43°·1 in 1892) in 36 years. The highest and lowest readings during the first 3 days were 71°·2 and 35°·6 respectively, giving a range of 35°·6 in 72 hours. On no previous occasion has the temp. exceeded 70° in October. Frost was registered on 12 days, and temperatures below 21°·2 have only twice been noted in October, namely, 19°·4 in 1892 and 21°·0 in 1894. Northerly winds were prevalent to an unprecedented extent, and there was considerably more than the average amount of sunshine. There was curling on 30th in the higher districts of Dumfriesshire and Ayrshire, and no record can be traced of the game having been previously played in October.

JEDBURGH.—The rainfall of the month is nearly twice the average, and the greatest in October for 30 years. The temp. was low, and on the whole the weather was ungenial. Some days in the early part had much sunshine, but there was almost none at the end. S at the end of the month.

COLMONELL.—Rainfall ·17 in. below the average of 19 years. S on 21st. H on 23rd, 25th, 26th, and 27th. Mean temp. (44°·6) 1°·3 below the average.

ABERDEEN, CRANFORD.—The month was cold and wet.

ROEBERRY.—A very cold month. Mean temp. 43°·1. Wind from the 9th to the end of the month, N. to N.E.

IRELAND.

DARRYNANE ABBEY.—Cold, stormy, and wet, a marked contrast to September. Slight aurora on 21st. The mountains white with S on 26th, 27th, and 28th.

WATERFORD, BROOK LODGE.—L on 26th and 27th. T on 13th and 31st. Dense fog on 14th and 15th.

O'BRIENSBRIDGE, ROSS.—Heavy R during the first week, followed by low temperature and frequent slight frosts.

DUBLIN.—A very cold October, with a great preponderance of N.W. winds. The mean temp. was nearly 13° below that of September, the change from the unusual warmth of the end of that month being singularly abrupt, and occurring on the morning of the 2nd. S lay on the Dublin mountains on the 2nd, and also from the 22nd to the end of the month. Mean temp. (46°·2) 3°·5 below the average. TS on 26th. L on 25th, 27th, and 28th. High winds on 9 days, attaining the force of a gale only on 2nd and 3rd. Fog on 7 days. H on 8 days. Sleet on 3 days. Solar halo on 30th.

LONDONDERRY, CREGGAN RESERVOIR.—S daily from 24th to 28th.

EDENFEL, OMAGH.—The first fortnight was wet and unsettled, the third week was very fine, and from the 23rd to the end there followed the coldest spell ever experienced here in October; strong polar winds, with heavy S and sleet and continuous night frosts; notwithstanding which, so great has been the luxuriance of the foliage, that the autumn tints were at least a fortnight later than usual.