

Official No. 65.



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THE
MONTHLY WEATHER REPORT

OF THE
METEOROLOGICAL OFFICE

For the Year 1885.

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Published by the Authority of the Meteorological Council.  
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LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE.
AND SOLD BY
J. D. POTTER, 31 POULTRY; AND EDWARD STANFORD, 55 CHARING CROSS.
1886.

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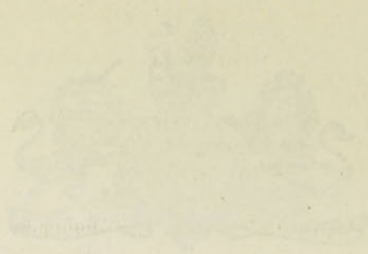
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P R E F A C E.

THE area to which the Monthly Weather Report applies is mainly that contained between the 40th and 65th parallels of North Latitude, and the Meridians of 15° East and West of Greenwich, the British Isles lying nearly centrally within it.

The information on which it is based is derived chiefly from the Daily Weather Reports issued by this Office, and the observations made over the United Kingdom at some additional Stations which supply information for the Weekly Weather Report. These have occasionally been supplemented by reference to the "Bulletin International" of Paris and the North German Weather Reports.

The report for each month is divided into three sections as follows:—

Section 1.—A general summary of the chief features of the weather for the month, showing the most marked variations which have occurred, arranged with reference to the principal changes which have taken place in the distribution of atmospheric pressure during the period.

Section 2.—Tables of the principal Cyclonic and Anticyclonic Systems, showing the size, movements, and other peculiarities of each.

Section 3.—Remarks on the distribution of Wind, Pressure, Temperature, Vapour, Rainfall, and Bright Sunshine for each month; accompanied by Tables giving the mean values for the different meteorological elements at the Stations already mentioned, and by Plates which show the relative prevalence of wind from each of eight points, the distribution of mean Pressure, the movements of the depressions referred to in Section 2, the distribution of Mean Temperature, and the amount of Rainfall measured at each station.

The charts in the Daily and Weekly Reports show, for 8 a.m. and 6 p.m., the distribution of Pressure, Wind, &c. over the British Islands and their neighbourhood.

Section 1 needs no explanation.

Section 2.—Some of the terms employed may usefully be explained.

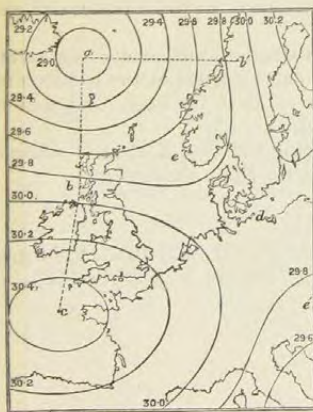
The area enclosed by the outermost of a system of isobars in which the pressure decreases from without inwards, is termed an "area of low pressure," or "cyclonic area," or "depression."

Similarly, the area enclosed by the outermost of a system of isobars in which the pressure increases from without inwards, is termed an "area of high pressure," or "anticyclonic area" or "anticyclone."

The "size" of either system is the extent of the area enclosed by such outermost isobar.

The "form" of the system is the generalized form of its isobars. As the isobars are only roughly similar to one another, this definition does not admit of much precision.

The centre of a cyclonic or anticyclonic system is the point at which the pressure is least or greatest respectively. The centres of the systems shown in the diagram are marked "a" and "c." The position of the centre is not in general known from direct observation, but may be inferred with a sufficient approach to the truth from the form of the interior isobars.



The "depth" of a cyclonic system, and the "height" of an anticyclonic system, are the differences between the height of the barometer at the centre and that at the bounding isobar of the system, which for both systems would pass through the point "b" in the diagram. The motion of the system is that of its centre.

The area of somewhat high pressure (marked "d" in the diagram), which unites the high-pressure system over the Bay of Biscay with that over northern Europe, is termed a "ridge" or "col"; while the arm of relatively low pressure (marked "e"), which extends south-eastwards from the cyclonic system towards the col, is termed a "hollow."

The gradient between two places is measured by the proportion which the difference between the simultaneous heights of the barometer at those places bears to the distance between them. The barometric differences are expressed in decimals of an inch, and the unit of distance is 15 nautical miles. The gradient is thus virtually expressed in terms directly comparable with the French measure, in which the units are millimetres for barometric height, and a degree of the meridian (or 60 nautical miles) for distance. The gradients are always to be measured at right angles to the isobars.

In describing the size, depth, or rate of motion of Cyclonic systems, the following scales of nomenclature have been employed :—

SIZE	{	Very small	-	When the radius of the outer isobar is less than 50 miles.			
		Small	-	"	"	"	is more than 50, less than 150 miles.
		Moderate	-	"	"	"	150 " 300 "
		Large	-	"	"	"	300 " 500 "
		Very large	-	"	"	"	500 miles.
DEPTH	{	Very shallow	-	When the difference of pressure between the margin and centre does not exceed 0.2 in.			
		Shallow	-	"	"	"	varies from 0.2 to 0.5 in.
		Moderate	-	"	"	"	0.5 " 0.9 "
		Deep	-	"	"	"	0.9 " 1.4 "
		Very deep	-	"	"	"	exceeds 1.4 ins.
RATE OF MOTION	{	Very slow	-	When the average rate during the period referred to is less than 10 miles per hour.			
		Slow	-	"	"	"	ranges from 10 to 20 miles per hour.
		Moderate	-	"	"	"	20 " 35 "
		Rapid	-	"	"	"	35 " 50 "
		Very rapid	-	"	"	"	exceeds 50 miles per hour.

For Anticyclonic systems, the scale of nomenclature for rate of motion has been retained, but for size and height the following rules have been observed :—

For size, anticyclones have been divided into only two classes: (1) Large—or those which cover extensive tracks of the earth's surface, which (as a rule) travel very slowly, and of which only a small portion is usually observable over our area; (2) Small—or those which either (a) are subsidiary to larger anticyclones, or (b) appear as a temporary phenomenon, between two cyclonic disturbances, often travelling at a considerable rate.

For the height of Anticyclonic systems the following scale is employed :—

Very small	when the difference between the pressure at the outer isobar and that at the centre is 0.2 in., or less.
Small	" " " " is more than 0.2 " but does not exceed 0.4 in.
Moderate	" " " " 0.4 " " 0.7 "
Great	" " " " 0.7 " " 1.0 "
Very great	" " " " exceeds 1.0 "

The approximate values for the highest pressures about the centre of each anticyclone are quoted in figures whenever they are known.

The form of an anticyclonic system cannot always be ascertained, as it frequently happens that the greater part of it lies over localities for which the observations are either altogether wanting, or are very few in number.

In *Section 3* the tables contain the mean values of the chief meteorological elements for each month; (1) for the Telegraphic Reporting Stations, and (2) for the additional stations which furnish information for the Weekly Weather Report.

The Plates are as follow :

(I.) A Wind Chart showing by "area wind-roses" the prevalence of the wind from each of eight points; the frequency of winds blowing from between any specified points being indicated by the *area* of the portion of the wind-rose comprised between the corresponding limits. In the roses here employed the total area of those portions of the rose which indicate the winds and calms respectively (viz., the "petals," and the small shaded central circles) is equal to one-half the area of the circle round, or within, which they are drawn.

(II.) A Monthly Weather Chart, exhibiting :—

(1.) The Distribution of Mean Pressure, shown by isobars, drawn for each half-tenth of an inch, the mean barometric readings employed being those for 8 a.m. recorded at our Telegraphic Reporting Stations.

(2.) The Movements of the Depressions are shown in the following manner. The position of the centre of each of the chief depressions is determined as nearly as possible for 8 a.m. and 6 p.m. on each day during which it was within the area of our information; and these points are united by straight lines. The lines have arrow-heads drawn on them, showing the direction of the movements.

(3.) The Distribution of Mean Temperature, shown by isotherms drawn for each degree Fahrenheit; the mean temperatures employed being the numerical means of the maxima and minima for each day recorded at the Stations of the Second Order and the Telegraphic Reporting Stations. A correction at the rate of 1° F. for each 300 feet of vertical height has been added to the mean values in order to reduce them to the sea level.

(4.) The Rainfall chart shows in figures the Total Amount of Rain recorded during the month at each station. The values are inserted close to dots, indicating the geographical positions of the stations to which they refer.

A Table giving for each MONTH and for each degree of latitude from Lat. 58° N. to 49° N., the total number of hours during which the SUN IS ABOVE THE HORIZON, is printed in the Preface to the *Monthly Weather Report for 1884*.

MONTHLY WEATHER REPORT.

JANUARY 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather during this month exhibited no features of great importance. Five different periods are noticeable, some of them cyclonic and others anticyclonic. With the former the depressions observed were, as a rule, unimportant, but those of the 10th and 11th were deep and complex, their gales severe, and their weather very bad. Temperature has been, on the whole, below the mean; especially over Scotland and the central parts of England. The winds have been chiefly Southerly, but variable; over our south-eastern counties and the Channel, however, there was a large admixture of winds from South-east and East. The amount of cloud has been large over Great Britain, where bright sunshine has consequently been very deficient, but the clouds were chiefly anticyclonic, and the rainfall has consequently been decidedly short of the average. At the close of the month, however, squally, showery, mild weather seemed to have become established.

January 1-3.—During this interval the distribution of pressure was chiefly anticyclonic, and the type southerly to south-easterly. The gradients were slight over the North Sea and England, moderate to rather steep in the west. Thus, while light to moderate Southerly and South-easterly breezes were prevalent over Great Britain, the wind in the west was fresh to strong, and on one occasion (the 2nd) rose to a fresh gale from South-east in Ireland and at the mouth of St. George's Channel. Rain fell at the western stations, where also the air was mild, but over England the weather remained cold, dry, and very gloomy—in continuation of the conditions which ruled in that region throughout the latter part of the previous month.

January 4-9.—A change now took place; anticyclonic conditions became prevalent over France, and occasionally over our southern counties also, while cyclonic systems passed along our north-western coasts from time to time, and spread more or less over the kingdom. South-westerly winds were consequently general, occasionally rising to the force of a strong breeze or slight gale in the west and north, accompanied by showery weather, but in the south the weather, as a rule, remained dry and very gloomy, the intervals of clear sky, on the one hand, and of rain, on the other, being very temporary. Temperature, however, rose decidedly over England. While the main depressions referred to above passed along over our north-western coasts, some shallow subsidiary disturbances travelled occasionally across our more southern districts, and it was with these that the showers in the south were experienced.

January 10-12.—The weather of these days was transitional from the south-westerly to the north-easterly type, and was marked by the advent of a storm of great severity and complexity. On the 10th (pressure being then as high as 30.1 inches and upwards over the southern half of France, and lowest to the north-westward of our Islands) a well-marked and deep depression (No. I.*) arrived off the west of Scotland from the Atlantic. Its motion was apparently easterly, but slow, and as it approached Scotland Southerly to South-easterly breezes were experienced over that country, the Shetlands and the Hebrides, while South-westerly to Westerly gales set in over Ireland and England; the weather was showery and squally, but mild (see the Daily and Weekly Reports for this date). During the morning the fall of the barometer became much more rapid on our north-east coasts than appeared to be warranted by the depth of the system or the rate of advance of its centre, and subsequently an arm (or "hollow") of low pressure was formed, extending south-eastwards from the central area of the system to the North Sea. The wind in Scotland lulled to a calm for the time, while that over England veered more to the westward, and increased to a fresh or strong gale very generally, with much rain. During the night of the 10th-11th, a new, well-marked disturbance (No. IA.*) was formed over the North Sea, in the hollow referred to above, and, uniting with the main system, produced a complex disturbance, which travelled eastwards across the North Sea. The wind drew rapidly round to the Northward on our coasts, temperature fell, heavy squalls of snow, hail, and cold rain spread over the country, and thunderstorms occurred in several parts of the kingdom. In the rear of this disturbance the barometer rose rapidly and continuously, and a decided change took place in the distribution of pressure over north-western Europe.

January 13-24.—During this period the dominant weather system over north-western Europe was anticyclonic, but the type of distribution varied from easterly between the 13th and 18th, to south-easterly and southerly between the 19th and 24th. The easterly type was produced by a rapid and continued increase of pressure in the west and north, immediately in the rear of the depression last mentioned, and remained in force, with little variation, for six days. During this interval no depression of any importance appeared over the British Islands, but on the 15th a second high pressure area appeared over northern Europe and became united to that off our north-western coasts by means of a band of high pressure (or "col"), as will be seen on referring to the maps in the Weekly Weather Report for this date. On the 16th the north-western high-pressure area gave way, and the south-easterly period became established, pressure being highest over northern Europe, and lowest over the Bay of Biscay, with somewhat decided gradients. Throughout the entire period temperature was low, especially over Great Britain, and Easterly (North-east to South-east) breezes prevailed, blowing freshly to strongly at first, but moderating subsequently; these were accompanied by a large amount of cloud and haze, and by occasional showers of sleet and hail in places. In many parts of the Continent the frost was very severe, but over the United Kingdom it was, as a rule, moderate, and the daily range of temperature was slight.

January 25-31.—Pressure now gave way generally, most in the west, and a southerly to south-westerly type of pressure-distribution became prevalent, cyclonic over our Islands, and anticyclonic over the Channel and France. Temperature rose generally, the winds veered, and depressions began to appear in the west and north-west. The first was shallow and unimportant; it arrived off the north-west of Ireland early on the 27th, and some very shallow subsidiary disturbances connected with it spread inland, causing the showery weather which accompanied it to spread to all parts of the kingdom. On the centre reaching Scotland, however, the system dispersed, and a new and deeper one (No. II.*) advanced rapidly to the north-west of Ireland early on the 28th. Its appearance at first was

* See Section II., and Map 2, Plate II., for the history and tracks of depressions.

threatening, but on its centre reaching the west of Scotland, it, too, dispersed, so that its gales were confined to our western stations though its rain was experienced very generally. Other systems, apparently shallow, skirted our extreme western coasts on the 29th and 30th, and on the morning of the 31st a large, but not very deep one, (No. III.,*) reached our extreme south-western stations, and moving in about the direction of the broken line marked "B," developed a "hollow" and a subsidiary system off the west of Scotland in the evening. (See the 8 a.m. and 6 p.m. maps for the 31st in the Weekly Weather Report.)

The month closed with a continuance of the south-westerly type of pressure-distribution, and mild showery weather.

* See Section II., and Map 2, Plate II., for the history and tracks of depressions.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—JANUARY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. I. January 10-11.	No. I.A. January 11-13.	No. II. January 28.	No. III. January 31-February 1.
Form - - - -	Somewhat oval - - -	Nearly circular at first; varying later as it dispersed.	Apparently nearly circular -	Apparently nearly circular at first, uncertain later.
Size - - - -	Large - - - -	Large - - - -	Moderate - - - -	Large.
Depth - - - -	Deep - - - -	Deep - - - -	Moderate - - - -	Moderate; but pressure very low generally.
Where first Observed -	Off the west of Scotland -	Off the north-east coast of England.	Off the north-west of Ireland	Off the west of Ireland.
Direction of Motion -	Easterly till 8 a.m. 11th, then east-north-east.	Stationary till well formed, then east-north-easterly till 6 p.m. 11th, then south-easterly, and finally south-westerly.	North-eastwards - -	About north-north-east.
Rate of Motion - - -	Moderate - - - -	Very variable; never rapid -	Apparently rapid at first, then slow.	Rapid.
Regions passed over by Steepest Gradients.	British Islands and north of France.	England, France, and south-eastern parts of the North Sea.	The western and northern parts of our Islands.	Ireland and western parts of Great Britain.
Termination - - -	Travelled away to northern Russia.	Dispersed over the Netherlands.	Dispersed off the west of Scotland.	Travelled away to the northward.
Time under Observation -	About 36 hours - - -	About two days - - -	Less than one day - -	About 36 hours.
Accompanying Winds -	South-westerly strong to Westerly gales.	Westerly to Northerly gales, strongest at our eastern stations; lulling later.	Southerly to Westerly gales in the west, South-westerly breezes in the south-east, South-easterly in the north.	Southerly to Westerly, strong to a gale; strongest in west and south-west.
" Weather - - -	Rainy and mild - - -	Cold and rainy, with sleet and snow and thunder and lightning in places. Temperature fell greatly in its rear.	Squally, rainy, mild - -	Squally, showery, mild.
" Rainfall - - -	General—in some places rather heavy.	Cold but not heavy. Cold showers continued at our eastern stations till the system dispersed.	General; heavy in west of Ireland.	—
REMARKS - - - -	<p>This depression approached us while pressure as shown by our charts was highest (30.2 inches) over southern and south-eastern Europe, and lowest to the northward of our Islands.</p> <p>The barometer fell to a very low level (28.4 inches), and as the centre of the depression advanced over Scotland, another "minimum" was developed off our north-east coast, the movements of which were peculiar. (See I.A.) The barometric rise in its rear was very rapid.</p>	<p>This depression was developed during the latter part of the 10th and early part of the 11th in an arm of low pressure which extended south-eastwards across Scotland to the North Sea, in front of system No. I.</p> <p>The movements of the new disturbance were very remarkable, after its centre had reached the eastern shores of the North Sea.</p>	<p>This disturbance advanced rapidly during the prevalence of a south-westerly type of weather, immediately in the rear of a shallow disturbance, which also had dispersed on reaching Scotland. The rapidity with which it disappeared was somewhat remarkable.</p>	<p>This depression arrived when pressure was highest in the south-east and lowest in the north-west of our area. When the system arrived off the west of Scotland it developed an arm of low pressure which extended eastwards over Scotland (see 6 p.m. chart of 31st in Weekly Weather Report, p. 19), so that while the wind veered to the westward over Ireland and England, it backed to the South-eastward in the north of Scotland. By 8 a.m. on the 1st, however, the subsidiary arm had dispersed.</p>

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS, JANUARY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. I. January 7-8.	No. II. January 16-17.	No. III. January 19-25.
Form - - - -	Oval - - - -	Much elongated - - - -	Irregular; oval.
Size - - - -	Small - - - -	Small - - - -	Large.
Height - - - -	Moderate - - - -	Small - - - -	Small.
Where first Observed - -	Over the Bay of Biscay - -	Over our northern districts - -	To the eastward of the North Sea.
Direction of Motion - -	East-north-easterly and Easterly -	Easterly - - - -	Slight and irregular; stationary at times. Finally south-easterly.
Rate of Motion - - -	Slow - - - -	Very slow and rather irregular -	Very slow.
Regions passed over - -	Bay of Biscay, France, and the Channel.	Scotland, the northern part of the North Sea, and the south of Norway.	Denmark and south of Scandinavia.
Termination - - -	Developed into a large permanent system over Germany.	Passed eastwards to Scandinavia -	Moved away out of our area to western Russia.
Accompanying Wind - -	Light; Westerly on its northern side, backing to Southerly; Easterly on its southern side.	Easterly over Ireland and England, South-westerly in Norway; Westerly in north of Scotland.	South-easterly and Southerly over our Islands and the North Sea; Southerly and South-westerly in Norway.
Weather -	Very fine; fogs locally; not very cold.	Very fine and cold at all our northern stations and in the south of Norway.	Cold, dry, hazy. Gloomy over England.
REMARKS - - -	As the centre moved eastwards a large shallow depression skirted our north-western coasts and a "hollow" advanced eastwards over our Islands.	This appeared first as a "col" uniting one anticyclonic system off our north-western coasts with another over northern Europe. (See map in Daily and Weekly Reports, for 8 a.m. 15th.) The north-western anticyclone then gave way, and the col merged in the northern anticyclone.	—

SECTION III.

REMARKS FOR JANUARY 1885.

(Tables I. and II., with Plates I. and II.)

Pressure.—The mean pressure for the month, at 8 a.m., varied from between 29·90 inches and 29·92 inches over the south-east of England, to 29·68 inches at Belmullet, and to 29·71 inches at Stornoway. This distribution is favourable for Southerly winds, of little strength, and a glance at Plate I. will show that the mean direction of the wind during the month was about Southerly, except in the Channel and south-east of England. Compared with the average distribution of pressure for January, during the 20 years 1861–80, it appears that this year the gradients were slighter, and were favourable for winds from a much more Southerly point than is normally the case; and when compared with the conditions which prevailed in 1884, the difference is still more striking. The highest readings (about 30·4 inches) occurred at our eastern stations on the 1st, but in the north-west and north on the 16th; the lowest were registered very generally on the 10th or 11th, when the mercury fell to between 28·4 inches and 28·5 inches both in Scotland and off our north-eastern coasts. The range in those districts was consequently large (nearly 2 inches), but was not nearly so great over the south-western parts of the kingdom.

Movements of Depressions.—These are shown on Map 2, Plate II., from which it appears that the depressions which passed over our area were very few in number, and their movements chiefly north-easterly or easterly. The tendency for the depressions which approached our north-western coasts near the end of the month to disperse, is a feature worthy of note, while the formation over the North Sea of the deep system IA., its erratic movements and early dispersion, are very remarkable.

Anticyclones.—These were three in number, and were observed one over France, another over the northern, and the third over the north-eastern parts of our area. None of them presented features worthy of any special note.

Winds.—Although the mean direction of the winds experienced over the greater part of our Islands during the month was about Southerly, the variations to the westward and eastward of that point were very large, as may be gathered from the remarks in Section I., and will be seen on referring to Plate I., or to the synchronous charts published in the Daily and Weekly Weather Reports for the month. This is true of all the stations, but at Ardrossan the local variations were so great that the mean direction of the wind was more like North-easterly than Southerly—a peculiarity often observed in that locality when Southerly breezes of little strength are blowing over the country generally. In the Channel and south-east of England also there was a decided tendency to Easting in the wind. In force the winds were, as a rule, light to moderate over Great Britain, but gales from the South-westward and Southward were of frequent occurrence in the west, the number of days on which they were registered being 18 at Mullaghmore, 12 at Roche's Point, 11 at Scilly, and 10 at Stornoway.

Temperature.—The mean (sea level) temperature of the month varied from nearly 45° at Valencia and Scilly, and about 44° in Cornwall and the extreme south of Ireland, to a little above 39° over the inland part of the northern half of Ireland, to a little above 36° over the eastern, midland, and northern counties of England, and to somewhat below 35° over the central parts of Scotland. The relative distribution is thoroughly that of the winter type, but the values are lower than the means for the 20 years 1861–80, by about 3° in Scotland, 1° to 2° over England, and 1° in Ireland, while they are lower than those for January 1884 by about 6° over Great Britain and 4° in Ireland. The absolute minima occurred in most places between the 20th and 23rd, at which time the western part of

anticyclone No. III. (p. 5) lay over our Islands. At many of the northern and western stations, however, the cold was sharpest between the 13th and 16th, but the readings were not low enough to merit special mention. In the north-east of Scotland the frost was on some occasions very hard locally, the sheltered thermometer going down to 11° at Nairn on the 21st, and to 16° at Wick on the 15th. The maximum readings occurred at several of the western and northern stations on the 4th or 5th, but as a rule the highest points were reached on the 29th, while moderate gradients for South-westerly winds prevailed over our area, and just before the depression No. III. advanced to our western coasts. The range was moderate, except in the north-east of Scotland. At Nairn it was, locally, as large as 37° .

Vapour Tension was lowest (0·16 inch to 0·18 inch) over the inland parts of North Britain and was *relatively* low inland and high at the coast stations generally. The highest values of all were those on our south-western coasts, 0·27 inch being the value for Valencia and Scilly, while those for stations on our eastern coasts did not exceed 0·20 inch. *Relative Humidity* at 8 a.m. varied somewhat irregularly. On the whole it was lowest in the north of Ireland and south-east of Scotland, where it ranged from 75 to 80 per cent. (saturation being 100). On the west coast of Ireland, however, and also on the north-east coast of England it was as high as 95 per cent.

Rainfall.—This was somewhat small for the time of year in almost all districts, the aggregate fall being less than 2 inches at many of the British stations. In the west, however, the amounts were, of course, greater, those at Belmullet and Killarney being 6·8 inches, that at Valencia 6·6 inches, and that at Roches Point 4·7 inches. At Laudale (Loch Sunart) the total fall was 7·7 inch, but even that is much below the average amount for that station in January. It came chiefly in falls of small amount, and mainly while the south-westerly type of pressure distribution prevailed, but at several of our eastern stations the fall which accompanied depression No. IA. was heavy for those localities.

Bright Sunshine was very deficient—the deficiency being on the whole most marked in those regions where there was least rain. Thus the percentage of the possible duration which was actually recorded varied from 0 at Blackpool and 1 at York, to 26 at Parsonstown.

TABLE I.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the Number of Days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head - - -	ins. 29° 774	40° 0	36° 1	42° 3	39° 2	30	12th, 13th, 15th	45	1st, 26th, 27th, 30th, 31st.
	Wick - - -	29° 765	38° 3	32° 9	41° 1	37° 0	16	15th	48	4th
	Stornoway - - -	29° 709	39° 3	34° 7	42° 3	38° 5	26	15th, 22nd	50	4th
1. SCOTLAND, E.	Nairn - - -	29° 765	33° 2	28° 8	39° 2	34° 0	11	21st	48	4th
	Aberdeen - - -	29° 810	37° 1	32° 9	41° 0	37° 0	19	16th	47	29th
	Leith - - -	29° 794	37° 2	32° 6	41° 5	37° 1	22	23rd	53	29th
2. ENGLAND, N.E.	Shields - - -	29° 836	38° 0	34° 1	41° 7	37° 9	27	23rd	53	29th
	York - - -	29° 871	35° 8	32° 2	41° 0	36° 6	24	15th	54	29th
	Spurn Head - - -	29° 853	37° 5	34° 2	40° 7	37° 5	26	13th	49	28th, 29th
3. ENGLAND, E.	Yarmouth - - -	29° 913	36° 7	33° 3	39° 3	36° 3	28	7th	50	29th
	Cambridge - - -	29° 908	35° 0	30° 5	40° 8	35° 7	23	22nd, 23rd	54	29th
4. MIDLAND COUNTIES	Loughborough - - -	29° 881	34° 9	31° 7	40° 4	36° 1	21	22nd, 23rd	54	29th
	Oxford - - -	29° 899	35° 9	32° 5	41° 1	36° 8	25	22nd, 23rd, 24th	52	28th, 29th
5. ENGLAND, S.	London - - -	29° 909	35° 6	32° 6	41° 5	37° 1	25	22nd	53	29th
	Dungeness - - -	29° 916	36° 9	33° 8	41° 9	37° 9	28	21st, 22nd	48	10th, 11th
	Hurst Castle - - -	29° 893	38° 5	34° 1	44° 4	39° 3	28	21st	52	29th
6. SCOTLAND, W.	Ardrossan - - -	29° 785	38° 0	33° 7	41° 7	37° 7	26	16th	48	29th
7. ENGLAND, N.W.	Hawes Junction* - - -	28° 574	33° 8	29° 4	37° 0	33° 2	21	23rd	49	29th
	Barrow-in-Furness - - -	29° 812	37° 7	35° 2	40° 7	38° 0	28	22nd, 23rd	48	29th
	Liverpool (Bidston) - - -	29° 827	37° 7	34° 4	41° 5	38° 0	27	22nd	54	29th
	Holyhead - - -	29° 807	41° 0	38° 3	43° 7	41° 0	30	22nd	50	4th, 10th
8. ENGLAND, S.W.	Pembroke - - -	29° 800	41° 9	38° 7	43° 9	41° 3	32	13th, 14th, 15th, 21st, 22nd.	50	4th, 9th, 10th
	Prawle Point - - -	29° 865	40° 6	35° 9	44° 5	40° 2	27	14th, 15th	50	5th, 10th, 28th, 29th, 30th.
9. IRELAND, N.	Malin Head - - -	29° 711	39° 9	36° 8	46° 0	41° 4	32	20th	52	29th, 30th
	Donaghadee - - -	29° 781	40° 3	36° 8	43° 5	40° 2	29	20th	51	29th
	Mullaghmore - - -	29° 713	41° 4	37° 7	45° 0	41° 4	27	15th	53	4th
	Belmullet - - -	29° 682	41° 0	39° 2	44° 5	42° 0	28	15th, 16th	51	4th
10. IRELAND, S.	Parsonstown - - -	29° 769	38° 8	34° 5	44° 3	39° 4	24	15th	53	26th, 29th
	Valencia - - -	29° 746	44° 1	40° 6	48° 7	44° 7	31	15th	54	4th
	Roche's Point - - -	29° 766	43° 3	39° 3	47° 5	43° 4	31	14th, 15th	53	28th
CHANNEL ISLANDS	Scilly (St. Mary's) - - -	29° 797	45° 7	40° 8	48° 1	44° 5	33	1st	54	29th
	Jersey (Noirmont) - - -	29° 894	38° 6	35° 8	42° 7	39° 3	25	21st	52	30th

* Hawes Junction is 1,135 feet above Mean Sea Level, and the

TABLE I.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of January 1885.

Thunderstorms, and Gales are counted irrespective of the Hours at which they occurred.

beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	%		ins.	ins.																	
0.211	86	9.2	2.00	0.30	6th	20	3	0	0	0	24	4	2	2	2	7	9	4	5	0	0
.198	86	6.8	1.83	0.55	10th	14	4	0	1	6	16	6	2	1	1	1	15	1	3	4	3
.221	92	7.4	3.99	0.53	5th	21	8	4	1	7	19	10	3	1	1	5	7	4	6	1	3
.169	89	6.2	1.52	0.43	10th	14	3	0	0	10	14	1	1	2	1	2	2	6	1	0	15
.192	87	7.8	1.74	0.32	4th	20	3	2	0	3	17	6	4	0	0	4	13	5	3	2	0
.159	72	5.5	1.13	0.21	25th	13	3	1	0	8	4	1	2	4	2	8	3	4	4	2	2
.203	89	8.2	1.56	0.42	11th	13	3	1	0	3	20	3	2	3	2	5	12	3	0	1	1
.197	93	8.3	1.56	0.25	11th, 28th	18	2	0	0	1	16	0	5	2	5	4	13	0	1	0	1
.210	93	6.4	1.36	0.21	30th, 12th	16	2	0	0	7	10	5	2	1	4	8	8	5	2	0	1
.200	92	6.2	1.53	0.41	10th	17	2	1	0	8	11	6	2	1	4	8	5	5	4	1	1
.186	91	8.5	1.58	0.37	10th	16	3	0	0	4	25	0	4	2	6	2	8	2	3	0	4
.185	91	8.3	1.61	0.38	10th	18	2	0	0	5	24	10	3	2	6	6	4	3	2	2	3
.187	88	8.3	2.07	0.47	10th	17	2	1	0	4	22	1	2	6	3	7	5	3	3	2	0
.188	90	7.5	1.49	0.41	10th, 31st	15	2	0	1	6	20	4	1	3	6	7	8	1	1	1	3
.201	92	6.5	2.14	0.64	10th	13	4	0	0	6	10	2	3	0	5	7	5	7	3	1	0
.211	91	6.4	2.36	0.57	30th	14	0	1	1	6	8	5	3	4	7	4	4	5	1	2	1
.216	95	7.7	2.31	0.44	25th	15	0	1	0	5	21	5	4	6	9	3	3	3	2	1	0
.178	91	8.2	5.16	1.61	28th	19	9	0	0	4	24	3	3	5	6	5	4	6	1	1	0
.202	90	7.8	1.76	0.41	9th	14	0	0	0	2	17	2	5	6	3	11	3	2	0	1	0
.197	87	8.0	1.46	0.41	8th	14	3	1	0	5	21	1	1	2	6	12	3	2	2	2	1
.225	88	8.3	2.08	0.30	7th	16	0	1	0	1	17	4	2	3	3	5	9	5	2	2	0
.228	87	7.8	3.17	0.60	7th	20	1	1	0	1	15	6	1	4	6	5	3	7	4	1	0
.233	93	7.4	1.92	0.32	8th	18	1	0	0	6	18	8	3	3	5	6	5	2	2	4	1
.195	79	7.7	1.86	0.42	8th	17	0	0	0	1	14	6	3	2	4	7	9	2	3	1	0
.245	99	5.7	2.18	0.42	31st	17	0	0	0	7	8	8	1	3	2	5	8	5	4	3	0
.229	88	7.0	2.97	0.38	8th, 27th	20	0	8	2	5	10	18	0	3	4	9	4	5	5	1	0
.248	96	6.1	6.84	0.77	27th	26	0	0	0	3	3	6	1	1	4	7	5	7	4	2	0
.216	92	7.0	2.33	0.34	9th	16	0	0	0	6	18	2	1	1	4	7	4	3	5	1	5
.271	93	8.1	6.58	1.10	25th	26	0	1	1	1	18	8	2	4	3	6	3	3	5	4	1
.248	88	7.0	4.68	0.50	2nd, 4th	21	0	0	0	6	16	12	4	2	0	5	5	7	5	3	0
.268	88	8.4	2.87	0.46	2nd	24	0	2	1	0	18	11	2	3	4	5	6	4	4	3	0
.214	92	7.6	2.78	0.51	10th	16	2	6	0	4	16	3	3	3	8	6	6	2	1	1	1

barometrical readings at this Station are not reduced for altitude.

TABLE II.

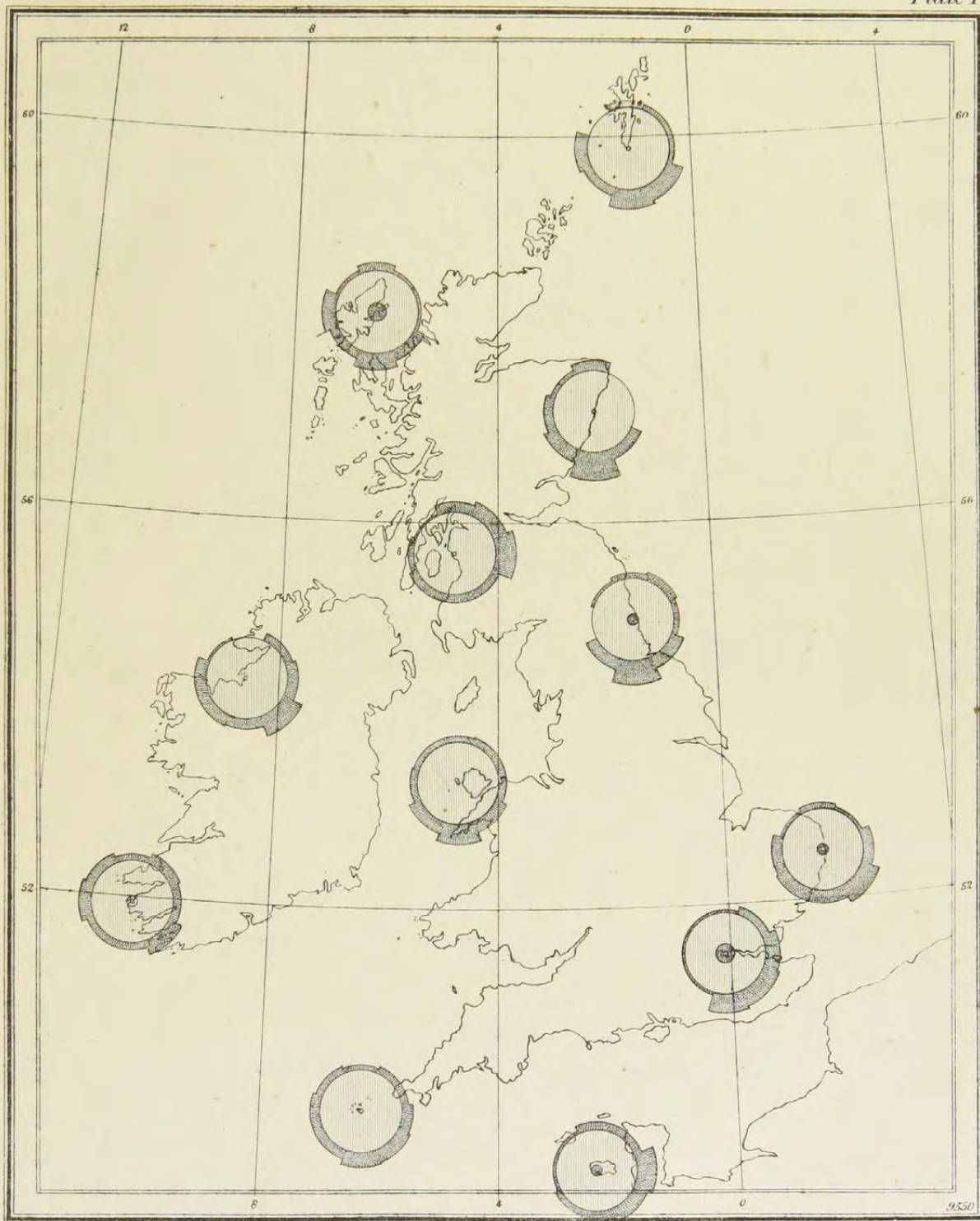
OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of January 1885.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY -	*	*	*	*	*	*	*	*	*	*	*	15	7
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	15	7
ALNWICK CASTLE -	33.7	40.3	37.0	28	23rd	50	29th	13	1.22	0.20	11th	—	—
SCARBOROUGH -	34.8	40.8	37.8	30	23rd	53	29th	18	1.97	0.35	12th	—	—
YORK -	*	*	*	*	*	*	*	*	*	*	*	3	1
HILLINGTON -	32.1	39.7	35.9	24	14th	53	29th	20	2.82	0.80	12th	29	12
GELDESTON -	32.6	40.2	36.4	22	25th	51	29th	17	1.84	0.52	10th	44	18
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	25	10
ROTHAMSTED -	31.5	39.7	35.6	19	22nd	53	29th, 31st	20	2.99	0.78	31st	—	—
BAWTRY -	32.2	39.7	36.1	20	21st	55	29th	17	1.25	0.18	28th	—	—
LEICESTER -	32.7	40.1	36.4	23	22nd	52	29th	18	1.78	0.31	10th	12	5
CHEADLE -	31.2	38.2	34.7	23	21st, 22nd	50	29th	17	1.83	0.36	10th	—	—
CHURCHSTOKE -	32.4	40.2	36.3	25	22nd	53	29th	17	2.60	0.55	28th	12	5
HEREFORD -	32.8	41.6	37.2	26	6th, 21st	53	10th	18	2.26	0.54	30th	—	—
CIRENCESTER -	31.9	40.0	36.0	24	7th, 22nd	52	5th	21	2.66	0.37	26th, 28th	17	7
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	16	6
LONDON -	*	*	*	*	*	*	*	*	*	*	*	6	2
MARLBOROUGH -	32.6	40.1	36.4	25	6th, 14th, 21st	50	10th, 28th, 29th	20	3.06	0.52	10th	17	7
STRATHFIELD TURGIS -	31.2	41.1	36.2	22	20th	54	29th	13	2.87	1.01	31st	—	—
HASTINGS -	35.2	41.1	38.2	28	20th, 21st	48	10th, 31st	16	2.23	0.58	10th	35	14
SOUTHAMPTON -	34.7	42.6	38.7	25	7th	52	27th, 30th	15	2.83	0.64	31st	19	7
LAUDALE -	35.2	43.1	39.2	23	15th	52	5th	17	7.74	1.24	4th	—	—
GLASGOW -	33.4	41.1	37.3	25	23rd	49	5th, 29th	17	2.62	0.42	9th	12	5
SILLOTH -	33.0	42.0	37.5	22	23rd	51	29th	14	1.95	0.42	28th	27	11
DOUGLAS -	36.7	42.2	39.5	32	13th, 14th, 21st, 22nd.	50	10th	17	3.73	0.73	25th	32	13
NEWTON KEIGNY -	31.7	39.8	35.8	23	23rd	50	29th	19	2.67	0.70	31st	20	8
STONYHURST -	32.0	42.7	37.4	25	21st	52	29th	14	3.52	1.13	28th	11	5
BLACKPOOL -	33.3	41.4	37.4	26	22nd	52	29th	12	2.29	0.55	28th	0	0
MANCHESTER -	33.0	40.1	36.6	24	22nd	53	29th	14	2.17	0.61	10th	—	—
LLANDUDNO -	36.5	43.6	40.1	27	21st, 22nd	55	29th	15	1.33	0.18	9th, 28th, 31st	?	?
LLANDOVERY -	32.4	43.1	37.8	21	6th	53	29th	16	4.48	1.14	28th	—	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	*	31	12
ARLINGTON -	34.2	42.8	38.5	27	21st, 22nd	51	28th, 29th	19	3.82	0.87	9th	—	—
CULLOMPTON -	34.5	44.0	39.3	23	6th	52	5th, 10th, 28th, 29th.	19	2.84	0.41	8th	21	8
FALMOUTH -	39.8	45.7	42.8	32	14th, 15th, 19th	53	29th	21	3.95	0.58	10th	40	15
PLYMOUTH -	36.3	45.7	41.0	29	4th, 6th, 7th, 14th, 15th.	52	27th, 28th, 29th	18	2.36	0.38	25th	29	11
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	43	16
LONDONDERRY -	35.3	44.8	40.1	24	16th	55	5th	20	2.81	0.42	10th	—	—
MAHREE CASTLE -	34.0	43.2	38.6	23	13th	52	4th	21	3.00	0.50	27th	50	21
BROOKEBOROUGH -	34.3	43.1	38.7	23	13th, 16th	52	29th	16	2.09	0.53	2nd, 27th	—	—
ARMAGH -	34.6	43.8	39.2	24	13th	56	29th	21	2.12	0.47	31st	47	19
EDWORTHSTOWN -	33.5	42.9	38.2	25	13th, 14th, 19th, 20th.	51	4th, 26th, 29th	20	2.22	0.45	27th	—	—
DUBLIN -	37.8	45.1	41.5	29	13th, 19th	54	29th	23	1.62	0.32	7th	51	21
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	64	26
KILKENNY CASTLE -	34.1	44.6	39.4	23	19th	54	29th, 30th	20	2.93	0.52	2nd	—	—
WATERFORD -	37.0	45.3	41.2	27	14th	52	26th, 29th	20	4.26	0.63	2nd	—	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	50	20
KILLARNEY -	36.7	46.8	41.8	22	14th, 15th	54	10th	24	6.82	0.77	7th	—	—
FOYNES -	34.7	47.0	40.9	28	15th	54	1st, 25th, 26th	20	3.45	0.80	9th	—	—

* For information see Table I.

MONTHLY WIND CHART FOR JANUARY 1885.

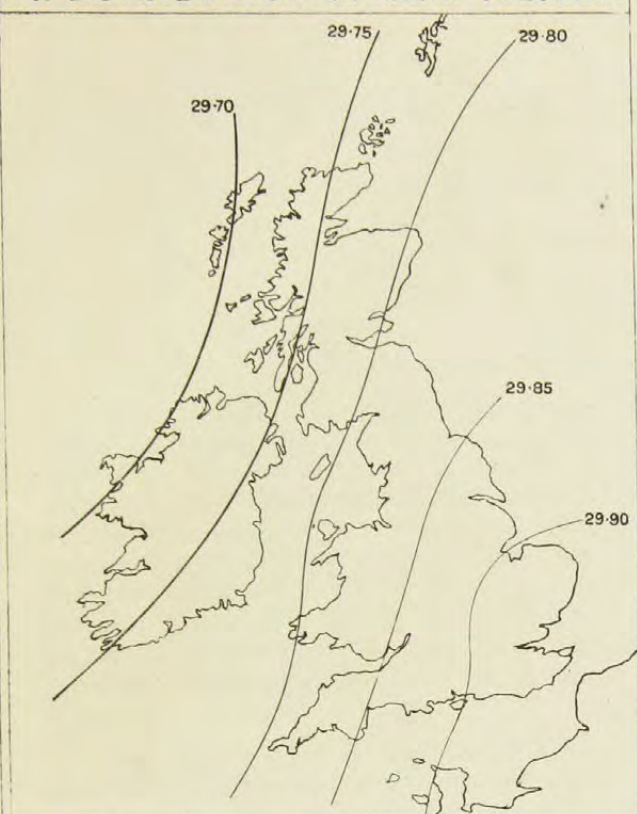
Plate I.



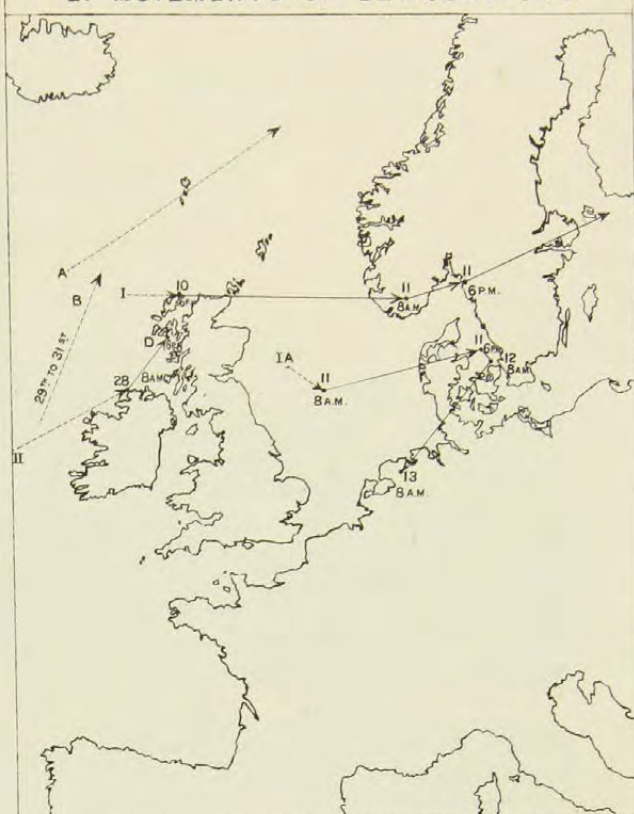
To face p. 10.

DANGERFIELD LITH 22 BEDFORD ST COVENT GARDEN.

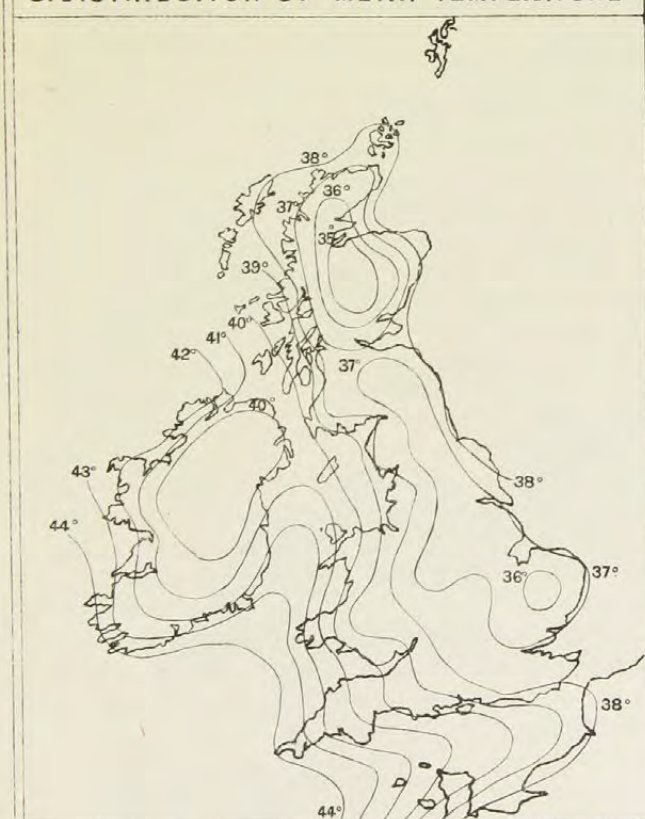
1. DISTRIBUTION OF MEAN PRESSURE



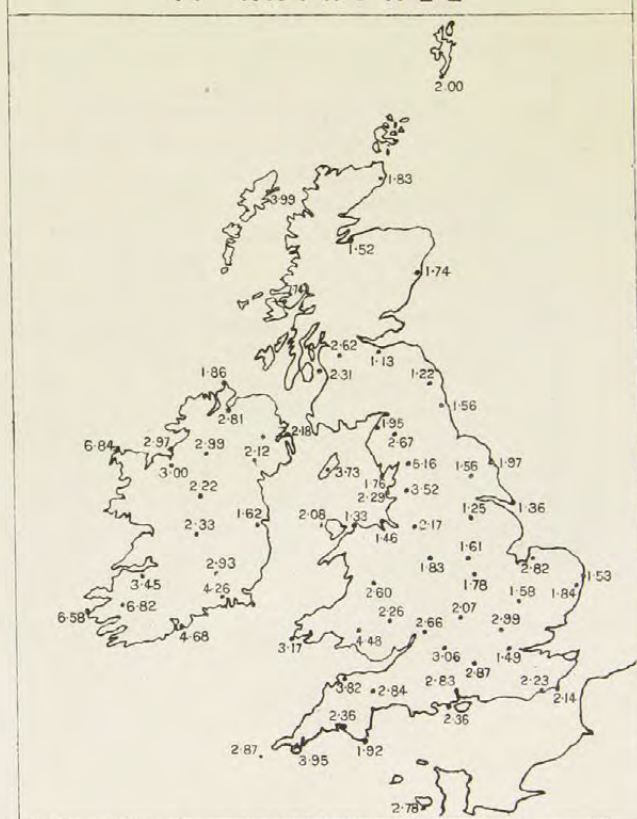
2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE



4. RAINFALL



MONTHLY WEATHER REPORT.

FEBRUARY 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather during February was unsettled generally; mild (especially over England) and showery (especially in the west and north), but as a rule not very rough. Pressure was decidedly low; its distribution was favourable for winds and weather of a South-westerly character, and these prevailed continuously except during the interval between the 14th and 20th. The depressions observed were numerous, but (except in the case of No. XI.*) their gradients were not steep, and the gales observed were consequently of moderate strength; those experienced with No. XI. in the north and north-west on the 21st-22nd were, however, very severe. The rainfall was in excess of the average almost everywhere, especially in the west and north, but the excess arose from the frequency of the showers rather than from their intensity. Of bright sunshine there was a decided increase on the amounts recorded in January.

February 1-14.—Throughout this period the dominant weather system over our Islands and their neighbourhood was cyclonic, and the type South-westerly. The temperature was consequently somewhat above the average, and showers of rain with cloudy skies alternated with brief spells of fine bright weather, and occasional displays of lightning. The depressions which reached our coasts were numerous, and although none of them were deep, some presented features deserving special notice, because it is not usual for them to be repeated so frequently in one month. The first disturbance (viz., that which passed along our extreme west and north-west coasts on January 31st and February 1st) was well-marked, but beyond extending eastwards over Scotland in the form of a hollow, showed no marked peculiarities. The second (No. IV.*) was still less important as a system, but passed nearer to us than its predecessor, and travelled northwards on the 3rd. The third was shallow, and of irregular form; it reached the west of Ireland early on the 4th, and on arriving off the west of Scotland that evening dispersed entirely. This was followed immediately by another, (No. V.*), somewhat more clearly marked, but on passing over Scotland this also dispersed. On the 6th a larger, and in every way more important depression (No. VI.*), arrived off the north-west of Ireland, and developed a well-marked subsidiary disturbance (No. VIA.), over the south-west of Ireland, which, however, dispersed completely before 8 a.m. next day. The 8th brought yet another well-marked disturbance (No. VII.*) to our north-western coasts, and this as it travelled northwards developed a remarkably well-formed and rather deep subsidiary system (No. VIIA.), over the Irish Sea, which by the time it reached the North Sea had so far dispersed as to form a mere "hollow" to the larger system, the centre of which then lay to the northward of Scotland (Weekly Weather Report, p. 23). The 10th brought another disturbance to our neighbourhood, which passed sufficiently near to our northern coasts for its characteristics to be tabulated as No. VIII.* This also developed an arm of low pressure over the German Ocean, and then travelled away outside our area of observation on the following day.

After the 11th, however, the depressions which appeared moved in a more easterly direction than those hitherto mentioned, and their trajectories lay at a great distance from

* See Section II., and Map 2, plate IV. for the history and tracks of depressions.

our northern coasts, in about the direction shown by the broken arrow marked "B" on Map 2. With each of them, however, a subsidiary disturbance was developed over Scotland, of sufficient intensity for North-easterly winds to be experienced temporarily in the extreme north of that country, accompanied by a decided fall of temperature, cold rain, and snow, while South-westerly winds were felt over the other parts of the kingdom. Two such disturbances passed by, one on the 12th, and the other on the 13th (the latter being the more decided of the two), and travelled away towards Scandinavia, without much effect being produced on the weather over England and the south of Ireland—which was fair and warm.

February 14–21.—A series of complications now ensued in which cyclonic and anti-cyclonic conditions were greatly intermingled, and the type of pressure distribution was constantly changing. The period commenced on the 14th by the appearance at the mouth of St. George's Channel of a small and very shallow depression which moved very little and irregularly for two days. Other irregularities appeared in Scotland, and the consequence was that varying breezes and changeable weather were experienced all over the United Kingdom. The winds, however, remained light, and although rain fell in most places, the amounts were small, and temperature changed frequently and very irregularly. Pressure, however, continued highest over the south-east of France, whence at 8 a.m. on the 16th, a ridge spread north-westwards across our Islands to the Atlantic. A new small and shallow depression (No. IX.)* now showed itself at the mouth of the Channel, and travelling fast in a north-easterly direction passed across our southern and south-eastern counties, and caused moderate winds from the Eastward and North-eastward to spread temporarily almost all over the country, while Southerly and South-westerly gales were felt in France. In its rear other very shallow disturbances appeared over England (on the 17th and 18th), but these gradually dispersed, and slight gradients for North-westerly and Westerly winds became pretty general. The distribution of pressure at 8 a.m. on the 19th was very complex; anticyclone No. V. (see p. 16) had appeared over France, and, spreading northwards, was joined by No. VI. over Ireland. At the same time another high-pressure area lay over northern Europe, but was separated from the two systems already named by a band of low barometer, in which lay two well-defined minima. (See Daily Weather Report for this date, and the Weekly Weather Report, 1885, page 30.) This distribution of pressure was at first rendered still more complex by the arrival over the Bay of Biscay of depression No. X.,* but its subsequent advance eastwards over France was accompanied by the breaking up of many of the minor system—just referred to, and the development of the anticyclonic system No. VI. into a large and well-formed system over the northern parts of Great Britain and the North Sea. Although this anticyclone remained with us for so short a period, the intensity of the cold which it produced was great, especially in Scotland. Thus at Wick the thermometer fell from a maximum of 38° on the 19th to a minimum of 9° early next morning, while, as the system passed off it rose again to 35° in the course of the day. It was at this time that the minimum readings for the month were recorded almost all over the kingdom.

February 22–28.—With the advance of the large and important cyclonic system No. XI.* the period of irregular pressure distribution and sudden changes came to an end, and the cyclonic south-westerly type of distribution was restored. The storm of wind which accompanied this new cyclone was especially violent over the northern and north-western parts of the kingdom, where great damage was done, while over England it was little felt, though the sky looked very angry, and some strong squalls were experienced. When, however, this had passed off no new depression of importance occurred, and the month, closed with the advance of a small shallow local depression across England—subsidiary to a larger but unimportant disturbance in the far North—followed by a rapid recovery of pressure and a new ridge-shaped anticyclone to Ireland.

* See Section II., and Map 2, plate IV., for the history and tracks of depressions.

SECTION II.

TABLE OF CYCLONIC SYSTEMS—FEBRUARY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. IV. February 2-3.	No. V. February 5.	No. VI. February 6.
Form - - - - -	Apparently oval - - - - -	Irregular; somewhat oval near the centre.	Apparently nearly circular.
Size - - - - -	Moderate - - - - -	Moderate - - - - -	Moderate.
Depth - - - - -	Moderate - - - - -	Shallow - - - - -	Apparently moderate.
Where first Observed - - -	To the westward of Valencia - - -	To the westward of Ireland - - -	Off the west of Ireland.
Direction of Motion - - -	North-easterly - - - - -	North-easterly - - - - -	North-north-easterly.
Rate of Motion - - - - -	Slow - - - - -	Rapid at first, then slow - - -	Moderate, to slow.
Regions passed over by Steepest Gradients.	The western and northern parts of our Islands.	Ireland and England. Gradients never steep.	British Islands; more particularly Ireland and England.
Termination - - - - -	Travelled away to the northward - - -	Dispersed about 50 miles to the eastward of Sumburgh Head.	Travelled away to the northward.
Time under Observation - - -	About 36 hours - - - - -	One day - - - - -	About one day.
Accompanying Winds - - -	South-easterly to South-westerly, strong to a gale in the west and north, strong in the south.	Over England and Ireland, Southerly to Westerly, fresh to strong; in Scotland light and variable.	Southerly, strong to a gale; Westerly winds (locally) in the south-west later, and Easterly for a time at Belmullet.
" Weather - - - - -	Very showery, squally, mild. Thunderstorm at several western stations.	Squally and showery; thunder in places.	Dull, squally, and showery; lightning in the south-west.
" Rainfall - - - - -	General; heavy in the south-west - - -	General; somewhat heavy in a few places.	General, except in east of Norfolk. Rather heavy at some Irish and Scotch stations.
REMARKS - - - - -	This depression advanced to our western coasts, while pressure was highest over central Europe and lowest off our north-western coasts, the gradients being moderate. Its centre passed too far to the westward of our Islands for its track to be exactly drawn on Map 2, Pl. IV. The thunderstorms were very numerous for the time of year.	This depression advanced during the prevalence of moderate south-westerly gradients. It was preceded by a somewhat similar (but shallower) disturbance which advanced to our north-western coasts on the 4th, and then dispersed, and was followed by another system (No. VI.) which took a more northerly course.	This depression followed closely in the rear of No. V., than which it was both larger and deeper. At evening (of the 6th) a well-marked subsidiary system was developed over the southern half of Ireland, causing the Easterly and Westerly winds referred to above, but this had entirely disappeared at 8 a.m. 7th. It is not shown in the 6 p.m. map of the 6th given in the Weekly Weather Report, 1885, p. 22, its existence being at first masked by errors in the telegrams from Ireland, but its position at that hour is shown on Map 2, Plate IV. by a dot marked VIA.

SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—FEBRUARY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. VII. February 8-9.	No. VIII. February 10-11.
Form - - - - -	Apparently circular at first - - - - -	Apparently nearly circular - - - - -
Size - - - - -	Large - - - - -	Moderate - - - - -
Depth - - - - -	Moderate - - - - -	Apparently moderate - - - - -
Where first Observed - - - - -	Off the north-west of Ireland - - - - -	Off the north-west of Ireland - - - - -
Direction of Motion - - - - -	North-easterly - - - - -	North-easterly - - - - -
Rate of Motion - - - - -	Rapid to slow - - - - -	Moderate - - - - -
Regions passed over by Steepest Gradients	British Islands; especially Ireland, England, and the two Channels.	Western and northern parts of Ireland and Scotland.
Termination - - - - -	Travelled away to the northward of our area - - - - -	Travelled away to the northward of our area - - - - -
Time under Observation - - - - -	About one and a half days - - - - -	About one day - - - - -
Accompanying Winds - - - - -	Southerly and South-westerly, strong to a gale; afterwards shifting to West and North-west.	South-westerly and Southerly gales in the extreme west and north, South-easterly breezes in the east. North-westerly gales felt in north of Scotland early on 11th.
Weather - - - - -	Rainy and squally, with lightning in the west - - - - -	Mild and rather showery generally - - - - -
Rainfall - - - - -	General; heavy in several localities - - - - -	General, but slight - - - - -
REMARKS - - - - -	<p>This depression, also, advanced when the distribution of pressure was of a south-westerly type. Its progress was rapid until it approached the Norwegian coast, when it appears to have slackened.</p> <p>An exceptionally well-marked subsidiary disturbance was formed over the Irish Sea during the day (see chart for 6 p.m. 8th, in the Weekly Weather Report, p. 23), causing the gales and bad weather to spread all over England. On reaching the North Sea, however, it appears to have partially dispersed, forming only a "hollow" to the main depression. Its track is marked VI.A. on Map 2, Plate 4.</p>	<p>This depression also advanced while the south-westerly type of pressure distribution was prevalent. On passing to the northward of Scotland it appears to have developed an arm (or hollow) of low pressure on its south-eastern side, which caused the wind to veer to North-west in the north of Scotland, and to blow hard from that quarter.</p>

SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—FEBRUARY 1885.

No. IX. February 16-17.	No. X. February 20-21.	No. XI. February 21-22.
Nearly oval - - - - -	Oval - - - - -	Uncertain; apparently almost circular near the centre.
Moderate - - - - -	Moderate - - - - -	Apparently very large.
Shallow - - - - -	Moderate - - - - -	Deep.
At mouth of English Channel - - -	Over the Bay of Biscay - - -	To the westward of Ireland.
North-easterly - - - - -	East-north-easterly - - -	North-easterly.
Very rapid - - - - -	Moderate - - - - -	Moderate to slow.
France and the Netherlands - - -	The Channel and south of England - - -	The north-west of Ireland, and Scotland.
Apparently dispersed over the Baltic; - - -	Dispersed on reaching Germany - - -	Travelled away to the northward.
One day - - - - -	One day - - - - -	Nearly two days.
Moderate North-easterly to Northerly in our Islands; South-westerly gales in France.	North-easterly, strong to a gale in the Channel; Southerly to Westerly, strong, over France.	Southerly (South-east to South-west) gales, very severe in the north and north-west, slight in the south-east.
Unsettled, with cold rain - - - - -	Rainy in France, cold and cloudy over our southern counties.	Very wild and rainy in Ireland and some parts of Scotland, with thunderstorms in several places. Temperature rising rapidly.
Rather heavy over our southern counties and the Channel.	Slight - - - - -	Much heavier in Ireland than elsewhere. None at our extreme south-eastern stations.
This depression arrived during the complex conditions referred to on p. 12. It was very well-defined for so shallow a disturbance, and its motion appears to have been altogether independent of that of a larger system, the centre of which lay to the northward of the Shetlands. In its rear several very shallow subsidiary systems were formed, but these soon passed off towards the Netherlands and North Germany.	This depression also reached western Europe during the complex conditions referred to in Section I. (p. 12). It completely broke up the French high-pressure area, but was succeeded by a very rapid recovery of pressure, and the formation of a new anticyclone No. VI. (see p. 16).	This depression came in immediately in the rear of anticyclone No. VI. (see p. 16). Its gales were exceptionally violent in Scotland and the north-western parts of Ireland, and were strong even in the south of Ireland and Irish Sea, but slight on our south-east coasts. There was apparently another depression in its rear (see Weekly and Daily Weather Reports for the 23rd), but this only just skirted our extreme north-western coasts.

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—FEBRUARY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. IV. February 12-13.	No. V. February 18-19.	No. VI. February 19-21.
Form - - - - -	Oval - - - - -	Oval at first, then varying - - -	Nearly oval at first; then variable.
Size - - - - -	Small - - - - -	Small at first, then large - - -	Small at first, then large.
Height - - - - -	Small; maximum readings above 30°3 ins.	Small; maximum reading below 30 ins.	Moderate; maximum readings above 30°1 ins. on 21st.
Where first Observed - - -	Over the Bay of Biscay - - -	Over Spain - - - - -	Over Ireland.
Direction of Motion - - -	Easterly - - - - -	North-easterly - - - - -	North-easterly till 8 a.m. 20th, then south-easterly.
Rate of Motion - - - - -	Slow - - - - -	Moderate; rapid at times - - -	Moderate.
Regions passed over - - -	France - - - - -	France and Germany - - - - -	North of our Islands and North Sea; then extending south-eastwards over England and north of France. Subsequently passed on to Germany.
Termination - - - - -	Merged in a large area of high pressure over Europe.	Developed into a large high-pressure system over central Europe.	Travelled eastwards out of our area.
Accompanying Wind - - -	Easterly in the south of France and north of Spain, South-westerly over our Islands.	Generally Westerly on its northern side, and Easterly in the south, but varying a good deal.	Easterly over our southern districts. Wind subsequently drew into South as the system moved eastwards.
Weather - - - - -	Fair, but dull in many places; not very cold.	Fine; not cold - - - - -	Fine, dry, and very cold; fogs locally.
REMARKS - - - - -	On the 12th this system was subsidiary to a much larger one which lay over Russia, the Baltic, and Germany. The latter then moved southward, and the two merged the one into the other, and settled down over south-eastern Europe.	This system appeared while the distribution of pressure was very complex. At 6 p.m. on 18th a second high-pressure area lay over northern Europe, and apparently a third off our western coasts. A large depression near Riga, a small shallow one over the North Sea. At 8 a.m. 19th (when this anticyclone lay over Germany) the western high pressure appeared as a subsidiary anticyclone over Ireland and the Irish Sea, and subsequently developed greatly. See No. VI. (See also the charts in the Daily and Weekly Reports for these dates.)	The rapid development of this system, as the previous one disappeared, is worthy of note, as also is the severity of the cold in Scotland early on the 20th, and the suddenness with which the anticyclone gave way to the large depression, No. XI., which passed up our western coasts next day.

SECTION III.

REMARKS FOR FEBRUARY 1885.

(Tables III. and IV. with Plates III. and IV.)

Pressure.—The mean pressure for the month, at 8 a.m., varied from about 29·76 inches on the extreme south-east coast of England to about 29·32 inches at Sumburgh Head and Stornoway, the gradients being very evenly distributed and favourable for a predominance of winds from South-west and South. The values are very low even for the winter, the difference between them and the averages for the 20 years 1861–80 being about 0·4 inches at our northern stations, and 0·2 inches in the south-east. The gradients were consequently steeper, and favourable for winds from a more Southerly point, than is usual at this time of year. The highest readings were recorded as follows:—at our extreme south-eastern and eastern stations on the 21st, when the anti-cyclone No. VI. was lying over the North Sea; at our south-western and southern stations on the 12th, while anticyclone No. IV. was lying over France, and at the northern stations on the 20th while anticyclone No. VI. was being developed over the northern parts of Great Britain. Over the greater part of Scotland the barometer does not seem to have risen to 30·0 inches on any occasion. The lowest readings occurred in the north on the 1st, as the depression No. III. (see the January Report) was passing near the Scotch coast, but in the south the lowest occurred on the 16th, while the small depression No. IX.* was passing over. The range was not large for the time of year, notwithstanding the low readings recorded in the north at the beginning of the month.

Movements of Depressions.—These, so far as direction is concerned, were very uniform, nearly all of them travelling in directions between north-north-east and east-north-east. Their rates of motion, however, were very varied, the most rapid being that of No. VIII.*—a shallow disturbance, which travelled across our southern counties on the night of the 16th. The principal features in the cyclonic systems of the month were their sudden formation, and dispersion on some occasions (as in the case of the shallow disturbances which reached our north-western and northern districts on the 4th and 5th, and the still more striking instances of the subsidiary disturbances of the 6th and 8th). The rapid advance of system No. XI. immediately in the rear of the anticyclone No. VI., and the steepness of its gradients over our north-western and northern districts are worthy of particular mention.

Anticyclones.—These were three in number (see p. 16), and present some features worthy of note—*e.g.*, the development of both Nos. IV. and V. from small into large systems as they passed inland from the Atlantic, the rapid break up of No. V. as the comparatively shallow depression No. X. advanced towards it, and the simultaneous development of No. VI. into a large system, though at first it appeared only as a subsidiary to No. V.

Winds.—The winds experienced during February were mainly South-westerly and Southerly in direction, and moderate in force. With the constantly varying distribution of pressure between the 14th and 21st, however, winds from all other quarters were felt, and hence it is that the wind-roses on Plate III. show a small per-centage of North-westerly, North-easterly, Easterly and South-easterly breezes in most places. The gales experienced were few in number, except in the extreme west of Ireland—where the South-westerly winds which accompany depressions from the Atlantic are, as a rule, felt more strongly than in localities lying further to the eastward. Only one gale of great severity was reported—viz., No. XI.

* See Section II., and Map 2, plate IV., for the history and tracks of depressions.

Temperature.—The mean (sea level) temperature of the month varied from a little above 47° in the Scilly Islands, and about 45° in the extreme south of Ireland, to between 40° and 41° over the inland parts of the north-west of Ireland and the south of Scotland, and to somewhat below 38° over the northern half of Scotland. The winter type of distribution was not nearly so strongly marked over England as in January, and several local irregularities are shown; in fact the appearance of the map over England approximates more to the normal conditions for March than to those for February. Since the month of January there has been an increase in the mean temperature amounting to between 6° and 7° over the south-east of England, to 5° in the north-east, and to about 4° over central Scotland. Over Ireland, however, the change was only about 1° to 2° , and at some coast stations it was still less. Sumburgh Head and Stornoway show a decrease. When compared with the mean temperature for the corresponding month in the 20 years 1861–80, it appears that February was this year warmer than the mean by about 3° over the southern counties of England, and by about 1° over our northern counties, but that in Ireland there was no appreciable difference between the two. In Scotland there was a slight deficit in the highland and a slight excess in some parts of the lowland districts, more especially in a band stretching across Scotland from the mouth of the Clyde to the Forth, caused apparently by the relatively free motion of the warm Westerly winds along that valley when compared with what takes place over the hilly districts on either side of it. The lowest temperatures of the month were recorded between the 19th and 21st in almost all parts of the kingdom. At this time the two anticyclones Nos. V. and VI. lay over our area, and under the influence of the latter the sheltered thermometer went down to 9° at Wick, 15° at Nairn, 16° at Hawes Junction, and 18° at Newton Reigny and Brookeborough. Temperature then rose quickly, so that the highest of the daily maxima were recorded very generally between the 24th and 27th, when the South-westerly current of wind had again set in. The amount of range varied from 48° at Wick, 41° at Nairn, and 39° at Brookeborough, to 18° at Jersey and 17° at Scilly. Over the inland parts of England the range varied from 33° to 38° .

Vapour Tension varied from 0.28 inch about the mouth of the Channel, and 0.26 inches in the extreme south of Ireland, to 0.22 inch over central Ireland, and 0.19 inch in the east of Scotland (0.17 inch at Leith). *Relative Humidity*, however, was greatest (90 to 95 per cent.) on our western, southern, and eastern coasts, and, as a rule, lowest inland. Leith, however, again reports the lowest value of all—viz. 72 per cent., and Donaghadee the highest, viz. 96 per cent.

Rainfall was in excess of the average over all districts, but especially over Ireland and the western parts of Great Britain, which were more affected by the numerous depressions which passed along our western coasts than stations lying over the central and eastern parts of England. The largest amounts reported were 12.5 inches at Laudale, 8.4 inches at Killarney, 6.4 inches at Valencia, 6.2 inches at Roche's Point, 5.8 inches at Waterford, 5.7 inches at Stornoway, and 5.2 inches at Belmullet, while the smallest were 0.8 inch at Shields and Scarborough, 1.3 inches at Alnwick, and 1.5 inches at Spurn Head. The number of days with rain was large in the west and north.

Bright Sunshine was most prevalent in Ireland (especially at Dublin), the eastern parts of Scotland, the south-east of England, and at Jersey, where, assuming the total amount which could possibly have been registered at each station during the month to be represented by 100, the values actually recorded varied between 20 and 30. Over the major part of Great Britain the per-centage ranged from 11 to 19, but three inland western stations (viz. Cheadle, Churchstoke, and Cirencester) had as much as 22 or 23 per cent. The lowest per-centage recorded was 11, at York.

SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF FEBRUARY, 1885.

TABLE III.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the numbers of days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 29°320	39°0	34°6	42°8	38°7	23	20th	49	24th, 27th
	Wick	29°360	37°2	31°0	42°0	37°4	9	20th	57	26th, 27th
	Stornoway	29°326	38°1	32°7	42°6	37°7	20	16th	49	23rd, 24th, 26th.
1. SCOTLAND, E.	Nairn	29°363	35°8	31°9	43°7	37°8	15	20th, 21st	56	27th
	Aberdeen	29°428	36°9	32°6	44°8	38°7	20	20th	54	24th
	Leith	29°446	39°5	35°1	46°8	41°0	23	21st	55	24th, 26th
2. ENGLAND, N.E.	Shields	29°530	40°1	35°2	46°6	40°9	26	19th, 20th	56	24th
	York	29°602	39°3	35°5	47°5	41°5	20	19th	57	24th, 27th
	Spurn Head	29°613	40°5	37°1	45°0	41°1	32	9th	52	2nd
3. ENGLAND, E.	Yarmouth	29°705	41°0	37°1	46°1	41°6	31	19th, 20th, 22nd.	54	11th
	Cambridge	29°697	40°6	35°5	49°4	42°5	23	21st	58	12th, 24th
4. MIDLAND COUNTIES	Loughborough	29°640	40°2	36°7	48°8	42°8	21	21st	59	24th
	Oxford	29°691	41°8	38°5	49°4	44°0	24	21st	57	12th, 24th
5. ENGLAND, S.	London	29°718	42°7	39°0	49°8	44°4	28	19th, 21st	58	12th, 24th
	Dungeness	29°758	43°0	40°5	47°9	44°2	32	19th, 20th, 21st.	51	24th, 25th, 26th.
	Hurst Castle	29°716	44°0	40°3	48°7	44°5	29	21st	52	1st, 2nd, 28th.
6. SCOTLAND, W.	Ardrossan	29°445	40°0	35°8	44°7	40°3	27	16th, 20th, 21st.	48	8th, 12th
7. ENGLAND, N.W.	Hawes Junction*	28°329	35°7	31°7	41°1	36°4	16	19th	51	24th
	Barrow-in-Furness	29°539	39°1	36°4	44°4	40°4	27	22nd	50	27th
	Liverpool (Bidston)	29°573	40°9	37°9	47°1	42°5	28	21st	59	24th
	Holyhead	29°550	42°9	39°9	46°1	43°0	30	21st	50	11th, 22nd, 27th.
8. ENGLAND, S.W.	Pembroke	29°585	44°1	41°1	46°6	43°9	33	19th, 20th	49	24th, 27th
	Prawle Point	29°692	44°7	40°1	49°0	44°6	32	18th, 21st	52	2nd, 24th, 25th, 28th.
9. IRELAND, N.	Malin Head	29°380	40°9	36°5	47°4	42°0	28	19th	55	26th, 27th
	Donaghadee	29°473	40°2	35°6	46°7	41°2	26	20th	54	12th
	Mullaghmore	29°410	41°8	37°5	47°6	42°6	25	19th	56	26th
	Belmullet	29°396	41°4	38°2	46°1	42°2	30	17th	51	12th
10. IRELAND, S.	Parsonstown	29°508	39°7	34°8	48°1	41°5	22	19th	58	26th
	Valencia	29°510	44°9	40°3	50°2	45°3	31	17th, 18th, 19th.	55	10th, 26th
	Roche's Point	29°540	44°0	40°3	49°2	44°8	31	18th, 19th	54	16th
CHANNEL ISLANDS	Scilly (St. Mary's)	29°627	47°9	43°4	50°5	47°0	38	21st	55	27th
	Jersey (Noirmont)	29°756	44°2	41°9	48°8	45°4	35	21st	53	13th, 24th, 27th.

* Hawes Junction is 1,135 feet above Mean Sea Level, and the

TABLE III.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of February 1885.

Thunderstorms, and Gales are counted irrespective of the hours at which they occurred.

beginning in each case with the Station lying furthest North.)

	TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.		Date.	WEATHER, No. of Days of							WIND, No. of Observations of								
				Total Fall in the Month.	Maximum Fall in One Day.		Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	°/100		ins.	in.																		
0.203	86	6.9	3.73	0.98	9th	26	3	0	0	3	13	1	3	3	0	3	6	5	5	3	0	
.198	89	6.4	1.93	0.35	13th	21	7	0	0	6	13	6	0	1	0	2	10	2	4	7	2	
.221	96	7.4	5.68	0.61	10th	26	6	2	1	4	15	5	3	2	0	3	9	3	3	3	2	
.188	89	5.3	2.33	0.66	12th	15	0	0	0	11	10	1	0	2	1	2	5	9	4	0	5	
.192	88	5.1	3.56	0.98	8th	17	3	0	0	11	11	7	0	0	0	0	10	10	3	4	1	
.175	72	5.8	1.69	0.71	8th	18	2	1	0	7	7	0	0	0	0	1	3	11	9	3	1	
.216	87	8.0	0.79	0.40	8th	14	2	2	0	2	15	6	1	0	1	0	7	13	2	3	1	
.223	93	7.8	1.69	0.23	16th	21	2	0	0	3	13	0	2	2	1	3	12	3	3	2	0	
.233	93	5.8	1.54	0.27	16th	17	2	0	0	6	6	6	0	2	1	3	12	5	4	1	0	
.239	94	5.9	1.94	0.44	25th	20	0	0	0	5	7	3	1	2	1	0	6	13	4	1	0	
.231	91	7.1	1.69	0.38	16th	16	0	0	0	6	15	0	2	1	0	1	17	5	0	2	0	
.226	91	8.0	2.56	0.56	16th	18	2	0	0	2	16	14	0	3	1	6	9	4	5	0	0	
.239	91	6.8	2.87	0.60	26th	18	0	2	0	8	15	1	0	3	0	0	17	5	1	1	1	
.241	88	6.8	2.27	0.58	16th	17	0	0	0	5	14	5	1	1	1	3	12	8	2	0	0	
.357	93	6.5	3.11	0.68	16th	16	0	0	0	5	11	1	1	1	1	0	1	13	9	2	0	
.263	91	7.0	5.17	0.40	16th	23	0	1	0	4	11	7	0	1	2	1	5	13	5	1	0	
.234	95	6.9	3.31	0.37	6th	22	0	0	0	6	14	4	2	2	2	3	6	6	4	0	3	
.196	94	7.4	7.74	1.18	8th	24	6	0	0	7	20	2	1	1	3	5	6	9	3	0	0	
.219	92	7.1	3.73	0.72	26th	21	0	0	0	1	13	2	0	4	1	7	7	2	2	5	0	
.218	86	6.4	2.36	0.32	23rd	20	1	2	0	5	9	0	1	1	2	6	7	7	2	2	0	
.250	91	8.3	4.78	0.87	2nd	20	1	0	0	1	14	3	2	3	2	0	9	9	2	1	0	
.258	89	7.8	4.03	0.74	23rd	23	0	0	0	3	17	8	1	2	1	1	8	6	6	2	1	
.279	94	8.3	2.75	0.41	4th	23	0	2	0	2	18	6	2	1	0	1	10	9	4	1	0	
.232	91	6.5	3.14	0.81	12th	21	0	0	0	4	8	7	3	1	2	3	7	9	2	1	0	
.239	96	6.4	3.42	1.31	21st	20	1	0	0	4	10	6	2	0	2	2	4	8	7	3	0	
.237	90	7.0	3.63	0.85	21st	21	1	3	0	4	8	12	1	1	3	4	2	12	4	1	0	
.252	97	4.7	5.23	0.55	7th	25	0	0	0	7	4	5	3	1	0	3	2	12	3	4	0	
.216	88	5.9	2.76	0.65	21st	21	2	0	0	5	9	0	1	1	0	5	6	7	3	1	4	
.263	89	7.8	6.39	1.18	21st	22	0	2	2	3	15	10	3	2	0	2	6	7	5	2	1	
.257	89	6.7	6.16	0.75	8th	22	0	0	0	7	13	8	4	1	2	1	3	9	7	1	0	
.286	87	8.7	3.78	0.70	1st	24	0	1	1	1	20	9	1	0	2	1	10	7	4	3	0	
0.276	95	7.0	4.02	0.58	22nd	25	0	1	1	5	14	7	0	1	2	4	7	7	5	2	0	

Barometrical observations at this station are not corrected for altitude.

TABLE IV.

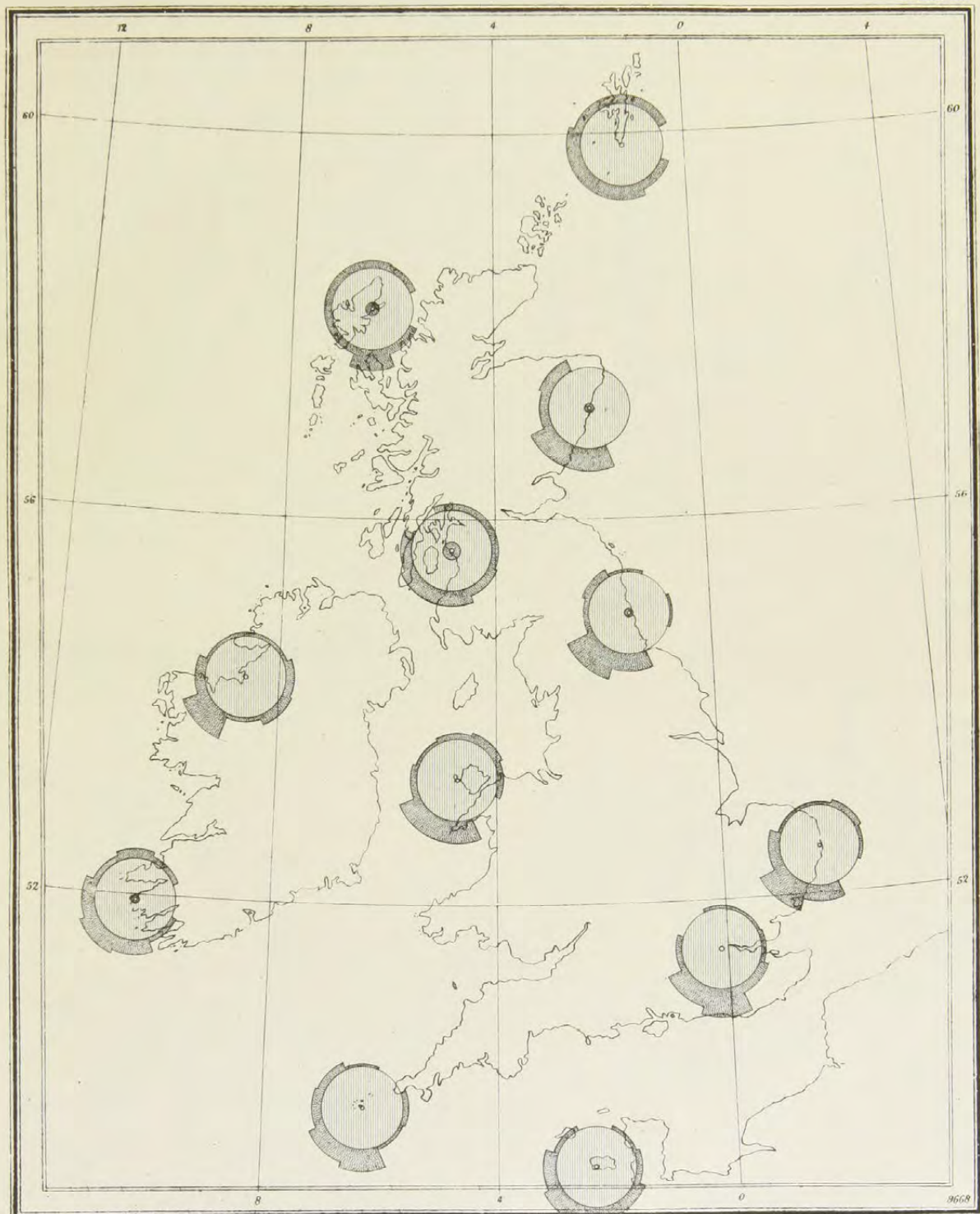
OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of February 1885.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY - - -	*	*	*	*	*	*	*	*	*	*	*	57	22
ABERDEEN - - -	*	*	*	*	*	*	*	*	*	*	*	79	30
ALNWICK CASTLE - -	34'6	44'4	39'5	27	17th	54	24th, 27th	13	1'28	0'54	8th	—	—
SCARBOROUGH - - -	37'4	46'3	41'9	30	19th	56	24th	19	1'84	0'47	4th	—	—
YORK - - -	*	*	*	*	*	*	*	*	*	*	*	29	11
HILLINGTON - - -	36'3	47'9	42'1	22	21st	58	24th	17	2'03	0'45	16th	48	18
GELDESTON - - -	37'9	47'9	42'9	31	19th, 21st	56	12th	16	2'04	0'40	16th	67	25
CAMBRIDGE - - -	*	*	*	*	*	*	*	*	*	*	*	57	21
ROTHAMSTED - - -	36'9	48'6	42'8	24	21st	56	12th, 24th	24	2'85	0'39	16th	—	—
BAWTRY - - -	35'9	47'8	41'9	22	21st	60	24th	19	2'01	0'59	16th	—	—
LEICESTER - - -	37'0	48'7	42'9	22	21st	59	24th	15	2'62	0'71	16th	44	16
CHEADLE - - -	34'6	46'3	40'5	25	21st	57	24th	22	2'05	0'37	16th	—	—
CHURCHSTOKE - - -	36'1	47'2	41'7	23	21st	59	24th	19	3'75	0'67	1st	63	23
HEREFORD - - -	36'5	49'6	43'1	21	21st	59	12th, 24th	16	3'81	0'89	1st	—	—
CIRENCESTER - - -	36'4	47'8	42'1	23	19th, 21st	56	24th	18	3'49	0'49	26th	59	22
OXFORD - - -	*	*	*	*	*	*	*	*	*	*	*	64	23
LONDON - - -	*	*	*	*	*	*	*	*	*	*	*	40	15
MARLBOROUGH - - -	37'9	47'8	42'9	23	21st	56	12th	19	4'70	0'76	26th	49	18
STRATHFIELD TURGIS -	37'4	50'1	43'8	23	20th	56	24th	18	2'56	0'41	15th, 16th	—	—
HASTINGS - - -	40'7	47'4	44'1	31	21st	52	11th, 24th	20	3'48	0'80	16th	70	25
SOUTHAMPTON - - -	40'0	50'0	45'0	28	19th, 21st	57	24th	22	3'40	0'49	26th	52	19
LAUDALE - - -	34'6	44'6	39'6	23	17th	52	12th, 26th	23	12'49	1'86	6th	—	—
GLASGOW - - -	35'8	44'9	40'4	27	20th	52	24th, 27th	23	2'98	0'39	23rd	48	18
SILLOTH - - -	36'5	46'2	41'4	24	21st	52	24th, 27th	21	3'83	0'70	8th	51	19
DOUGLAS - - -	37'3	45'5	41'4	28	19th, 20th	51	25th	23	4'33	0'59	2nd	64	24
NEWTON REIGNY - - -	34'1	44'2	39'2	18	20th	52	25th	24	4'22	0'73	8th	36	14
STONYHURST - - -	36'3	47'1	41'7	24	21st	55	24th, 27th	23	3'95	0'51	23rd	35	13
BLACKPOOL - - -	36'0	45'5	40'8	23	21st	55	24th, 25th	23	3'70	0'69	23rd	49	18
MANCHESTER - - -	36'3	46'1	41'2	26	21st	58	24th	21	3'12	0'40	2nd, 4th	—	—
LLANDUDNO - - -	38'8	48'0	43'4	29	21st	57	24th, 27th	20	2'31	0'50	21st	45	17
LLANDOVERY - - -	36'2	49'0	42'6	23	18th	59	24th	23	5'86	0'81	1st	—	—
PEMBROKE - - -	*	*	*	*	*	*	*	*	*	*	*	73	27
ARLINGTON - - -	37'8	47'9	42'9	27	19th, 21st	58	24th	23	4'57	0'54	1st	—	—
CULLOMPTON - - -	38'4	50'3	44'4	22	21st	56	25th	21	4'40	0'73	1st	46	17
FALMOUTH - - -	42'6	49'6	46'1	36	18th, 21st	54	24th	22	5'18	1'09	1st	47	17
PLYMOUTH - - -	41'4	50'6	46'0	29	21st	55	24th	19	3'25	0'58	26th	49	18
JERSEY - - -	*	*	*	*	*	*	*	*	*	*	*	75	27
LONDONDERRY - - -	35'6	47'9	41'8	22	19th	59	26th	23	2'75	0'48	21st	—	—
MARKREE CASTLE - -	33'5	46'6	40'1	20	19th	55	26th	21	3'20	0'73	21st	71	27
BROOKBOROUGH - - -	33'9	46'8	40'4	18	19th	57	26th	18	4'39	0'94	21st	—	—
ARMAGH - - -	35'0	47'9	41'5	25	19th, 20th	57	26th	22	3'08	0'76	6th	69	26
EDGEWORTHSTOWN - -	33'3	47'1	40'2	22	19th	57	26th	18	3'06	0'73	6th	—	—
DUBLIN - - -	38'6	48'5	43'6	26	19th	58	26th	19	2'81	0'92	16th	88	33
PARSONSTOWN - - -	*	*	*	*	*	*	*	*	*	*	*	79	29
KILKENNY CASTLE - -	34'6	47'9	41'3	21	19th	55	10th, 11th, 27th	22	4'05	0'73	21st	—	—
WATERFORD - - -	37'3	47'8	42'6	22	19th	53	27th	21	5'82	0'83	21st	—	—
VALENCIA - - -	*	*	*	*	*	*	*	*	*	*	*	62	23
KILLARNEY - - -	38'1	48'7	43'4	22	19th	56	10th, 26th	23	8'44	2'32	21st	—	—
FOYNES - - -	36'3	49'7	43'0	26	18th	58	24th	22	3'66	0'65	5th	—	—

* For information see Table III.

MONTHLY WIND CHART FOR FEBRUARY 1885.

Plate III



To face p. 22.

DANCERFIELD LITH 22 BEDFORD ST COVENT GARDEN.

2. MOVEMENTS OF DEPRESSIONS.



4. RAINFALL



DANGERFIELD LITH. 22. BEDFORD ST. COVENT GARDEN.

MONTHLY WEATHER REPORT.

MARCH 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather during March was quiet and rather cold, dry (especially over our eastern counties), and somewhat foggy. Pressure was in excess of the average by nearly 0·2 inch, and very largely in excess of that for February. The mean values show that an anticyclone lay over Ireland and England, with slight gradients for Westerly winds in the north, and these conditions agree very closely with the prevalence of winds from various points shown on Plate V. Temperature was, on the whole, below the mean, and lower than that of February. Its range was somewhat large at the inland stations, but there was nothing in either the maxima or minima worthy of special mention. Bright sunshine was very deficient in the north-east and north of England, and in London (apparently owing to fog), but at our western and southern coast stations the amounts recorded were larger.

March 1-2.—The distribution of pressure over our Islands during this period was chiefly anticyclonic, and the gradients favourable for winds from various quarters. At 8 a.m. on the 1st light North-westerly and Northerly breezes prevailed over the North Sea and eastern parts of our Islands, while Easterly and South-easterly winds were felt in the west. Temperature was very low, the weather was fair and dry, and fog prevailed at some of our inland stations. The barometer then fell, especially in the west, the South-easterly winds spread almost all over the kingdom and veered to the Southward, with an increase of temperature, and while depression No. XII.* moved in a northerly direction outside our extreme western coasts, the anticyclone travelled south-eastwards and eastwards across the North Sea.

March 3-6.—Pressure distribution now changed decidedly; the dominant systems were cyclonic, but small, and the conditions very complex. The barometer was at first highest to the eastward of the North Sea, and lowest to the westward of Ireland, and the gradients were rather steep. The winds were Southerly to South-easterly, moderate in the east and strong in the west. A well-marked depression (No. XIII.*) now approached our western coasts, causing a rapid fall of the barometer in Ireland, and a less decided fall elsewhere. Its centre reached the neighbourhood of Galway on the evening of the 3rd (see Weekly Weather Report, 1885, p. 38), but there its progress was checked, and the system underwent considerable modification. A subsidiary disturbance was in the meantime formed near Prawle Point, and as this moved east-north-eastwards, a large trough of low pressure was formed across the southern parts of our Islands and the Netherlands, and separating a high-pressure system over the northern parts of our area from another one in the south. The weather was very unsettled, and rain fell generally, especially on our north-western coasts. The whole system now moved slowly to the eastward, its eastern part dispersed,

* See Section II. and Map 2 Plate VI. for the history and tracks of depressions.

and the barometer rose, but the general distribution of pressure underwent little change till late on the 5th, when a new and complex cyclonic system (No. XIV.*) advanced towards the west of France from the Atlantic. The North-easterly wind now spread all over our Islands and freshened; some rain fell in the south, a few snow and hail showers in the north, and temperature fell decidedly over England. Over the southern parts of France the rainfall was considerable, and the wind blew hard from South-west and West. The progress of the new disturbance was rapid, and by the morning of the 7th it had entirely disappeared from our area; but the North German reports show that it had undergone great modifications, and its centre had reached Poland.

March 7-15.—High-pressure (anticyclonic) conditions now became prevalent, but were not completely established until after the 8th—the distribution during the 7th and 8th being partly cyclonic and partly anticyclonic. The systems advanced from the westward, so that on the 9th it was only their eastern portions which lay over the United Kingdom. By the 10th, however, the United Kingdom was completely covered by anticyclone No. VIII. (p. 29), and while Westerly breezes of little strength prevailed at the northern stations, Easterly winds were felt in the south. Temperature fell steadily, so that at the western stations the minimum for the month was recorded on or about the 10th. (See Tables V. and VI., Section III.) The night frosts were sharp on the ground, and the diurnal range of temperature was large. The weather became fair generally, and the air dry; fog or haze occurred frequently, and the barometer rose to its maximum height for the month. The changes from day to day were slight until the 14th, when the mercury began to fall—first at the northern, and afterwards at the more southern stations. The anticyclone now moved south-eastwards and southwards, and became less clearly marked; Westerly and Southerly winds began to spread over the country from the northward, and depressions again commenced moving in an easterly and south-easterly direction towards Norway at a great distance from our extreme northern coasts. The first one passed by at too great a distance for its movements to be indicated on Map 2, Plate VI., but its effects on our weather were shown by the decrease of haze at our northern stations on the 15th and 16th, an increase in the strength of the Westerly current of wind there, and a commencement of showery weather in the north-west and west, which subsequently extended to the other parts of the kingdom. (See the Daily and Weekly Reports for this time.) The second depression was No. XV.,* which reached our northern coasts on the 17th, and with its advance the whole character of pressure distribution and of weather over our Islands changed.

March 17-22.—The weather now became changeable, cyclonic and anticyclonic systems being alternately prevalent—the wind varying between West and North-west in direction, and from a moderate breeze to a gale in force. Temperature was unsteady, the air being at times mild, but on the whole cold and somewhat penetrating. Cold showers of snow, hail, sleet, and rain prevailed frequently, the amounts measured were, however, small, except at some of our northern and north-eastern stations, and there were frequent bright intervals, which, when they occurred at night-time, produced sharp frosts on the ground. It was towards the close of this period that a small shallow depression (No. XVIII.*) was formed over the north of Ireland, and travelling in a south-easterly direction, brought to our south-eastern counties the heaviest fall of wet snow, followed by the most rapid thaw, which we have experienced this season. In its rear the barometer rose fast, and the wind veered Northwards and there was a temporary spell of fine cold weather.

March 23.—The weather during this day was purely anticyclonic, the system (No. X.) advancing over us from the Atlantic, and passing steadily in a south-easterly direction during the day (see p. 30). A very sharp frost occurred over England at night, but on the following morning the wind was Southerly again on almost all our coasts, accompanied by a decided but very temporary increase of temperature.

* See Section II, and Map 2, Plate VI., for the history and tracks of depressions.

March 24-29.—The distribution of pressure and the weather now became changeable again. Anticyclonic conditions were chiefly prevalent over England, but cyclonic over Scotland and the north of Ireland, and these latter occasionally spread completely over the kingdom as certain irregularly-formed subsidiary depressions travelled over us (see particularly the maps for the 27th and 29th in the Daily and Weekly Reports). The winds varied quickly from South to West, and North-west, and *vice versa*, the range of temperature was large and the changes somewhat irregular, but on the whole there was a decided deficiency from the average conditions of warmth, except in the north of Great Britain.

March 30.—The barometer now rose rapidly, and the month closed with a new anticyclone lying from west-south-west to east-north-east across the southern parts of our Islands, the Channel, and the Netherlands, while south-westerly gradients prevailed in the north.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—MARCH, 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XII. March 1-2.	No. XIII. March 3-5.
Form - - - - -	Apparently nearly circular - - - - -	Varying; apparently circular at first, then oval -
Size - - - - -	Uncertain; apparently moderate - - - - -	Moderate - - - - -
Depth - - - - -	Uncertain; apparently moderate - - - - -	Moderate to shallow - - - - -
Where first observed - - - - -	To the south-westward of Ireland - - - - -	To the westward of Ireland - - - - -
Direction of Motion - - - - -	Northerly - - - - -	East-north-easterly - - - - -
Rate of Motion - - - - -	Moderate - - - - -	Moderate to nil - - - - -
Regions passed over by Steepest Gradients -	Ireland - - - - -	Ireland - - - - -
Termination - - - - -	Travelled away in a northerly direction - - - - -	Dispersed over the north-west of England -
Time under Observation - - - - -	About 36 hours - - - - -	One day - - - - -
Accompanying Winds - - - - -	South-easterly to Southerly, strong to a gale in the west and north, moderate in the east and south.	Strong, Southerly at first, then Easterly in the north and Westerly in the south.
„ Weather - - - - -	Showery in the west; cold, dry, and hazy over England.	Rainy and unsettled - - - - -
„ Rainfall - - - - -	Confined to western parts of Ireland and Scotland.	General; heaviest (more than 2 inches) on some parts of our north-western coasts.
REMARKS - - - - -	<p>This depression approached us when anticyclone No. VII. lay over the northern parts of Great Britain, while another anticyclone lay over Spain and the south-west of France—the two being united by a col.</p> <p>Although the first-named anticyclone moved decidedly to the south-eastward, the depression did not spread much to the eastward, and in fact, was barely felt over Great Britain.</p> <p>The disturbance passed at too great a distance from our western coasts for its track to be drawn on Map 2, Plate VI.</p>	
	<p>The main depression approached our western coasts, while pressure was highest in the east and lowest in the west, and soon began to fill up. On the night of the 3rd a subsidiary disturbance was developed over the Channel between Prawle Point and Jersey (see track marked XIII. a. on Map 2), and moving north-eastwards, produced (in conjunction with some other shallow depressions in the west) a “trough” of rather low pressure over England, which broke up on the night of the 5th.</p>	

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—MARCH, 1885.

No. XIV. March 6.	No. XV. March 17-18.	No. XVI. March 20.
Irregular oval, and complex - - - -	Apparently nearly circular at first; afterwards varying.	Uncertain; apparently nearly circular.
Moderate - - - - -	Very large - - - - -	Very large.
Shallow - - - - -	Uncertain; apparently deep - - - -	Deep; minimum readings below 28'5 inches.
Over the Bay of Biscay - - - - -	To the north-westward of the Hebrides - -	Off the west of Norway.
East-north-easterly - - - - -	About east-north-east - - - - -	South-easterly and easterly.
Rapid - - - - -	Moderate - - - - -	Moderate.
England (for North-easterly winds) and south of France (for Westerly winds). Gradients very moderate.	Northern parts of the British Isles and the North Sea.	The northern and north-eastern parts of our Islands and the North Sea.
Dispersed over western Russia - - - -	Travelled away over Finland - - - -	Travelled away to northern Russia.
One day - - - - -	One day - - - - -	Thirty-six hours.
North-easterly, fresh to strong over the United Kingdom; South-westerly over southern Europe.	Strong South-westerly to Westerly winds and gales over our more northern districts, followed by strong Northerly winds all over the United Kingdom.	Westerly and North-westerly; severe gales over the more northern parts of the kingdom, strong breezes in south-west.
Cloudy, with some rain. Cold in our Islands -	Rather showery, except in south and south-east; mild at first, then cold and raw.	Squally and somewhat showery.
Slight in most places; snow in north and north-east.	Slight; rain at first, then snow - - - -	Not heavy; turning to snow as wind veered.
This depression advanced along the southern side of the trough noted in the Remarks to system No. XIII., and brought about North-easterly winds all over the United Kingdom. These, however, soon gave way again to Westerly breezes for a time in the north, but on the 7th an anticyclonic arm extended over Ireland and England from the westward, and the cyclonic systems entirely disappeared.	This depression was one of a series which began to advance over the more northern parts of our area, as the anticyclonic system No. VIII. (see p. 29) moved southwards. In its rear the barometer rose quickly, and strong Northerly winds set in over the United Kingdom for a few hours, with showers of sleet and cold rain.	Pressure at the time of its appearance was highest over the Bay of Biscay and lowest over Scandinavia, the gradients being somewhat steep. The depression advanced across the track of No. XV. in its rear, the two centres apparently merged later on and then moved eastwards.

SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—MARCH, 1885.

NATURE OF CHARACTERISTICS OBSERVED.		No. XVII. March 21-22.	No. XVIII. March 26-27	No. XIX. March 28-29.
Form	- - -	Nearly circular - - -	Apparently nearly circular at first, then varying.	Uncertain.
Size	- - -	Small - - -	Large - - -	Apparently moderate.
Depth	- - -	Very shallow to moderate; then shallow again.	Deep - - -	Apparently moderate.
Where first Observed	- -	Formed over north of Ireland on evening of 21st.	To the westward of Scotland - -	To the north-westward of our Islands.
Direction of Motion	- -	South-easterly till 8 a.m. 22nd, then southerly.	North-easterly - - -	North-easterly.
Rate of Motion	- - -	Slow to moderate - - -	Moderate - - -	Apparently moderate.
Regions passed over by Steepest Gradients.		Western and southern parts of our Islands, and north-west of France.	The north-western and northern parts of our Islands, and Norway.	Western and northern parts of our Islands.
Termination	- - -	Dispersed over central France -	Travelled away to the northward -	Travelled away to the northward.
Time under Observation	-	One day - - -	About one day - - -	About 36 hours.
Accompanying Winds	- -	Westerly to Northerly; the latter blowing a moderate gale on our south-western coasts.	Southerly to Westerly and North-westerly. The Southerly wind was strong, but the Westerly and North-westerly blew a hard gale in the north-west and north.	Southerly to North-westerly, changing suddenly.
" Weather	-	Very wet and changeable, much snow in places; temperature very unsteady.	Squally and showery; mild at first, but cold afterwards.	Rainy in west and north, fair in east and south. Sleet falling after shift of wind. Temperature changing rapidly.
" Rainfall	-	Heaviest over the south and south-east of England, where a heavy fall of wet snow occurred early on 22nd.	General, but not heavy - - -	Not heavy, except in east of Scotland.
REMARKS	- - -	<p>This disturbance was very short-lived, but very active while in existence. In London and its neighbourhood the wet snow lay from 5 to 6 inches deep at 9 a.m. 22nd, and was by far the heaviest fall this season.</p> <p>This depression approached when pressure was highest over the Baltic and France, and lowest to the westward of our Islands. As it passed north-eastwards a "hollow" was developed over the North Sea, and a new anticyclonic ridge advanced to our western coasts.</p> <p>This disturbance followed closely in the rear of the anticyclonic ridge of the 28th. Its centre was at a great distance from our coasts, but its importance, so far as our Islands are concerned, consisted in the appearance of a very elongated subsidiary in its rear. (See maps in Weekly Weather Report, 1885, p. 51, and the marked contrasts of wind which accompanied it.)</p> <p>In its rear a new anticyclonic system advanced over our islands.</p>		

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—MARCH 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. VII. March 1-2.	No. VIII. March 9-16.	No. IX. March 19-20.
Form - - - -	Elongated and irregular; major axis lying north and south.	Uncertain at first, then irregular oval	Uncertain; apparently oval.
Size - - - -	Small - - - -	Large - - - -	Apparently large.
Height - - - -	Moderate; maximum readings rather above 30°2 inches.	Moderate; maximum readings rather above 30°6 inches, from 12th to 14th.	Not certainly known.
Where first Observed - -	Over the northern parts of our Islands	Off our north-western coasts - -	Off the west of Ireland.
Direction of Motion - -	South-easterly - - - -	None for several days, then easterly and south-easterly.	South-easterly and southerly.
Rate of Motion - - - -	Moderate - - - -	Very slow - - - -	Moderate.
Regions passed over - -	British Isles and North Sea - -	United Kingdom and France - -	Western parts of our Islands.
Termination - - - -	Developed into a large permanent system after reaching the eastern shores of the North Sea.	Passed away to the Mediterranean -	Apparently settled down over and to the westward of the Bay of Biscay.
Accompanying Wind - -	North-westerly and Northerly in the east, South-eastward to Southerly in the west. The latter winds freshening later and spreading all over the kingdom.	Westerly and North-westerly in the north, Northerly in the east, North-easterly and Easterly in the south.	Westerly in north, Northerly in east, and Easterly in south, backing generally as system moved southwards.
„ Weather - - - -	Fine and dry; rather cold and hazy -	Fair and cold, but foggy. Frosts on grass somewhat sharp.	Fair, quiet, and cold; some showers in the north-west as the system moved southwards.
REMARKS - - - -	This system appeared simultaneously with a second one which lay over Spain at 8 a.m., 1st. (See Weekly and Daily Weather Reports.) It soon moved away from our area, and cyclonic system No. XII. then passed along our western coasts in a northerly direction.	This system, as it moved south-eastwards, became less clearly marked, and on its reaching France the cyclonic system No. XV. approached our northern coasts, and rain began to fall in the north-west and north.	This system advanced immediately in the rear of the cyclonic system No. XV., and apparently lingered a little to the south-westward and westward of our Islands till the 22nd. Anticyclone No. X. may possibly be the same system advancing over us, or, more probably, only a detached portion of it.

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS—MARCH 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. X. March 23.	No. XI. March 26.	No. XII. March 30-31.
Form - - - -	Irregular oval - - - -	Changeable; generally irregular oval -	Irregular oval.
Size - - - -	Small - - - -	Small - - - -	Small.
Height - - - -	Small. Maximum readings rather above 30°3 inches.	Small - - - -	Small.
Where first Observed - -	Over the United Kingdom - -	Over the west of France - -	Advancing over Ireland from the Atlantic.
Direction of Motion - -	South-easterly - - - -	None - - - -	Easterly and south-easterly.
Rate of Motion - - - -	Apparently rapid at first, then slow -	None - - - -	Moderate.
Regions passed over - -	British Islands - - - -	West of France - - - -	South of our Islands and France.
Termination - - - -	Formed a ridge to a new high-pressure system which appeared over Scandinavia on the 24th, then dispersed.	Either dispersed or moved westwards	Disappeared to the southward of our area.
Accompanying Wind - -	Southerly in the north-west, Northerly in the east, Easterly in the south-west; light generally.	South-westerly and Westerly in our Islands, Northerly and North-westerly in France.	North-easterly on its southern side, South-westerly in the north.
Weather - - - -	Cold, dry, and hazy or foggy - -	Fine in the south; unsettled elsewhere	Fine and cold, but foggy.
REMARKS - - - -	<p>This system followed closely in the rear of the small depression No. XVII., but on reaching England it apparently dispersed and a "col" was formed, which united a large anticyclone over northern Europe with another over the Atlantic, to the south-westward of our Islands.</p> <p>It would appear from the maps for the 23rd to the 30th, that pressure was continuously high, both over northern Europe and to the south-westward of our Islands, the two areas being united by a "col." As certain depressions approached our Islands, the "col" was temporarily destroyed, but on their passing away, their high-pressure tendency reasserted itself, and the anticyclone was restored. At the close of the month pressure was again high in the west, whence a ridge was spreading eastwards to the eastern shores of the North Sea.</p> <p>This system advanced over our Islands immediately in the rear of the cyclonic system No. XIX. (p. 28), but gave way again rapidly as a new depression, with an angularly-formed subsidiary, came over us on April 1st.</p>		

SECTION III.

REMARKS FOR MARCH 1885.

(Tables V. and VI. with Plates V. and VI.)

Pressure.—The mean pressure for the month, at 8 a.m., varied from a little above 30·1 inches over central Ireland, and apparently over Wales also, to about 29·92 inches over the north of Scotland and to 29·85 inches at Sumburgh Head. Over nearly the whole of Ireland and England the average distribution was anticyclonic (See Map I., Plate VI.), while over the northern parts of the kingdom the gradients were slight and favourable for Westerly winds. The values recorded were in excess of the means for the corresponding month in the 20 years 1861–80, by nearly 0·2 inch over Ireland and Wales, and by about 0·16 inch over the north of Scotland, and still more largely in excess of the values for February in the present year. The highest readings, which exceeded 30·6 inches over the more northern parts of the kingdom, were registered between the 12th and 14th at all stations, at which time anticyclone No. VIII. (p. 29) was most clearly defined, and was beginning to move slowly in a south-easterly direction over our Islands. The lowest readings, however, were registered at our most western stations on the 3rd, at the northern stations on the 26th, and at the southern stations on the 6th. The range exceeded 1·5 ins. at some northern stations, but was not so large elsewhere.

Movements of Depressions.—These were, as a rule, north-easterly or east-north-easterly, but two of the disturbances travelled from north-west to south-east, one being the large deep system which reached the south of Norway on the 20th, while the other was the small temporary depression which brought the heavy fall of rain and snow to our south-eastern counties on the 22nd. Of those which took the north-easterly course, three passed at so great a distance from northern coasts that without marine observations their movements cannot be accurately determined; one reached our western coasts and then dispersed, another travelled from the mouth of the Channel across the north of Holland to the Baltic, and another across the north of France to Germany. None of them exhibited features worthy of special remark.

Anticyclones.—These were numerous (see Section II., pp. 29 and 30). One (No. VIII.) lay for a long time immediately over the United Kingdom and had maximum barometer readings exceeding 30·6 inches, while others (*e.g.*, Nos. VII. and X.) were small, and passed quickly away from our Islands.

Winds were very variable in direction and moderate in force. South-westerly breezes preponderated slightly in the north, and North-easterly in the south, a result due mainly to the long continuance over our Islands of anticyclone No. VIII. The varying positions and movements of the depressions which passed over our area were, however, sufficient to account for the variable character of the winds for the month. Gales were few in number, and moderate in force.

Temperature.—The mean (sea-level) temperature of March varied from a little above 45° in the Scilly Islands, and about 44° over the south of Ireland, Cornwall, and Jersey, to somewhat below 40° over the inland parts of the north of Ireland and the east of England; over central Scotland the mean was still lower—below 39° at all events. These values when compared with those for February show a decrease amounting to about 2° over our eastern and southern counties and 1° in Ireland, but an increase of about 1° over Scotland; and when compared with the means for the 20 years 1861–80, they show a deficit of from 1° to 2° very generally. The winter type of distribution (*viz.*, cold inland and warm coast stations) still held in most places, but showed some signs of giving way over our southern counties. There is again a band of relatively warm air shown in Map 3 Plate VI. across Scotland, along the valleys of the Clyde and Forth, as in last month's map. The lowest temperatures were

registered in most parts of England and Ireland between the 7th and 10th, at which time anticyclone No. VIII. was being formed over us, but in Ireland they occurred in some places a day or two later, when the system was more fully formed. In Scotland and some of the most northern parts of England and Ireland, however, the cold was sharpest between the 19th and 21st, during the prevalence of anticyclone No. IX. The values were, however, not very low for the time of year, the lowest of all being 21° at Hawes Junction and 20° at Markree Castle. The highest readings occurred on the 26th in Ireland, but at extremely variable dates over Great Britain. The highest of all were 62° at Strathfield Turgiss, and 60° at Rothamsted and in London. The range was somewhat large (30° to 35°) at some of the inland stations, and at Strathfield Turgiss it amounted to 38° .

Vapour Tension varied from only 0·17 inch at Stonyhurst and Leith, and about 0·19 inch over our midland and northern counties to 0·22 inch or 0·23 inch at the western and southern and south-eastern coast stations of Great Britain, and to 0·25 inch in the Scilly Islands. In Ireland it varied from about 0·20 inch at the inland stations to 0·24 inch at Valencia. There is some uncertainty at present in the values for Belmullet and Malin Head. *Relative Humidity*, however, was (at 8 a.m.) greatest at the inland stations, and lowest on the south-western coasts. In central Ireland it exceeded 90 per cent., and over the inland parts of England it ranged from 85 to 87 per cent., while at Aberdeen it was as low as 79, and at Scilly 84 per cent.

Rainfall was slight everywhere. The amounts registered varied from 0·8 inch or 0·9 inch over our eastern counties, to 2·8 inches at Arlington Court, to 3·0 inches at Holyhead, 3·9 inches at Barrow-in-Furness and Belmullet, to 4·3 inches at Stornoway, 4·9 inches at Valencia, and to 6 inches at Laudale (Loch Sunart). The heaviest falls appear to have occurred on the 3rd or 4th and on the 31st, but at several of the southern and south-eastern stations the largest amounts fell during the rain and snow storm of the 21st–22nd, to which reference has already been made on pp. 24 and 28. The number of rainy days was small, especially over our eastern, south-eastern, and some parts of the south Midland counties. At Sumburgh Head, however, rain fell on 26 out of 31 days.

Bright Sunshine.—Assuming the total amount which could possibly have been registered at each station during the month to be represented by 100, then the amounts actually recorded varied from 19 at York, 21 in London, 24 at Armagh, and 25 at Glasgow, Leicester, and Churchstoke, to 37 at Valencia, Falmouth, and Southampton, to 38 at Plymouth and Pembroke, 43 at Geldeston and Hastings, and to 44 at Jersey. The more southern of the coast stations consequently had most sunshine, but a considerable proportion was recorded on the shores of the Irish Sea also. The small proportion recorded over our northern and north-eastern counties is probably due to the large amount of fog which prevailed during the anticyclonic conditions between the 9th and 16th.

SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF MARCH 1885.

TABLE V.

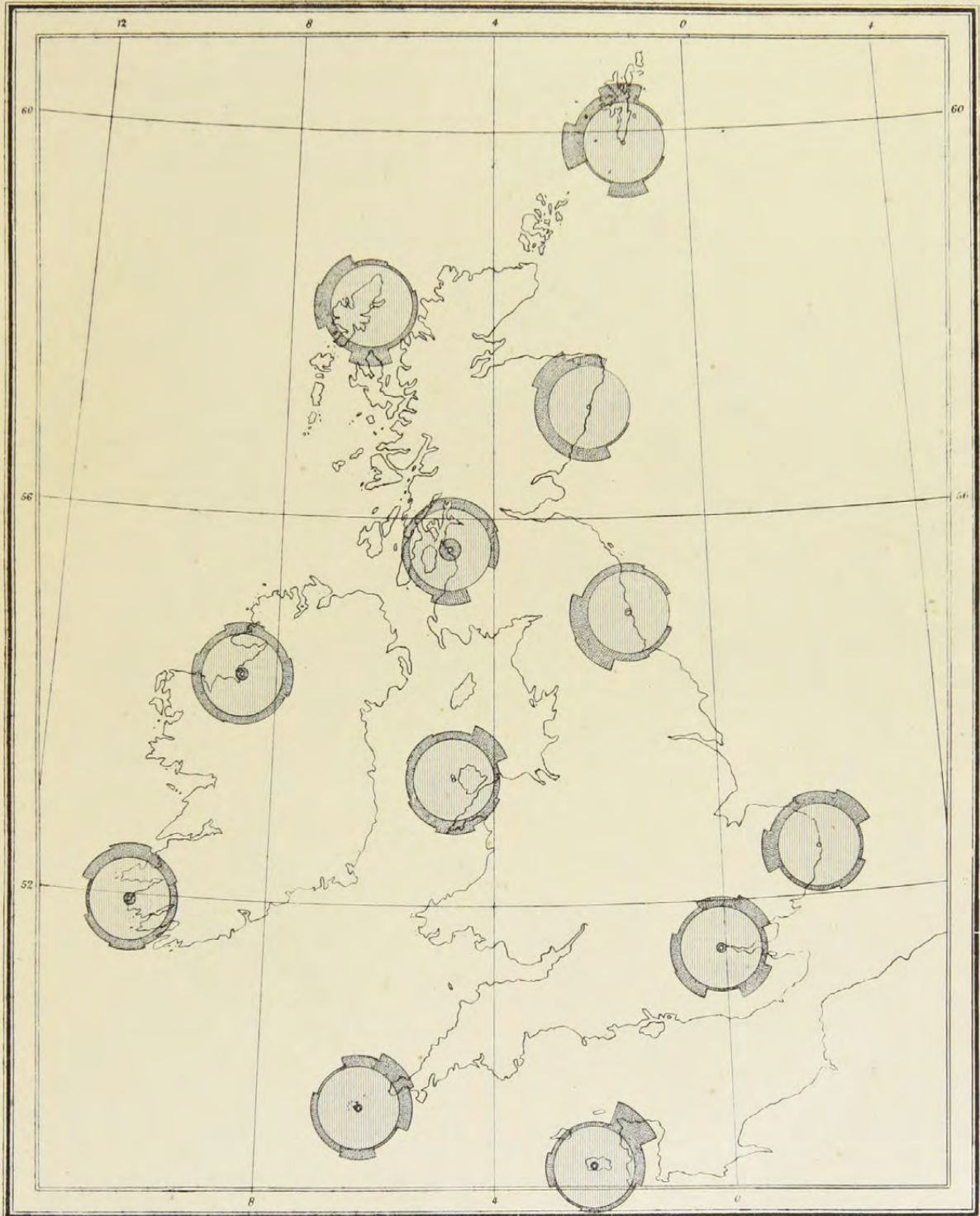
Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the Numbers of Days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sunburgh Head - - -	ins. 29° 845	38° 2	33° 2	42° 5	37° 9	25	21st	49	12th, 14th
	Wick - - -	29° 925	39° 5	33° 7	44° 6	39° 2	25	21st	52	31st
	Stornoway - - -	29° 952	38° 7	33° 9	45° 1	39° 5	28	21st	51	11th
1. SCOTLAND	Nairn - - -	29° 963	37° 8	33° 5	45° 7	39° 6	27	23rd	54	26th
	Aberdeen - - -	29° 982	38° 4	33° 5	46° 2	39° 9	27	21st	53	15th, 14th, 17th, 20th, 15th
	Leith - - -	30° 015	38° 9	33° 4	47° 9	40° 7	28	14th, 23rd	54	
2. ENGLAND, N.E.	Shields - - -	30° 035	38° 6	33° 6	46° 2	39° 9	28	19th, 23rd	55	20th
	York - - -	30° 067	36° 8	32° 0	47° 3	39° 7	25	22nd	55	14th, 28th
	Spurn Head - - -	30° 038	38° 8	35° 6	44° 3	40° 0	32	19th, 20th	52	17th
3. ENGLAND, E.	Yarmouth - - -	30° 059	40° 0	34° 7	45° 2	40° 0	30	8th, 22nd	55	20th
	Cambridge - - -	30° 085	37° 1	30° 6	49° 9	40° 3	24	2nd	59	20th
4. MIDLAND COUNTIES	Loughborough - - -	30° 084	36° 5	32° 8	47° 9	40° 4	24	15th	56	28th
	Oxford - - -	30° 096	37° 4	33° 7	48° 3	41° 0	27	8th	59	20th
5. ENGLAND, S.	London - - -	30° 087	38° 0	33° 5	48° 4	41° 0	26	8th	60	20th
	Dungeness - - -	30° 064	39° 6	35° 3	47° 4	41° 4	31	8th, 9th	51	31st
	Hurst Castle - - -	30° 077	39° 9	36° 1	47° 6	41° 9	30	10th, 15th	54	20th, 31st
6. SCOTLAND, W.	Ardrossan - - -	30° 032	39° 7	34° 0	46° 0	40° 0	27	9th	49	8th, 13th, 14th, 15th, 16th, 22nd
7. ENGLAND, N.W.	Hawes Junction* - - -	28° 797	34° 5	28° 8	40° 8	34° 8	21	7th	50	14th
	Barrow-in-Furness - - -	30° 053	37° 9	34° 7	45° 9	40° 3	31	6th, 9th, 23rd, 24th.	55	13th
	Liverpool (Bidston) - - -	30° 065	39° 1	36° 0	45° 5	40° 8	32	1st, 6th, 9th, 19th, 23rd	52	31st
	Holyhead - - -	30° 080	42° 0	38° 4	46° 2	42° 3	33		52	20th
8. ENGLAND, S.W.	Pembroke - - -	30° 078	40° 6	37° 3	45° 8	41° 6	32	10th	50	13th
	Prawle Point - - -	30° 081	41° 9	37° 2	47° 3	42° 3	32	23rd	55	20th
9. IRELAND, N.	Malin Head - - -	30° 023	40° 5	36° 6	47° 4	42° 0	34	18th, 19th, 23rd.	52	15th, 16th, 17th
	Donaghadee - - -	30° 058	39° 7	35° 2	46° 4	40° 8	28	14th	54	26th
	Mullaghmore - - -	30° 064	40° 9	37° 2	47° 1	42° 2	27	10th	52	26th
	Belmullet - - -	30° 057	42° 2	37° 5	47° 0	42° 3	30	10th	51	26th
10. IRELAND, S.	Parsonstown - - -	30° 109	36° 3	31° 6	48° 3	40° 0	22	10th	56	20th
	Valencia - - -	30° 082	43° 4	38° 2	50° 2	44° 2	30	12th	55	26th
	Roche's Point - - -	30° 094	41° 8	37° 7	49° 9	43° 8	32	8th, 12th	55	4th, 20th, 26th
CHANNEL ISLANDS	Scilly (St. Mary's) - - -	30° 063	45° 1	41° 4	48° 6	45° 0	36	10th	55	4th
	Jersey (Noirmont) - - -	30° 051	42° 3	39° 5	46° 7	43° 1	35	25th	54	30th

* Hawes Junction is 1,135 feet above Mean Sea Level and the

MONTHLY WIND CHART FOR MARCH 1885.

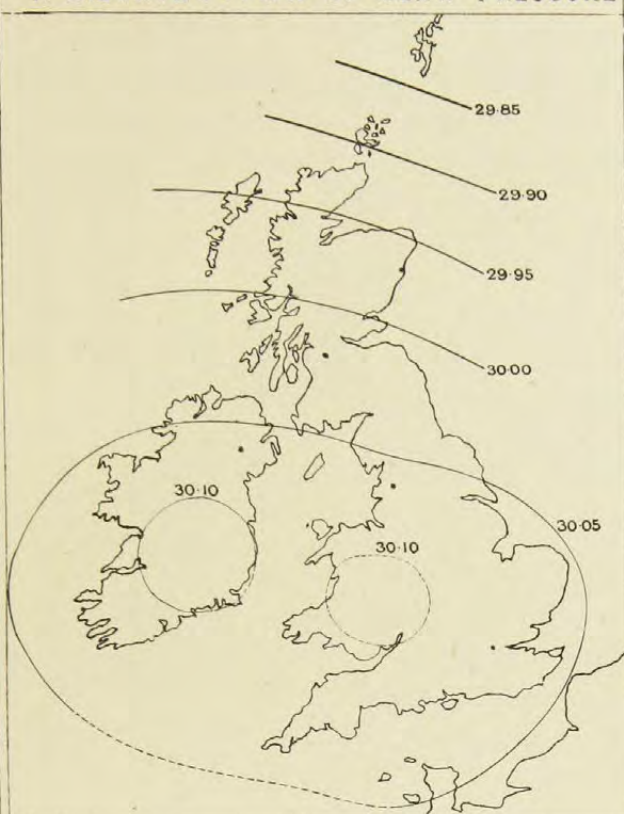
Plate V.



To face page 34.

DANGERFIELD LITH 22 BEDFORD ST COVENT GARDEN
9383

1. DISTRIBUTION OF MEAN PRESSURE



2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE.



4. RAINFALL

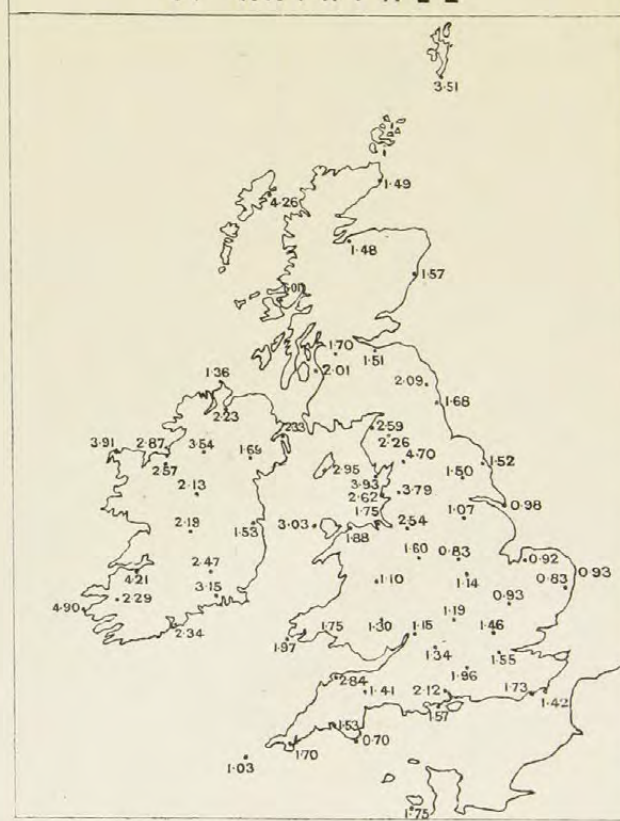




TABLE V.

REPORTING STATIONS in the BRITISH ISLANDS, during the Month of March 1885.

Thunderstorms, and Gales are counted irrespective of the hours at which they occurred.

beginning in each case with the Station lying furthest North.)

	TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.		Date.	WEATHER. No. of Days of							WIND, No. of Observations of								
				Total Fall in the Month.	Maximum Fall in One Day.		Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calm.
Star	ins. 0.197	% 86	8.0	ins. 3.51	ins. 0.55	19th	26	6	0	0	2	15	2	8	1	0	1	6	1	10	4	0
	*201	83	7.1	1.49	0.33	20th	19	6	2	0	5	16	5	10	0	1	0	6	3	6	4	1
	*212	90	7.1	4.26	0.63	31st	22	7	5	0	8	19	9	2	1	2	2	8	3	7	6	0
Aber Leit	*197	87	5.7	1.48	0.41	31st	14	3	0	0	8	8	3	1	1	2	1	1	11	3	7	4
	*183	79	6.3	1.57	0.45	29th	21	7	3	0	7	11	5	4	0	0	1	6	5	6	9	0
	*167	72	4.6	1.51	0.80	29th	10	2	2	0	10	4	2	2	2	0	2	1	3	14	7	0
Yor	*194	83	7.2	1.68	0.37	4th	16	3	2	0	5	15	5	3	2	0	2	3	9	8	3	1
	*189	87	6.1	1.50	0.40	3rd	14	0	0	0	10	11	0	12	1	2	1	4	1	6	3	1
	*216	92	5.1	0.98	0.24	5th	13	1	0	0	7	4	4	4	4	1	3	4	2	6	7	0
Yar Can	*215	87	4.5	0.93	0.49	3rd	12	2	0	0	11	3	2	5	7	1	3	2	2	7	4	0
	*190	86	5.5	0.93	0.31	6th	6	2	0	0	14	15	0	9	3	1	2	4	5	3	3	1
	Leu Oxf	*190	88	7.1	0.83	0.24	3rd	15	1	1	0	4	16	4	4	3	3	4	2	3	5	5	2
*192		86	6.2	1.19	0.53	21st	7	4	0	0	11	15	0	6	7	2	2	2	6	3	2	1
*188		82	6.7	1.55	0.60	21st	7	1	0	0	7	14	2	4	6	2	6	1	5	4	2	1
Dun Hur	*221	91	5.3	1.42	0.52	3rd	10	0	0	0	7	5	2	4	9	4	3	2	1	6	1	1
	*214	87	4.7	1.57	0.74	3rd	9	1	0	0	10	3	2	3	11	4	3	1	2	5	2	0
	*228	93	6.2	2.01	0.60	28th	16	0	2	0	9	14	3	4	4	3	0	6	3	3	3	5
Haw Bar Liv Hol	*172	85	4.3	4.70	1.28	4th	14	5	0	0	17	12	0	8	3	4	3	4	4	3	1	1
	*198	87	5.8	3.93	1.77	4th	15	0	0	0	8	10	2	5	10	4	4	1	1	1	5	0
	*198	83	6.5	1.75	0.45	31st	16	1	2	0	9	16	2	2	4	3	6	4	3	6	2	1
*229	86	6.8	3.03	0.92	31st	16	0	1	0	2	10	4	3	7	2	3	5	4	3	4	0	
Tom Praw	*210	83	5.9	1.97	0.46	3rd	12	0	0	0	10	10	7	4	9	3	2	3	2	4	2	2
	*230	87	6.2	0.70	0.28	21st	10	1	0	0	9	15	2	6	9	3	1	3	2	2	5	0
	*235	94	7.2	1.36	0.61	31st	22	0	1	0	3	12	7	6	4	2	1	8	3	4	5	0
*224	92	6.1	2.33	0.47	29th	16	0	0	0	8	11	8	4	3	4	1	2	6	5	6	0	
*214	84	6.9	2.87	1.02	31st	22	1	3	0	6	11	12	5	3	4	3	3	4	4	3	2	
*256	95	4.9	3.91	0.90	28th	21	0	0	0	12	7	4	4	3	4	5	1	5	2	7	0	
*197	92	5.6	2.19	0.57	28th, 31st	14	1	0	0	14	14	0	4	2	1	3	5	3	3	3	7	
*241	85	6.7	4.90	1.09	2nd	17	0	1	0	7	13	5	6	4	3	3	4	3	1	5	2	
*223	85	5.5	2.34	0.76	2nd	14	0	0	0	10	10	6	8	7	1	1	2	3	2	7	0	
*252	84	6.9	1.03	0.18	21st	16	0	0	0	2	8	8	5	8	5	1	4	3	3	1	1	
*230	86	5.2	1.75	0.51	3rd	13	0	1	1	13	11	5	2	14	4	2	2	1	3	2	1	

Barometric readings at this station are not reduced for altitude.

TABLE VI.

OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT, during the Month of March 1885.

STATIONS.	AIR TEMPERATURE.						RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.			No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.						
STORNOWAY -	°	°	°	°	°	°	*	*	*	*	94	26
ABERDEEN -	°	°	°	°	°	°	*	*	*	*	112	31
ALNWICK CASTLE -	34'3	44'2	39'3	26	30th	52	8	2'09	0'57	3rd	—	—
SCARBOROUGH -	35'6	45'2	40'4	31	22nd	58	14	1'52	0'35	4th	—	—
YORK -	°	°	°	°	°	°	*	*	*	*	69	19
HILLINGTON -	31'6	48'6	40'1	25	15th, 22nd	57	10	0'92	0'31	3rd	122	34
GELDESTON -	32'5	47'3	39'9	26	22nd	57	10	0'83	0'42	3rd	157	43
CAMBRIDGE -	°	°	°	°	°	°	*	*	*	*	123	34
ROTHAMSTED -	31'8	47'3	39'6	25	8th	60	13	1'46	0'59	3rd	—	—
BAWTRY -	33'0	47'5	40'3	25	2nd	55	14	1'07	0'31	3rd	—	—
LEICESTER -	33'8	48'2	41'0	26	15th	56	16	1'14	0'18	3rd	90	25
CHEADLE -	32'7	44'7	38'7	27	19th	52	18	1'60	0'33	31st	—	—
CHURCHSTOKE -	32'3	46'0	39'2	25	7th, 23rd	54	12	1'10	0'22	3rd	90	25
HEREFORD -	33'7	48'9	41'3	25	8th	57	13	1'30	0'34	21st	—	—
CIRENCESTER -	32'5	46'7	39'6	23	8th	57	12	1'15	0'47	21st	121	33
OXFORD -	°	°	°	°	°	°	*	*	*	*	122	34
LONDON -	°	°	°	°	°	°	*	*	*	*	77	21
MARLBOROUGH -	32'1	47'1	39'6	24	8th	58	11	1'34	0'44	21st	115	32
STRATHFIELD TURGISS -	31'8	48'8	40'3	24	7th	62	10	1'96	0'76	22nd	—	—
HASTINGS -	36'5	47'8	42'2	32	10th, 25th	58	9	1'73	0'64	3rd	157	43
SOUTHAMPTON -	34'6	49'7	42'2	29	8th, 10th, 15th	59	11	2'12	0'80	3rd	133	37
LAUDALE -	34'6	46'2	40'4	27	9th	51	20	6'01	1'75	28th	—	—
GLASGOW -	33'9	45'3	39'6	26	23rd	49	12	1'70	0'31	31st	89	25
SILLOTH -	33'7	46'4	40'1	26	31st	53	15	2'59	1'00	31st	115	32
DOUGLAS -	34'8	45'8	40'3	29	7th, 15th	52	17	2'95	1'17	31st	127	35
NEWTON REIGNY -	30'7	43'6	37'2	24	23rd	51	14	2'26	1'03	4th	94	26
STONYHURST -	32'6	46'4	39'5	27	23rd	51	18	3'79	1'01	31st	98	27
BLACKPOOL -	33'0	44'8	38'9	26	7th, 14th	51	16	2'62	0'75	31st	112	31
MANCHESTER -	33'7	45'4	39'6	28	7th, 19th, 23rd	52	20	2'54	0'52	3rd	—	—
LLANDUDNO -	36'6	47'0	41'8	31	1st, 2nd, 17th	56	12	1'88	0'28	20th	96	26
LLANDOVERY -	32'8	48'2	40'5	24	7th, 22nd	55	15	1'75	0'30	4th	—	—
PEMBROKE -	°	°	°	°	°	°	*	*	*	*	139	38
ARLINGTON -	33'7	46'5	40'1	26	8th	55	14	2'84	0'39	21st	—	—
CULLOMPTON -	33'6	48'7	41'2	22	15th	57	14	1'41	0'37	3rd	112	31
FALMOUTH -	39'6	47'8	43'7	34	10th, 12th	54	15	1'70	0'30	21st	136	37
PLYMOUTH -	37'3	49'8	43'6	30	17th	57	11	1'53	0'49	29th	139	38
JERSEY -	°	°	°	°	°	°	*	*	*	*	160	44
LONDONDERRY -	34'4	47'8	44'1	29	1st, 10th, 23rd	54	19	2'23	0'49	28th	—	—
MARKREE CASTLE -	31'5	47'1	39'3	20	10th	53	22	2'57	0'63	28th	98	27
BROOKEBOROUGH -	31'1	46'7	38'9	22	10th	54	16	3'54	0'84	31st	—	—
ARMAGH -	32'4	47'3	39'9	25	1st, 10th	54	16	1'69	0'56	28th	88	24
EDGEWORTHSTOWN -	32'2	47'6	39'9	23	10th	54	16	2'13	0'63	31st	—	—
DUBLIN -	35'7	47'8	41'8	29	12th, 15th	59	13	1'53	0'31	3rd	120	33
PARSONSTOWN -	°	°	°	°	°	°	*	*	*	*	116	32
KILKENNY CASTLE -	31'8	48'1	40'0	24	15th	57	16	2'47	0'67	28th	—	—
WATERFORD -	33'3	48'6	41'0	23	7th	57	13	3'15	0'84	28th	—	—
VALENCIA -	°	°	°	°	°	°	*	*	*	*	136	37
KILLARNEY -	33'4	49'2	41'3	23	12th	56	16	4'21	1'09	28th	—	—
POYNES -	36'9	50'1	43'5	28	8th	56	13	2'29	0'59	31st	—	—

* For information see Table V.

MONTHLY WEATHER REPORT.

APRIL 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of April was unusually quiet for the time of year. Pressure was decidedly below its normal value, although anticyclones were of frequent occurrence. Temperature was somewhat low generally, but rose to between 70° and 73° over England between the 19th and 21st, and its range was large. The winds were light and variable over England, but strong from South and South-east in the west; gales were rare, except in the extreme west and north-west; and Rainfall, though rather short of the average in the north-east and east, was slightly in excess at the western stations. Of bright sunshine, more than 50 per cent. of the possible duration was recorded in Jersey, and about 40 to 45 per cent. on our southern coasts, but only 28 per cent. was registered in the north-east of Ireland and 21 per cent. at York.

April 1.—The distribution of pressure over north-western Europe was of a complex character. A large depression, lying far to the northward of our Islands, was moving in a north-easterly direction along the coast of Norway, while a very angularly formed subsidiary disturbance was travelling eastwards over our Islands, causing sudden changes of wind from South-west to North, with rapid oscillations of temperature, and alternations of weather, from clear bright skies to heavy clouds and cold showers. The showers did not reach our south-eastern counties till night, and were then only slight, though the change of wind was decided.

April 2-5.—A well-formed anticyclone (No. XIII.) now advanced over Ireland and England from the westward, so that while the wind became Westerly at our northern stations, it veered to North and North-east in the south, and blew much more strongly from the last-named points than appeared likely from the gradients. Temperature fell quickly, and the weather became fine and dry, except on our extreme north-western and northern coasts, where some rain fell. Over Ireland and England the nights were very sharp, and haze or fog occurred in some places, the thermometer in the shade falling to between 22° and 29° , while on the grass the readings were from 8° to 10° lower. At 8 a.m. on the 3rd the system lay completely over Ireland and England, whence it moved north-eastwards to Scandinavia by the following morning (see maps in the Weekly and Daily Reports for these dates). The barometer then began to fall in the west, and a large cyclonic disturbance appeared off our extreme western coasts, and a second anticyclone over Spain, the latter being connected with that in the north by a "col." The anticyclonic system then gave way, and disturbed weather spread over the country.

April 6-12.—This period was, so far as our Islands are concerned, marked by winds and weather of a cyclonic character; during its continuance some apparently deep depressions

arrived off our western coasts. One of these passed northwards, at too great a distance from us for its movements to be accurately described here, but the second (No. XX.*), on reaching the west of Ireland, took a south-easterly course, and, passing across the Bay of Biscay, disappeared over Spain. As it did so the South-easterly winds which prevailed in the east and north increased in force and backed round to East or North-east, temperatures decreased, and cold showers fell over Ireland and England, especially in the west. As this depression passed south-eastwards a subsidiary disturbance was developed over Holland, and, after growing deeper and moving very erratically, filled up slowly, and disappeared over France on the 11th or 12th. (See the track XXA. on Map 2 Plate VIII.) The first effect of this disturbance was to draw the wind into North over the United Kingdom, and cause it to blow strongly on our eastern coasts with cold showers, while dry weather and more moderate breezes prevailed elsewhere; but as the centre moved northwards and westwards the cold rain spread more over the kingdom, but was at no time heavy. There are some reasons for suspecting that the main disturbance subsequently moved eastwards and north-eastwards, and reappeared over the northern parts of the Adriatic early on the 9th, after which it apparently moved to north Germany and dispersed on the 11th. The information at present available, however, is scarcely sufficient to write with certainty on this point.

April 12-19.—A complete change now took place; the depression just referred to dispersed, and anticyclonic conditions were established, the new system (No. XIV.) appearing first over the north-western parts of the United Kingdom, and spreading thence over nearly the whole of north-western Europe. (See charts in the Daily and Weekly Reports for this time.) The winds gradually became North-easterly and Easterly as the centre of the system moved eastwards towards Scandinavia, and the weather was cold and dry, the nights being again very sharp. A singular complication was observed on the 15th, when a small shallow depression advanced northwards over the Bay of Biscay and Brittany to the Channel, and caused rain over all our southern counties, with thunderstorms in some localities. The fall of rain over London (nearly an inch) was very large when compared with that at the surrounding stations. The disturbance, however, soon broke up and the sky cleared. Pressure now gave way at our northern stations, and, while the anticyclone just referred to began to disperse, a new one (No. XV.) appeared off our western coasts. The wind shifted to the southward and south-westward in the north, and as the col, joining the two anticyclones, moved southwards a south-westerly current spread slowly over us, and temperature rose fast. On the 19th or 20th maxima were registered as high as 70° to 73° over England, and, the nights being cold and hazy, the diurnal range of temperature was large. Showers of rain now began to fall in the north-west and north caused by depressions moving in an east-north-easterly direction towards Norway, and the South-westerly winds above mentioned spread gradually, in a southerly direction, down our western coasts.

April 20-23.—The distribution of pressure over our Islands now became cyclonic, with moderate gradients, favourable for South-westerly winds. Angular depressions, subsidiary to the larger ones mentioned above, passed across our Islands, and showers of rain fell in most places, separated by intervals of bright sunshiny weather. Pressure then gave way decidedly in the west, and the type of distribution changed.

April 24-30.—During this closing period of the month cyclonic conditions prevailed, with a southerly type of pressure-distribution—except on the 27th. The barometer was low very generally, but while the highest readings prevailed over France, Germany, and the eastern shores of the North Sea, the lowest were found to the westward of Ireland. It was during this period that several depressions advanced in a north-north-easterly direction outside our extreme western coasts, causing strong Southerly (South-east to South-west) winds, and sometimes gales, at our western stations, while only moderate breezes were felt in the

* See Section II. and Map 2 Plate VIII., for the history and tracks of depressions.

southern and eastern parts of the kingdom. Temperature did not differ much from the mean, but showery weather was prevalent, with fair intervals. On the 27th a new anticyclonic system appeared in the south-west, and temporarily interfered with the conditions just referred to, but this soon passed south-eastwards to France, and was followed by a renewal of the southerly gradients, depressions, and showers, which continued till the close of the month.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—APRIL 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XX. April 5-7.	No. XXI. April 24-25.	No. XXII. April 27-28.
Form - - - - -	Uncertain; apparently nearly circular	Uncertain; apparently irregular oval	Unknown.
Size - - - - -	Unknown; apparently large at first -	Very large - - - - -	Apparently large.
Depth - - - - -	Deep at first - - - - -	Apparently deep. Lowest readings recorded in the west of Ireland were about 28' 6 inches.	Apparently deep.
Where first Observed - - -	Off the west of Ireland - - -	Off the south-west of Ireland - -	To the westward of Ireland.
Direction of Motion - - -	South-easterly - - - - -	About north-north-east - - -	About north-north-east.
Rate of Motion - - - - -	Slow - - - - -	Moderate - - - - -	Apparently moderate.
Regions passed over by Steepest Gradients.	Western and north-western parts of our Islands.	The western parts of our Islands -	Ireland and west of Scotland.
Termination - - - - -	Travelled away southwards over Spain; subsequent movements doubtful. See Section I., p. 38.	Travelled away to the northward -	Travelled away to the northward.
Time under Observation - -	Three days - - - - -	About 36 hours - - - - -	About 36 hours.
Accompanying Winds - - -	South-easterly, backing to East and North-east; gales at first in West, but afterwards moderating.	Southerly (South-east to South-west); gales in the West, strong elsewhere.	Southerly; gales in west; moderate in east and south-east.
Weather - - - - -	Rainy and squally, except in north; some hail subsequently.	Squally and rainy; thunder in some parts of England.	Showery in west and north-west, fair elsewhere.
Rainfall - - - - -	Hardly any at the Scotch stations; heaviest in west—notably at Valencia.	Very general; heavy at some of the western stations.	Not heavy even in the west.
REMARKS - - - - -	<p>This depression advanced from the westward when pressure was highest over northern Europe, but was also rather high over Spain—the two high-pressure systems being united by a col which lay across the North Sea and northern parts of France. The Spanish anticyclone gave way, and on the centre of the depression reaching the coast of Brittany at 8 a.m. on the 7th, a shallow subsidiary cyclonic system was developed over the Netherlands, which first moved south-eastwards, and grew into a well-marked system; after moving north-westwards slowly on the 8th, it travelled south-westwards and dispersed off our southern coasts on the 11th or 12th. See track marked XXA. in Map 2 Plate VIII.</p> <p>This depression advanced when pressure was high over France, Germany, and the North Sea, and lowest to the north-westward of our Islands. It was preceded by a smaller but well-marked disturbance, the centre of which lay too far to the westward of Ireland for its characteristics to be tabulated in this form.</p> <p>This depression advanced while pressure was high over northern Europe and rather so in France. It is most worth noting on account of a subsidiary disturbance which formed over Great Britain as this system was passing away, and which caused the showery weather to spread all over the kingdom.</p>		

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS,—APRIL 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XIII. April 2-5.	No. XIV. April 12-19.	No. XV. April 18-21.
Form	Oval	Very irregular and oval	Oval.
Size	Small to large	Large	Apparently small.
Height	Very small	Small. Maximum readings sometimes below 30 inches.	Small to moderate. Maximum readings above 30·3 inches, on 20th.
Where first Observed	Off the west of Ireland	To north-westward of Scotland	To the westward of our Islands.
Direction of Motion	East and north-easterly	Easterly and south-easterly, but varying at times.	South-easterly, but irregular.
Rate of Motion	Moderate	Slow and irregular	Slow.
Regions passed over	British Islands and North Sea	North of our Islands, Scandinavia, and the North Sea.	Our south-western coasts, the Bay of Biscay, France, and Mediterranean.
Termination	Travelled to northern Europe, and developed into a large system, which lasted for several days.	Apparently dispersed over north Germany on the 19th.	Moved eastwards to Germany, and developed into a very large permanent system, covering southern Europe and part of the Mediterranean.
Accompanying Wind	Westerly to Southerly in the north, Northerly to Easterly in the south.	Northerly to Easterly until the 17th, when Southerly to Westerly breezes began to appear in the north.	South-westerly and Southerly winds on its northern side, Northerly and North-easterly on the eastern and southern sides.
Weather	Fine, cold, dry; haze and fog in some places.	Fine and dry; cold at first, warmer later. (See notes in Section I., p. 58.)	Very fine within the system, showers set in over our Islands as it moved southwards and a large cyclonic system moved east-north-eastwards towards Norway. (See Section I., p. 38.)
REMARKS	<p>This system advanced immediately in the rear of the subsidiary and angularly formed disturbance which passed across the United Kingdom on the 1st.</p> <p>On reaching the north of Scandinavia this system extended a ridge southwards across our Islands; but the whole system subsequently moved eastwards, as the depression No. XX. advanced to our western coasts.</p>	<p>This system came on from the north-westwards immediately in the rear of cyclone No. XX., bringing with it the cold, dry weather usual with such systems at this season of the year.</p> <p>On the 14th a shallow low-pressure area appeared over the Bay of Biscay, bringing rain and thunder to France, and afterwards to our southern counties. This, however, dispersed off our south-western coasts on the 16th.</p> <p>On the 18th a second high pressure appeared off our south-western coasts and subsequently moved south-eastwards to France, while that above referred to broke up. (See No. XV.)</p>	<p>This system reached our western coasts just as No. XIV. was beginning to move southwards, prior to its breaking up. Between it and No. XIV. a very small subsidiary anticyclone was formed at 8 a.m. on the 18th. (See Daily Charts.)</p> <p>Another anticyclonic system, very similar in appearance to the one above described, appeared over our south-western and southern districts on the 27th (see Daily and Weekly Reports), and moved south-eastwards to France, but its centre did not at any time lie within our area of observation, so that its details are not tabulated.</p>

SECTION III.

REMARKS FOR APRIL 1885.

(Tables VII. and VIII., with Plates VII. and VIII.)

Pressure.—The mean pressure at 8 a.m. varied from a little above 29·8 inches over our midland and some of our southern and eastern counties, to 29·72 inches at Stornoway and Mullaghmore, and to 29·69 inches at Belmullet. The barometer was, therefore, low generally, and the gradients were slight and favourable for a predominance of Southerly winds over all but the eastern and south-eastern parts of the kingdom, where the distribution was favourable for a considerable intermingling of winds from North-east. These indications are fully supported by the wind-roses shown on Plate VII. Compared with the mean distribution of pressure for April in the 20 years 1861–80, the above values show a deficit amounting to 0·13 in. to 0·15 in. in most places, but to about 0·20 in. over the north-western parts of Ireland. The highest readings were recorded on different dates in different parts of the kingdom; in the north they occurred on or about the 13th, when the anticyclonic system No. XIV. was approaching our northern coasts, but in the south the highest occurred on the 19th, as the said system was breaking up, and No. XV. was advancing. The lowest readings were observed very generally on the 25th, while the large depression No. XXI. was advancing northwards along our extreme western coasts. The range was not large anywhere, but was greatest on our western coasts.

Movements of Depressions.—These were very variable. Most of the large disturbances by which our weather was affected passed along at so great a distance from our coasts that their movements cannot be accurately shown on Map 2 Plate VIII., they are therefore only approximately indicated by the arrows marked A and B. One depression, however, (No. XX.), on reaching our western coasts, moved south-eastwards and southwards, and travelling across the Bay of Biscay, produced Easterly and North-easterly winds over our Islands. Another (shallow) one was formed over the Netherlands, and after moving very erratically for a day or two, broke up over France.

Anticyclones.—Three of these systems were observed to pass well over our area, the most important of them being No. XIV., which lasted for about a week (see Section II., p. 41). Pressure, however, was never very high in them, the maximum readings in the highest of them being but little above 30·3 inches.

Winds.—The winds reported were chiefly Southerly in the north, Southerly and South-easterly in the west, Southerly and North-easterly in the south and east. Their force was light over the greater part of the kingdom, but often strong in the far west. The gales reported were unimportant; they were South-easterly and Southerly in direction, and occurred mainly while the large depressions mentioned above were passing by our western and northern coasts.

Temperature.—The mean (sea-level) temperature of the month varied from between 48° and 49° at Jersey and over some of our southern and south midland counties to between 44° and 45° over Scotland and the northern parts of England. In Ireland the values ranged from between 46° and 47° along the western and southern coasts to somewhat above 45° inland. The temperature of the month was therefore, on the whole, below the average, the deficit amounting to only one degree over Great Britain, but to nearly three degrees over Ireland. The distribution was still of the winter type in Ireland, Scotland, Wales, and the north of England, but of the summer type over the southern half of England. There are also several local irregularities found on Map 3, such as frequently appear about this season, but the explanation of which is not sufficiently evident to be entered upon fully in a report like this. The lowest readings were recorded in most places between the 3rd and 6th, while the

anticyclone No. XIII. (see Section II.) was passing over our area, but the highest occurred in most places between the 17th and 21st—during the warm spell referred to in Section I. (p. 38), as the anticyclone No. XIV. dispersed, and the new one (No. XV.) moved south-eastwards from our western coasts to France. The highest readings recorded over England during this period ranged from 70° to 73° , and as the minima noted earlier in the month were in some places as low as 22° , the total range for the month was very large—at Cambridge it amounted to 51° , and at Marlborough to 48° .

Vapour Tension varied from 0·27 in. or 0·28 in. on our south and south-west coasts to between 0·22 in. and 0·24 in. over our midland counties and the east of Scotland; and *Relative Humidity* (which was high in the extreme west) varied from about 90 in the west of Ireland to rather below 80 over many of our inland and north-western counties.

Rainfall.—This was somewhat below the average for April at our northern and eastern stations, but rather in excess in the west. The amounts recorded varied from only 0·55 inch at Nairn to 4·92 inches at Valencia. The number of rainy days was small everywhere, varying from 8 at Wick and Nairn and 9 at Silloth, to 18 or 19 in the north-west of Ireland. The fall at Laudale, though exceeding 3 inches, was singularly small for that station.

Bright Sunshine.—This was again greatest at the southern and south-western coast stations, and least over the north-eastern parts of England and Ireland. Assuming that the total amount which could possibly have been registered at each station during the month to be represented by 100, the values actually recorded were as follows:—Jersey 53, Pembroke 47, Hastings 46, Falmouth 45, Southampton 44, and Plymouth 42; while at Armagh and at York they were only 28 and 21 respectively. The station with the highest percentage was Jersey, that with the lowest being York.

TABLE VII.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the Numbers of Days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level), from Observations made at 8 a.m.	AIR TEMPERATURE.							
			Means of				Absolute Extremes.			
			At 8 a.m.	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head - -	ins. 29° 761	42° 7	37° 4	47° 0	42° 2	28	3rd	53	18th
	Wick - - - -	29° 767	45° 0	37° 9	51° 5	44° 7	27	8th	59	18th
	Stornoway - - -	29° 723	44° 0	38° 1	50° 2	44° 2	29	14th	59	29th
1. SCOTLAND, E.	Nairn - - - -	29° 754	44° 2	38° 0	53° 0	45° 5	27	8th	62	18th, 21st, 28th, 30th, 19th
	Aberdeen - - -	29° 791	44° 9	37° 6	50° 8	44° 2	29	14th, 15th, 17th	65	
	Leith - - - -	29° 781	44° 9	38° 2	52° 5	45° 4	29	4th	67	19th
2. ENGLAND, N.E.	Shields - - - -	29° 787	45° 1	38° 9	50° 8	44° 9	30	3rd	67	19th
	York - - - -	29° 802	44° 3	37° 3	54° 3	45° 8	27	3rd	69	19th
	Spurn Head - - -	29° 782	45° 0	40° 9	49° 9	45° 4	34	3rd	67	21st, 22nd
3. ENGLAND, E.	Yarmouth - - -	29° 803	46° 3	41° 5	51° 2	46° 4	36	14th	72	21st
	Cambridge - - -	29° 802	46° 0	36° 4	56° 8	46° 6	22	4th	73	21st
4. MIDLAND COUNTIES	Loughborough - -	29° 804	43° 4	37° 6	55° 6	46° 6	24	5th	72	19th
	Oxford - - - -	29° 812	44° 0	38° 5	55° 1	46° 8	27	4th, 5th	70	19th, 21st
5. ENGLAND, S.	London - - - -	29° 800	46° 4	40° 1	57° 0	48° 6	31	5th	73	20th
	Dungeness - - -	29° 791	46° 2	41° 8	52° 6	47° 2	32	5th, 6th	59	18th
	Hurst Castle - - -	29° 797	45° 1	39° 7	53° 6	46° 7	29	5th	65	18th, 19th
6. SCOTLAND, W.	Ardrossan - - -	29° 769	44° 1	38° 9	49° 9	44° 4	32	8th	58	17th
7. ENGLAND, N.W.	Hawes Junction* - -	28° 547	41° 0	33° 6	47° 4	40° 5	24	3rd	61	18th
	Barrow-in-Furness - -	29° 774	43° 0	39° 3	50° 3	44° 8	32	3rd	61	17th
	Liverpool (Bidston) - -	29° 783	45° 0	40° 3	52° 0	46° 2	31	4th	62	17th, 19th
	Holyhead - - - -	29° 780	45° 4	41° 5	50° 2	45° 9	34	4th, 5th	59	19th
8. ENGLAND, S.W.	Pembroke - - - -	29° 761	44° 5	41° 6	48° 9	45° 3	35	3rd	58	19th
	Prawle Point - - -	29° 794	45° 9	40° 3	51° 7	46° 0	32	3rd	65	18th, 19th
9. IRELAND, N.	Malin Head - - -	29° 713	44° 2	41° 2	50° 2	45° 7	37	2nd, 4th, 5th, 8th, 3rd	61	20th
	Donaghadee - - -	29° 772	44° 9	40° 1	50° 5	45° 3	31		63	19th
	Mullaghmore - - -	29° 723	45° 1	42° 4	52° 1	47° 3	36	6th, 8th	63	19th
	Belmullet - - - -	29° 692	45° 7	41° 3	50° 8	46° 1	36	2nd, 5th, 6th, 9th.	59	24th
10. IRELAND, S.	Parsonstown - - -	29° 761	43° 4	37° 1	53° 0	45° 1	29	3rd	67	19th
	Valencia - - - -	29° 739	47° 3	41° 1	52° 4	46° 8	35	3rd, 8th	57	18th, 19th
	Roche's Point - - -	29° 752	45° 6	40° 7	52° 4	46° 6	34	3rd	59	18th
CHANNEL ISLANDS	Scilly (St. Mary's) - -	29° 760	47° 9	43° 6	51° 4	47° 5	40	4th, 6th	59	21st
	Jersey (Noirmont) - -	29° 787	46° 2	42° 8	52° 9	47° 9	37	2nd	66	21st

* Hawes Junction is 1,135 feet above Mean Sea Level, and the

TABLE VII.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of April 1885.

Thunderstorms, and Gales are counted irrespective of the Hours at which they occurred.

beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	%		ins.	ins.																	
'237	80	6'6	1'33	0'22	21st	17	1	0	0	5	10	1	4	2	1	7	9	1	5	1	0
'239	80	5'4	1'01	0'25	20th	8	2	1	0	9	8	1	3	3	0	2	15	2	1	4	0
'257	89	5'4	1'64	0'36	24th	13	3	2	0	11	10	10	2	1	5	5	10	2	2	1	2
'240	82	5'6	0'57	0'18	9th	8	0	0	0	11	11	1	0	1	3	4	2	6	4	1	9
'228	77	5'0	1'82	0'71	24th	14	0	1	0	11	6	0	5	2	1	3	11	3	2	2	1
'246	83	5'5	1'41	0'63	10th	9	0	1	0	10	9	0	2	3	5	6	3	2	6	2	1
'242	81	6'6	1'65	0'53	22nd	17	0	0	0	5	10	1	4	4	5	1	3	8	1	2	2
'229	78	6'9	1'42	0'32	1st	16	0	0	0	7	14	0	7	4	8	1	5	2	2	1	0
'262	88	4'7	1'18	0'37	1st	13	0	0	0	10	3	3	5	6	4	3	4	3	2	3	0
'261	84	4'5	1'49	0'28	26th	13	0	0	1	11	4	2	5	6	4	3	3	3	3	1	2
'255	83	6'2	2'02	0'44	23rd	14	0	2	0	8	12	0	11	4	2	2	6	4	0	1	0
'226	80	7'5	1'94	0'56	1st	13	0	0	0	3	16	9	3	5	2	4	4	2	5	4	1
'242	83	6'5	1'68	0'41	1st	12	0	2	0	9	15	0	4	9	1	1	5	3	2	5	0
'238	76	6'0	2'02	0'74	15th	11	0	0	1	11	13	3	4	7	3	3	7	2	2	2	0
'281	91	5'7	1'63	0'67	28th	14	0	0	0	6	7	1	3	7	6	1	1	6	2	3	1
'263	88	4'9	0'87	0'41	5th	10	0	0	0	9	1	1	5	9	3	0	2	6	3	2	0
'251	86	6'7	1'71	0'68	24th	11	1	2	0	6	14	1	1	6	8	1	5	4	0	4	1
'217	85	6'1	3'76	0'88	20th	13	0	0	0	9	14	0	1	3	10	3	6	5	1	1	0
'234	84	5'5	1'88	0'48	22nd	13	0	0	0	9	10	1	3	10	2	7	2	3	0	3	0
'225	76	6'7	1'86	0'39	5th	17	1	1	1	7	14	0	2	2	5	6	3	4	5	2	1
'258	86	6'0	1'53	0'56	22nd	12	0	0	0	3	7	3	3	3	6	2	10	3	1	2	0
'245	83	6'2	2'61	0'45	1st	15	0	0	0	8	10	4	5	3	6	3	6	2	2	3	0
'268	88	5'0	1'75	0'43	15th	12	0	1	0	11	9	2	5	6	4	1	5	4	1	4	0
'257	89	6'9	0'94	0'27	20th	19	0	0	0	1	7	4	3	3	4	5	9	6	0	0	0
'265	90	5'9	2'99	0'98	24th	11	0	0	0	8	10	3	1	2	7	2	7	5	4	2	0
'246	82	6'3	2'38	0'52	20th	18	1	3	0	8	9	8	2	1	6	7	4	7	1	2	0
'295	96	3'7	3'08	0'51	20th	21	0	0	0	14	5	3	0	4	5	2	5	8	3	2	0
'251	89	5'8	2'97	0'77	21st	15	0	0	0	9	12	0	3	1	1	3	8	2	1	3	8
'276	85	6'7	4'92	0'92	5th	20	0	0	0	3	11	6	5	4	3	4	5	4	2	1	2
'263	86	6'1	2'56	0'56	5th	13	0	0	0	5	9	4	7	3	2	2	3	6	2	5	0
'273	83	6'7	2'99	0'50	5th	17	0	0	0	5	10	6	5	5	4	1	5	4	2	4	0
'274	89	5'8	1'92	0'66	28th	17	1	1	0	7	10	4	3	8	3	2	2	6	1	3	2

barometrical readings at this Station are not reduced for altitude.

TABLE VIII.

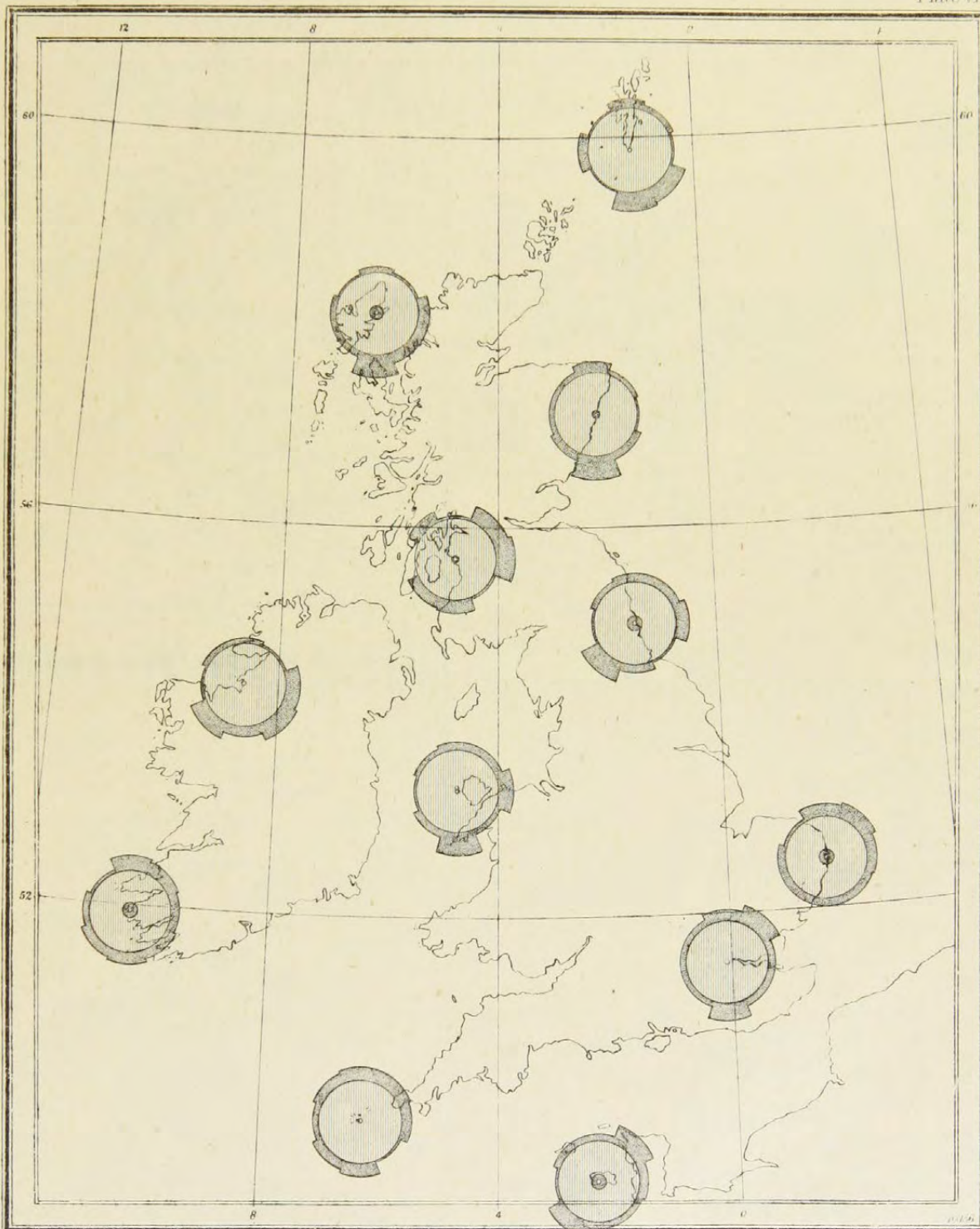
OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of April 1885.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY	*	*	*	*	*	*	*	*	*	*	*	182	43
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	158	37
ALNWICK CASTLE	37'8	49'0	43'4	30	3rd, 13th, 16th	62	19th	11	3'17	1'01	10th	—	—
SCARBOROUGH	40'5	51'4	46'0	32	2nd	68	19th	17	2'15	0'40	9th, 29th	—	—
YORK	*	*	*	*	*	*	*	*	*	*	*	87	21
HILLINGTON	38'0	55'9	47'0	26	4th, 5th	72	21st	11	1'45	0'44	8th	157	38
GELDESTON	38'7	53'9	46'3	26	5th	72	21st	11	1'40	0'33	8th	197	48
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	155	38
ROTHAMSTED	37'1	54'2	45'7	26	5th	72	20th	17	2'88	0'98	28th	—	—
BAWTRY	37'3	54'9	46'1	23	3rd, 4th	71	19th	14	1'57	0'31	1st, 6th	—	—
LEICESTER	38'5	55'7	47'1	26	5th	72	19th, 21st	15	2'24	0'48	1st	130	31
CHEADLE	37'3	52'3	44'8	28	4th	68	21st	15	1'85	0'35	1st	—	—
CHURCHSTOKE	35'0	52'4	43'7	25	3rd	68	19th, 20th	13	2'75	0'62	25th	138	33
HEREFORD	37'1	55'4	46'3	27	3rd	72	20th, 21st	14	2'24	0'62	24th	—	—
CIRENCESTER	36'1	53'5	44'8	24	5th	68	19th, 21st	16	2'12	0'54	1st	155	38
OXFORD	*	*	*	*	*	*	*	*	*	*	*	159	39
LONDON	*	*	*	*	*	*	*	*	*	*	*	149	36
MARLBOROUGH	36'5	54'2	45'4	23	5th	71	19th	14	2'32	0'58	1st	155	38
STRATHFIELD TURGISS	36'6	57'7	47'2	24	4th	73	20th	12	1'28	0'34	5th	—	—
HASTINGS	41'8	53'9	47'9	34	4th, 5th	67	19th	15	2'24	0'91	28th	191	46
SOUTHAMPTON	39'8	57'0	48'4	27	5th	72	20th	15	1'57	0'49	5th	179	44
LAUDALE	40'5	52'2	46'4	30	8th, 9th	60	19th	10	3'33	0'90	24th	—	—
GLASGOW	38'9	51'3	45'1	30	2nd	60	19th	12	1'53	0'34	10th	134	32
SILLOTH	37'0	52'4	45'2	29	4th, 5th, 14th	64	17th	9	1'94	0'54	22nd	172	41
DOUGLAS	39'3	49'6	44'5	30	3rd	59	18th	14	3'35	0'65	24th	169	40
NEWTON REIGNY	35'8	50'9	43'4	25	14th	64	19th	12	2'26	0'90	24th	134	32
STONYHURST	37'6	51'7	44'7	28	3rd	61	17th, 19th	16	1'74	0'28	22nd	136	33
BLACKPOOL	37'1	51'0	44'1	27	3rd	61	17th	14	1'35	0'25	22nd	133	32
MANCHESTER	37'9	51'8	44'9	29	3rd, 4th	64	19th	13	1'09	0'24	1st	—	—
LLANDUDNO	40'5	51'6	46'1	32	3rd, 4th	61	19th	12	1'31	0'27	6th	147	35
LLANDOVERY	35'7	54'8	45'3	24	2nd	71	19th	15	2'05	0'65	24th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	194	47
ARLINGTON	37'0	51'4	44'2	30	4th, 5th	66	19th, 21st	13	3'02	0'82	1st	—	—
CULLOMPTON	36'4	54'0	45'2	27	4th, 5th	71	20th	15	3'30	0'66	24th	143	35
FALMOUTH	41'8	50'8	46'3	35	3rd	62	19th	16	3'41	0'78	23rd	184	45
PLYMOUTH	39'7	53'3	46'5	31	5th	65	18th	15	3'28	0'45	28th	172	42
JERSEY	*	*	*	*	*	*	*	*	*	*	*	217	53
LONDONERRY	39'2	54'4	46'8	31	8th	65	19th	17	1'64	0'23	23rd	—	—
MARKREE CASTLE	37'0	52'5	44'8	26	9th	62	18th, 19th	18	2'27	0'58	5th	144	34
BROOKEBOROUGH	37'3	52'5	44'9	28	14th	63	19th	11	2'75	0'43	5th	—	—
ARMAGH	38'1	52'0	45'1	29	9th	64	19th	18	2'28	0'41	21st	116	28
EDGORTHSTOWN	37'0	52'9	45'0	30	2nd, 3rd	65	19th	17	2'91	0'47	21st	—	—
DUBLIN	40'6	52'7	46'7	32	3rd, 9th	66	19th	16	2'91	0'62	21st	142	34
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	131	32
KILKENNY CASTLE	37'4	51'9	44'7	26	3rd	65	19th	13	4'11	0'89	21st	—	—
WATERFORD	38'4	52'3	45'4	28	3rd	64	18th	12	4'23	1'53	21st	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	166	40
KILLARNEY	37'4	52'9	45'2	28	16th	62	19th	16	3'60	0'74	5th	—	—
FOYNES	39'3	53'9	46'6	34	2nd, 3rd	65	19th	16	1'07	0'65	25th	—	—

* For information see Table VII.

MONTHLY WIND CHART FOR APRIL 1885.

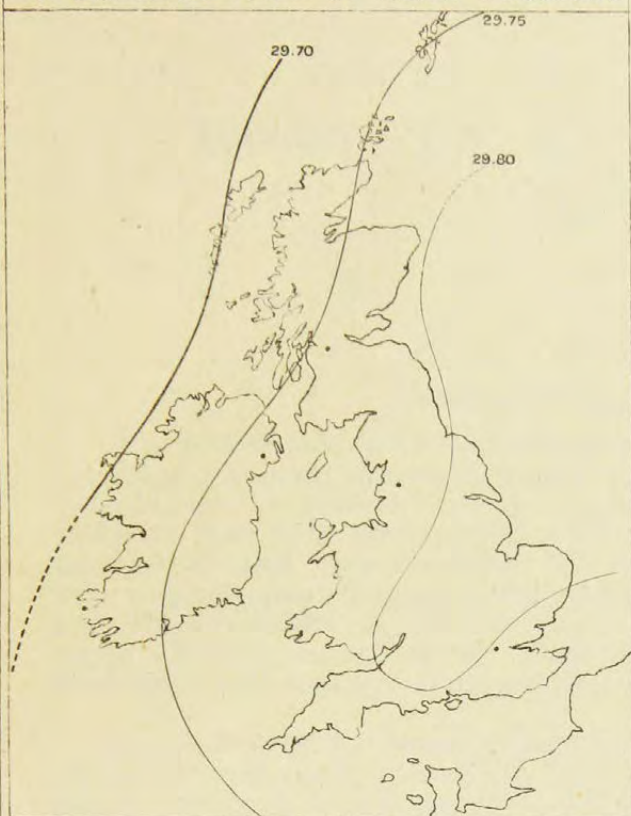
Plate VII.



To face p. 46.

DANCEFIELD LITH. 22 BEDFORD ST. COVENT GARDEN.

1. DISTRIBUTION OF MEAN PRESSURE



2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE.



4. RAIN FALL



MONTHLY WEATHER REPORT.

MAY 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of May was cold, changeable, and showery, falls of snow, sleet, hail, and cold rain being of frequent occurrence, though the individual amounts collected were not large. Pressure was low generally, and its distribution was favourable for winds from a more Northerly point than usual; temperature was from 3° to 6° below the mean, but the extremes recorded were moderate. The wind was chiefly Westerly and North-westerly, with a considerable admixture of Easterly in the north,—but in force they were generally moderate or fresh, and the gales were few in number, except on the extreme north-western coasts. Towards the end of the month an improvement had commenced, pressure and temperature were both increasing, and the clouds were disappearing very generally.

May 1-2.—The distribution of pressure over the United Kingdom during these two days was cyclonic and somewhat complex. High-pressure areas were prevalent both over northern and south-western Europe, the two being separated by a “hollow” which spread eastwards from the Atlantic to the eastern shores of the North Sea. Thus, while South-easterly winds prevailed on our northern and eastern coasts, South-westerly to Westerly breezes were felt in the south, and blew hard at times on the shores of the Bay of Biscay. Temperature was rather low, and so far as England and the east of Scotland are concerned, showers fell generally, separated by bright intervals. There are indications that during this period a well-marked depression travelled in a northerly direction outside our western coasts, but at too great a distance for it to be noticed in Section II., or on Map 2, Plate X.

May 3-6.—This period was transitional. The high-pressure area in the north began to give way and move westwards, while a shallow but well-marked depression (No. XXIII. *) appeared at the mouth of the Channel, and moving eastwards and north-eastwards, reached the coast of Denmark at 8 a.m. on the 5th. The winds over our Islands consequently backed round through East to North-east and North, without much increase of force, and were accompanied by snow, hail, and cold rain, while in France the wind was South-westerly and Westerly. Temperature did not rise above 54° at any of our stations on the 5th and 6th, and the wind, though completely cyclonic in direction, was only moderate in force. Late on the 5th a second minimum reached the mouth of the Bristol Channel, and early on the 6th another appeared near Lorient. These subsequently coalesced, and moving north-eastwards, followed in almost exactly the same track as that just referred to. The positions of these two centres on the 5th, 6th, and 7th are shown in the Daily and Weekly Weather Reports for the period, and their movements from time to time are shown by the arrows marked XXIII. and XXIII A. on Map 2, Plate X.

May 7-11.—The distribution of pressure during this period was chiefly cyclonic, and the gradients, on the whole, were favourable for North-westerly winds. The depressions referred to in the last paragraph had passed completely away to the north-west of Norway on

* See Section II. and Map 2 Plate X. for the history and tracks of depressions.

the 7th, leaving behind them only a hollow over the country; while gradients for Westerly winds were established temporarily over the United Kingdom, with improving but cold weather. On the afternoon of the 8th a new but small depression (No. XXIV.*) began to appear off our north-western coasts. Its movements were very slow, but in its rear the barometer rose so quickly that the system became deeper, so that when its centre reached the south of Norway on the 10th the gradients for North-westerly winds over our Islands and the North Sea were comparatively steep, and the wind became very strong at many of our northern and north-eastern stations. Temperature, after rising to 58° in some parts of England on the 8th, fell again as the wind veered, and showers of cold rain or hail fell in many parts of the kingdom. Thunder occurred at some northern stations on the 10th. A considerable change now took place.

May 12-13 a well-marked anticyclonic area (No. VI., p. 53) advanced over our Islands from the westward, accompanied by fair weather, some fogs, and light breezes. Temperature did not change much over the United Kingdom, though it fell somewhat decidedly over Belgium and France, and the daily maxima remained low for the time of year. On the 13th the system broke into two parts, and while one moved eastwards towards South Germany, the other (lying off our northern coasts) began to move south-westward to the west of Ireland. In the meantime a new depression (No. XXVI.*) came quickly over the southern part of the Bay of Biscay, and passing across the south of France on the 14th, developed into a larger system over Austria and travelled thence in a north-easterly and northerly direction across north Germany and the Baltic to Finland. The wind veered to the Northward again on almost all our coasts as the centre passed over France, and to North-east in the Channel. In force it remained light or moderate with us, but gales of considerable strength were experienced from North and North-west over the Bay of Biscay and west of France, and were repeated in the south and east of France later, and over other parts of the Continent also.

May 14-18.—During this period gradients for Northerly and North-westerly winds remained with us almost continuously, temperature was low, the air raw, cold showers fell in almost all parts of the kingdom, and thunderstorms of great severity were experienced in many places. On the evening of the 16th the cyclonic system (No. XXVII.*) appeared off the north of Scotland, and moving slowly to the south-eastward and southward over the North Sea, caused some Northerly gales on our north and north-east coasts, and strong, squally, Northerly winds over the North Sea generally. The weather was very cold and rough, and it was with this system that the thunderstorms just referred to were experienced. On reaching Holland the whole system broke up, and the high-pressure area lying to the westward of our Islands gave way.

May 19-24.—A period now commenced in which cyclonic systems prevailed continuously, but the type of pressure distribution varied greatly. Several depressions came over us from the Atlantic, and temperature remained low, though the wind varied frequently both in force and direction; rain fell in all parts of the kingdom, and thunderstorms occurred very generally, notably on the 21st and 22nd. The first depression reached our western and north-western districts on the 19th, and was too slight to merit much notice. The second (No. XXVIII.*) advanced on the 20th; it was considerably larger and deeper than its predecessor, but its movements were somewhat remarkable. At 2 p.m. on the 20th its centre was near Dublin; it then moved north-north-eastwards to the neighbourhood of Stirling, after which it travelled north-westwards, and passed out to the Atlantic again across the Hebrides. A subsidiary system (XXVIII.A.), which appeared over our southern counties next morning, took a parallel course, though its track lay much further to the southward and eastward than that just referred to, its centre passing over our south-eastern counties on the 22nd, over the North Sea on the 23rd, and away into the Atlantic off the west of Norway during the following night, leaving a "hollow" between the Norwegian and Scotch coasts on the 24th. This soon broke up, and the distribution of pressure became more simple.

* See Section II. and Map 2, Plate X., for the history and tracks of these depressions.

May 25-31.—During this, the closing week of the month, the distribution of pressure was more simple than at the earlier part of it. Pressure was, on the whole, highest over France and lowest first to the westward and afterwards to the northward of our Islands. The gradients were consequently favourable for the prevalence of winds from the Southward and Westward, and occasionally became rather steep as some depressions passed along, at a great distance outside our extreme western coasts, in about the direction shown by the arrow marked "A" in Map 2 Plate X. Their effect was at once apparent in the temperature over England, which increased gradually from day to day, so that on the 28th the daily maxima exceeded 70° at several of the inland stations. After this the wind became rather more Westerly, temperature again decreased, and the month closed with light Westerly to North-westerly breezes, cold but fine weather, and a rising barometer, as a new anticyclone was advancing towards us from the westward.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—MAY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXIII. May 3-7.	No. XXIIIa. May 5-8.	No. XXIV. May 8-10.
Form - - - - -	Nearly oval, but varying later on -	Irregular and varying - - -	Ill defined at first, then about circular. (See Maps in Daily Report, and in Weekly Weather Report, p. 75.)
Size - - - - -	Apparently large at first, then smaller	Large - - - - -	Small to moderate - - -
Depth - - - - -	Unknown at first, afterwards shallow	Shallow - - - - -	Shallow - - - - -
Where first Observed - -	Off the south-west of Ireland -	Over the mouth of the English Channel.	Off the west of Scotland - -
Direction of Motion - -	Easterly at first, then north-easterly and afterwards northerly.	North-easterly at first, then northerly	East-north-easterly - - -
Rate of Motion - - -	Moderate to slow - - -	Moderate to slow - - -	Very slow - - - - -
Regions passed over by Steepest Gradients.	Northern parts of British Isles. Gradients never steep.	British Isles. Gradients were, however, nowhere steep.	British Islands. Gradients never steep.
Termination - - - -	Passed out of our area to the north-westward of Norway on the 7th.	Dispersed over Norway on 8th -	Dispersed over the south-west of Norway on the 10th.
Time under Observation -	Nearly five days - - -	Four days - - - - -	About 60 hours - - - -
Accompanying Winds - -	East to North and North-west over our Islands, Westerly in France; never very strong.	North-easterly to Northerly and North-westerly; light to moderate.	Westerly over greater part of our Islands, but Easterly to Northerly in the Shetlands and Hebrides.
„ Weather - - -	Cold, cloudy, and rather showery -	Showers of cold rain, sleet, and hail -	Showery, with sleet and hail in many places. Cold.
„ Rainfall - - -	General, but slight; hail in north -	General (except in far west), but, as a rule, slight.	General, but of heavy - - -
REMARKS - - - - -	This depression appeared while pressure was high both over northern and south-western Europe. As it advanced, the northern high pressure area moved westwards and spread over us, and temperature fell with Easterly to North-easterly winds. A subsidiary minimum was developed at the mouth of the Elbe at 6 p.m. on the 4th, but apparently dispersed during that night.	This system was apparently formed by the union of two smaller minima, one of which appeared over the mouth of the Bristol Channel on the afternoon of the 5th, and the other near Lorient early on the 6th. These two merged and the resulting system moved as shown by the arrow on Map 2 Plate X.	This disturbance advanced as No. XXIIIa. dispersed. At first it was ill-defined, but became very well marked by 8 a.m. on the 8th. A small subsidiary system was then developed over Scotland, which, as the present system dispersed, moved eastwards as an independent depression, and grew deep over Norway.

SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—MAY 1885.

No. XXV. May 9-11.	No. XXVI. May 13-14.	No. XXVII. May 15-18.
Ill-defined, then about circular; afterwards irregular and somewhat oval.	Apparently oval - - - - -	Oval.
Very small to large - - - - -	Uncertain at first; large later on - - - - -	Large.
Very shallow to moderate - - - - -	Shallow to deep - - - - -	Moderate.
Over the west of Scotland - - - - -	Over the Bay of Biscay - - - - -	Near the Farö Isles.
East-north-easterly and north-easterly - - - - -	Easterly while within our area - - - - -	South-easterly and southerly.
Slow and irregular - - - - -	Moderate - - - - -	Slow.
North Sea - - - - -	English Channel and our southern counties. Gradients never steep.	The United Kingdom.
Travelled away to northern Russia - - - - -	Travelled away to Austria on 15th, then moved suddenly northwards, reaching Courland on the 17th, and Lapland on the 18th.	Dispersed near Holland.
Three days - - - - -	Two days in our area, and four days outside it - - - - -	Three and a half days.
Westerly and North-westerly over our Islands and the North Sea; moderate to strong on our coasts; strong to a gale to eastward of North Sea.	Easterly to Northerly over our Islands and moderate; gales from North in France.	North-westerly and Northerly over our Islands, fresh to strong; a gale in the east of Scotland on night of 16th.
Cold, with some hail and snow showers very generally.	Cold and comparatively dry with us. Rainy over France.	Cold and showery; thunderstorm in north-east and afterwards in east.
General, but not heavy as a rule - - - - -	Cold showers at our western stations. Considerable rain in France.	General, but not heavy.
This disturbance appeared at first to be subsidiary to No. XXIV., but in the end proved to be the more lasting of the two. It grew much deeper as it moved eastwards to Scandinavia (see Maps in Weekly Weather Report, p. 75), and its rate of movement slackened for a time on the 10th and 11th, but apparently quickened again on 12th.	This depression advanced to France immediately after the anticyclone No. XVI. (p. 53) disappeared from our area. Its movement was very decided, but the manner in which it developed on reaching Germany is remarkable.	This disturbance advanced from the north-westward when pressure was highest over the Bay of Biscay, and low both over the north of Italy and to the northward of Scotland. On arriving over the North Sea (on the 17th) it appears to have felt the influence of Cyclone No. XXVI. which was at that time over the Baltic, for after this the depression began to fill up.

(continued.)

SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—MAY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXVIII. May 20-22.	No. XXVIII. May 22-23.	No. XXIX. May 25.
Form - - - - -	Somewhat oval, but irregular and variable.	Oval - - - - -	Somewhat circular.
Size - - - - -	Large - - - - -	Moderate to large - - - - -	Moderate.
Depth - - - - -	Moderate - - - - -	Moderate to shallow - - - - -	Shallow.
Where first Observed - - -	Over the south-west of Ireland - -	Over the south of England - -	Off the south-west of Ireland.
Direction of Motion - - -	North-easterly, northerly, and north-westerly.	East-north-easterly, north-north-easterly, and north-north-westerly.	North-easterly and then northerly.
Rate of Motion - - - - -	Slow - - - - -	Slow - - - - -	Moderate.
Regions passed over by Steepest Gradients.	Great Britain, the North Sea, and north of France.	France, the Channel, and eastern parts of the North Sea.	Our south-western and western districts; gradients never steep.
Termination - - - - -	Passed away to the north-westward of Scotland.	Passed away to north-north-westward of Norway.	Passed away to the north-westward of Ireland.
Time under Observation - -	Three days - - - - -	About two days - - - - -	One day.
Accompanying Winds - - -	Varying from East and South-east to South-west and West. Westerly and North-westerly gales in France and Channel with the subsidiary on 22nd.	Westerly and North-westerly gales in France and in Channel; strong Easterly to South-westerly winds on eastern shores of the North Sea.	South-easterly to South-westerly.
Weather - - - - -	Rainy, with thunder and lightning -	Very showery and changeable; thunder in several places.	Showery.
Rainfall - - - - -	General, and in several places heavy -	General; heavy over our southern and south-eastern counties.	Confined to our western and southern districts. Rather heavy in south-west of Ireland.
REMARKS - - - - -	<p>The movements of this depression were somewhat peculiar. The subsidiary system which appeared over the south of England early on the 22nd was very well marked, and formed steep gradients over France.</p> <p>NOTE.—There is a considerable amount of parallelism in the tracks of the four systems XXIII., XXIIIa., XXVIII., and XXIX.</p>		
	<p>This depression arrived over the south of England (or was formed there) just as No. XXVIII. was passing away from the north-west of Scotland.</p> <p>The movements of this depression were those of a system subsidiary to No. XXVIII., although the system was quite as deep as most of the primary disturbances observed this month.</p>		
	<p>This depression arrived while pressure was highest over the west of France, and lowest to the northward of Scotland, the gradients being slight. A shallow subsidiary disturbance was developed over Wales during the afternoon, and moved thence in an easterly direction, carrying rain to our southern coasts.</p> <p>The rain which fell on our north and north-east coasts, and some thunder at Shields, appear to have been the result of another very local and shallow disturbance found there at 6 p.m. on the 25th.</p>		

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—MAY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XVI. May 11-13.	No. XVII. May 30-31.
Form - - - - -	Irregular oval - - - - -	Oval.
Size - - - - -	Small - - - - -	Small to large.
Height - - - - -	Small to very small - - - - -	Small.
Where first Observed - - - - -	Off the west of Ireland - - - - -	Over France.
Direction of Motion - - - - -	East-south-easterly - - - - -	Westerly at first; then easterly again.
Rate of Motion - - - - -	Rapid at first, then slow - - - - -	Very slow.
Regions passed over - - - - -	British Isles and Netherlands - - - - -	France and Bay of Biscay.
Termination - - - - -	Passed away to Germany, and thence to south-eastern Europe.	Developed into a large system over the Bay of Biscay, and then moved eastwards again to Germany.
Accompanying Wind - - - - -	Westerly to South-westerly in the north, Easterly to South-easterly in the south, calm at central stations.	South-westerly in our Islands, and Easterly in south of France.
Weather - - - - -	Very cold and dry - - - - -	Very fine.
REMARKS - - - - -	<p>This system advanced quickly as the cyclonic system No. XXV (p. 51) passed away from our area. On its reaching Germany, a new anticyclone appeared in the north, and was joined to this one by a broad high-pressure band (with a subsidiary maximum), which at 8 a.m. on the 13th lay over Great Britain, the North Sea, and Netherlands. This northern area subsequently moved south-westwards to a position off our western coasts.</p> <p>This system formed part of a large anticyclone which on the 30th covered the whole of France and Germany, but on the following day broke up into two distinct parts, one of which moved eastwards, while this one moved westwards. On reaching the Bay of Biscay it developed into a large system, which spread northwards over the United Kingdom during the earlier days of June, giving us fine warm weather, after which it moved eastwards to Germany. (See maps in Weekly Weather Report.)</p>	

SECTION III.

REMARKS FOR MAY 1885.

(Tables IX. and X. with Plates IX. and X.)

Pressure.—The mean pressure for the month, at 8 a.m., varied from 29·85 ins. at Jersey, and about 29·82 ins. along the south coast of England to about 29·69 ins. in the extreme north of Scotland and the south of the Shetlands. This distribution is, on the whole, favourable for Westerly winds of little strength, but it will be seen on referring to Map I. Plate X., that in the west of Scotland the isobars are favourable for winds from a somewhat more Northerly point than those over the other parts of the kingdom. These conditions are very different from those of last month, when the gradients were favourable for Southerly breezes in all parts of the kingdom; and when compared with the average conditions for May in the 20 years 1861–80, they show a deficit in pressure amounting to more than 0·2 inch in the far north of Scotland, and to about 0·15 inch in the south of England. The highest readings were recorded in most places on the 12th, while the anticyclone No. XVI. (p. 53) was lying over the kingdom; while the lowest occurred very generally on the 21st or 22nd, at which time the two cyclonic systems Nos. XXVIII.* and XXVIII.A.*, were passing over our area. As, however, the barometer was neither very high nor very low during any part of the month, the range was slight everywhere.

Movements of Depressions.—The depressions this month were numerous, but as a rule shallow; and it will be seen on referring to Map II. Plate X., that while some of them passed over the northern, others passed over the southern parts of our area. There is, however, a remarkable amount of parallelism between the tracks of Nos. XXIII., XXIII.A., XXVIII., and XXVIII.A., and also between those of XXIV. and XXV., though the former of these two systems dispersed on reaching Norway, while the latter continued its movement to northern Russia. The contrast between the map for this month and that for April is very striking.

Anticyclones.—Although there were systems of this kind in close proximity to our area during nearly the whole of the month, only two passed sufficiently within its limits for their characteristics to be tabulated in Section II. (p. 53). The first was a large well-formed system when it appeared over our western districts, but broke into two parts very quickly; while the second, though small at first, developed quickly into a large and more permanent system, which exercised great influence in the weather experienced over our Islands during the earlier days of June. Beyond these peculiarities, however, the anticyclones exhibited no features calling for special remark.

Winds.—These (as will be seen on referring to Plate X.) were mainly Westerly,—Westerly and South-westerly at the southern stations, Westerly and North-westerly in the north. At Sumburgh Head, however, the prevailing winds were Northerly and Easterly, and at most of the northern stations winds from the South-eastward and Eastward were experienced largely, while in the south these were rarely felt. In force they were, as a rule, moderate to fresh. Gales were very few in number; even those experienced on our extreme North-western coasts were only moderate to fresh in force, the depressions having been either shallow, or too distant to affect the wind at our stations very greatly.

Temperature.—The mean (sea level) temperature of the month varied from a little above 50° over our south-eastern counties, and from about 49° in the extreme south of Ireland to about 47° over the central parts of the north of Ireland, to 45° in the north of

* See Section II. and Map 2, Plate X., for the history and tracks of depressions.

Scotland, and to 43° in the south of the Shetlands. Although the Summer type of distribution is more clearly marked in Map 3 than in the corresponding map for April, it is not nearly so well defined as is usual for this time of year. When compared with the mean values for May in the 20 years 1861–80, the temperatures this month show a deficit amounting to about 3° in Scotland, 4° over England, and 4° to 5° over Ireland. The highest readings were recorded mainly during the period of mild weather which occurred with Southerly winds between the 27th and 29th (chiefly on the 28th), but were no higher than those recorded about the middle of April; the lowest were recorded either during the cold Northerly breezes of the 7th and 8th, or else during the anticyclonic conditions of the 12th. The range was large at some of the inland stations—the greatest being 46° at Hillington and Bawtry, 43° at Geldeston, 42° at York, and 40° at Leicester and Loughborough. The smallest ranges were 16° at Scilly, 24° at Valencia, 25° at Sumburgh Head, and 26° at Stornoway and Douglas (Isle of Man).

Vapour Tension.—This varied from below 0·23 in. and 0·25 in. over the northern and north-eastern parts of Great Britain, and 0·26 in. over the south midlands, to about 0·30 in. in the extreme west and south-west, and to 0·31 in. along the south coast of England and at Jersey. *Relative Humidity* was, as a rule, lowest (75 to 83 per cent.) inland and highest (90 to 91 per cent.) at the extreme north-western and north-eastern stations, viz., Belmullet and Spurn Head.

Rainfall, though somewhat in excess of the average for the 15 years 1866–80, at almost all stations, was not so much in excess as might have been anticipated from the number of depressions which passed over our area. But, as before remarked, the depressions were shallow, and moved in such directions with regard to our Islands that the winds experienced were chiefly Westerly and Northerly in direction, not Southerly. The falls, though frequent, were consequently slight, and consisted largely of snow, sleet, and soft hail. The number of rainy days varied from 29 at Belmullet, 27 at Stornoway, Laudale, and Newton Reigny, and 26 at several of the western and northern stations, to only 11 at Llandudno, 15 at Edgeworthstown and Jersey, and 16 at Holyhead and Barrow-in-Furness.

Bright Sunshine.—Assuming that the total amount which could possibly have been registered at each station during the month to be represented by 100, the amounts actually recorded were 52 at Jersey, 45 at Hastings and Pembroke, 43 at Valencia, 41 at Douglas (Isle of Man), and 40 at Geldeston, Falmouth, and Markree Castle (County Sligo). Over the northern and north-eastern parts of Great Britain the percentage was much smaller, and at Glasgow it was only 24. The southern and western coast stations were therefore much more favoured than those in the north and east, and this appears to be usually the case at this time of year.

TABLE IX.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the numbers of days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 29°686	43°8	38°0	48°0	43°0	29	8th	54	28th, 29th
	Wick	29°693	46°3	39°2	50°7	45°0	29	12th, 13th	60	28th, 30th
	Stornoway	29°704	45°1	38°6	50°4	44°5	29	10th	55	20th, 24th, 28th, 31st.
1. SCOTLAND, E.	Nairn	29°698	45°3	39°7	52°5	46°1	31	10th, 12th	65	28th, 29th
	Aberdeen	29°700	46°7	39°2	52°2	45°7	30	13th	62	28th
	Leith	29°706	47°6	40°7	54°5	47°6	30	12th	65	28th
2. ENGLAND, N.E.	Shields	29°715	47°3	39°9	51°8	45°9	32	7th, 8th	66	28th
	York	29°748	47°0	39°4	56°2	47°8	30	7th	72	28th
	Spurn Head	29°734	47°4	42°4	52°5	47°5	36	8th	71	28th
3. ENGLAND, E.	Yarmouth	29°777	48°3	42°2	53°6	47°9	33	8th	65	29th, 31st
	Cambridge	29°787	48°9	39°7	58°0	48°9	30	8th	72	28th
4. MIDLAND COUNTIES	Loughborough	29°775	47°7	40°2	57°3	48°8	31	7th	71	28th
	Oxford	29°803	48°0	42°0	56°3	49°2	33	12th	66	28th
5. ENGLAND, S.	London	29°803	49°9	42°5	58°4	50°5	32	8th	72	28th
	Dungeness	29°809	49°7	45°7	55°4	50°6	35	8th	62	28th, 31st
	Hurst Castle	29°819	49°7	45°8	55°7	49°8	35	8th	64	31st
6. SCOTLAND, W.	Ardrossan	29°713	47°2	40°5	52°4	46°5	32	7th	58	19th
7. ENGLAND, N.W.	Hawes Junction*	28°520	42°8	35°7	48°5	42°1	26	7th	61	28th
	Barrow-in-Furness	29°737	45°8	42°6	53°0	47°8	35	7th	59	27th, 28th
	Liverpool (Bidston)	29°760	48°5	42°8	54°3	48°6	38	7th, 8th	65	27th
	Holyhead	29°768	48°1	43°7	52°5	48°1	39	12th	59	31st
8. ENGLAND, S.W.	Pembroke	29°778	47°4	44°5	50°8	47°7	38	7th	56	30th
	Pravle Point	29°829	49°0	42°4	53°5	48°0	36	7th, 8th	59	11th, 17th
9. IRELAND, N.	Malin Head	29°713	46°3	42°0	52°3	47°2	36	10th	61	27th
	Donaghadee	29°738	47°1	41°0	53°2	47°1	33	8th	62	26th
	Mullaghmore	29°726	46°9	43°7	52°8	48°3	34	12th	62	27th
	Belmullet	29°716	47°9	43°0	51°6	47°3	35	7th	57	25th, 27th
10. IRELAND, S.	Parsonstown	29°771	47°5	39°7	54°8	47°3	29	7th	63	27th
	Valencia	29°791	50°2	43°6	54°9	49°3	34	7th	58	30th, 31st
	Roche's Point	29°782	48°8	43°5	55°0	49°3	37	6th	58	26th, 27th, 29th, 31st.
CHANNEL ISLANDS	Scilly (St. Mary's)	29°799	50°5	44°7	53°0	48°9	41	8th	57	26th, 31st
	Jersey (Noirmont)	29°852	49°7	45°7	55°4	50°6	39	8th	70	27th

* Hawes Junction is 1,135 feet above Mean Sea Level, and the

TABLE IX.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of May 1885.

Thunderstorms, and Gales are counted irrespective of the hours at which they occurred.

beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins. 0.236	82	7.8	ins. 1.96	in. 0.27	1st	26	2	0	0	0	15	0	7	6	4	4	2	2	2	4	0
.255	82	8.5	1.97	0.24	1st	24	2	4	0	0	21	3	8	1	4	4	5	0	3	6	0
.259	86	7.3	3.34	0.38	15th	27	4	2	0	5	15	8	7	3	3	5	3	2	4	4	0
.244	81	7.2	2.91	0.46	22nd	26	3	4	2	7	18	0	0	5	4	1	1	6	6	5	3
.247	78	5.8	3.84	0.86	9th	23	2	4	0	6	7	5	5	2	3	3	6	3	2	7	0
.245	74	5.8	2.51	0.64	1st	24	1	4	2	5	7	0	3	1	3	4	3	2	10	5	0
.252	78	6.9	2.14	0.30	20th	22	1	1	2	2	9	0	5	2	4	1	5	5	6	2	1
.253	79	5.5	2.46	0.42	20th	19	0	1	0	9	10	0	4	3	2	0	8	2	7	5	0
.295	90	3.8	1.50	0.23	23rd	18	1	0	3	11	1	0	2	2	2	4	4	4	7	6	0
.280	83	5.8	2.93	0.53	22nd	22	0	3	2	4	5	0	3	2	1	3	4	5	7	5	1
.281	81	5.8	3.23	0.79	4th	17	1	2	3	9	11	0	5	3	1	0	6	6	8	1	1
.263	80	6.3	1.87	0.30	23rd	20	1	3	3	1	8	29	2	2	1	4	5	3	8	6	0
.265	80	6.3	2.36	0.43	16th	18	0	4	2	8	11	0	2	3	0	0	6	7	9	3	1
.268	76	5.2	2.27	0.41	21st	17	0	3	3	8	6	0	1	3	1	1	6	5	8	5	1
.306	86	5.9	2.04	0.40	20th	18	0	1	0	5	4	1	4	2	2	1	2	5	11	4	0
.308	87	5.6	3.03	0.75	21st	17	0	1	3	6	3	7	1	3	2	2	1	7	12	3	0
.271	84	6.9	1.79	0.30	1st, 20th	19	0	4	3	6	14	1	3	4	4	2	6	2	4	4	2
.228	83	5.6	4.65	0.49	1st	26	6	3	0	8	10	0	4	4	2	2	6	4	8	1	0
.257	85	6.5	1.69	0.62	20th	16	0	0	0	3	10	0	5	5	1	6	3	4	4	3	0
.239	70	6.0	1.32	0.20	20th	19	0	3	1	4	6	0	2	2	3	6	3	2	9	4	0
.280	84	6.4	1.68	0.91	20th	16	0	0	0	3	8	5	2	2	1	1	7	7	6	5	0
.262	82	6.7	2.87	0.67	6th	18	0	1	0	3	8	3	3	3	2	3	4	3	7	6	0
.305	88	6.4	1.67	0.56	21st	24	0	1	1	3	7	1	2	2	1	2	2	8	10	4	0
.263	85	6.3	1.41	0.18	29th	21	0	2	0	4	7	2	5	5	2	1	5	4	5	4	0
.279	86	5.2	2.19	0.47	23rd	20	0	0	0	6	7	1	1	3	4	2	4	4	9	4	0
.261	82	6.8	2.75	0.46	22nd	26	0	5	0	4	6	8	3	2	4	3	3	3	6	6	1
.298	91	4.2	3.20	0.49	12th	29	0	0	0	17	4	1	3	5	3	1	2	3	5	9	0
.269	83	6.5	1.84	0.37	23rd	19	0	2	2	6	14	0	3	2	2	2	6	5	8	2	1
.296	81	6.9	3.80	0.62	27th	25	0	0	0	1	9	3	2	2	4	3	1	4	6	8	1
.278	80	5.1	2.46	0.45	19th	26	0	3	2	9	6	2	5	2	0	4	1	6	6	7	0
.295	81	7.8	2.60	0.60	21st	20	0	2	0	0	10	2	3	2	1	1		4	6	8	0
.313	88	6.3	1.96	0.42	3rd	15	0	1	0	5	12	3	1	1	2	1	5	6	9	6	0

barometric readings are not corrected for altitude.

TABLE X.

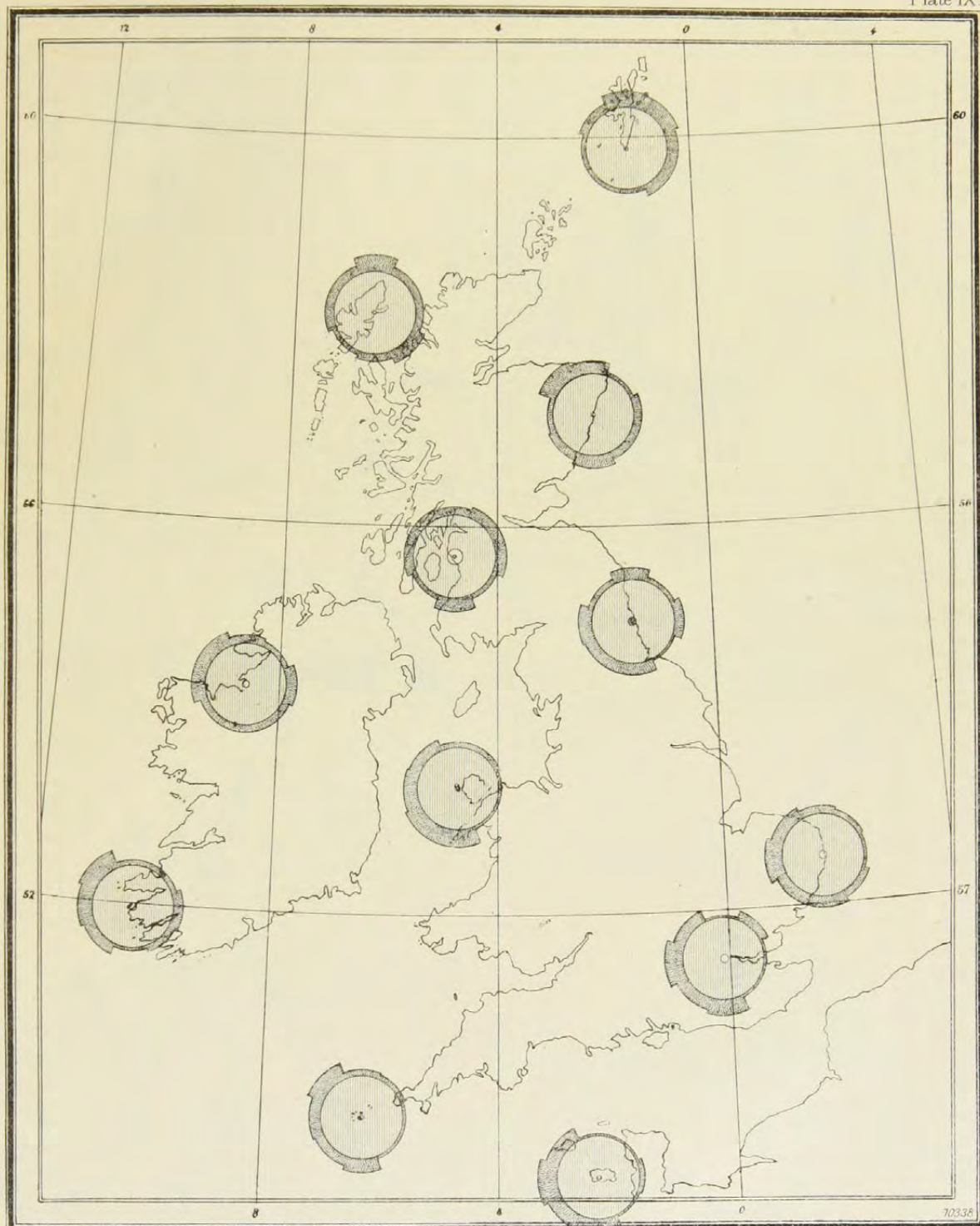
OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of May 1885.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY -	*	*	*	*	*	*	*	*	*	*	*	151	30
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	165	33
ALNWICK CASTLE -	39'4	51'3	45'4	32	7th	67	28th	25	4'23	0'77	3rd	—	—
SCARBOROUGH -	44'2	52'8	48'5	38	10th	72	28th	19	1'91	0'44	3rd	—	—
YORK -	*	*	*	*	*	*	*	*	*	*	*	161	33
HILLINGTON -	39'1	56'6	47'9	29	8th, 12th	75	28th	21	2'92	0'63	5th	186	38
GELDESTON -	40'2	56'1	48'2	31	8th, 15th	74	28th	19	2'87	0'46	6th, 22nd	195	40
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	190	39
ROTHAMSTED -	39'7	56'6	48'2	31	12th	68	28th	22	2'88	0'51	21st	—	—
BAWTRY -	39'2	57'5	48'4	29	12th	75	28th	18	1'77	0'30	3rd	—	—
LEICESTER -	40'2	57'4	48'8	32	7th, 8th	72	28th	20	2'49	0'55	21st	166	34
CHEADLE -	38'4	53'3	45'9	31	7th, 8th	66	28th	22	2'02	0'28	21st, 22nd, 23rd	—	—
CHURCHSTOKE -	38'3	53'7	46'0	28	12th	62	28th	19	2'53	0'32	17th	174	36
HEREFORD -	39'1	57'8	48'5	29	12th	65	28th	22	2'19	0'41	5th	—	—
CIRENCESTER -	38'6	54'9	46'8	28	8th	65	28th	22	2'32	0'44	21st	180	37
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	178	37
LONDON -	*	*	*	*	*	*	*	*	*	*	*	183	38
MARLBOROUGH -	39'8	56'4	48'1	29	12th	65	28th	22	2'95	0'70	21st	173	36
STRATHFIELD TURGISS -	39'4	59'6	49'5	30	12th	68	27th, 28th	18	2'45	0'55	21st	—	—
HASTINGS -	44'6	54'7	49'7	35	8th	64	28th	18	2'17	0'37	21st	213	45
SOUTHAMPTON -	42'4	58'0	50'2	33	8th	66	28th	20	3'81	0'75	21st	187	39
LAUDALE -	40'0	51'5	45'8	31	6th	60	26th	27	4'41	0'95	21st	—	—
GLASGOW -	39'7	52'9	46'3	32	7th, 8th	61	28th	21	3'32	0'83	1st	122	24
SILLOTH -	40'0	54'7	47'4	30	7th	64	28th	20	1'71	0'49	1st	149	30
DOUGLAS -	40'7	53'0	46'9	33	7th, 8th, 12th	59	31st	19	2'23	0'48	23rd	200	41
NEWTON REIGNY -	37'5	52'1	44'8	28	7th	62	28th	27	2'52	0'41	1st	153	31
STONTHURST -	39'9	53'6	46'8	31	12th	64	27th	22	2'10	0'35	15th	153	31
BLACKPOOL -	40'8	53'2	47'0	29	7th	63	27th	18	1'33	0'25	20th	169	34
MANCHESTER -	39'9	53'6	46'8	31	12th	64	28th	21	2'36	0'31	23rd	—	—
LLANDUDNO -	42'7	54'4	48'6	37	7th, 12th	65	27th	11	1'08	0'26	10th	183	38
LLANDOVERY -	38'7	56'1	47'4	27	7th	64	31st	24	3'16	0'59	25th	—	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	*	216	45
ARLINGTON -	40'3	53'1	46'7	33	7th, 8th	60	26th, 27th, 31st	21	4'46	0'53	21st	—	—
CULLOMPTON -	40'0	57'0	48'5	30	8th	66	31st	23	3'17	0'88	21st	159	33
FALMOUTH -	*	*	*	Records incomplete				20	2'35	0'65	21st	187	40
PLYMOUTH -	43'5	56'8	50'2	34	8th	63	31st	25	3'55	1'05	21st	162	34
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	245	52
LONDONDERRY -	40'4	54'9	47'7	34	6th	65	27th	24	3'68	0'36	5th	—	—
MARKREE CASTLE -	38'3	53'0	45'7	27	12th	61	25th, 27th	26	2'70	0'41	12th	195	40
BROOKEBOROUGH -	38'2	53'6	45'9	28	7th	63	27th	18	2'25	0'32	22nd	—	—
ARMAGH -	39'0	54'7	46'9	29	7th	62	28th	21	1'62	0'21	29th	157	32
EDGEWORTHSTOWN -	38'6	55'1	46'9	29	7th, 8th	65	31st	15	1'77	0'27	22nd	—	—
DUBLIN -	41'9	55'4	48'7	33	7th	65	28th	23	2'53	0'49	19th	187	38
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	170	35
KILKENNY CASTLE -	39'6	54'5	47'1	29	8th	61	31st	17	1'90	0'50	19th	—	—
WATERFORD -	39'9	55'6	47'8	31	8th	63	31st	24	2'85	0'63	19th	—	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	206	43
KILLARNEY -	40'2	54'3	47'3	28	7th	61	27th, 31st	25	3'07	0'65	27th	—	—
FOYNES -	43'0	54'1	48'6	35	7th	64	28th	24	2'23	0'24	12th	—	—

* For information see Table IX.

MONTHLY WIND CHART FOR MAY 1885.

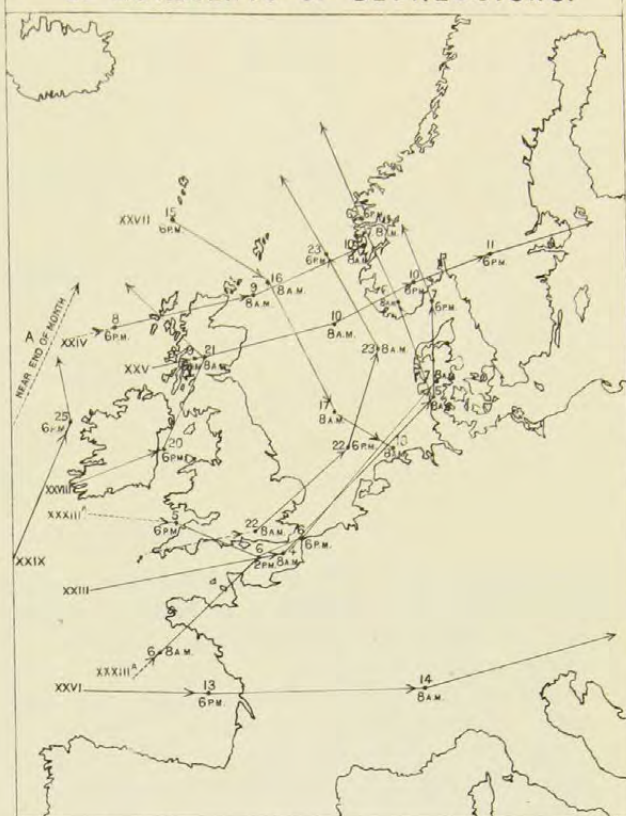
Plate IX.



To face p. 58.

DUNDEEFIELD LITH 22 BEDFORD ST COVENT GARDEN

2. MOVEMENTS OF DEPRESSIONS.



4. RAINFALL



MONTHLY WEATHER REPORT.

JUNE 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE distribution of pressure in June was mainly anticyclonic, and the type of gradient very often favourable for Northerly and North-easterly winds over England, the North Sea, and the Channel. Winds from these quarters were consequently very prevalent in the regions named, but Westerly breezes prevailed in the north. Temperature has consequently been low for the time of year, the air very dry, and the rainfall defective. There have been, however, four brief periods in which temperature has been somewhat high. The first of these culminated on the 4th, the second on the 12th or 13th, the third on the 24th, and the fourth on the 27th. In the intervals between these periods the thermometer was often very low for the time of year. Frost was of frequent occurrence on the grass in some of the inland districts, and was registered on one occasion (about the 25th) even by the sheltered thermometers, over the north of Ireland. The amount of bright sunshine has been considerable over our southern counties, but slight in the north.

June 1-4.—The month opened with anticyclonic conditions, in which the distribution of pressure changed slowly from a north-westerly to a south-westerly and southerly type, the gradients being very slight and the weather fine. These conditions were produced by the gradual advance eastwards of a well-formed anticyclone, the central area of which travelled over France and the southern counties of England. Temperature increased from day to day, the maxima observed over England rising from between 63° and 66° on the 1st, to between 80° and 85° on the 4th, after which time clouds increased, and a marked change of weather set in.

June 5-8.—The systems of pressure during this period were mainly cyclonic, but the distribution was very complex and variable. The winds, which at first were Southerly and Westerly, soon became very variable both in direction and force. Temperature fell rapidly, the maxima recorded over England on the 6th being from 15° to 20° lower than those on the 4th; the weather was showery, thundery, and variable, and the sea at times rough. By the 8th a long "trough" of low pressure lay from west to east over Ireland, England, and the north of France, and in this a local depression (No. XXXI.*) was developed, which travelled in a north-easterly direction, and grew much deeper by the time it reached the Gulf of Finland. Its distance from us at this time, however (10th), was too great for its influence to be felt much on our coasts, though its cold Northerly winds blew strongly for a time in the north-east of Scotland and on the eastern shores of the North Sea.

* See Section II. and Map 2, Plate XII., for the history and tracks of depressions.

June 9-15.—The dominant weather system during this time was anticyclonic, and the type of gradient over our Islands northerly to westerly, while that over France was northerly to easterly. Temperature, though it had a great range diurnally, and the daily maxima were on one occasion, at least, as high as 80° to 84° over the central and south-eastern parts of England, was, on the whole, low for the time of year, the nights being especially cold. The daily minima in the screen were as low as 34° to 40° early on the 10th and 11th, and frost occurred on the grass at several inland stations. The wind was at first Northerly, and blew rather strongly on our northern and eastern coasts, but afterwards lulled and backed to West, and the thermometer rose again. No depression of importance came within our area during this time excepting No. XXXI., to which reference has already been made. On the 12th and 13th the anticyclone assumed the form of a band (or "crest") of high pressure—stretching from west to east over the southern parts of our Islands, the Netherlands, and the north-east of France. It was during these days (when the wind drew into West and South-west) that the maxima for the month were recorded in most places, but on the 14th, as the highest pressures moved westwards and the wind drew Northerly, the temperature again fell decidedly.

June 16-17.—The weather during these days was of a mixed kind. The anticyclone began to break up, shallow local depressions appeared, some rain fell, and thunderstorms occurred in many places. On the 16th a shallow depression (No. XXXII.*) began to show itself over the Bay of Biscay, and, passing north-eastwards was found over France at 8 a.m. on the 17th (see the charts in the Daily and Weekly Reports for this time). This brought about a temporary spell of Easterly winds, with rain and thunder over our south-eastern counties, but as it passed off, the barometer rose, and the distribution of pressure over our area changed very materially.

June 18-23.—During this interval the barometer was continuously highest over the southern, and lowest over the northern parts of our area, the gradients being moderate in the south, but at times rather steep in the north. During its continuance the winds varied between South-west and North-west in direction, veering and backing between these points as some well-marked depressions (Nos. XXXIII.* and XXXIII.A.*) passed by our northern coasts from the westward. Cold showers fell in most places, with the South-westerly winds chiefly in the west and north, but the North-westerly breezes were very dry, and over the southern parts of England they soon removed from the ground all traces of the rain which fell in the showers. Temperature was very low, especially on the 20th and 21st, when the daily maxima over England did not exceed 60° . Towards the end of the period, however, there was some tendency to an improvement, as the wind backed to the Southward, and the thermometer began to rise.

June 24th.—The weather on this date was remarkable. Pressure had become highest to the eastward of the North Sea, but a second high-pressure area appeared off our western coasts, being separated from that in the east by a broad band of low pressure, which lay from north to south over our Islands, and contained one very shallow minimum (see Daily and Weekly Reports). To the eastward of the centre of this band the winds were Southerly, the weather was bright and fine, and the temperature comparatively high, the daily maxima being as high as 80° to 82° over our eastern counties. To the westward, however, the conditions were the reverse; the winds were Northerly, the temperature low, and rain fell at times. Very gradually the western anticyclone gained ground, and the colder Northerly breezes spread all over the kingdom, but little rain fell over England.

June 25th-30th.—Throughout this period the dominant system was anticyclonic, and the type of gradient mainly northerly (north-west to north-east). Temperature, after falling

* See Section II. and Map 2, Plate XII., for the history and tracks of depressions.

decidedly when the Northerly wind first set in, soon began to rise again, and as the anti-cyclone moved eastwards and the wind lulled, the sky cleared and the thermometer rose, until on the 27th the highest readings recorded ranged from 70° to 75° at the English stations. The anticyclone then receded a little to the westward, and the cold Northerly current of wind was restored. The thermometer straightway fell decidedly, and the month closed with cold, dry, Northerly breezes and fair weather, and with the daily maximum temperatures all below 70°.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—JUNE, 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXX. June 4-5.	No. XXXI. June 8-10.	No. XXXII. June 17.
Form - - - -	Uncertain; apparently somewhat oval	Irregular oval - - - -	Nearly oval - - - -
Size - - - -	Large - - - -	Very small at first, but subsequently becoming large.	Large - - - -
Depth - - - -	Uncertain; apparently moderate	Very shallow, to moderate - -	Very shallow - - - -
Where first Observed - -	Off the north-west coast of Ireland	Over the Channel, near Boulogne	Over France - - - -
Direction of Motion - -	North-easterly - - - -	North-easterly - - - -	Easterly - - - -
Rate of Motion - - - -	Moderate - - - -	Moderate - - - -	Moderate - - - -
Regions passed over by Steepest Gradients.	Western and north-western parts of Ireland and Scotland.	North Sea, Denmark, and south of Scandinavia. Gradients never very steep.	The Channel, the south of our Islands, and Holland. Gradients never steep.
Termination - - - -	Travelled away to the northward	Travelled away over Finland - -	Travelled away over Germany -
Time under Observation -	About one day - - - -	About 48 hours - - - -	About one day - - - -
Accompanying Winds - -	Southerly and South-westerly, strong to a gale in the north-west and north.	North-westerly and Northerly in our Islands; moderate to a gale in the north; strong North-westerly gales on eastern shores of the North Sea.	Easterly over our southern counties and the Channel: South-westerly and Westerly over France.
" Weather - - - -	Showery in west and north, with some thunder; fair over England, and warm.	Some cold showers at our northern stations; much rain to the eastward of the North Sea, thunderstorms over England and north-east of France.	Rather rainy; thunderstorms at several southern stations. Very heavy rain with thunder in Paris.
" Rainfall - - - -	Slight, except in extreme west of Ireland and the Shetlands.	Very heavy in south-east and south, slight in west and north.	Slight in our Islands - - - -
REMARKS - - - -	This depression advanced to our north-west coasts as the anticyclone No. XVIII. was settling down over south-eastern Europe. Its distance from us was too great for its track to be very accurately drawn on Map 2, Plate XII.	This depression was formed near Boulogne at the same time that a shallow local system was lying at the mouth of St. George's Channel, and which soon dispersed. (See Weekly Report, pp. 91 and 94.) Its progress north-eastwards (while pressure was highest in the west and north-west) is peculiar.	This disturbance, though shallow, advanced as the anticyclone, No. XX, was breaking up, and produced very thundery weather in the south.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—JUNE, 1885.

No. XXXIII. June 18-19.	No. XXXIIIa. June 19-21.	No. XXXIV. June 24.
Uncertain; apparently nearly circular - - -	Uncertain at first; central area nearly circular later on.	About circular.
Large - - - - -	Small - - - - -	Small.
Moderate - - - - -	Shallow - - - - -	Very shallow.
To the north-westward of our Islands - - -	Off the west of Scotland - - -	Over the Channel.
North-easterly - - - - -	Easterly and north-easterly - - -	Easterly.
Moderate - - - - -	Moderate - - - - -	Moderate to rapid.
The western and northern parts of our Islands, and the North Sea.	The northern parts of our Islands - - -	The south of our Islands. Gradients very slight.
Travelled north-eastwards along the Norwegian coast.	Finally travelled away to the north-eastward -	Travelled away over north Germany, and grew larger, but not deeper.
About one day - - - - -	Two days - - - - -	One day.
Southerly to Westerly, strong to a gale in the north-west; moderate to fresh elsewhere.	Westerly to North-westerly winds, strong; a gale in the north and north-east.	Complete cyclonic circulation of moderate force, followed by Northerly winds.
Gusty and showery - - - - -	Squally, showery, and cold - - -	Changeable, rainy; thunder at Biarritz. North-erly wind very cold.
General, but heavy only in the extreme north -	General, but not heavy - - -	Heavy on our north-east coasts. None in Ireland.
This depression advanced when pressure was highest over the Bay of Biscay and France, and lowest to the northward of our Islands, and developed a "hollow" over the North Sea as it passed by the north-west coast of Scotland.	This disturbance was apparently subsidiary to No. XXXIII., but caused the gradients to become somewhat steep over the whole of our Islands and the north of France, so that the strong winds spread to all our coasts.	This depression was formed at the mouth of St. George's Channel between two anticyclones, one in the east, the other in the west. The former gave way as the depression approached, while the latter spread over us and extended northwards. (See anticyclonic system No. XXII., page 63, and the Daily and Weekly Reports for June 24-27.)

SECTION II.—*continued* - - - - -

TABLE OF ANTICYCLONIC SYSTEMS—JUNE 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XVIII. June 1-23.	No. XIX. June 6-7.
Form - - - - -	Varying greatly; somewhat oval - - - - -	Irregular and changing - - - - -
Size - - - - -	Large - - - - -	Small - - - - -
Height - - - - -	Small. Maximum readings 30·3 inches and upwards.	Very small. Maximum readings very little above 30 inches.
Where first Observed - - - - -	Off our western coasts - - - - -	Over the British Isles - - - - -
Direction of Motion - - - - -	Eastwards and south-eastwards - - - - -	North-easterly and northerly - - - - -
Rate of Motion - - - - -	Moderate - - - - -	Rapid - - - - -
Regions passed over - - - - -	Ireland, England, the Bay of Biscay, and France	North Sea and west of Norway - - - - -
Termination - - - - -	Travelled away to south-eastern Europe and developed into a very large system there.	Passed away to the northward, growing larger in its journey.
Accompanying Wind - - - - -	Very light; backing round from North-west to West and South.	South-easterly and Easterly on our eastern coasts; North-westerly in south of Norway and North-easterly over Denmark and Holland.
,, Weather - - - - -	Fine and dry and warm over England; some rain in Ireland and Scotland owing to a small depression which appeared in the north-west on the 2nd.	Fine and bright - - - - -
REMARKS - - - - -	This system brought with it the first really warm weather experienced since April 17-21 (see page 43). The heat was greatest over England on the 4th, when the Southerly winds on its western side prevailed over us.	This system was developed in a ridge which extended north-westwards from a large high-pressure, the centre of which lay over Germany and the east of France at 8 a.m. on the 6th.

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—JUNE 1885.

No. XX. June 9-16.	No. XXI. June 21-23.	No. XXII. June 24-30.
Varying constantly - - - - -	Nearly circular at first, then elongated - - -	Varying constantly.
Large - - - - -	Small - - - - -	Large.
Moderate. Maximum readings 30'4 and upwards (on 11th).	Moderate. Maximum readings 30'3 inches and upwards on 22nd.	Moderate. Maximum readings 30'3 inches and upwards on 26th and 27th.
Off the west of Ireland - - - - -	Over the Bay of Biscay - - - - -	Off our western coasts.
Very variable - - - - -	Easterly till 8 a.m. 22nd, then north-easterly -	North-easterly and easterly at first, then variable; finally receded to Atlantic again.
Slow - - - - -	Moderate - - - - -	Very slow.
British Islands and their neighbourhood - -	Bay of Biscay and France - - - - -	British Islands.
Dispersed over the North Sea - - - - -	Passed away to northern Russia - - - - -	Returned to westward.
Light and varying greatly - - - - -	South-westerly over our Islands, variable in France.	Varying. Chiefly Northerly.
Fine and bright generally; occasionally warm. No rain except in extreme north-west.	Fine and bright - - - - -	Dry until 28th, when rain fell in north and north-east, as the system moved westward. Great changes of temperature.
This system advanced immediately the cyclone No. XXXI. passed off, and was of a very persistent kind. It gradually decreased in height after the 11th, and just before it dispersed its highest readings were but little above 30 inches.	This system advanced immediately in the rear of the "hollow" caused by cyclone No. XXXIIA., but soon passed away from our area. As it did so a large depression passed north-eastward outside our north-western coasts, producing rain and strong southerly winds in the west and north (see Daily and Weekly Reports for 22nd), but at too great a distance for its characteristics to be tabulated in the Table of Cyclonic Systems, page 63.	The movements of this system were very singular, and the appearance of a shallow depression over France on the 29th and of another over the eastern shores of the North Sea on the 30th caused great complications in the weather over the Continent and at our eastern stations.

SECTION III.

REMARKS FOR JUNE 1885.

(Tables XI. and XII. with Plates XI. and XII.)

Pressure.—The mean pressure for the month, at 8 a.m., varied from 30·08 inches at Valencia and a little above 30·05 inches over the west of England, to 29·94 inches in the north of Scotland, and to 29·89 inches at Sumburgh Head. The mean gradients were exceedingly slight and irregular over the greater part of England and Ireland, but were rather more decided, and favourable for Westerly winds, at the Scotch stations. The pressure of June was higher than that of May by 0·20 inch at Sumburgh Head, by 0·25 inch over central Scotland and the east of England, and by nearly 0·30 inch over the south-west of Ireland; but when compared with the mean distribution for the 20 years 1861-80, it appears that while there was an excess this year of about 0·10 inch over Ireland, and about 0·04 inch to 0·08 inch over England, the two sets of values for the north of Scotland are almost identical. The highest readings seem to have been recorded on the 11th over England (during the prevalence of anticyclone No. XX.), but on the 26th in Ireland and Scotland, as the anticyclonic system No. XXII. was advancing over us from the westward. The lowest readings, however, occurred very generally on the 20th, at which time the cyclonic system No. XXIII.A., passed over Scotland, and the barometer fell to slightly below 29 inches at several of the northern stations. The range was moderate in the north (where it amounted to nearly 1·5 ins.), but was very much smaller in the south.

Movements of Depressions.—The depressions which passed over our area during June were as a rule comparatively slight systems, and moved more or less in a north-easterly direction. The tracks of three of them lay to the northward of the United Kingdom, while the other three passed over the Channel and north of France, two of them disappearing over Germany, while the other (which was formed near Boulogne on the morning of the 8th) travelled north-eastwards to Finland and grew much deeper in its journey. The systems XXXIII. and XXXIII.A. produced very strong winds on all our coasts, and No. XXXI. caused gales of great force over the North Sea.

Anticyclones.—These prevailed during a large portion of the month. They were as a rule large, and their movements were often so slight and irregular that they remained within our area for many days together. The gradual receding to the westward of No. XXII. (towards the end of the month), after it had in the first instance advanced over our Islands from the Atlantic, is worthy of note, especially in connexion with the decided changes of temperature which took place (1) as the Northerly wind gave way to Westerly breezes during the advance of the system, and (2) as the anticyclone passed westwards again, and the Northerly wind was re-established.

Winds.—These were chiefly Westerly over Scotland, but very variable over the more southern parts of our Islands, where North-easterly and South-westerly winds alternately prevailed as the centres of the anticyclonic systems lay over the northern or southern parts of our area. In force the winds were, as a rule, light to moderate. Gales were very rarely experienced, the few that were recorded being of moderate force—South-westerly on our extreme north-western coasts and North-westerly in the east.

Temperature.—The mean (sea-level) temperature of the month varied from a little above 60° over several parts of our southern and south midland counties, and from rather above 56° over the eastern parts of Ireland, to 51° in the north of Scotland, 50° at Stornoway, and 48° at Sumburgh Head—indicating an increase in one month of 10° or 11° over the southern parts of England, of 6° to 8° over Scotland, and of about 8° over Ireland. And yet when compared with the average distribution for the 20 years 1861-80, these values

show a deficit of about one degree over Great Britain, and of three or four degrees in Ireland—a result which appears to be mainly due to the large prevalence of winds from the Northward and North-eastward. There is, however, a marked difference between the isotherms on Map 3, Plate XII. and the corresponding map for May (on Plate X.), the summer type of temperature-distribution having now become fully developed in all parts of the kingdom. The lowest readings were recorded in most places between the 10th and 12th, when the anticyclonic system No. XX. was advancing over our Islands from the Atlantic, while the highest were registered, in the northern half of England on the 4th, in the east of Scotland and north-east of Ireland on the 12th, in the south of England on the 14th, and over the greater part of Ireland on the 28th or 29th. The range was considerable, more especially at the inland stations, the greatest being 51° at Bawtry, and from 40° to 47° in many other places.

Vapour Tension varied irregularly but not greatly, the mean values ranging from between 0.38 in. and 0.41 in. at the Channel stations, and 0.37 in. at Valencia and Yarmouth, to about 0.31 in. at Hawes Junction, Nairn, and Stornoway. In the north-west of Ireland the values were all about 0.33 in. *Relative Humidity* was highest (between 80 and 85 per cent. of complete saturation) at the mouth of the Channel and on the extreme northern and north-western coasts of Great Britain, and lowest (71 to 75 per cent.) over the home counties and the eastern parts of Scotland.

Rainfall varied from little more than half an inch over the east of Norfolk and at Roche's Point, and from very little more than this amount over the north of Ireland and south of Scotland to upwards of 3 inches at Cheadle, Churchstoke, Newton Reigny, and Laudale. The total fall was much below the average for June, except over some parts of our north-western and north midland counties, where it was slightly in excess. The largest falls occurred in these districts between the 6th and 8th. The total number of "days with rain" was small—varying from between 7 and 10 over our north-eastern, eastern, and southern counties and the southern half of Ireland, to 20 at Sumburgh Head, and to 24 at Stornoway.

Bright Sunshine.—Assuming the total amount of bright sunshine which could possibly have been registered at each station during the month to be represented by 100, the amounts actually recorded were 55 at Hastings, 51 at Geldeston, 48 at Pembroke and Cambridge, 47 at Oxford, and between 40 and 45 at the southern and south-western stations generally and the Isle of Man. In the more northern districts they were smaller, the lowest values of all being 30 at Stornoway and 29 at Glasgow.

TABLE XI. -

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the Numbers of Days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head - - -	ins. 29°888	48°6	42°9	52°7	47°8	35	11th	50	5th, 13th, 14th, 24th, 27th
	Wick - - -	29°937	53°1	43°8	58°3	51°1	35	26th	65	27th
	Stornoway - - -	29°939	50°8	44°2	56°2	50°2	36	10th	68	27th
1. SCOTLAND	Nairn - - -	29°963	55°0	46°9	61°4	54°2	39	7th, 17th	75	27th
	Aberdeen - - -	29°976	54°9	46°0	62°6	54°3	35	9th	77	12th
	Leith - - -	29°996	55°4	48°5	63°5	56°0	38	9th	74	12th
2. ENGLAND, N.E.	Shields - - -	30°013	55°4	47°8	60°9	54°4	41	10th, 27th	75	12th
	York - - -	30°040	55°7	47°9	66°0	57°0	38	27th	81	4th
	Spurn Head - - -	30°024	55°4	50°4	61°4	55°9	46	11th	80	4th
3. ENGLAND, E.	Yarmouth - - -	30°034	56°8	51°2	62°8	57°0	44	11th	79	5th
	Cambridge - - -	30°041	58°6	47°9	69°2	58°6	38	18th	85	4th
4. MIDLAND COUNTIES	Loughborough - - -	30°050	57°1	48°7	68°2	58°5	37	11th	84	4th
	Oxford - - -	30°052	57°6	50°1	66°6	58°4	40	11th	81	4th
5. ENGLAND, S.	London - - -	30°047	59°4	51°3	69°2	60°3	42	18th	83	4th
	Dungeness - - -	30°029	57°5	52°2	63°6	57°9	42	12th	72	14th
	Hurst Castle - - -	30°049	56°8	50°6	65°0	57°8	40	11th	75	14th
6. SCOTLAND, W.	Ardrossan - - -	30°016	53°6	47°6	59°3	53°4	38	10th	75	28th
7. ENGLAND, N.W.	Hawes Junction* - - -	28°832	52°0	43°8	59°0	51°4	37	10th	68	4th, 14th, 27th
	Barrow-in-Furness - - -	30°028	53°0	49°9	60°2	55°1	44	10th, 23rd	68	3rd
	Liverpool (Bidston) - - -	30°041	56°4	50°6	62°9	56°8	44	11th	77	3rd
	Holyhead - - -	30°056	55°1	49°9	58°8	54°4	46	10th	67	28th
8. ENGLAND, S.W.	Pembroke - - -	30°050	54°1	50°5	58°9	54°7	45	2nd, 10th	68	13th
	Prawle Point - - -	30°055	56°6	50°6	61°2	55°9	45	11th, 12th	72	14th
9. IRELAND, N.	Malin Head - - -	30°023	52°0	48°5	56°9	52°7	46	10th, 21st, 23rd	64	3rd, 12th
	Donaghadee - - -	30°048	53°8	47°4	60°2	53°8	37	23rd	72	12th
	Mullaghmore - - -	30°045	54°0	50°6	59°3	55°0	45	24th	66	28th
	Behmullet - - -	30°032	54°0	49°0	57°2	53°1	42	6th	66	27th, 28th
10. IRELAND, S.	Parsonstown - - -	30°069	54°4	45°9	63°7	54°8	37	10th	71	3rd, 11th, 28th
	Valencia - - -	30°084	56°2	49°2	61°0	55°1	41	6th	68	28th
	Roche's Point - - -	30°065	55°5	48°7	62°8	55°8	45	10th	68	28th, 29th
CHANNEL ISLANDS	Scilly (St. Mary's) - - -	30°049	56°4	51°7	59°0	55°4	47	1st	66	13th
	Jersey (Noirmont) - - -	30°036	57°8	53°0	65°0	59°0	48	2nd, 11th, 12th, 22nd.	79	14th

* Hawes Junction is 1,135 feet above Mean Sea Level and the

TABLE XI.

REPORTING STATIONS in the BRITISH ISLANDS, during the Month of June 1885.

Thunderstorms, and Gales are counted irrespective of the hours at which they occurred.

beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	%		ins.	ins.																	
0.282	83	6.7	2.19	0.43	18th	20	0	0	0	6	11	0	2	2	0	1	5	4	12	4	0
*334	82	7.2	1.76	0.26	19th	18	0	2	0	2	13	3	1	0	1	1	11	2	1	11	2
*306	82	7.4	3.87	0.38	18th	24	0	2	0	4	15	4	2	0	1	2	7	3	9	5	1
*306	76	5.9	1.17	0.19	18th, 19th	16	0	0	0	8	10	2	1	0	1	0	0	5	11	5	7
*312	72	7.1	1.07	0.39	18th	10	0	0	0	3	12	3	5	0	0	1	4	5	5	6	4
*327	74	6.4	0.46	0.12	24th, 28th	9	0	0	0	6	12	1	3	0	3	2	0	1	13	6	2
*340	78	7.0	1.27	0.71	24th	7	0	0	0	5	14	0	5	5	2	0	3	9	4	1	1
*338	76	6.1	2.48	0.56	23rd	9	0	0	0	10	13	0	8	3	2	2	4	2	6	3	0
*382	87	4.4	1.16	0.30	8th	14	0	0	0	9	4	3	9	3	2	3	3	4	2	3	1
*372	80	4.5	0.76	0.26	8th	10	0	0	0	13	4	2	7	4	1	3	1	3	4	4	3
*382	78	4.9	2.47	1.41	8th	10	0	0	0	14	11	?	9	4	1	1	5	5	3	1	1
*360	76	7.0	3.00	0.80	7th	9	0	0	0	3	13	26	4	5	2	1	2	4	5	5	2
*359	76	5.3	1.55	0.40	8th	12	0	0	0	11	10	0	3	7	3	0	4	7	2	2	2
*358	71	5.3	2.00	1.04	8th	10	0	0	0	11	11	0	2	5	5	2	3	7	3	2	1
*399	84	4.4	1.12	0.55	7th	8	0	0	0	13	6	3	5	5	7	1	2	4	3	2	1
*411	89	4.4	2.15	0.83	16th	12	0	0	0	11	3	1	1	11	6	0	1	4	5	2	0
*344	83	6.5	0.91	0.18	18th	13	0	0	0	10	18	1	0	3	1	0	8	3	8	6	1
*303	78	4.2	3.35	0.82	18th	11	0	0	0	13	7	0	4	6	2	0	4	4	7	3	0
*340	84	5.5	1.07	0.19	18th, 24th	11	0	0	0	8	8	2	4	6	1	6	0	6	0	7	0
*319	70	5.7	2.02	0.78	7th	9	0	0	1	8	11	0	4	2	4	6	3	1	5	4	1
*366	84	5.5	1.42	0.36	7th	11	0	0	0	8	7	1	7	2	3	1	4	6	2	5	0
*338	80	5.6	1.39	0.34	6th	11	0	0	0	10	11	2	8	4	5	1	3	3	2	2	2
*383	83	5.3	1.73	0.35	6th	12	0	0	0	13	14	1	2	11	3	1	2	4	2	1	4
*333	85	6.4	0.65	0.17	3rd	15	0	0	0	5	9	1	6	1	2	0	4	6	5	6	0
*366	88	5.7	0.49	0.17	23rd	10	0	0	0	6	8	1	5	9	4	1	1	3	6	1	0
*324	78	7.4	0.92	0.25	18th	13	0	0	0	1	9	3	4	3	2	1	2	9	4	4	1
*332	79	5.3	1.45	0.40	4th	14	0	0	0	9	9	?	4	3	2	1	8	9	1	2	0
*338	80	6.1	1.19	0.34	7th	8	0	0	0	8	13	0	4	4	0	1	2	3	3	4	9
*370	82	7.4	1.46	0.37	4th	12	0	0	0	1	14	1	7	7	0	3	3	4	3	3	0
*350	79	6.1	0.51	0.20	7th	7	0	0	0	7	10	1	11	3	4	2	3	3	2	2	0
*385	85	6.7	1.30	0.72	23rd	10	0	0	0	6	14	3	6	7	6	1	5	1	2	2	0
*401	83	6.1	1.12	0.61	16th	12	0	0	5	9	15	2	1	11	4	3	2	2	3	2	2

Barometric readings at this station are not reduced for altitude.

TABLE XII.

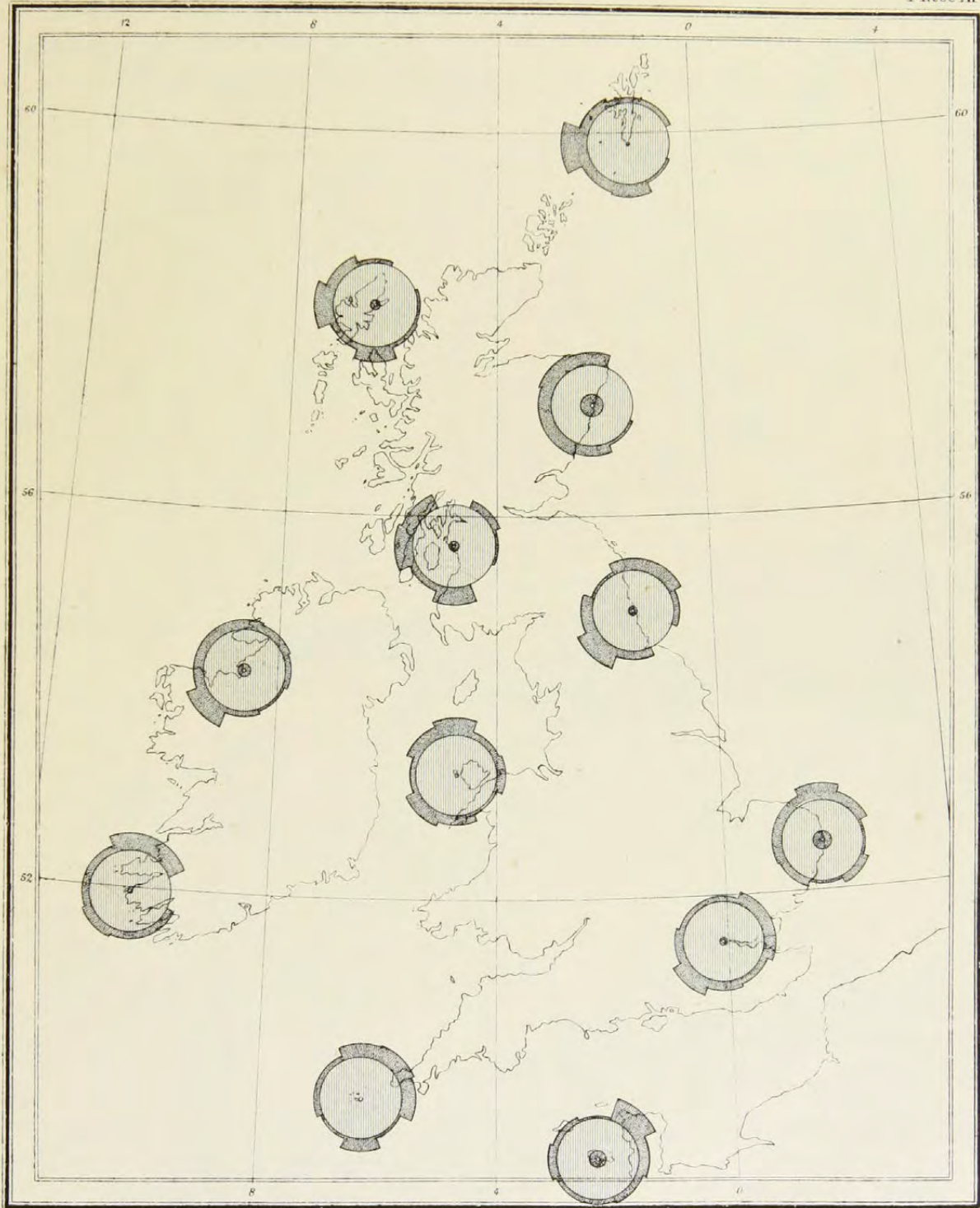
OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT, during the Month of June 1885.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STERNOWAY -	0	0	0	0		0		*	*	*	*	160	30
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	197	37
ALNWICK CASTLE -	47°8	60°2	54°0	38	25th	70	12th	11	0°89	0°28	24th	—	—
SCARBOROUGH -	49°6	61°5	55°6	44	11th, 27th	80	4th	14	2°84	0°72	23rd	—	—
YORK -	*	*	*	*	*	*	*	*	*	*	*	168	33
HILLINGTON -	47°6	67°8	57°7	35	11th, 18th	84	4th	11	1°72	0°67	8th	207	41
GELDESTON -	48°7	65°4	57°1	38	11th	81	4th, 5th	10	0°58	0°16	8th	249	51
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	238	48
ROTHAMSTED -	47°1	66°6	56°9	37	11th	82	4th	11	2°76	1°29	8th	—	—
BAWTRY -	47°9	68°5	58°2	35	27th	86	4th	9	2°79	0°65	6th, 8th	—	—
LEICESTER -	49°0	69°3	59°2	39	11th	85	4th	11	2°55	0°84	6th	184	37
CHEADLE -	47°2	63°8	55°5	40	27th	78	4th	12	3°54	1°11	8th	—	—
CHURCHSTOKE -	45°8	64°6	55°2	36	28th	80	4th	11	3°50	1°06	7th	203	41
HEREFORD -	48°4	68°0	58°2	40	2nd, 11th, 28th	79	4th	10	2°04	0°57	23rd	—	—
CIRENCESTER -	47°3	65°3	56°3	37	11th	78	4th	12	1°69	0°65	8th	221	45
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	230	47
LONDON -	*	*	*	*	*	*	*	*	*	*	*	215	44
MARLBOROUGH -	48°1	67°0	57°6	36	11th	84	13th	12	1°68	0°46	16th	216	44
STRATHFIELD TURGISS -	48°2	70°1	59°2	36	11th	83	4th	9	1°79	0°48	16th	—	—
HASTINGS -	52°4	65°7	59°1	44	11th	77	14th, 24th	9	1°12	0°40	8th	207	55
SOUTHAMPTON -	50°7	68°8	59°8	42	11th	81	14th	11	1°56	0°51	16th	213	44
LAUDALE -	46°9	58°8	52°9	40	25th, 26th	70	28th	19	3°41	0°55	18th	—	—
GLASGOW -	47°6	62°0	54°8	39	9th, 10th	77	28th	10	0°74	0°21	18th	152	29
SILLOTH -	46°4	64°6	55°5	36	10th	73	28th	12	1°36	0°64	18th	194	38
DOUGLAS -	45°8	60°7	53°3	37	6th	70	28th	12	1°80	0°62	7th	217	43
NEWTON REIGNY -	44°9	61°7	53°3	34	10th	71	28th	11	1°51	0°37	7th	196	38
STONHURST -	46°5	64°0	55°3	40	10th	72	3rd, 4th, 28th	12	3°94	0°85	23rd	197	39
BLACKPOOL -	47°2	61°1	54°2	37	10th	72	3rd	10	1°27	0°36	23rd	181	36
MANCHESTER -	47°8	64°4	56°1	41	2nd	79	4th	13	4°01	0°88	23rd	—	—
LLANDUDNO -	50°0	62°0	56°0	45	10th	74	3rd	8	0°95	0°32	6th	195	39
LLANDOVERY -	46°9	67°9	57°4	35	1st, 9th	80	13th	12	3°19	0°96	23rd	—	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	*	236	48
ARLINGTON -	48°6	64°0	56°3	40	1st, 10th	76	4th	11	5°18	1°45	23rd	—	—
CULLOMPTON -	48°9	67°0	58°0	40	3rd, 11th, 22nd	78	14th	11	2°43	0°62	23rd	188	39
FALMOUTH -	51°3	61°6	56°5	47	10th, 12th, 22nd	71	14th	11	2°66	1°26	23rd	205	42
PLYMOUTH -	52°0	65°6	58°8	45	22nd	76	14th	11	1°95	0°70	23rd	204	42
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	214	45
LONDONDERRY -	46°7	63°5	55°1	38	10th	72	28th	13	0°82	0°18	20th	—	—
MARKREE CASTLE -	44°4	61°1	52°8	32	25th	72	28th	9	0°53	0°12	20th	160	32
BROOKEBOROUGH -	44°1	62°4	53°3	35	6th, 10th, 23rd, 25th	69	13th, 28th	6	0°79	0°35	18th	—	—
ARMAGH -	45°1	62°6	53°9	36	10th	72	28th	13	0°60	0°11	4th, 18th, 21st	170	34
EDGEWORTHSTOWN -	45°5	63°5	54°5	36	6th	71	1st, 11th	8	0°61	0°17	4th	—	—
DUBLIN -	48°8	63°5	56°2	41	10th	73	3rd	8	1°51	0°50	7th	194	39
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	205	41
KILKENNY CASTLE -	46°3	63°2	54°8	40	10th	70	13th	9	1°47	0°73	7th	—	—
WATERFORD -	46°1	64°5	55°3	38	10th	71	28th	9	1°51	0°55	7th	—	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	220	45
KILLARNEY -	46°0	63°3	54°7	37	9th, 26th	72	28th	11	2°27	0°88	4th	—	—
FOYNES -	47°8	62°4	55°1	43	6th, 18th	71	2nd, 28th	7	1°35	0°52	7th	—	—

* For information see Table XI.

MONTHLY WIND CHART FOR JUNE 1885.

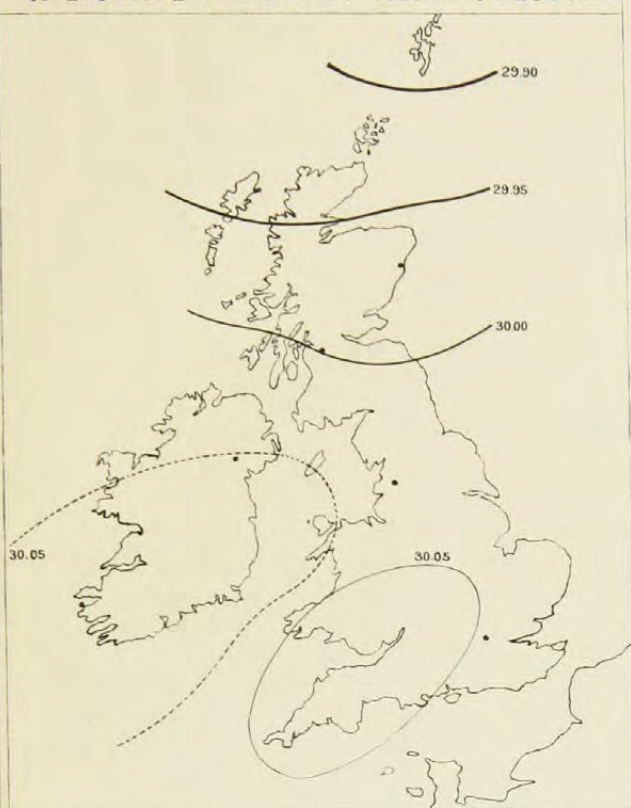
Plate XI



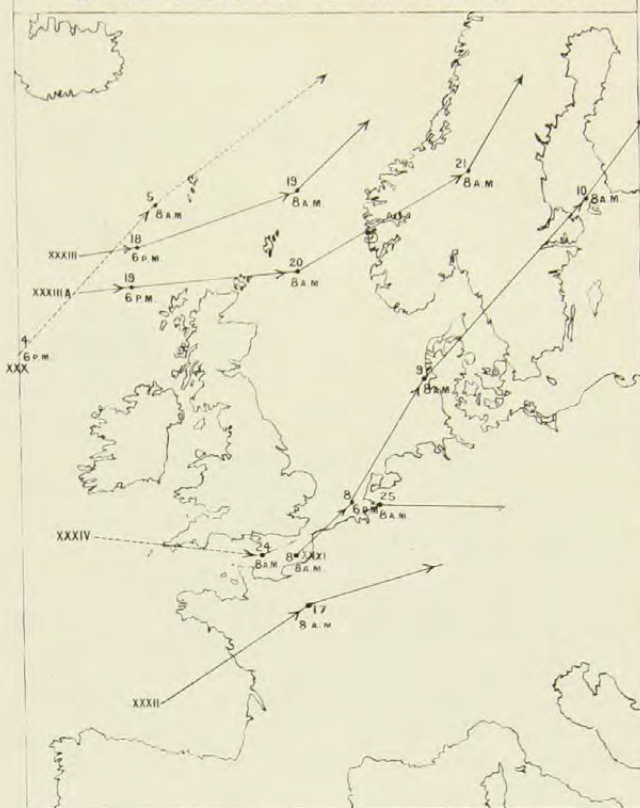
Twice per An.

DANGERFIELD LITH 22 BEDFORD ST COVENT GARDEN
10653.

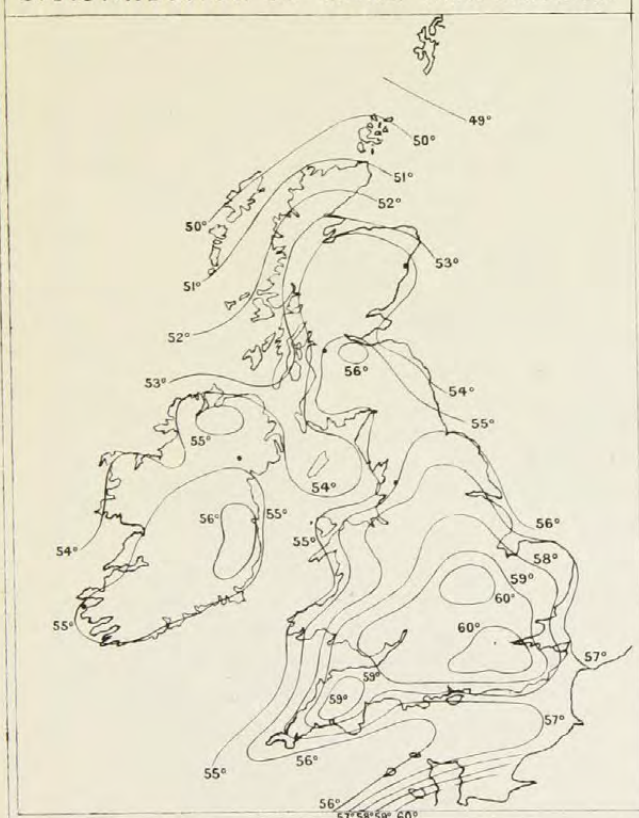
1. DISTRIBUTION OF MEAN PRESSURE



2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE



4. RAINFALL



MONTHLY WEATHER REPORT.

JULY 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of July was fine generally. Pressure was considerably above its normal value, and the changes in it were small. Anticyclonic conditions were very prevalent, while the cyclonic systems were either small and shallow, or passed by our Islands at too great a distance for their effects on pressure to be very seriously felt at any of our stations. Temperature has been about its normal value over central England and the east of Ireland, rather low elsewhere, especially in the north-west of Ireland, where the mean was about 3° below the average. There were only two days which could be termed hot, viz., the 25th and 26th, when the thermometer rose to about 90° in several parts of England, and to 91° in some places. Rainfall has been very deficient, especially over central England, where the air was dry; but Bright Sunshine was less prevalent than might have been expected with such dry weather. The brightest districts were our southern counties and the Channel Islands.

July 1-6.—During this period the dominant system of pressure distribution over our Islands was anticyclonic, in continuation of the conditions observed at the close of June; the gradients were chiefly of a north-westerly type, but became south-westerly on the 6th. The gradients were slight, and the winds, as a rule, light. These conditions were brought about by the advance of the anticyclonic systems Nos. XXIII. and XXIV., which covered the Bay of Biscay, France, and the greater part of our Islands, bringing with them dry, fair weather, and some fog, but temperatures were not high for the time of year. On one occasion (the 6th), the thermometer rose to between 79° and 81° over the southern half of England, but on the other days the maximum readings were not nearly so high, and the night temperatures were as a rule very low (37° to 39° at the inland stations on one occasion). The winds were chiefly South-westerly to Westerly at the northern stations, but North-westerly to North-easterly in the south, so that although a little rain fell almost daily in the extreme north-west and north, the air was dry elsewhere; thunder occurred locally at our southern stations on the 5th. On the 6th, pressure gave way in the west and north-west, and a well-marked depression (No. XXXV.*) advanced towards the north-west of Ireland from the Atlantic, bringing about Southerly gales and rain in those regions, with unsettled weather generally, and forcing back the anticyclonic system to the central and south-western parts of France and the southern shores of the Bay of Biscay.

July 7-11.—During this period the distribution of pressure was cyclonic over Ireland and Scotland, but chiefly anticyclonic over France, England, and the North Sea, the gradients being favourable for South-westerly winds in most places. Thus, while showery weather prevailed in the west and north, (and much rain in the extreme west on the 10th,) fair weather was experienced elsewhere, but with a good deal of cloud on some occasions, and an occasional

* See Section II., and Map 2, Plate XIV., for the history and tracks of depressions.

slight shower or two over England. Temperature was at first not high for the time of year, even over England, where the daily maxima as a rule did not exceed 75° . On the 10th and 11th, however, a change took place, and the thermometer rose to between 80° and 83° over some parts of the southern and south-eastern counties. The winds were mainly Southerly and South-westerly, and at times blew hard in the extreme west and north, while they remained light or moderate in the east and south. A singularly local fall of rain, amounting to nearly half an inch, occurred in and around London early on the 12th, the cause of which is by no means apparent.

July 12-20.—A considerable change now took place, for while the system of pressure-distribution remained chiefly anticyclonic in the south and cyclonic in the north, with moderate or slight gradients, the latter became of a more westerly, and occasionally north-westerly, type than of late, and the wind veered accordingly. Temperature at once fell decidedly, the air became dry and somewhat unseasonable over England, and cloudiness increased greatly. Showers continued to fall in the northern parts, both of Great Britain and Ireland, but in the south of Ireland the fall became less than it had been, and a great deal of fog prevailed both on our west and south-west coasts. The daily maximum temperatures scarcely exceeded 70° , even at the warmest stations, until the 18th, where they rose temporarily to 74° in a few places.

July 21-31.—An important alteration now took place. A new anticyclone (No. XXV.) arrived off our north-western coasts and spread completely over the kingdom, bringing with it dry, quiet, hazy, and foggy weather, with light and varying wind. Temperature at once began to increase during the daytime, though the nights remained cool for a time; by the 23rd readings as high as 80° or 81° were recorded at several of the northern stations, and a further increase to between 80° to 84° was observed over England on the following day. The two warmest days of the year in England were the 25th and 26th, when the thermometer rose to between 85° and 93° over the inland counties. The anticyclone then moved slowly to the north-westward and northward, and cooler Northerly to North-easterly winds again set in, so that from the 28th to the 30th the daily maxima did not exceed 70° to 77° , and of these the highest were recorded over the inland parts of Ireland, not England. At the close of the month there was no appearance of any tendency to showery weather.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—JULY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXXV. July 7.	No. XXXVI. July 11.	No. XXXVII. July 15.	No. XXXVIII. July 16-17.
Form - - -	Uncertain; apparently nearly circular.	Central area about circular -	Nearly circular - - -	About circular.
Size - - -	Large - - - -	Small - - - -	Large - - - -	Very small to large.
Depth - - -	Uncertain; apparently moderate.	Shallow - - - -	Shallow - - - -	Very shallow to moderate.
Where first Observed	Off our extreme north-western coasts.	Over Co. Donegal - -	Off our extreme North-western coasts.	Formed over the north-east of Scotland.
Direction of Motion -	North-easterly - - -	North-easterly to northerly -	North-easterly - - -	Easterly and then northerly.
Rate of Motion -	Apparently moderate - -	Moderate - - - -	Rapid - - - -	Slow till 6 p.m., 17th, then moderate.
Regions passed over by Steepest Gradients.	Western and northern parts of the United Kingdom.	The western and north-western parts of the kingdom.	Scotland and north of Ireland	Scandinavia and northern parts of the North Sea.
Termination - -	Travelled away to the northward.	Travelled away to northward	Travelled away to North-eastwards.	Travelled away to northward.
Time under Observation.	About one day - - -	About one day - - -	Less than one day - - -	Nearly two days.
Accompanying Winds	Southerly and South-westerly gales in Ireland and extreme west of Scotland, strong to moderate breezes elsewhere.	South-east to South-west and North-west winds over our north-west coasts, fresh to strong in force. Winds South-westerly over greater part of England, and not affected.	Southerly and South-westerly; strong in west and north. Winds over south and east of England not affected.	Chiefly Westerly and North-westerly in our Islands, Southerly in Denmark and south of Norway.
" Weather	Rainy in west and north; fair and warm over England.	Rainy in west and north-west, fine and warm over England.	Showery in north-west and north; fair elsewhere; warmest in north-east and east of England.	Showery and unsettled; considerable fall of temperature.
" Rainfall	Confined to western, north-western, and extreme northern parts of kingdom, heavy in west of Ireland only.	Heavy in extreme west and north-west, slight elsewhere, except in neighbourhood of London, where a heavy fall occurred locally early on 12th.	Slight in nearly all places -	Confined to northern parts of kingdom and eastern shores of North Sea.
REMARKS -	<p>This disturbance arrived when pressure was highest over the Bay of Biscay, France, and the eastern shores of the North Sea (See anticyclone No. XXIV.), and was accompanied by small subsidiary systems which afterwards spread over the greater part of our Islands.</p> <p>Its centre was at too great a distance from us for its movements to be very accurately shown on Map 2, Plate XIV.</p>	<p>This system advanced when pressure was highest over the eastern parts of the North Sea, and also high over England and the northern half of France. As it passed northwards a second high-pressure system was formed to the south-west of our Islands. Its subsidiaries were shallow, but brought showers (later) to many places.</p>	<p>This system approached when pressure was highest in the west and south-west, and gradients were slight; it passed rapidly out of our area.</p> <p>Its movement was more northerly than the distribution of pressure might lead us to expect.</p>	<p>This system was actually formed over the north-east of Scotland. It was of very trifling importance at first, but afterwards grew quickly, and though producing no gales exercised great influence on the weather over the northern districts.</p> <p>At 8 a.m. 18th, a second system appeared off our north-western coasts, but dispersed there, while a new (subsidiary) minimum (No. XXXVIII.) was developed over the south-west of Scotland during the afternoon, and pursued the course shown on Map 2, Plate XIV.</p>

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS, JULY 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXIII. June 30-July 2.	No. XXIV. July 2-21.	No. XXV. July 21-Aug. 3.
Form	Elongated, but varying and irregular	Elongated, but irregular and varying	Irregular and varying.
Size	Small	Large	Large.
Height	Small. Maximum readings slightly above 30'2 inches.	Small. Maximum readings rather above 30'2 inches.	Moderate. Maximum readings rather above 30'4 inches on several occasions. (See Daily Reports.)
Where first Observed	Off our south-western coasts	Off the west of Ireland	Off our north-western and northern coasts.
Direction of Motion	Easterly	Southerly at first; then easterly and north-easterly, and afterwards south-westerly again.	South-easterly (but varying) till 25th; then westerly and north-westerly again.
Rate of Motion	Moderate	Very slow, sometimes nil	Very slow.
Regions passed over	South of our Islands and France	Southern parts of our Islands, the Bay of Biscay, and France.	British Isles generally.
Termination	Passed away to North Germany and Baltic.	Dispersed over Southern Europe	Passed away to north-westward.
Accompanying Wind	Very light and variable	Very light and variable	Very light and variable; chiefly Easterly and Northerly in our Islands, but Southerly for a time on 26th.
Weather	Fine; rather hazy about centre; temperature rising.	Fine and dry; but not very warm	Fine and very dry, with a good deal of fog, especially in west and south-west. Not very warm, except on 25th and 26th, which were the hottest days this year.
REMARKS	<p>This system underwent considerable alterations in form during its journey, and did not produce very high temperatures even during the daytime. It was followed very closely by No. XXIV., to which system it was apparently subsidiary. Another instance of the detaching of a portion of the main system occurred subsequently. See No. XXIV.</p> <p>On the 7th and 8th this system occupied a very southerly position (see Daily and Weekly Reports), and depression No. XXXV. and its subsidiaries advanced over our Islands. It then moved north-eastwards, and covered the Bay of Biscay, France, and the south of our Islands. On the 9th a portion became detached and proceeded north-eastwards to northern Europe, while the main body receded to the south-westward, and after covering France and south-western Europe for several days, was apparently broken up by the advance of the system No. XXV.</p> <p>The alterations in the form of this system were frequent. Two distinct maxima were seen on the 23rd and 24th, but its tendency to hang about the northern and western parts of our area was quite as decided as that of No. XXIV. was to remain in the south.</p>		

SECTION III.

REMARKS FOR JULY 1885.

(Tables XIII. and XIV., with Plates XIII. and XIV.)

Pressure.—The mean pressure of the month at 8 a.m. varied from a little above 30·20 inches over Dorsetshire, Somersetshire, and Devonshire, to 30·10 inches along the north-western coast of Ireland and the valley of the Clyde and Forth, and to 30·0 inches in the south of the Shetlands. Over the southern half of the kingdom the mean distribution was essentially anticyclonic, while that in the north and north-west was slightly cyclonic, and favourable for winds from the South-westward. The extent to which these features were confirmed by the winds actually reported may be seen by examining the wind roses on Plate XIII., and the figures given for winds from different quarters in Table XIII. Compared with the mean distribution of pressure in July for the 20 years 1861–80, the values for 1885 show an excess of about 0·18 in. at Sumburgh Head and Stornoway, 0·22 in. over Scotland and the most northern parts of England and Ireland, 0·23 in. over our more southern counties, and about 0·25 in. in the north-west of Ireland. The highest readings (rather above 30·4 inches) were recorded at the greater number of the English stations on the 22nd, at which time the central area of anticyclone No. XXV. lay over the North Sea and the major part of Great Britain; over the more western parts of the kingdom they occurred a few days later when the same anticyclone had moved westward to Ireland and the west of Scotland. The lowest values occurred very generally on the 8th, at which time the barometer fell to somewhat below 29·6 inches on our northern coasts, as the cyclonic system No. XXXV. was passing over. The range, however, was small, especially in the south and east.

Movements of Depressions.—These were, as a rule, north-easterly; and although the system No. XXXVIII., which was developed over the north-east of Scotland on the 16th took a more easterly course at first, it no sooner reached the Scandinavian coast than it moved northwards, and passed out of our area. The depressions (excepting No. XXXVIII.) were comparatively shallow and unimportant.

Anticyclones.—One or more of these were present over some portion of our area throughout the month, and for a large part of the time they covered more or less of the British Islands. Previous to the 21st their centres lay chiefly to the south-westward or southward of the United Kingdom, but on that day the system No. XXV. advanced completely over the British Isles from the north-westward, and after remaining more or less over us for several days receded in a westerly and north-westerly direction, and the cold Northerly winds on its eastern side brought down the temperature of England in a very decided manner.

Winds.—These were chiefly Westerly and Southerly on our western and northern coasts, but there was a considerable prevalence of breezes from the eastward at times. In the east and south, the number of North-easterly and Northerly winds recorded was much greater, and that of the South-westerly winds less, than over the north-western half of the kingdom. At Yarmouth and Jersey the winds from the north-eastern half of the compass were the prevailing winds of the month. In force, they were, as a rule, light to moderate, but the South-westerly breezes at times blew strongly on our western and north-western coasts. Gales were rarely experienced except in the extreme north-west and west, where under the influence of the depressions which skirted our western coasts, the Southerly and South-westerly winds rose to a gale on several occasions, especially at Stornoway.

Temperature.—The mean (sea-level) temperature of the month over Great Britain varied from between 64° and 65° over the south midland and the home counties, to between 59° and 60° in central Scotland and the north of England, to about 55° over the north of Scotland, and to 52° at the southern point of the Shetlands. In Ireland it ranged from a little

above 61° over Dublin and the neighbouring counties, to 57° at Belmullet, a well marked "cold area" being found over counties Sligo, Fermanagh, and Leitrim. Compared with the mean distribution of temperature during July, in the 20 years 1861-80, the values for the present year show a deficit of about 3° in the north-western parts of Ireland, and of 1° over the most northern and western parts of Great Britain, but over the east of Ireland and the home counties of England, the values for this year have been almost identical with the normals. The highest points were reached between the 23rd and 26th in nearly all parts of the kingdom, those over England being on the 25th and 26th. At Valencia, however, and on some parts of our south coast, the highest were recorded on the 27th or 28th, and at Stornoway on the 31st, while at Sumburgh Head and Wick, values were attained on the 2nd as high as, or rather higher than, those on the 25th. The lowest readings were registered on the 1st or 2nd at many of the English stations and Aberdeen, as the Northerly winds of the Anticyclonic system No. XXIII. were spreading over us. In most other places they occurred between the 14th and 16th, at which time Anticyclone No. XXIV. was reasserting itself, after having been forced southwards by the depressions which passed over our western and northern districts on the 11th and 12th. The range was largest over the inland parts of England, where it varied from 44° to 49° , and was smallest at Sumburgh Head (where it was only 17°) and on some parts of our north-west coasts and at Scilly, where it varied from 23° to 27° . In central Ireland the range varied from 38° to 41° , but at Malin Head it was only 26° and at Belmullet 27° .

Vapour Tension was 0.48 in. at Hurst Castle, and varied from 0.42 in. to 0.44 in. along our southern coast generally; elsewhere it was rather less, but was lowest (0.35 in.) at Sumburgh Head, and (0.36 in.) over the north-east of Scotland. *Relative Humidity*, however, was highest (90 per cent.) at Sumburgh Head, and rather high (above 85 per cent., on our western and southern coasts, while it was lowest (75 to 77 per cent.) over the Home and South Midland counties.

Rainfall.—This varied from between only 0.1 in. and 0.5 in. in many parts of England, to between 3 and 4 inches at the stations on our extreme west and north-west coasts. It was consequently short of the average except in the extreme west, but was especially short over England, the deficit being as much as 80 to 90 per cent. in many places, and 95 per cent. in some. At Oxford there were only two "days with rain," at Bawtry and Leicester three, and at many other English stations four or five; on our extreme west and north-west coasts, however, the numbers ranged from 15 to 20, and at Sumburgh Head they were 22.

Bright Sunshine.—This was much more prevalent over the Channel and the southern and south-western counties of England than elsewhere. Assuming the total amount which could possibly have been registered at each station during the month to be represented by 100, then the values actually recorded were 60 at Jersey, 52 at Southampton, 50 at Hastings, Pembroke, Hereford, and Cirencester, 49 at Plymouth, and from 40 to 45 over the greater part of England and the east of Scotland. In Ireland, the percentages varied from 27 to 25, and in the west of Scotland they were 28 or 29.

SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF JULY, 1885.

TABLE XIII. -

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the Numbers of Days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			Means of				Absolute Extremes.			
			At 8 a.m.	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 30°005	52°1	47°0	56°5	51°8	42	14th	59	2nd, 7th, 25th
	Wick	30°046	55°6	47°8	62°6	55°2	38	21st	72	2nd
	Stornoway	30°029	54°3	48°0	59°8	53°9	42	19th, 21st	68	24th, 31st
1. SCOTLAND, E.	Nairn	30°061	57°3	50°0	66°2	58°1	42	22nd	80	23rd
	Aberdeen	30°084	58°3	49°6	66°2	57°9	42	1st	83	25th
	Leith	30°100	58°2	50°9	67°1	59°0	44	9th	82	25th
2. ENGLAND, N.E.	Shields	30°131	58°4	52°5	65°3	58°9	43	1st	79	25th
	York	30°166	59°2	50°9	70°5	60°7	42	14th, 29th	86	25th
	Spurn Head	30°155	59°1	54°6	64°8	59°7	48	1st	76	6th
3. ENGLAND, E.	Yarmouth	30°177	60°6	55°0	65°6	60°3	46	1st	74	26th
	Cambridge	30°182	61°8	51°6	74°0	62°8	45	24th	88	25th
4. MIDLAND COUNTIES	Loughborough	30°181	60°9	51°9	74°0	63°0	44	1st, 2nd	89	25th, 26th
	Oxford	30°192	60°7	53°6	72°6	63°1	45	9th	86	25th
5. ENGLAND S.	London	30°191	61°9	54°2	74°3	64°3	46	9th	87	26th
	Dungeness	30°186	61°5	54°8	67°3	61°1	44	1st, 2nd	77	26th, 27th
	Hurst Castle	30°200	61°8	52°2	70°5	61°4	45	9th, 10th, 14th	82	26th, 27th
6. SCOTLAND, W.	Ardrossan	30°113	57°2	51°3	63°2	57°3	46	14th	75	24th
7. ENGLAND, N.W.	Hawes Junction*	28°947	55°3	47°9	62°4	53°2	38	14th	77	24th
	Barrow-in-Furness	30°144	57°0	54°7	63°6	59°2	49	1st	74	24th
	Liverpool (Bidston)	30°165	59°6	54°2	66°5	60°4	48	13th	75	26th
	Holyhead	30°168	58°4	53°3	63°8	58°6	46	1st	73	26th
8. ENGLAND, S.W.	Pembroke	30°177	57°6	54°3	61°7	58°0	47	1st	77	27th
	Prawle Point	30°205	60°4	53°4	65°9	59°7	46	14th	82	26th
9. IRELAND, N.	Malin Head	30°096	56°2	52°5	61°5	57°0	48	12th, 13th, 17th	74	24th
	Donaghadee	30°140	57°0	50°3	64°5	57°4	42	1st, 12th, 14th	79	25th
	Mullaghmore	30°105	57°4	54°4	63°8	59°1	50	16th	77	24th
	Belmullet	30°100	56°6	52°8	61°3	57°1	44	14th	75	30th
10. IRELAND, S.	Parsonstown	30°157	58°6	51°8	60°3	59°8	40	14th	79	25th
	Valencia	30°170	59°4	53°7	65°9	59°8	43	14th	78	28th
	Roche's Point	30°167	59°4	52°7	65°1	58°9	47	12th	72	26th
CHANNEL ISLANDS	Scilly (St. Mary's)	30°192	59°8	55°2	64°3	59°8	51	2nd	74	26th
	Jersey (Noirmont)	30°193	60°8	55°0	67°9	61°5	50	1st, 2nd, 3rd, 14th.	82	26th

* Hawes Junction is 1,135 feet above Mean Sea Level, and the

TABLE XIII.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of July 1885.

Thunderstorms, and Gales are counted irrespective of the Hours at which they occurred, beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations o								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	%		ins.	ins.																	
0.347	80	8.5	1.71	0.36	4th	22	0	0	0	2	20	0	2	3	0	2	4	7	9	3	1
.377	85	6.7	1.60	0.40	16th	15	0	0	2	4	13	0	2	0	0	2	8	5	3	7	4
.357	84	7.1	3.10	0.80	11th	18	0	0	0	4	13	7	0	0	3	1	9	5	10	3	0
.356	76	5.9	0.77	0.30	16th	7	0	0	0	10	12	0	1	2	1	0	0	9	9	1	8
.373	76	5.5	1.49	0.54	3rd	14	0	0	2	9	11	0	5	2	1	2	8	6	2	3	2
.374	77	5.8	0.75	0.28	18th	10	0	0	0	7	8	0	1	0	6	3	1	3	10	7	0
.410	84	6.4	1.16	0.28	26th	11	0	0	0	5	11	0	3	3	1	1	2	10	7	2	2
.405	81	5.5	0.94	0.48	19th	7	0	0	0	12	12	0	4	2	2	3	7	4	6	3	0
.438	88	5.0	0.26	0.14	19th	5	0	0	0	7	3	0	5	2	2	4	5	6	3	4	0
.424	81	3.5	0.50	0.21	12th	7	0	0	0	15	1	0	4	9	4	1	2	5	3	2	1
.426	78	5.6	0.72	0.39	13th	5	0	0	0	13	15	20	8	3	4	1	5	6	0	3	1
.408	77	6.3	0.14	0.04	7th, 19th	6	0	0	0	7	13	24	1	3	1	3	1	4	8	6	4
.398	75	5.4	0.12	0.11	19th	2	0	0	0	14	12	0	4	5	3	0	1	7	5	3	3
.408	75	5.7	0.51	0.46	11th	4	0	0	1	12	13	0	0	3	5	0	0	10	4	3	6
.454	84	4.8	0.15	0.08	19th	4	0	0	1	9	5	0	6	2	8	2	0	2	6	1	4
.484	88	4.5	0.35	0.12	19th	9	0	0	0	14	5	2	1	5	5	0	0	5	6	5	4
.403	86	6.3	1.73	0.49	6th	16	0	0	0	8	13	2	0	4	2	1	6	4	5	3	6
.378	86	5.4	3.53	1.71	18th	11	0	0	0	11	14	0	1	5	2	0	6	9	6	0	2
.405	87	6.9	2.62	0.70	7th	9	0	0	0	5	16	0	4	3	2	3	1	8	2	8	0
.387	76	6.5	2.29	0.81	19th	9	0	0	0	9	14	0	0	1	3	3	2	4	12	4	2
.424	87	5.2	1.64	0.64	19th	9	0	0	0	7	2	1	5	2	3	1	6	6	5	3	0
.403	84	6.2	0.94	0.45	7th	7	0	0	0	6	12	1	0	2	8	1	5	5	3	5	2
.435	84	5.1	0.46	0.15	19th	6	0	0	0	12	12	0	3	7	4	0	0	4	7	2	4
.402	89	6.7	1.73	0.47	10th	16	0	0	0	5	13	0	4	2	4	2	5	6	6	2	0
.405	87	5.5	1.97	0.48	18th	15	0	0	0	11	12	0	6	4	3	3	0	4	8	3	0
.397	84	7.6	3.39	0.79	10th	20	0	0	0	5	16	4	0	2	6	1	3	8	9	1	1
.411	89	6.3	3.85	0.85	21st	21	0	0	0	11	17	21	1	1	7	1	4	11	3	3	0
.424	86	7.5	2.15	0.61	19th	11	0	0	0	5	18	0	0	2	0	1	1	6	5	2	14
.443	88	7.9	2.84	0.82	6th	12	0	0	0	4	21	3	2	1	0	2	2	7	8	3	6
.419	84	6.9	0.89	0.35	6th	7	0	0	0	3	9	1	2	0	2	2	4	8	6	6	1
.441	86	7.7	0.92	0.62	7th	13	0	0	0	5	20	2	1	4	7	0	1	5	7	4	2
.425	80	5.3	0.10	0.05	8th	5	0	0	0	10	11	2	3	7	6	1	1	4	3	4	2

barometrical readings at this Station are not reduced for altitude.

TABLE XIV.

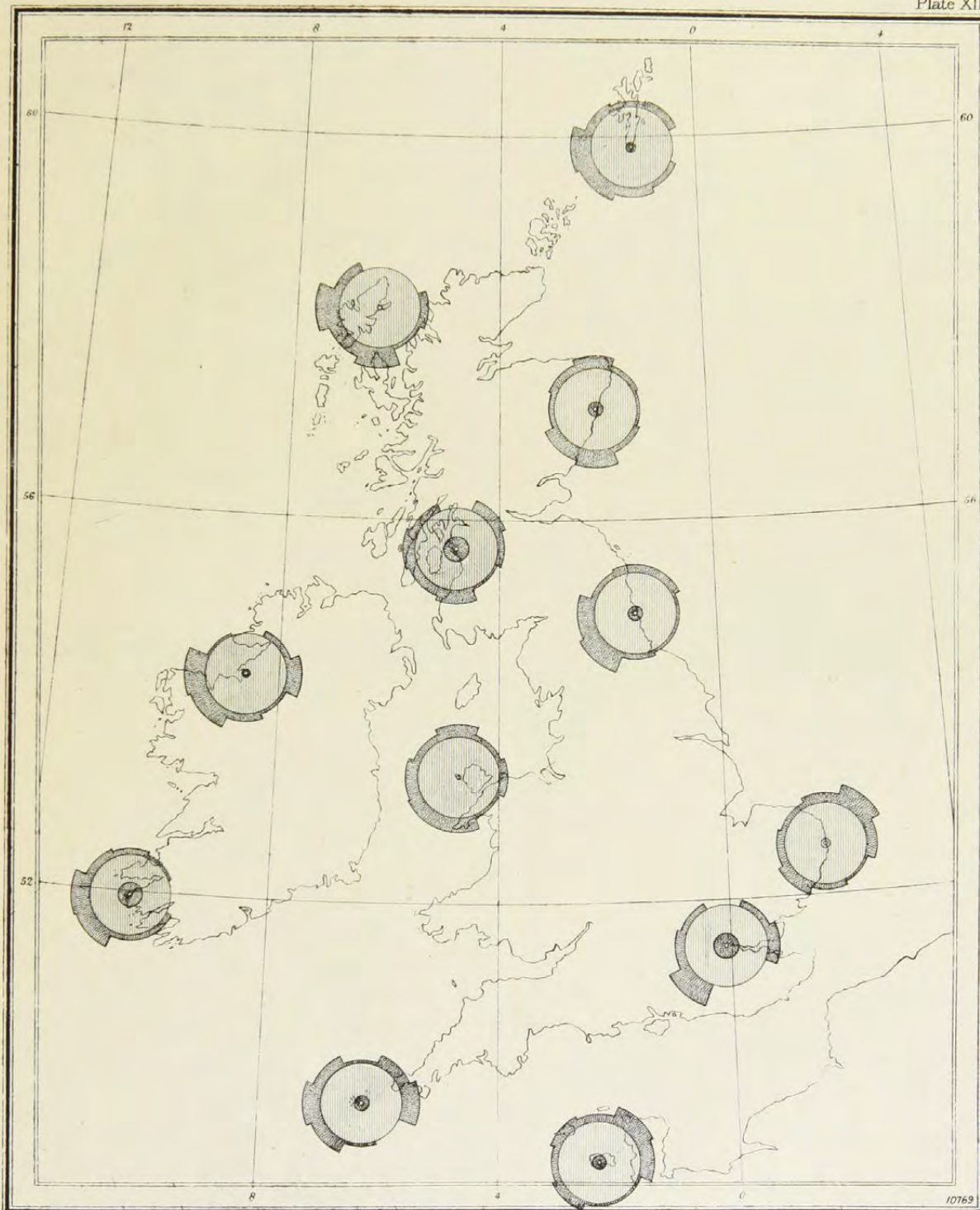
OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of July 1885.

STATIONS.	AIR TEMPERATURE.						RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.			No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.						
STORNOWAY	*	*	*	*	*	*	*	*	*	*	151	28
ABERDEEN	*	*	*	*	*	*	*	*	*	*	215	41
ALNWICK CASTLE	51'2	65'1	58'2	44	12th	77	25th	12	1'77	0'37	26th	—
SCARBOROUGH	53'2	66'2	59'7	45	1st	75	5th, 6th, 11th	7	0'86	0'33	19th	—
YORK	*	*	*	*	*	*	*	*	*	*	170	34
HILLINGTON	50'5	72'4	61'5	42	1st	88	25th	9	0'81	0'55	11th	204
GELDESTON	50'5	69'0	59'8	41	1st	80	11th	8	0'67	0'22	13th	215
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	223	45
ROTHAMSTED	51'8	72'1	62'0	43	23rd	85	25th, 26th	6	0'38	0'15	11th	—
BAWTRY	50'3	73'4	61'9	43	2nd, 9th, 14th, 29th, 31st.	89	26th	3	0'36	0'19	19th	—
LEICESTER	52'5	74'4	63'5	42	9th	91	25th	3	0'13	0'11	19th	213
CHEADLE	51'3	68'4	59'9	43	13th	83	25th	7	0'67	0'24	7th	—
CHURCHSTOKE	48'3	69'6	59'0	37	1st, 14th	83	26th	5	0'60	0'25	4th	214
HEREFORD	51'0	74'2	62'6	39	13th, 14th	87	25th	7	0'15	0'04	15th	—
CIRENCESTER	50'5	71'1	60'8	39	9th	85	25th	6	0'53	0'36	18th	248
OXFORD	*	*	*	*	*	*	*	*	*	*	248	50
LONDON	*	*	*	*	*	*	*	*	*	*	219	45
MARLBOROUGH	50'7	72'9	61'8	41	10th	87	26th	7	0'31	0'11	21st	224
STRATHFIELD TURGIS-	50'9	75'9	63'4	42	9th	90	26th	5	0'22	0'10	11th	—
HASTINGS	55'5	68'1	61'8	49	1st	87	26th	5	0'61	0'37	5th	246
SOUTHAMPTON	53'4	74'2	63'8	46	9th	91	26th	6	0'29	0'11	19th	255
LAUDALE	49'8	62'9	56'4	41	21st	76	24th	18	3'52	0'72	14th	—
GLASGOW	50'2	65'9	58'1	43	14th	79	24th	12	1'28	0'26	14th	150
DOUGLAS	50'4	64'9	57'7	40	9th	78	24th	8	2'54	0'92	6th	229
NEWTON REIGNY	48'2	66'3	57'3	39	30th	79	24th, 25th	14	1'54	0'70	3rd	221
STONYHURST	51'6	67'2	59'4	43	14th	79	24th	10	2'40	0'77	19th	217
BLACKPOOL	51'7	65'0	58'4	43	10th, 29th	71	21st, 24th, 29th, 30th, 31st.	8	1'60	0'58	19th	226
MANCHESTER	51'2	68'7	60'0	42	13th, 14th	81	26th	9	1'62	0'66	19th	—
LLANDUDNO	53'9	66'2	60'1	45	14th	76	26th	7	1'57	0'63	19th	213
LLANDOVERY	49'6	71'4	60'5	33	13th	87	26th	14	1'86	0'49	18th	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	245	50
ARLINGTON	50'7	66'3	58'5	40	2nd	83	27th	9	2'53	0'85	18th	—
CULLOMPTON	50'7	71'9	61'3	38	14th	86	26th	6	0'53	0'19	19th	212
FALMOUTH	53'7	65'7	59'7	47	14th	80	26th	7	0'56	0'32	7th	219
PLYMOUTH	54'1	69'7	61'9	45	3rd, 10th	81	27th	9	0'42	0'14	7th	236
JERSEY	*	*	*	*	*	*	*	*	*	*	289	60
LONDONDERRY	50'1	68'1	59'1	43	20th	83	24th	17	1'95	0'67	10th	—
MARKREE CASTLE	49'6	65'7	57'7	34	14th	78	24th	20	3'90	1'16	17th	136
BROOKBOROUGH	49'8	66'5	58'2	37	14th	77	24th, 31st	11	3'75	0'97	17th	—
ARMAGH	50'3	67'6	59'0	42	12th, 14th	78	24th, 25th	15	1'80	0'47	10th	152
EDGEWORTHSTOWN	50'6	67'5	59'1	39	14th	80	25th	10	2'45	0'60	10th	—
DUBLIN	54'0	67'6	60'8	45	1st	77	25th	10	1'15	0'34	19th	177
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	147	29
KILKENNY CASTLE	51'9	67'9	59'9	40	1st	81	26th	10	1'77	0'60	23rd	—
WATERFORD	51'1	68'2	59'7	39	1st	80	27th	9	1'66	0'72	6th	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	169	34
KILLARNEY	52'8	67'0	59'9	38	14th	78	24th, 26th, 27th	9	1'48	0'49	10th	—
FOYNES	52'8	65'3	59'1	43	12th	75	24th, 25th	17	2'25	0'42	6th	—

* For information see Table XIII.

MONTHLY WIND CHART FOR JULY 1885.

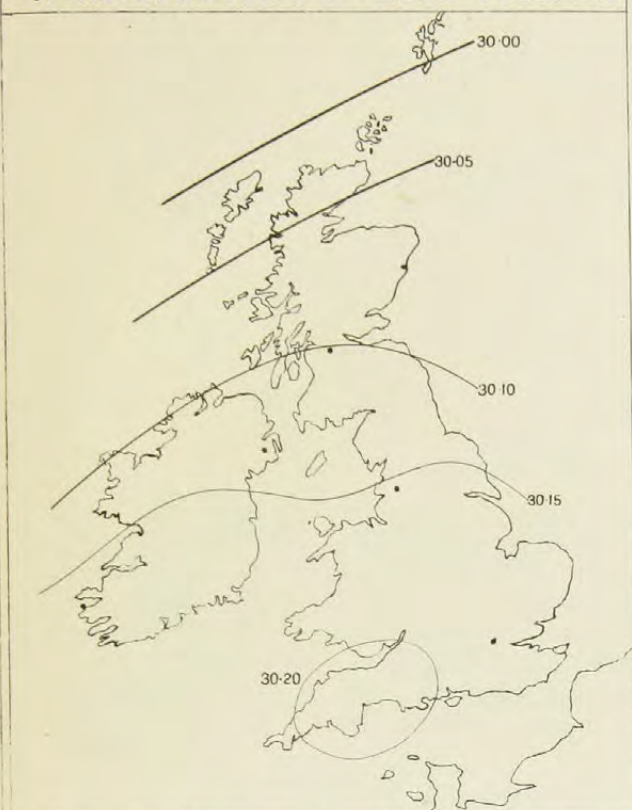
Plate XIII



To face page 80.

DANGERFIELD LITH 22 BEDFORD ST COVENT GARDEN.

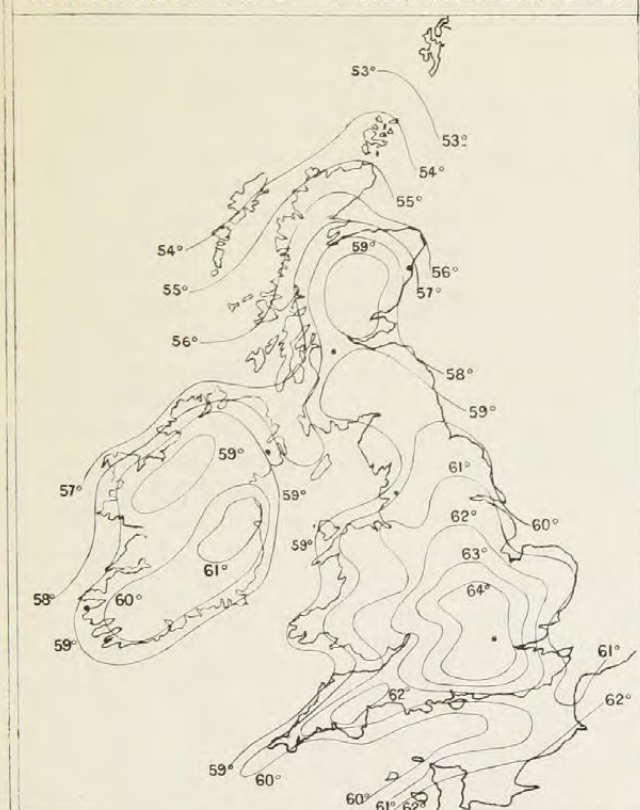
1. DISTRIBUTION OF MEAN PRESSURE



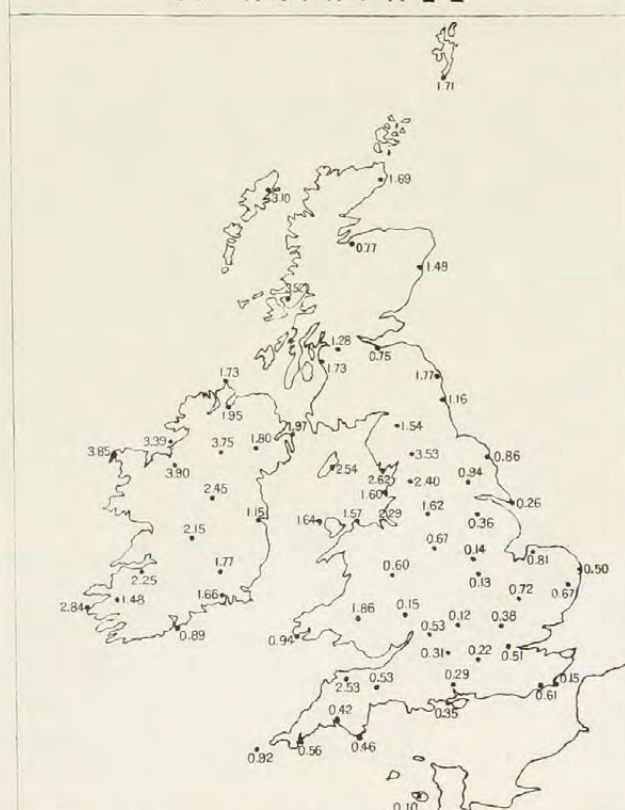
2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE



4. RAINFALL



MONTHLY WEATHER REPORT.

AUGUST 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of August was fine—dry over all but the most northern counties of England, where the rainfall was slightly in excess of the mean,—and quiet. Pressure was remarkably uniform, and somewhat in excess of its normal value for the time of year. Temperature was low, except in the south-west of Ireland, and a conspicuous feature was the absence of any individual reading that could be termed high; frost occurred on the grass over England about the middle of the month. The air was dry; the wind very variable, chiefly Northerly or North-easterly, and, as a rule, light; gales were rare and never severe; and a good deal of bright sunshine was recorded in the west and south, but very little in the north-east.

August 1-3.—During this period the dominant system of pressure distribution over the United Kingdom was anticyclonic, and the gradients northerly to north-easterly, being almost *nil* over the northern parts of the kingdom, and slight elsewhere. Temperature was low, and though the weather at first was dry, it subsequently became rainy over the northern and western parts of the kingdom, as some small local depressions were formed in those regions on the 3rd.

August 4-13.—Cyclonic conditions now became general, but the gradients continued northerly. The systems first appeared as very small and shallow disturbances over the southern parts of our area, causing freshening North-easterly winds over the northern and western regions, but Westerly and South-westerly in France. Large quantities of rain at once began to fall in nearly all places, thunderstorms were prevalent, and the thermometer was very low for the time of year. The first depression worthy of particular mention was No. XXXIX.* which appeared at the mouth of St. George's Channel early on the 5th, and, after some very slight and irregular movements, mainly in a southerly direction, took a north-easterly course, reaching the Yorkshire coast early on the 8th, and then passing across the North Sea to the Baltic. In its rear the thermometer fell decidedly over England, but scarcely had it disappeared before a new and much more important system (No. XL.*) approached our western coasts from the Atlantic—on the 9th. The wind now backed to South and South-west, and became strong generally; in the west a strong gale was felt. Temperature rose a little, more particularly over England, so that the daily maxima on the 10th were as high as 77° at Cambridge and 73° at Loughborough and Yarmouth; the rise was, however, very temporary, for on the following day the thermometer fell quickly to its old level. The centre of the system now passed off to the northward, and the barometer rose, but early on the 12th a new and shallower depression, apparently subsidiary to that just named, reached the north of Ireland, and travelling eastwards and north-eastwards, grew deeper, and did not pass out of our area until late on the 13th. With this subsidiary system the wind again backed to South

* See Section II., and Map 2 Plate XVI., for the history and tracks of depressions.

and South-west, and increased in force, with rain, but as it passed north-eastwards the barometer rose rapidly in its rear, the wind veered to North-west, and blew hard, thunderstorms occurred in some places, and the thermometer fell fast. Early on the 14th the temperature in the shade was reduced to 35° over central Ireland, and to between 38° and 41° over England, while frost occurred on the grass at some of the inland stations. This depression proved to be the last of the series, the distribution of pressure afterwards becoming anticyclonic and of a more favourable type, while temperatures rose somewhat—especially during the daytime.

August 13–19.—During this period anticyclonic conditions prevailed over our Islands generally, the system first advancing over us from the south-westward, but afterwards receding westwards and north-westwards. As it advanced the North-westerly winds just mentioned gave way to light anticyclonic breezes, and, with dry, fine weather, the thermometer rose considerably during the daytime, but was low during the night. It was with this system that the highest temperatures of the month were recorded over the greater part of both Ireland and England, but it is worthy of remark that it was only at a few of our southern stations that the thermometer rose above 80° . On the 15th and 16th the system attained its most eastern position; it then began moving westwards, and as about this time a depression (No. XLII.*) appeared over the eastern shores of the North Sea, the wind again became Northerly on all our coasts, and the thermometer fell decidedly. In London the maximum temperature recorded on the 18th was 16° lower than that of the previous day.

August 19–22.—The distribution of pressure now became less simple,—anticyclonic in the west and north, while cyclonic systems of slight intensity appeared in the east and south. In the former regions the weather remained fine and dry, and the daytime was somewhat warm, but in the latter clouds prevailed, the winds were cold, and rain fell,—heavily in some localities. The depression in the east then disappeared, and anticyclonic conditions, with gradients chiefly of a northerly type, spread once more over the kingdom.

August 23–25.—During this time pressure-distribution over the United Kingdom was very uniform and somewhat anticyclonic, the winds were light and variable, and the air cool and hazy. On the 24th and 25th pressure gave way a little in the south-west, and still more decidedly over the Bay of Biscay, and while a very irregularly-formed anticyclone (No. XXVIII.) was developed over the United Kingdom, there was apparently a large depression advancing northwards from the Portuguese coast towards the west of Ireland, in the direction shown by the arrow XLIII. on Map 2 Plate XVI. The subsidiary depressions to this disturbance spread eastwards over France, and gave us a spell of rather fresh Easterly winds, with cold weather, and some rain at our western and south-western stations. As they advanced the anticyclone in the east broke up, but a new one (No. XXIX.) appeared over our northern coasts.

August 26–29.—The systems of pressure distribution during this period were anticyclonic over all the northern parts of our area, cyclonic in the south; the type of gradient was chiefly easterly, but not steep; the winds were consequently mainly Easterly or North-easterly, blowing strongly at the southern and eastern stations, with more or less of showery weather, while in the north they were light and the weather was fine. Temperature was low throughout, and, in addition to the low-pressure area over the Bay of Biscay, one new disturbance (No. XLIV.*) advanced eastwards over the southern parts of France. As this disappeared the anticyclonic area in the north moved southwards.

August 30–31.—The distribution of pressure now began to change quickly. At 8 a.m. on the 30th the anticyclonic area referred to above lay completely over the United Kingdom, while a shallow depression (No. XLV.) was developed over the south of Norway. The Easterly winds at our southern stations lulled gradually, and the weather over Great

* See Section II., and Map 2 Plate XVI., for the history and tracks of depressions.

Britain improved, but temperature remained low, and there soon appeared signs of a fresh anticyclone in the north, united to that just mentioned by a col, which at 8 a.m. on the 31st lay over Great Britain and the western portions of the North Sea. A new but shallow depression (No. XLVI.*) then appeared off our south-west coasts, the wind drew into South-east at our western stations, and afterwards backed to East, the sky began to assume an unsettled appearance, and rain again fell in the south-west and south. At the close of the month the weather was evidently breaking up into a very changeable, unsettled condition over Ireland.

* See Section II., and Map 2 Plate XVI., for the history and tracks of depressions.

SECTION II. - - - - -

TABLE OF CYCLONIC SYSTEMS.—AUGUST 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXXIX. August 5-8.	No. XL. August 9-11.	No. XLI. August 12-13.
Form - - - - -	Oval, but somewhat irregular -	Nearly circular - - - -	Nearly circular at first, then oval -
Size - - - - -	Small to moderate - - -	Very large - - - - -	Moderate - - - - -
Depth - - - - -	Very shallow to shallow -	Deep - - - - -	Moderate - - - - -
Where first Observed - -	At mouth of St. George's Channel -	Off the north-west of Ireland -	Over the north-west of Ireland -
Direction of Motion - -	First southerly, then stationary for one day, then north-easterly, but variable, and finally easterly.	North-easterly - - - -	Easterly, north-easterly, and nearly northerly.
Rate of Motion - - -	Varying from <i>nil</i> to moderate -	Moderate - - - - -	Moderate - - - - -
Regions passed over by Steepest Gradients.	England and the English Channel -	The western and northern parts of our Islands.	Ireland, England, and the Channel -
Termination - - -	Passed eastwards to the Baltic and western Russia.	Travelled away to the northward -	Travelled away to the northward -
Time under Observation -	Four days within our area - -	Rather more than two days - -	Two days - - - - -
Accompanying Winds - -	East to North and West over our Islands. The strongest winds were those from West, on the 8th.	Southerly to Westerly; gales in the west and north, strong winds elsewhere.	Slight South-westerly gales in west and south, strong breezes elsewhere, followed by North-westerly gales in most places.
" Weather - - -	Changeable; showery, with heavy thunderstorms,—especially on night of the 6th.	Rainy and squally; thunderstorms in places.	Squally, rainy, cold; some thunderstorms.
" Rainfall - - -	Somewhat general; heavy in west and north-west.	General, but very slight in extreme south-east and east of England; heavy in west.	Very general,—heaviest in the north and north-west.
REMARKS - - - - -	This system was apparently formed off the south of Ireland early on the 5th. It was preceded by some shallow local systems over England and France on the 4th, which dispersed as the new one appeared. Its movements were very irregular, and the manner in which it hung about the mouth of the Channel on the 6th is worthy of note.	This system advanced to our north-western coasts when pressure was highest over France, the North Sea, and Scandinavia. The barometric fall was large in Ireland and Scotland, where the mercury fell to below 29 inches.	This disturbance followed closely in the rear of No. XL., to which it appeared to be, in some respects, subsidiary. Its track lay some 70 to 150 miles to the southward and eastward of its predecessor. In its rear the barometer rose decidedly, and anti-cyclonic conditions set in.

SECTION II. — *continued.*

TABLE OF CYCLONIC SYSTEMS.—AUGUST 1885.

No. XLII. August 17-21.	No. XLIII. August 25-27.	No. XLIV. August 29.	No. XLV. August 30-31.	No. XLVI. August. 31-September. 1.
Sometimes circular; at others oval.	Unknown - - -	Oval - - -	Nearly circular - - -	Circular.
Moderate to large - -	Apparently large - -	Moderate to large - -	Small to moderate - -	Small.
Shallow to moderate - -	Apparently moderate - -	Shallow - - -	Shallow to moderate - -	Shallow.
Over Scandinavia - -	Over the Atlantic, near the coast of Portugal.	Off north coast of Spain -	Over the south of Norway -	Off the south of Ireland.
South-easterly, southerly, and south-westerly.	Northerly and north-westerly	Easterly - - -	South-easterly - - -	Easterly and south-easterly.
Moderate till it reached Sweden, then very slow.	Slow - - -	Slow - - -	Slow - - -	Slow.
Scandinavia and North Sea -	Bay of Biscay and our south-western coasts.	North of France, Channel, and south of our Islands.	Eastern shores of North Sea and the Baltic.	Our south-western coasts; gradients very slight.
Dispersed over the Netherlands.	Travelled away over Atlantic	Travelled away eastwards over south of Russia.	Dispersed in the neighbourhood of Riga on September 2nd.	Dispersed over Brittany.
More than four days - -	About four days - -	One day within our area -	Two days within our area -	About 30 hours.
North-westerly to Northerly and North-easterly; strong over the North Sea, light in the west. South-easterly in Sweden.	Easterly and South-easterly; strong in south-western districts only.	Easterly to Northerly, strong to a gale at our southern stations; Westerly gales in south-west of France.	Northerly and North-westerly to the eastward of the North Sea. Our winds not affected.	South-easterly to North-easterly on our western coasts, South-westerly to Westerly over Bay of Biscay.
Showery in north for a time, dry, cold, and fair elsewhere.	Dull and cold, but dry in our Islands till 26th, when thunderstorms began to appear.	Fair and cold in our Islands, very wet in France.	Rainy in Scandinavia - -	Rainy in south-west, fine in north and east.
Not heavy - - -	None reported at our stations till 26th. Heavy over Bay of Biscay and France.	Very heavy - - -	None in our Islands beyond a few hundredths at Shetlands.	Heaviest at Valencia.
This system reached Scandinavia while the anticyclone No. XXVII. lay over our Islands. Its Northerly winds produced very cold and unseasonable weather in the east, but in Ireland the weather was warm and dry.	As this disturbance moved northwards, shallow subsidiaries appeared at times at the mouth of the Channel and over France, where thunderstorms prevailed—especially on the 25th—and whence they spread northwards to England and Ireland.	This disturbance approached France when pressure was highest at our northern stations. The gales experienced over the north and west of France were much stronger than the gradients would lead us to expect.	This system was apparently formed over the south of Norway in a "hollow," which extended north-westward from No. XLIV. when over Russia. Its effect on the weather over our Islands was hardly appreciable.	This depression was unimportant, so far as wind is concerned, but important for the rain which it brought to our south-western stations and the west of France. Although so shallow it was very well defined.

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—AUGUST 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXVI. August 8-9.	No. XXVII. August 12-19.	No. XXVIII. August 24.	No. XXIX. August 26-September 2.
Form - - - -	About oval - - - -	Somewhat oval, but irregular	Elongated and irregular -	Nearly oval.
Size - - - -	Small - - - -	Large - - - -	Apparently small -	Small.
Height - - - -	Moderate; maximum readings 30°1 and upwards.	Moderate; maximum readings 30°3 inches and upwards.	Very small; maximum readings 30°0 inches and upwards.	Moderate to small; maximum readings 30°1 inches and upwards.
Where first Observed -	North of Spain and south-west of France.	Peninsula and south-west of France.	Over Great Britain and north-east of France.	Off the north of Scotland.
Direction of Motion -	North-easterly at first, then south-easterly.	Very variable; first north-easterly, then easterly, afterwards westerly and north-westerly.	None - - - -	Stationary at first, then southerly and south-easterly.
Rate of Motion - -	Moderate - - - -	Slow, at times nearly stationary.	None - - - -	Slow.
Regions passed over -	France - - - -	British Isles, France, the Bay of Biscay, and finally the Atlantic, off our west and north-west coasts.	Great Britain - - - -	British Isles, North Sea, and Germany.
Termination - - -	Passed away to the Mediterranean.	Passed away to the north-westwards.	Dispersed - - - -	Travelled away to Austria and Turkey and developed into a larger system.
Accompanying Wind -	Moderate or light North-easterly and Easterly in the south, South-westerly and Westerly in north.	Varying; light to moderate -	Variable airs and calms -	Light and varying.
Weather - - - -	Fine, but not warm - - -	Fine; cold at first, then warmer, but never warm for time of year.	Fine, cool, foggy in places -	Fair, dry, and cool.
REMARKS - - - -	This system advanced from the Peninsula as the cyclonic system No. XXXIX. was passing away to the eastward, but with the speedy advance of No. XL. to our western coasts the anticyclone moved in a south-easterly direction to the Mediterranean.	This system advanced in the rear of depression No. XLI., and after some erratic movements passed away to the north-westward of our Islands, while a new shallow depression (No. XLII.) appeared over the south of Sweden, and moved south-eastwards and eastwards to Holland. As the anticyclone disappeared a new one showed itself over Finland and northern Russia, and spread slowly southwards, but did not come fully within our area.	This system was developed in the centre of what appeared to be a very broad col, which lay from north-north-west to south-south-east across our Islands and their neighbourhood between the 22nd and 25th. It soon lost all definite form, and on the 26th the anticyclonic system No. XXXIX. appeared in the north.	This system when lying over and to the northward of Scotland was connected by means of a large "col" with another (but large and flat) system, lying over central and south-eastern Europe. Some rains fell locally during its presence, but these were the result of some small shallow depressions which appeared over Scandinavia and off our south-western coasts, and produced much cloud, even on the southern side of the anticyclone.

SECTION III.

REMARKS FOR AUGUST 1885.

(Tables XV. and XVI. with Plates XV. and XVI.)

Pressure.—The mean pressure of the month at 8 a.m. was remarkably uniform, the maximum difference between the values at any two stations (omitting the Scilly Islands and the Shetlands) being only half a tenth of an inch. The distribution was anticyclonic, and it is worthy of note that the values for Marlborough and Stornoway agree to nearly the thousandth part of an inch. These conditions would appear favourable for very variable winds, and it needs only a glance at the wind roses on Plate XV. to see that this was the case. The notes in Section I. also show that the force was as variable as the direction. Compared with the averages for the same month in the 20 years 1861–80, the pressure was in excess by about 0·10 inch at Sumburgh Head, by about 0·12 inch in the east of Scotland, by about 0·07 inch at Shields, 0·02 inch at Yarmouth, and 0·01 inch on our southern coast, while at Jersey there was a slight deficit. In the Shetlands, the excess was greater (0·16 inch) than elsewhere, but in Ireland it ranged from about 0·09 inch in the extreme north to about 0·04 inch in the south. The highest readings (30·3 inches and upwards) were recorded in most places on the 14th or 15th, at which time the anticyclone No. XXVII. (p. 86) was passing over our Islands; in the far north, however, the readings recorded on this occasion appear to have been less high than those registered either on the 1st, when the anticyclonic system No. XXV. prevailed, or on the 18th, when the centre of No. XXVII. lay off our northern coasts. The lowest readings were recorded very generally between the 9th and 11th, while the cyclonic system No. XL.* was passing over. The range was slight in the south, and moderate (about an inch and a quarter) in the north.

Movements of Depressions.—These varied greatly, as will be seen on referring to Map 2 Plate XVI. The systems also were very various in size and depth, the greater number of them being rather shallow, and small. Their tracks lie over all parts of the area, and while some moved northwards and north-westwards, others travelled north-eastwards, others south-eastwards, and one (for a time) south-westwards. The deepest, and by far the most important systems were (1) that which travelled north-eastwards outside our extreme north-western coasts between the 9th and 11th, and (2) that which travelled northwards from the western shores of the Peninsula to our south-western coasts between the 25th and 26th, and afterwards passed out to sea again.

Anticyclones.—These were four in number, and were somewhat persistent in character. They brought with them fine, dry, hazy weather, but as the centres of some of them lay either directly over or to the westward of our Islands, their Northerly winds kept the temperature low, especially when they freshened owing to the presence of a cyclonic system lying within a short distance to the eastward of them.

Winds.—The winds also, as may be gathered both from the statements made in Section I., the figures given in Table XV., and the wind roses on Plate XV., were very variable. At

* See Section II., and Map 2 Plate XVI., for the history and tracks of depressions.

the northern stations the predominant direction was Northerly, but passing over the western parts of the kingdom it became North-easterly, while along our eastern coasts it was North-westerly. In the south the winds from the North-eastern and South-western halves of the compass were very evenly balanced, and at Scilly, although Easterly winds were the most prevalent, those from the Northern, Western, and Southern quarters were well represented. Calms were of frequent occurrence, especially at Nairn, Parsonstown, Oxford, and in London, but gales were comparatively rare, the most important being those from the South-westward between the 9th and 11th, and those from North-west on the 13th.

Temperature.—The mean (sea-level) temperature of the month ranged from a little above 61° over the inland parts of our southern counties, to a little above 55° over the northern counties of England and the central parts of Scotland, and to about 51° in the extreme north of Scotland and the southern extremity of the Shetlands. Over Ireland it ranged from a little above 59° at Valencia, and from between 58° and 59° over the southern counties to a little below 55° over the inland parts of Sligo and Fermanagh. These values, when compared with the averages for the 20 years 1861–80, show a very general deficiency except in the extreme south-west of Ireland, where the means for the present year and the averages referred to are about identical. The deficit in other parts varied from about 4° over the major part of Great Britain and the north-west of Ireland to about 3° over the south-east of Ireland, to a little less than 2° on the extreme south-western coasts of England, and to only 1° on the north-west coast of Ireland. The usual summer type of distribution was fairly well maintained, except in the neighbourhood of Cheshire (where a slight cold patch is shown) and the north-west of Ireland, where the weather was much colder at the inland than at the coast stations. The lowest readings were recorded in England and Ireland on the 14th, just as the anticyclone No. XXVII. was advancing over us from the westward in the rear of the depression No. XL., whose Northerly winds lulled as the temperature fell and the sky cleared. In Scotland, however, the sharpest cold was experienced on the 31st, when a “col” lay from north-north-west to south-south-east over Great Britain and the North Sea, separating a depression off our south-western coasts from another lying over the south of Sweden. The highest readings were recorded (as a rule) on the 16th or 17th over England, when the anticyclone No. XXVII. lay over our southern or south-western stations. In the extreme north of Scotland, however, and at Belmullet the highest occurred on the 20th, while over Ireland generally they were noticed on very various dates. The range was greatest over the inland parts of Ireland and England, where it varied from 35° to 44° . At Scilly it was as small as 19° , but at Jersey and Stornoway it was 24° , at Sumburgh Head 26° , and at the Isle of Man 34° .

Vapour Tension varied from between 0·32 in. and 0·34 in. over the greater part of Scotland and the north-west of England to 0·43 in. at Valencia, 0·44 in. at Dungeness, and 0·45 in. at Scilly, being thus highest in the south and south-west, and lowest over the more northern parts of the kingdom. *Relative Humidity*, however, was very irregularly distributed; the largest per-centage was 89 at Dungeness, while the lowest values were 78 at Yarmouth, Cambridge, and in London, and 79 at Aberdeen and Leith.

Rainfall.—The amounts registered during this month varied from between half an inch and an inch over the southern counties of England to three and a half inches over the south of Ireland and to upwards of four inches at Foynes. In almost all places the amounts (though decidedly larger than those for July) were below the averages for the 20 years 1861–80, but over some parts of the northern counties of England and the south of Scotland they were in excess, especially at Shields. The number of days with rain varied from 8, at Leith, Spurn Head, and several other of our north-eastern and eastern stations to between 15 and 18 on many parts of our western and northern coasts.

Bright Sunshine was most prevalent at Jersey, and was much more prevalent at the southern and south-western coast stations generally than over the other parts of Great Britain and Ireland. Assuming that the total amount which could possibly have been recorded at each station during the month to be represented by 100, the values actually recorded were as follows: Jersey 60, Pembroke 55, Falmouth 53, Plymouth 49, Valencia 47, and Southampton 45, while that for Hillington was only 28, Glasgow 27, Newton Reigny and Leicester 26, Armagh 25, and York 13.

TABLE XV.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the numbers of days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.						
			Means of				Absolute Extremes.		
			At 8 a.m.	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.
0. SCOTLAND, N.	Sumburgh Head	ins. 29°931	50°6	45°6	55°0	50°3	38	28th	64
	Wick	29°977	52°2	44°9	57°4	51°2	32	14th, 27th	65
	Stornoway	29°994	52°0	46°8	57°6	52°2	39	31st	63
1. SCOTLAND, E.	Nairn	29°989	51°9	45°9	60°1	53°0	33	31st	68
	Aberdeen	29°975	53°8	46°7	60°1	53°4	33	31st	70
	Leith	29°974	54°9	48°5	61°8	55°2	41	31st	71
2. ENGLAND, N.E.	Shields	29°969	54°9	50°1	59°5	54°8	40	14th, 30th	70
	York	29°979	54°2	49°1	63°7	56°4	39	14th, 27th	75
	Spurn Head	29°955	56°1	52°4	60°9	56°7	47	14th	72
3. ENGLAND, E.	Yarmouth	29°965	58°3	52°7	63°9	58°3	42	14th	73
	Cambridge	29°983	57°6	49°1	67°3	58°2	41	15th	78
4. MIDLAND COUNTIES	Loughborough	29°991	54°1	49°4	65°4	57°4	38	14th	76
	Oxford	29°993	55°8	50°0	65°8	57°9	41	14th, 16th	76
5. ENGLAND, S.	London	29°986	58°0	50°5	67°7	59°1	41	14th	80
	Dungeness	29°973	58°6	52°7	65°7	59°2	42	14th	70
	Hurst Castle	29°982	58°8	53°0	68°4	60°7	46	14th, 21st	76
6. SCOTLAND, W.	Ardrossan	29°972	55°3	48°2	62°3	55°3	40	27th, 30th	73
7. ENGLAND, N.W.	Hawes Junction*	28°748	51°3	44°9	58°4	51°7	34	14th	67
	Barrow-in-Furness	29°974	53°9	51°4	61°6	56°5	43	30th	67
	Liverpool (Bidston)	29°977	55°3	51°2	62°7	57°0	44	29th	68
	Holyhead	29°982	56°9	52°4	61°6	57°0	46	15th	67
8. ENGLAND, S.W.	Pembroke	29°965	57°0	52°6	62°9	57°8	47	5th	69
	Prawle Point	29°980	59°5	52°4	65°9	59°2	45	30th	74
9. IRELAND, N.	Malin Head	29°966	54°2	51°3	58°6	55°0	46	30th	66
	Donaghadee	29°980	55°3	50°3	61°3	55°8	40	14th	69
	Mullaghmore	29°962	55°3	52°5	61°3	56°9	47	14th	73
	Belmullet	29°945	55°9	52°3	61°5	56°9	46	14th	70
10. IRELAND, S.	Parsonstown	29°985	54°3	48°2	64°9	56°6	35	14th	76
	Valencia	29°966	59°5	52°5	66°2	59°4	47	14th	76
	Roche's Point	29°970	58°2	51°9	65°4	58°7	46	13th	70
CHANNEL ISLANDS	Scilly (St. Mary's)	29°930	60°3	55°4	64°0	59°7	50	5th	69
	Jersey (Noirmont)	29°972	60°9	55°7	67°0	61°4	51	5th, 14th	75

* Hawes Junction is 1,135 feet above Mean Sea Level and the

TABLE XV.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of August 1885.

Thunderstorms, and Gales are counted irrespective of the hours at which they occurred.

(beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins. 0°315	% 86	7°6	ins. 1°92	in. 0°46	12th	17	0	0	0	3	16	1	11	11	1	1	0	0	2	5	0
*345	89	7°5	1°20	0°25	10th	16	0	0	0	1	18	1	8	6	2	1	1	0	1	12	0
*330	85	7°8	1°36	0°54	9th	14	0	1	0	4	19	3	7	10	2	2	3	1	1	3	2
*324	84	6°1	2°16	0°91	12th	18	0	0	0	6	12	1	0	4	1	1	1	2	2	5	15
*330	79	6°5	2°02	0°92	12th	16	0	0	0	6	11	4	12	3	0	0	2	3	2	8	1
*338	79	7°1	2°09	0°71	7th	8	0	0	0	4	14	0	1	2	6	8	1	2	5	6	0
*345	81	8°1	3°33	1°72	5th	11	0	0	1	3	20	2	9	6	3	0	2	4	4	2	1
*353	84	7°9	1°64	0°52	6th	12	0	0	0	5	21	0	8	7	1	0	3	3	6	2	1
*385	85	5°3	2°13	0°62	21st	8	0	0	1	6	1	2	8	2	4	1	3	4	3	6	0
*383	78	4°5	0°92	0°36	20th	10	0	0	1	9	0	3	6	4	4	0	1	4	3	8	1
*369	78	7°1	1°47	0°40	5th	10	0	0	3	6	18	10	11	1	6	0	4	3	3	2	1
*354	84	8°8	2°83	0°78	21st	13	0	0	2	1	24	18	4	6	4	3	2	2	3	6	1
*357	80	6°8	1°68	0°35	12th	11	0	1	3	6	13	0	5	8	2	1	2	3	2	3	5
*375	78	7°1	0°93	0°38	26th	10	0	0	2	3	13	1	3	5	4	1	2	5	3	2	6
*439	89	6°7	0°64	0°35	7th	9	0	0	0	3	9	2	9	6	5	0	0	3	2	4	2
*422	85	5°4	0°63	0°14	12th	10	0	0	0	7	3	4	3	10	6	1	3	4	3	1	0
*367	84	6°4	3°82	0°73	6th, 9th	10	0	0	1	9	15	3	0	9	5	0	2	1	5	5	4
*327	85	6°4	3°25	0°89	10th	12	0	0	0	8	16	0	5	5	6	0	7	2	3	1	2
*351	85	6°5	1°62	0°41	12th	10	0	0	1	2	13	1	5	12	1	4	1	1	1	6	0
*332	75	6°7	1°93	0°43	5th	12	0	0	1	6	11	1	2	4	7	5	3	1	4	5	0
*398	86	6°7	2°90	0°97	4th	12	0	0	2	2	8	4	5	4	7	2	3	5	1	4	0
*397	85	5°3	1°98	0°69	6th	13	0	0	0	7	8	3	3	5	12	2	1	3	2	3	0
*396	78	4°4	0°87	0°24	26th	12	0	0	1	13	3	3	5	8	4	2	3	3	2	4	0
*382	91	6°6	1°60	0°96	12th	12	0	0	0	3	9	4	6	3	7	3	3	1	3	5	0
*383	87	6°7	2°09	0°67	5th	10	0	0	0	5	11	5	5	6	4	4	3	2	3	4	0
*372	85	7°4	1°62	0°28	11th	13	0	0	0	4	12	4	4	2	8	4	2	3	3	4	1
*392	88	6°7	1°73	0°45	11th	14	0	0	0	7	16	0	0	8	13	1	2	4	1	2	0
*362	85	7°3	3°12	0°49	4th	11	0	0	0	7	20	0	2	3	4	2	1	4	4	2	9
*426	84	6°1	3°36	0°90	8th	16	0	0	0	8	11	2	5	8	3	4	1	2	1	3	4
*396	81	5°6	3°55	0°76	27th	16	0	0	0	6	8	2	8	6	6	3	1	1	3	3	0
*449	86	6°4	1°82	0°30	5th	14	0	0	0	5	9	2	5	3	10	2	3	1	3	2	2
*400	76	4°3	1°08	0°64	31st	10	0	0	2	12	6	3	2	8	6	2	3	3	3	3	1

barometric readings at this station are not corrected for altitude.

TABLE XVI.

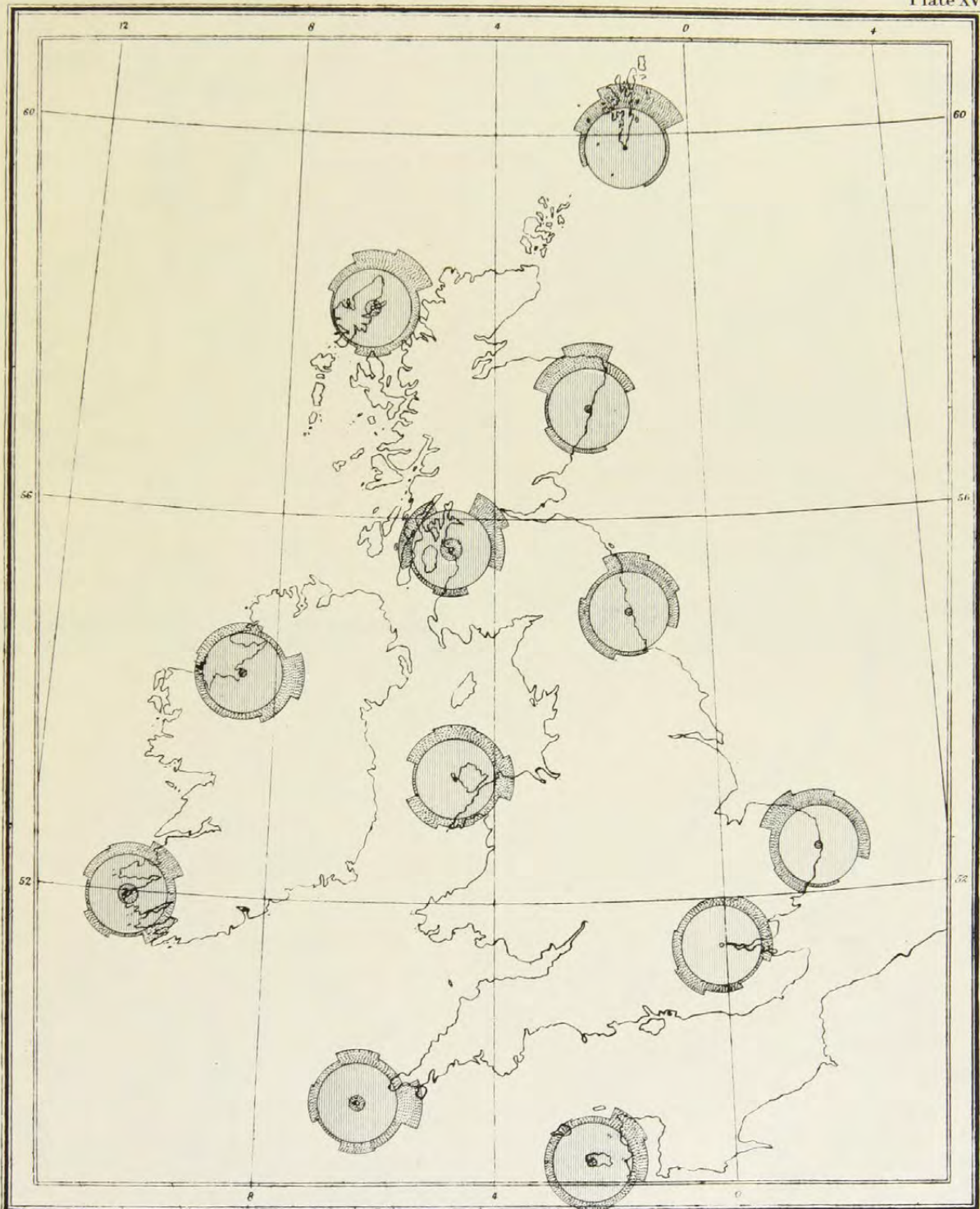
OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of August 1885.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY	*	*	*	*	*	*	*	*	*	*	*	152	33
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	150	52
ALNWICK CASTLE	48'5	58'5	53'5	33	31st	70	16th	9	1'61	0'41	3rd	—	—
SCARBOROUGH	51'4	60'5	56'0	43	14th	72	16th	14	1'27	0'79	7th	—	—
YORK	*	*	*	*	*	*	*	*	*	*	*	61	13
HILLINGTON	48'8	65'5	57'2	37	14th, 15th	77	10th	8	1'83	0'58	7th	126	28
GELDESTON	49'3	64'4	56'9	38	14th	76	16th	8	1'32	0'88	20th	146	33
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	155	35
ROTHAMSTED	48'6	64'8	56'7	39	15th	77	16th	12	1'59	0'38	4th	—	—
BAWTRY	48'3	66'0	57'2	36	15th	76	16th, 26th	8	1'39	0'33	6th	—	—
LEICESTER	50'1	65'9	58'0	41	15th	76	25th	15	2'98	0'82	6th	117	26
CHEADLE	47'6	61'6	54'6	40	14th, 15th	71	16th	14	1'97	0'42	12th	—	—
CHURCHSTOKE	46'4	63'9	55'2	37	15th	74	16th	12	4'15	2'37	4th	148	33
HEREFORD	47'7	67'3	57'5	39	15th	77	16th, 17th	12	1'77	0'39	6th	—	—
CIRENCESTER	47'6	65'4	56'5	37	14th	75	16th, 17th	10	1'77	0'80	26th	169	38
OXFORD	*	*	*	*	*	*	*	*	*	*	*	169	38
LONDON	*	*	*	*	*	*	*	*	*	*	*	139	31
MARLBOROUGH	47'6	66'7	57'2	35	14th	77	17th	12	0'81	0'31	26th	172	39
STRATHFIELD TURGIS	52'2	69'1	60'7	44	23rd	81	16th	12	1'20	0'32	8th	—	—
HASTINGS	53'8	66'4	60'1	48	19th	74	1st	11	0'97	0'33	28th	185	42
SOUTHAMPTON	51'0	69'6	60'3	42	6th	83	17th	11	0'67	0'20	6th	198	45
LAUDALE	48'5	61'6	55'1	41	28th	69	6th, 19th	9	2'01	0'75	10th	—	—
GLASGOW	46'9	61'9	54'4	40	15th, 16th	77	1st	10	2'52	0'64	12th	122	27
DOUGLAS	48'3	61'6	55'0	35	14th	69	1st, 22nd	9	2'16	0'67	8th	177	39
NEWTON REIGNY	45'2	60'9	53'1	31	30th	69	1st, 6th, 16th	10	2'19	0'88	5th	119	26
STONYHURST	48'3	62'7	55'5	39	15th	72	1st	10	2'60	1'28	12th	131	29
BLACKPOOL	47'8	62'0	54'9	36	15th	67	10th	10	1'78	0'49	6th	158	35
MANCHESTER	48'6	62'9	55'8	39	15th	72	25th	14	1'70	0'61	12th	—	—
LLANDUDNO	51'2	62'2	56'7	44	15th	69	16th	9	0'78	0'18	5th	173	38
LLANDOVERY	45'2	68'2	56'7	32	29th	78	25th	13	2'61	0'63	12th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	247	55
ARLINGTON	47'9	64'5	56'2	40	30th	71	16th, 17th, 25th	11	2'16	0'55	8th	—	—
CULLOMPTON	47'3	68'1	57'7	40	6th, 22nd	77	17th	13	1'80	0'36	26th	185	42
FALMOUTH	52'2	64'5	58'4	46	5th	72	18th, 23rd	13	2'50	0'69	5th	235	53
PLYMOUTH	51'5	67'5	59'5	44	5th	75	17th, 18th	10	2'11	0'70	28th	216	49
JERSEY	*	*	*	*	*	*	*	*	*	*	*	266	60
LONDONDERRY	49'2	64'2	56'7	41	15th	75	1st	14	2'07	0'46	12th	—	—
MARKREE CASTLE	46'9	62'2	54'6	37	14th	77	1st	15	1'78	0'33	27th	136	30
BROOKBOROUGH	46'9	63'3	55'1	38	14th	79	1st	10	1'97	0'46	5th	—	—
ARMAGH	48'2	65'2	56'7	41	14th, 21st	76	1st	10	1'86	0'47	5th	115	25
EDGEWORTHSTOWN	48'0	64'0	56'0	33	14th	77	1st	10	2'15	0'39	30th	—	—
DUBLIN	50'7	63'4	57'1	41	14th	71	17th	14	3'05	1'72	4th	177	39
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	183	41
KILKENNY CASTLE	49'5	64'6	57'1	36	14th	75	1st	12	2'28	0'72	8th	—	—
WATERFORD	49'0	65'8	57'4	41	20th	75	18th, 22nd	13	4'63	0'77	27th	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	209	47
KILLARNEY	50'1	66'7	58'4	44	14th, 20th, 21st	78	1st	15	3'46	1'29	8th	—	—
FOYNES	50'5	64'6	57'6	46	26th	75	1st, 2nd	12	4'07	1'55	28th	—	—

* For information see Table XV.

MONTHLY WIND CHART FOR AUGUST 1885.

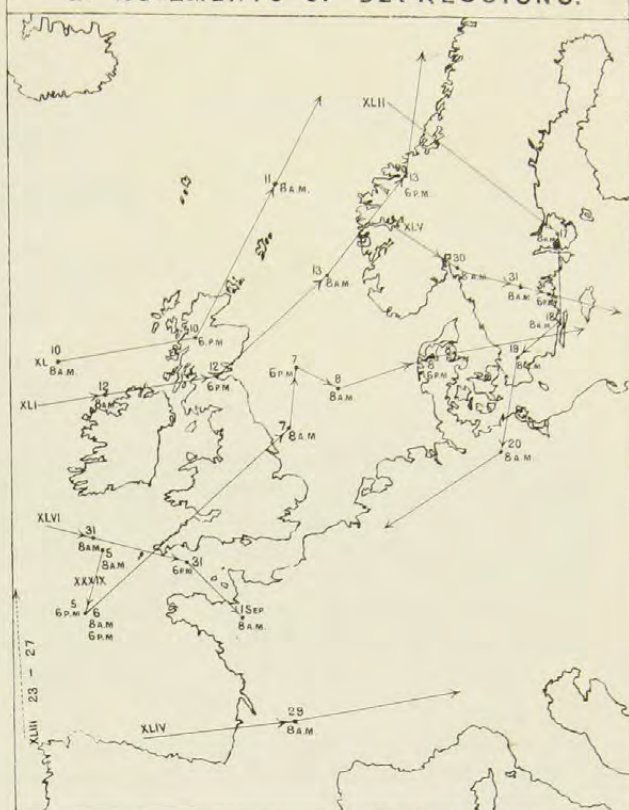
Plate XV.



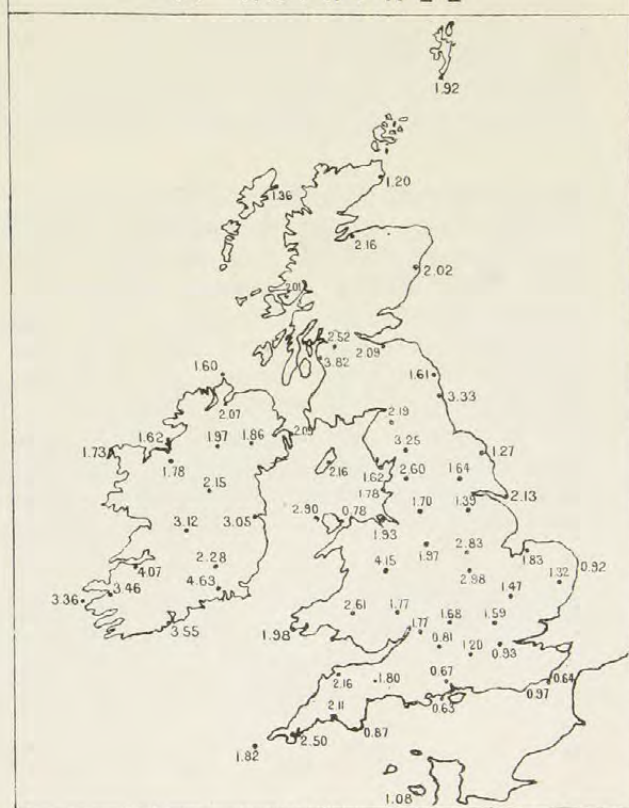
To face page 92.

DANGERFIELD LITH 22 BEDFORD ST COVENT GARDEN
10897

2. MOVEMENTS OF DEPRESSIONS.



4. RAINFALL



DANGERFIELD LITH 22 BEDFORD ST COVENT GARDEN
708027

MONTHLY WEATHER REPORT.

SEPTEMBER 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE type of weather changed suddenly at the beginning of this month from a dry (but cool) Summer to that of a cold, wet, and gusty Autumn. Pressure was below its average value everywhere, temperature was low—and on one occasion unusually so for the time of year. The winds were strong, and chiefly South-westerly to Westerly in direction; depressions were very numerous, but none were very large or deep; gales were of frequent occurrence; and the rainfall was (except over the north-eastern counties of Great Britain) considerably above its average amount. Bright sunshine was in defect. At the close of the month there appeared to be no sign of any important change.

September 1.—The distribution of pressure at 8 a.m. was anticyclonic, the central area of the system lying over the northern, midland, and eastern parts of Great Britain, while slight gradients for Southerly and South-easterly winds prevailed in the west. Temperature at 8 a.m. varied from 60° at Valencia to 46° at Shields and Aberdeen; and while light North-easterly breezes prevailed over our south-eastern counties, moderate to fresh breezes from South-east were reported in the west, and calms on our north-eastern coasts. The weather was fine and bright in the east, dull and misty in most other places, and somewhat showery in the west and south. During the next 24 hours heavy rain fell over Ireland, and South-easterly and Southerly winds spread gradually to the western coasts of Great Britain, as a well-marked depression (No. XLVII.*) approached Ireland and moved northwards along our extreme west and north-west coasts.

September 2-7.—The dominant system of pressure distribution during this period was cyclonic, the type complex and variable. Barometric readings were highest over northern and southern Europe, lowest over our Islands and the North Sea, and while some depressions (Nos. XLVII.* and XLVIII.*) appeared off our western coasts and moved northwards, another (No. XLVIIIa.*) was formed over Denmark early on the 5th, and travelling northwards passed out to sea off the west of Norway during the 6th. A fourth (No. XLIXa.*) was developed over the Irish Sea early on the 7th, and this moved very slowly. At first it appeared to be an independent system, but afterwards proved to be subsidiary to No. XLIX.,* the centre of which did not arrive within our area until the morning of the 8th. The main characteristics of the weather during this period were,—rather low temperatures, thunderstorms, and showers (especially over the southern half of the kingdom), with occasional bright intervals, fresh to strong breezes, mainly from between South and West, and unsteady pressure.

September 8-16.—The dominant systems of pressure distribution were still cyclonic, but the persistent type was south-westerly. The winds consequently varied in direction between

* See Section II. and Map 2 Plate XVIII., for the history and tracks of depressions.

west and south, except on one or two occasions, when some local disturbance (such as that of the 10th) produced a temporary burst of Northerly or North-easterly winds over a limited part of the country. Temperature, though slightly below its average value rose on one occasion to between 70° and 78° over England; gales were of frequent occurrence, and some of them were severe, while the rainfall was largely in excess of the average—especially over the southern and south-western parts of the kingdom. Two cyclonic systems which appeared during this interval require special notice. One (No. L.*) was developed on the 10th within a few miles of the Scilly Islands. At 8 a.m. on that day pressure was highest over France and the south of our Islands, where its distribution was anticyclonic. The depression No. XLIX.* was passing away in the far north, the barometer was still rising in the north and east, and the weather was apparently improving. At the western stations, however, the mercury had fallen a little in the night, and at Valencia and Scilly the sky had become overcast. The wind, however, was West-south-westerly in most places, and was light to moderate in force, while the general appearance of the sky was quiet. At 10 a.m., the barometer began to fall quickly at Scilly, and at 2 p.m. there was a small well-formed (but shallow) depression a little to the westward of that station. This grew with great rapidity without changing its position, and at 6 p.m. had become a deep, but not large, system, causing Southerly gales at the mouth of the Channel, at the same time that moderate Northerly breezes were blowing in the south of Ireland. The system then advanced quickly to the eastward, producing the gales and rains referred to in Section II., p. 97, and in 24 hours had passed out of our area, and was filling up over Germany. No sooner had it disappeared than the south-westerly type of pressure-distribution was restored, and large cyclonic systems continued to pass in a north-easterly direction outside our extreme north-western and northern coasts. The other system worthy of special mention was a very shallow one which appeared over the west of France early on the 16th. On this occasion also anticyclonic conditions prevailed over France and cyclonic conditions to the northward of our Islands—the intervening gradients being moderate for South-westerly winds. The disturbance was small, but elongated and very shallow; at 8 a.m. it lay along the west coast of France, causing severe thunderstorms over Brittany and a complete cyclonic circulation of light winds between Lorient and Rochefort as appears from the Bulletin International. The system moved slowly to the north-eastwards, and, together with a second one, which appeared over Belgium later on, brought heavy rains, thunder, and lightning to all our southern counties, the Channel, and the Netherlands, and established over the south of England a North-easterly current of wind which, though light at first, subsequently blew strongly in the Straits of Dover.

September 17–18.—A large anticyclonic ridge was now formed over the United Kingdom and the Bay of Biscay, while the shallow depressions referred to above lay over North Germany and the north-east of France. The weather consequently improved over our Islands and the wind lulled, while temperature fell slightly. Of the small disturbances in the south-east, one took a northerly course, and at 8 a.m. on the 18th had reached the Skager Rack, whence it travelled eastwards to the south of Sweden and the Baltic; the other apparently dispersed near Metz.

September 19–24.—A new and large depression (No. LIII.*) now arrived off our north-western coasts, and spreading quickly over the kingdom brought about a return of strong Southerly to Westerly winds, gales, and rain. At 8 a.m. on the 19th the centre of the depression lay about 100 miles to the north-westward of Cape Wrath, while an anticyclonic area lay over the Peninsula and France. The gradients were steep, and while Southerly to South-westerly gales prevailed on the western and northern coasts of Great Britain, the gale had already veered to West-north-west in the west of Ireland, and the weather had begun to clear. Before night the wind had become Westerly all over the kingdom, but was decreasing

* See Section II. and Map 2 Plate XVIII., for the history and tracks of depressions.

in strength. Other cyclonic systems followed quickly, and as the wind veered and backed the alternations of temperature were well marked, though not very large, and the weather remained showery and unsettled. On the disappearance of the cyclonic system No. LIV.,* however, pressure gave way in the east while it increased in the west, and Northerly winds became prevalent.

September 25-26.—The type of pressure-distribution during these two days was northerly, the dominant systems being mainly cyclonic in the east and anticyclonic in the west, and the gradients slight. Cold Northerly breezes were felt very generally—strong at first, and accompanied by cold showers, but afterwards lulling, with brighter weather.

September 27-29.—Pressure now gave way quickly in the north-west and north, and, while an anticyclonic “ridge” moved south-eastwards over our western and southern districts to France, a well-marked, but not very important, depression advanced north-eastwards past our northern coasts, producing mild South-westerly breezes and some showers in the west and north, while cold Northerly airs and misty drizzle were felt in the south and south-east. Gradually, however, the South-westerly and Westerly wind current encroached, and sometimes veered to North-west for a while. The month closed with pressure varying from a little above 30·1 inches over the south-west of France to something below 28·7 inches to the north-westward of the Hebrides, in which region lay the centre of a large and deep depression (No. LVI.)* which was moving north-eastwards towards Scandinavia. Southerly to South-westerly winds, strong to a gale in force, were blowing over Great Britain, accompanied by rain and South-westerly to Westerly winds in Ireland. The barometer, however, had already begun to rise again in the west and sky was clearing.

* See Section II, and Map 2 Plate XVIII., for the history and tracks of depressions.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—SEPTEMBER, 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XLVII. September 2.	No. XLVIII. September 3-4.	No. XLIX. September 8-10.
Form - - - -	Uncertain; apparently nearly circular	Apparently nearly circular - - -	Uncertain; apparently nearly circular
Size - - - -	Large - - - -	Large - - - -	Large - - - -
Depth - - - -	Moderate - - - -	Shallow - - - -	Moderate - - - -
Where first Observed - -	Off the west of Ireland - - -	To the westward of Ireland - - -	Off our extreme north-western coasts
Direction of Motion - -	Northerly - - - -	North-easterly and northerly - - -	North-easterly - - - -
Rate of Motion - - -	Uncertain; apparently moderate -	Moderate to slow - - - -	Slow - - - -
Regions passed over by Steepest Gradients.	Ireland and west of Scotland - -	Our western coasts. Gradients never very steep.	Ireland and England - - -
Termination - - -	Travelled away to the northward -	Travelled away to the northward -	Travelled away to the northward -
Time under Observation -	One day - - - -	About 36 hours - - - -	Two days - - - -
Accompanying Winds - -	South-easterly to Southerly; strong in West and North-west.	Southerly and South-westerly; moderate to fresh.	Southerly to Westerly; strong -
Weather - - -	Rainy, mild - - - -	Showery and mild - - - -	Squally, rainy, unsettled - -
Rainfall - - -	General; heavy in Ireland - - -	Slight, and fall rather irregular at first.	General, but heaviest in north-west. (Heavy rain fell in Holland and north-east of France also, apparently owing to system XLIXa.)
REMARKS - - -	<p>This depression advanced to the Irish coast as the anticyclone No. XXIX. was passing eastwards (see charts in Daily and Weekly Reports). On reaching the Irish coast it moved northwards and was soon out of our area.</p> <p>A well-marked subsidiary system followed, and lay off the west of Scotland at 8 a.m. 3rd.</p> <p>This system appeared when pressure was high over Austria, Germany, the Baltic, and Scandinavia, and lowest to the westward of our Islands, the gradients being slight. As it moved northwards, a subsidiary disturbance (No. XLVIIIa.) was developed over Denmark on the evening of the 4th, and moving northwards grew deeper and passed out to sea off the west of Norway on the evening of the 6th. (See maps in the Daily and Weekly Weather Reports for these dates.)</p> <p>This system reached our north-west coasts at a time when pressure was high both over Spain and northern Europe, the two high-pressure areas being separated by a hollow in which lay a small and shallow but well-formed depression. This disturbance afterwards became subsidiary to the larger system under discussion, and moved in the direction marked XLIXa., on Map 2 Plate XVIII., until the 10th, when it dispersed over the south of Sweden.</p>		

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—SEPTEMBER, 1885.

No. L. September 10-11.	No. LI. September 12-14.	No. LII. September 15-16.	No. LIII. September 19-20.
Nearly oval - - - -	Apparently circular - - -	Uncertain; apparently nearly circular	Apparently nearly circular about centre; somewhat angular on southern side.
Very small to large - - -	Very large - - - -	Very large - - - -	Large.
Shallow to deep - - - -	Moderate - - - -	Apparently moderate - - -	Moderate.
At the mouth of St. George's Channel	Off our north-western coasts - -	Off extreme north-west of Scotland -	Off north-west of Scotland.
Stationary at first, then easterly -	North-easterly - - - -	North-easterly - - - -	North-easterly.
Stationary at first, then moderate to rapid.	Apparently moderate - - -	Rapid - - - -	Slow.
The Channel, France, and Netherlands.	The western and northern parts of our Islands.	Our extreme north-western districts, and west of Norway.	British Isles; especially Ireland and Scotland.
Dispersed over Germany - -	Travelled away to the northward -	Travelled away to the north-eastward	Travelled away to the northward.
Little more than one day within our area.	Two days - - - -	Less than one day - - -	About two days.
Strong Southerly to North-westerly gales in the south, Easterly breezes on its northern side; strong in places.	Southerly to Westerly gales in west and north; moderate to strong breezes elsewhere.	South-westerly; moderate to strong in our Islands; gales in Norway.	Southerly and South-westerly to North-westerly; strong generally; gales in west and north. Shift of wind sudden and decided.
Very rainy, squally, and rough. Temperature changing quickly as centre passed eastwards.	Squally and rainy - - - -	Showery - - - -	Squally, rainy.
Heavy over the south-western and southern parts of England. Fall exceptionally heavy in some places.	General; very heavy in extreme west and north-west.	Slight generally, but more in north than elsewhere.	Heavy in west and north, slight in east and south.
This system was formed a few miles to the westward of the Scilly Islands, and appears to have been motionless until it was fully developed. It then moved eastwards with increasing velocity, causing gales in the Channel, first from the southward, and then from north-north-west (the change occurring rapidly), and finally travelled away to the eastward out of our area, and filled up over Germany.	This depression arrived off our north-western coasts while pressure was highest over the Bay of Biscay and France, and lowest to the northward of our Islands, gradients being somewhat slight. It was followed on the 14th by some shallow subsidiary disturbances, but these seem to have filled up on reaching Ireland.	This disturbance advanced very suddenly, while pressure was highest over France and Germany and lowest to the northward and westward of our Islands. On its disappearance some thunder-storm depressions were formed near Lorient, and passing north-eastwards, brought thunder, lightning, and heavy rain to the northern parts of France and the south-eastern counties of England, while over the north of England and south of Scotland there was no rain. (See p. 94.)	This disturbance reached us when pressure was highest over France, while a broad ridge extended thence in a north-easterly direction over the North Sea and Scandinavia. On the 20th a well-marked subsidiary disturbance arrived off the west of Scotland, and moving in an easterly direction (see track marked LIIIA. on Map 2, Plate XVIII.), passed away to the Skager Rack and south of Sweden on the 21st.

SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—SEPTEMBER 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. LIV. September 22-24.	No. LV. September 28-29.	No. LVI. September 30.
Form - - -	Uncertain; apparently oval - - -	Uncertain - - -	Apparently nearly circular.
Size - - -	Large - - -	Moderate to large - - -	Very large.
Depth - - -	Moderate - - -	Moderate - - -	Deep.
Where first Observed -	Near the Farø Isles - - -	Near the Farø Isles - - -	Off our north-western coasts.
Direction of Motion -	East-north-east and north-north-east,	Apparently north-easterly - - -	North-easterly.
Rate of Motion - - -	Rapid to slow - - -	Slow - - -	Slow after reaching our coasts.
Regions passed over by Steepest Gradients.	Northern parts of Scotland; gradients not very steep.	Our western and northern coasts. Gradients not steep.	The west and north of our Islands. Min. readings were below 28.7 ins.
Termination! - - -	Travelled away to the northward -	Travelled away to the northward -	Travelled away to the northward.
Time under Observation -	About 24 hours - - -	About 24 hours - - -	About 36 hours.
Accompanying Winds -	South-westerly to Westerly; strong at the extreme northern stations only.	South-westerly and Southerly -	Southerly to Westerly gales over our Islands very generally; South-easterly to Southerly in Norway.
Weather	Raining in far north, and rather showery in north-west and west; fair elsewhere.	Very showery and unsettled. Thunder on eastern shores of North Sea.	Very showery and squally.
Rainfall	Slight, except in far north - - -	General; heavy in several places -	General; heavy in places.
REMARKS - - -	<p>This depression arrived off our northern coasts when pressure was highest over the northern parts of France and the southern parts of England and lowest to the northward, the gradients being moderate over Scotland and slight over England.</p> <p>The showers at our western stations appear to have been due to a small subsidiary disturbance, which advanced eastward over Ireland and England on the 23rd, rather than to the main disturbance.</p> <p>In the rear of this system pressure gave way in the east, and gradients for Northerly winds became general.</p>		
	<p>This depression advanced when pressure was high both over Ireland and Scandinavia, the two systems being united by a col, which at 8 a.m. 28th lay across England and the North Sea. As it advanced the whole of the high-pressure system moved eastward, and although the cyclone was of little intensity, and produced little wind, its subsidiary disturbances brought with them much rain and cold weather to all parts of the kingdom.</p>		
	<p>The south-east side of this depression covered the whole of north-west Europe, but although it was so deep its gradients were very uniform, and its gales more general but less severe than prevail with most depressions of equal depth.</p> <p>It advanced very suddenly while pressure was high over the Peninsula and south of France, and also over northern Europe,—a hollow separating the two high-pressure systems at the time.</p>		

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS—SEPTEMBER 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXX. September 12-14.	No. XXXI. September 18-21.	No. XXXII. September 22-30.
Form - - - - -	Oval near centre - - - - -	Elongated and ridge shaped at first, then oval and irregular.	Nearly oval at first, varying later.
Size - - - - -	Large - - - - -	Large - - - - -	Large.
Height - - - - -	Moderate. Maximum readings approaching 30.2 ins.	Small - - - - -	Small. Maximum readings slightly above 30.1 ins.
Where first Observed - - -	Over south-west of France and the Peninsula.	British Islands and Bay of Biscay -	Over Germany and eastern France on 22nd.
Direction of Motion - - -	Easterly and south-easterly - - -	South-eastwards at first, then steady, and afterwards westwards.	Westerly and then north-westerly, and afterwards southerly.
Rate of Motion - - - - -	Variable. Slow as a rule - - -	Slow - - - - -	Rapid, then stationary, afterwards rapid again.
Regions passed over - - -	France - - - - -	British Isles, Bay of Biscay, France, and the Peninsula.	France, Bay of Biscay, and the Atlantic off our western coasts.
Termination - - - - -	Passed away to south-eastward -	Passed away to the westward - - -	Formed a large anticyclonic system over the Atlantic and afterwards passed southwards.
Accompanying Wind - - -	South-westerly and Westerly on the northern side.	Light and variable at first, then Westerly and North-westerly.	Westerly to North-westerly on its northern side, Easterly and variable in far south.
Weather - - - - -	Fine in France, showery over our Islands.	Fair within the area of the system, showery to the northward and westward thereof.	Fine.
REMARKS - - - - -	<p>This system was apparently lying over Spain and the southern parts of the Bay of Biscay for several days before it advanced within our area (see Daily and Weekly Reports).</p> <p>After reaching France it soon moved south-eastwards, owing to the approach of the depression No. LI., but did not entirely disappear until late on the 16th, when some very local and shallow thunderstorm depressions were formed over the north-west of France, and completely broke up the system.</p>	<p>This system was formed immediately in the rear of the small local disturbances observed over France on the 17th. Its form was continually changing until it disappeared from our area in a westerly direction.</p>	<p>This anticyclone appeared while the cyclonic system No. LIV. was advancing north-eastwards off our north-eastern coasts, and while its subsidiary disturbance was moving eastwards across the United Kingdom.</p> <p>It appears probable that it was the same system which appeared over south-western Russia on the 21st. (See North-German "Wetterbericht" for that date.)</p> <p>On reaching the Atlantic it apparently became a more permanent system, and lay off our western coasts for several days, but on the advance of the depression No. LVI. moved southwards.</p>

SECTION III.

REMARKS FOR SEPTEMBER 1885.

(Tables XVII. and XVIII. with Plates XVII. and XVIII.)

Pressure.—The mean pressure for the month, at 8 a.m., varied from 29.95 inches at Jersey, and from between 29.90 inches and 29.92 inches along our south coast to about 29.60 inches at Stornoway and in the northern parts of the Shetlands. This distribution is favourable for the prevalence of South-westerly and Westerly winds, and the wind roses on Plate XVII. show that these winds were in excess of those from other quarters. Compared with the mean values for the 20 years 1861–80, the averages for this month show a deficiency varying from about 0.05 in. along our south coast and about 0.07 in. in the south of Ireland to about 0.10 in. over the more northern portions of Ireland and England, and to 0.17 in. in the Shetlands, Hebrides, and extreme north of Scotland. The highest readings (slightly above 30.1 inches) occurred at the northern stations on the 1st, and at the southern stations on the 22nd, when the barometer rose to somewhat above 30.3 inches. The lowest values, however, were recorded, at the northern stations on the 30th, as the large depression No. LVI. was passing over, and at the southern stations on the 10th or 11th, while the peculiar depression of that time was passing up the Channel. The range, however, was not large anywhere, though more decided at the northern than at the southern stations.

Movements of Depressions.—These are shown on Map 2 Plate XVIII., a mere glance at which is sufficient to show that they were mainly north-easterly. A further examination, however, shows that the depressions may be arranged in three groups: (1) Those which travelled northwards outside our western coasts at the commencement of the month; (2) Those which moved north-eastwards outside our north-western and northern coasts on various dates; and (3) Those whose movements were somewhat erratic; of these three (if not all) were actually developed within our area. As a rule, these last named systems were shallow, but one (*viz.* that of the 10th–11th) was deep and well marked.

Anticyclones.—These were few in number, and, excepting No. XXX., were not very well formed. Their height was small, their duration brief, and they lay chiefly over the western and southern parts of our area.

Winds.—These were mainly South-westerly and Westerly, and were often strong to a gale in force. At Sumburgh Head and some other northern stations also there was a considerable admixture of wind from the South-eastward, while at Yarmouth, Jersey, and Scilly there was occasionally an interval of wind from North or North-east, the strongest of which occurred in the rear of depression No. L. Gales were most numerous in the west and north-west, where they were chiefly Southerly or South-westerly, and were occasioned by the various depressions referred to above, and recorded in greater detail in Section II. At Mullaghmore there were gales on 13 days, at Stornoway and Valencia on 9, and at Pembroke on 8.

Temperature.—The mean (sea-level) temperature of the month varied from 59° at Jersey and about 57° along the south coast of England to a little above 50° in the north of Scotland, and to 49° 5 at Sumburgh. In Ireland it varied from about 55° on the south coast to a little below 52° over the inland parts of the counties of Sligo, Leitrim, Fermanagh, and Tyrone. These values show a decrease from those of August amounting to about 3° or 4° very generally. Compared with the means for the 20 years 1861–80 they show a deficit amounting to about 2° or 3° in most places, but varying a little locally over the greater part of England. The highest readings were recorded on the 15th, when maxima ranging from 73° to 78° were recorded at most stations. In Ireland, however, the highest occurred on the 2nd or 3rd, and in Scotland on very various dates. The lowest values occurred very

generally between the 26th and 28th, at which time Northerly gradients prevailed, and sharp frosts occurred both on the grass and in the shade at several stations. The minimum shade temperatures at this time were lower than any that have been recorded over England so early in the autumn for many years. The range was somewhat large, amounting to 45° at Hereford, 44° at Strathfield Turgiss, and to 40° or more at many other inland English stations. At Sumburgh Head, however, it was as small as 20° , and at Scilly 22° .

Vapour Tension was, on the whole, greatest on our extreme southern and western coasts, where it varied from 0.38 in. to 0.42 in., and least in the north and north-east, where it ranged from 0.30 in. to 0.32 in. It was lower inland than on the coasts. *Relative Humidity* was highest (about 90 per cent.) on certain parts of our west, south, and east coasts, and lowest at Leith, where it was only 78 per cent.

Rainfall.—This showed a great increase on the amounts registered during either of the three preceding months. At Laudale the fall amounted to 13.5 inches, at Arlington to nearly 10 inches, at Belmullet and Valencia to about 8 inches, and at Llandovery to rather more than 7 inches. Over England the amounts reported varied from less than 2 inches at York and Bawtry to more than 4 inches in London, to more than 5.5 inches at Manchester, and to 6.7 inches at Falmouth. Taken generally the fall was in excess, especially over Ireland and the western parts of Scotland, but in several parts of our north-eastern counties and the east of Scotland the excess was not traceable, and in some portions of Yorkshire and Nottingham there was a deficit.

Bright Sunshine shows a decrease from the values recorded in August, more especially at the southern and western stations. Assuming that the total amount which could possibly have been registered at each station during the month to be represented by 100, the values actually recorded ranged from 44 at Jersey, 42 at Dublin, and 41 at Geldeston, to between 34 and 39 over the greater part of England, (but to only 30 in Gloucestershire and South Wilts), and to between 24 and 30 over the north of Ireland and west of Scotland. In London the figure was only 28.

TABLE XVII.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC Observations are made at 8 a.m. daily, but the Numbers of Days of Rain, Snow, Hail, (The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 29° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 29°605	50°0	44°4	53°7	49°1	38	26th	58	11th
	Wick	29°641	51°1	43°0	57°0	50°0	29	1st, 27th	63	7th, 10th, 14th
	Sornoway	29°601	50°1	44°6	53°9	50°3	32	27th	62	4th
1. SCOTLAND	Nairn	29°647	49°7	43°4	59°4	51°4	31	1st	66	12th
	Aberdeen	29°694	51°0	43°7	59°6	51°7	32	27th	65	19th
	Leith	29°714	52°2	45°9	60°8	53°4	34	1st, 27th	68	3rd, 15th, 16th
2. ENGLAND, N.E.	Shields	29°769	51°2	45°7	59°7	52°7	34	26th	70	15th
	York	29°827	50°7	44°3	62°7	53°5	30	26th	72	15th
	Spurn Head	29°816	52°8	49°2	59°6	54°4	40	26th	69	15th
3. ENGLAND, E.	Yarmouth	29°862	54°4	49°6	60°8	55°2	33	27th	70	15th
	Cambridge	29°878	53°5	46°3	64°2	55°3	31	27th	78	15th
4. MIDLAND COUNTIES	Loughborough	29°864	51°6	45°7	63°7	54°7	30	28th	75	15th
	Oxford	29°891	53°0	47°5	60°2	54°9	33	28th	74	15th
5. ENGLAND, S.	London	29°899	54°4	48°3	64°0	56°2	32	27th	76	15th
	Dungeness	29°895	50°0	51°3	62°6	57°0	32	27th	69	15th
	Hurst Castle	29°910	56°1	51°3	63°4	57°4	35	27th, 28th	70	8th
6. SCOTLAND, W.	Ardrossan	29°719	51°9	46°8	57°4	52°1	32	27th	63	5th, 7th
7. ENGLAND, N.W.	Hawes Junction*	28°568	47°7	41°9	54°9	48°4	30	26th	62	4th, 15th
	Barrow-in-Furness	29°788	51°9	48°8	58°5	53°7	38	26th, 27th	65	4th
	Liverpool (Bidston)	29°815	52°8	49°0	60°0	54°5	39	26th	68	15th
	Holyhead	29°811	55°2	51°3	58°8	55°1	43	26th	73	6th
8. ENGLAND, S.W.	Pembroke	29°857	55°7	51°9	58°8	55°4	40	27th	62	1st, 3rd, 5th, 6th, 16th, 17th
	Prawle Point	29°926	55°5	50°3	61°7	56°0	36	27th	69	
9. IRELAND, N.	Malin Head	29°702	52°0	48°2	57°1	52°7	36	30th	64	3rd
	Donaghadee	29°760	52°6	46°8	59°0	52°9	37	27th	65	4th, 12th
	Mullaghmore	29°737	52°6	49°5	58°3	53°9	43	26th	64	3rd
	Belmullet	29°722	53°6	49°6	58°0	53°8	40	27th	68	3rd
10. IRELAND, S.	Parsonstown	29°816	50°6	44°8	59°9	52°4	30	27th	68	2nd
	Valencia	29°836	55°8	50°2	60°1	55°2	37	27th	66	2nd
	Roche's Point	29°838	54°8	49°4	60°8	55°1	41	27th	67	6th
CHANNEL ISLANDS	Scilly (St. Mary's)	29°900	57°7	53°3	60°9	57°1	44	27th	66	3rd, 4th, 5th
	Jersey (Noirmont)	29°947	57°5	54°1	62°4	58°3	44	27th	71	15th

* Hawes Junction is 1,135 feet above Mean Sea Level and the

- TABLE XVII.

REPORTING STATIONS in the BRITISH ISLANDS, during the Month of September 1885.

Thunderstorms, and Gales are counted irrespective of the hours at which they occurred.

(beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	°/100	ins.	ins.	ins.	3rd	21	0	0	0	2	13	5	4	2	1	7	2	4	6	3	0
0.312	87	7.4	4.65	0.62	2nd	24	1	1	0	6	9	4	2	0	1	3	8	3	4	7	2
0.317	84	5.8	3.35	0.52	29th	27	0	3	0	7	17	9	2	1	2	3	7	7	5	2	1
0.328	91	7.2	7.10	0.79	20th	24	0	0	0	9	13	3	1	1	1	1	2	11	5	0	8
0.299	84	6.1	3.27	0.59	20th	22	0	1	0	12	6	4	2	0	0	2	5	8	7	4	2
0.309	82	4.5	3.90	0.83	8th	20	0	1	0	11	5	1	1	0	0	4	8	1	12	4	0
0.303	78	4.6	2.39	0.56	2nd, 28th	16	0	0	1	8	13	2	1	0	0	1	5	12	6	3	2
0.311	83	6.3	2.14	0.34	26th	19	0	0	1	12	5	0	4	1	1	1	9	5	5	4	0
0.319	86	4.7	1.97	0.35	26th	18	0	0	3	12	6	3	1	4	0	2	6	7	4	6	0
0.372	93	4.6	3.14	0.63	10th	23	0	0	0	6	5	2	1	3	1	2	2	7	8	6	0
0.375	89	5.4	4.47	1.06	10th	20	0	1	3	9	17	20	3	0	1	1	11	6	2	5	1
0.364	89	6.6	3.09	0.98	10th	20	0	0	2	2	11	12	3	1	1	2	4	5	10	2	2
0.335	87	6.2	3.44	0.94	10th	19	0	1	5	10	13	1	1	2	0	2	10	5	4	4	2
0.352	87	6.1	4.22	1.34	10th	21	1	2	2	6	14	3	1	1	1	1	6	7	7	5	1
0.356	84	6.9	4.06	1.03	16th	18	0	0	0	4	10	3	4	1	1	1	3	5	10	5	0
0.419	93	6.6	3.97	1.29	10th	19	0	0	0	8	1	3	5	1	2	1	1	8	8	4	0
0.410	90	5.1	3.66	0.90	15th	24	0	0	0	7	16	4	1	4	4	0	5	6	5	3	2
0.344	89	7.1	5.46	0.68	30th	26	0	0	0	8	13	0	3	3	1	1	4	8	9	0	1
0.306	93	5.8	8.13	1.54	8th	22	0	0	0	5	8	3	6	3	0	7	3	5	2	4	0
0.331	86	5.8	4.48	0.88	28th	22	0	1	1	6	10	0	1	2	2	5	6	5	7	2	0
0.323	80	6.4	4.13	0.43	18th	22	0	0	0	7	8	5	3	1	1	2	4	10	5	3	1
0.355	82	5.6	3.93	0.58	6th	20	0	2	0	5	7	8	3	2	2	1	7	7	5	3	0
0.376	85	5.7	6.23	1.43	28th	21	0	1	0	9	9	3	4	0	1	0	5	11	3	5	1
0.397	90	5.3	3.01	0.96	11th	27	0	1	0	6	15	4	2	0	1	2	9	5	7	4	0
0.338	87	6.6	4.67	0.61	11th	22	0	0	0	11	10	6	2	2	1	1	2	7	12	3	0
0.348	88	5.2	4.46	0.65	11th	23	0	1	3	0	9	13	3	0	2	3	5	4	8	4	1
0.327	82	7.8	6.05	1.05	11th	28	0	0	0	7	10	11	3	1	2	2	5	6	10	1	0
0.383	93	5.9	8.23	1.28	14th	23	0	0	0	9	14	0	1	0	1	5	2	8	4	4	5
0.322	88	6.1	5.33	0.80	18th	27	0	0	1	0	18	9	3	3	1	2	6	5	4	4	2
0.383	86	8.2	7.96	1.53	14th	23	0	0	0	7	13	6	7	0	0	0	3	9	8	3	0
0.375	87	6.2	6.04	0.85	10th	24	0	0	0	0	15	5	5	1	0	2	5	8	6	3	0
0.394	83	8.2	4.90	1.18	16th	22	0	3	4	3	13	5	3	4	1	1	1	9	7	3	1
0.402	85	7.0	3.61	0.79																	

Barometric readings at this station are not reduced for altitude.

TABLE XVIII.

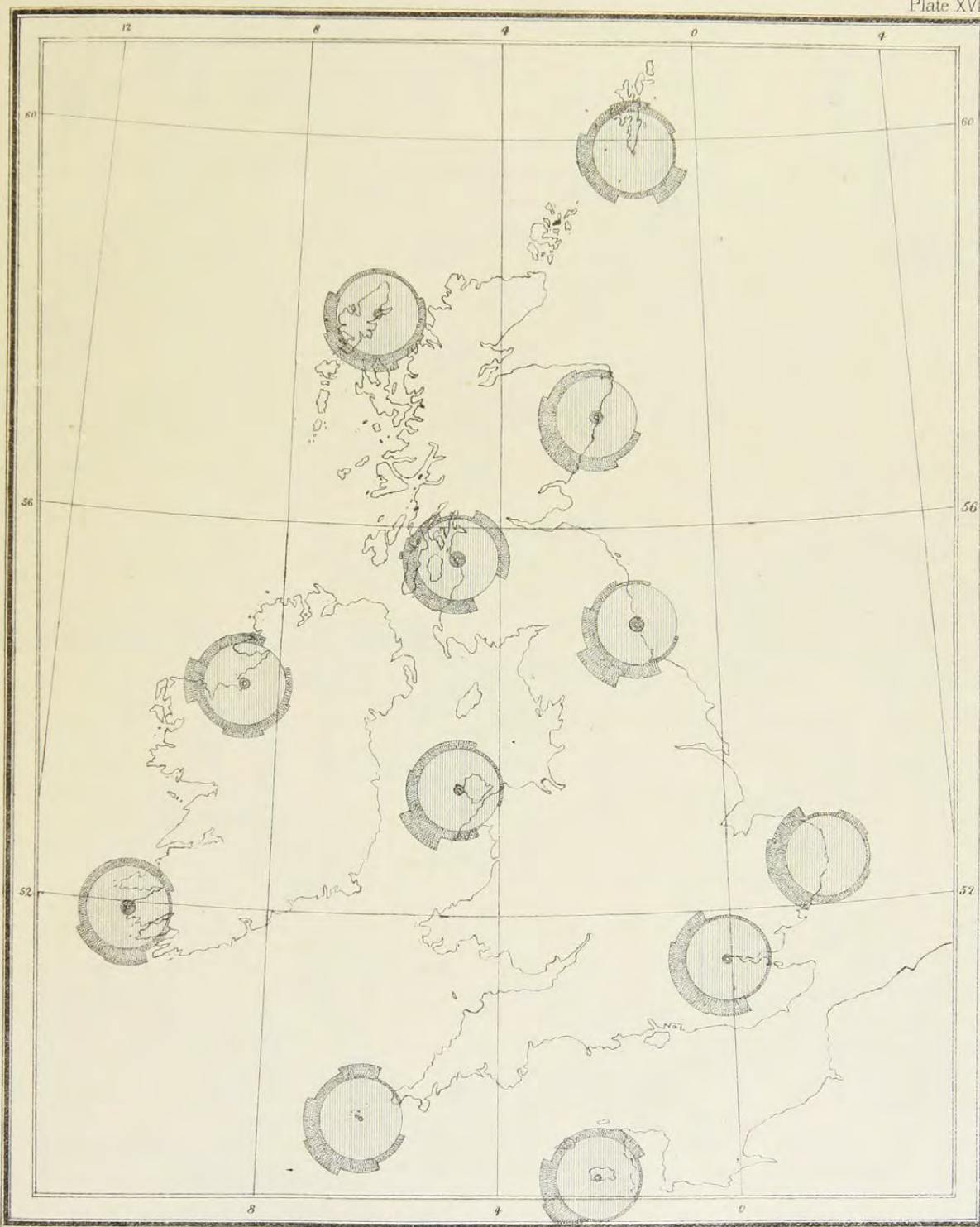
OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT, during the Month of September 1885.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY	•	•	•	•	•	•	•	•	•	•	•	107	28
ABERDEEN	•	•	•	•	•	•	•	•	•	•	•	143	38
ALNWICK CASTLE	45'1	57'7	51'4	35	25th	66	15th	21	3'49	0'76	24th	—	—
SCARBOROUGH	48'4	60'3	54'4	38	26th	70	15th	19	2'53	0'40	26th	—	—
YORK	•	•	•	•	•	•	•	•	•	•	•	139	37
HILLINGTON	45'8	62'9	54'4	32	27th	77	15th	21	4'40	0'67	2nd	138	37
GELDESTON	46'8	62'4	54'6	32	27th	73	15th	24	5'15	2'02	10th	155	41
CAMBRIDGE	•	•	•	•	•	•	•	•	•	•	•	137	37
ROTHAMSTED	45'7	62'4	54'1	31	27th	75	15th	24	4'38	1'45	10th	—	—
BAWTRY	43'8	65'5	54'7	31	25th	77	15th	18	1'66	0'28	8th	—	—
LEICESTER	46'7	64'5	55'6	32	28th	76	15th	18	3'16	0'88	10th	127	34
CHEADLE	45'0	60'1	52'6	35	26th, 28th	69	15th	21	3'53	0'60	2nd	—	—
CHURCHSTOKE	44'0	60'9	52'5	29	28th	69	15th, 22nd	24	3'33	0'57	10th	146	39
HEREFORD	44'7	64'4	54'6	28	28th	73	3rd	19	3'12	0'84	10th	—	—
CIRENCESTER	45'2	61'2	53'2	34	26th, 28th	71	15th	21	4'47	1'64	10th	111	30
OXFORD	•	•	•	•	•	•	•	•	•	•	•	130	35
LONDON	•	•	•	•	•	•	•	•	•	•	•	104	28
MARLBOROUGH	46'0	62'1	54'1	30	28th	71	15th	22	4'71	1'99	10th	117	31
STRATHFIELD TURGIS	47'3	64'1	55'7	30	27th	74	3rd, 15th	7 12	4'26	1'64	10th	—	—
HASTINGS	51'1	61'9	56'5	37	27th, 28th, 29th	69	15th	22	4'45	1'32	10th	138	37
SOUTHAMPTON	49'2	63'9	56'6	33	27th	72	15th	22	5'07	1'20	10th	128	34
LAUDALE	47'2	56'5	51'9	32	27th	65	7th	26	13'49	1'83	11th	—	—
GLASGOW	44'2	57'5	50'9	31	27th	63	3rd, 4th, 7th, 8th.	25	5'29	0'64	12th	106	28
DOUGLAS	46'9	58'3	52'6	33	27th	62	3rd, 4th, 6th, 7th.	21	6'27	1'34	11th	146	39
NEWTON REIGNY	43'0	57'8	50'4	30	26th, 27th	65	3rd	25	4'31	0'55	5th	126	34
STONHURST	44'2	59'1	51'7	32	26th	66	15th	22	5'05	0'67	14th	131	35
BLACKPOOL	46'2	59'3	52'8	31	28th	68	1st	22	4'50	0'64	11th	150	40
MANCHESTER	45'5	60'8	53'2	34	26th	68	14th	23	5'78	1'41	2nd	—	—
LLANDUDNO	49'6	60'8	55'2	40	26th	67	4th, 5th	18	2'94	0'75	30th	127	34
LLANDOVERY	44'3	62'4	53'4	25	26th	70	17th	27	7'28	0'89	13th	—	—
PEMBROKE	•	•	•	•	•	•	•	•	•	•	•	144	39
ARLINGTON	46'9	60'2	53'6	32	28th	67	6th	25	9'74	2'08	10th	—	—
CULLOMPTON	45'9	63'5	54'7	28	28th	69	3rd, 6th	24	5'31	2'17	10th	129	34
FALMOUTH	50'2	60'6	55'4	36	27th	66	5th	24	6'73	1'78	10th	138	37
PLYMOUTH	49'3	62'2	55'8	35	28th	66	3rd, 4th, 5th, 17th.	22	4'39	1'02	2nd	135	36
JERSEY	•	•	•	•	•	•	•	•	•	•	•	163	44
LONDONERRY	45'9	59'5	52'7	37	1st, 27th	68	3rd	27	3'97	0'64	28th	—	—
MARKREE CASTLE	44'1	58'6	51'4	33	27th	65	2nd, 4th	30	5'05	0'79	11th	90	24
BROOKEBOROUGH	43'8	58'4	51'1	29	27th	63	3rd, 4th	21	6'10	0'65	28th	—	—
ARMAGH	44'9	59'4	52'2	32	27th	65	3rd, 4th	25	4'42	0'82	14th	109	30
EDGEWORTHSTOWN	44'5	59'5	52'0	32	27th	67	2nd	19	5'23	0'77	14th	—	—
DUBLIN	47'7	61'0	54'4	34	27th	69	12th	23	2'86	0'36	2nd	156	42
PARSONSTOWN	•	•	•	•	•	•	•	•	•	•	•	136	36
KILKENNY CASTLE	44'4	60'5	52'5	32	27th	67	2nd	18	4'30	1'09	1st	—	—
WATERFORD	45'7	61'0	53'4	33	27th	67	5th	22	5'13	1'35	1st	—	—
VALENCIA	•	•	•	•	•	•	•	•	•	•	•	118	32
KILLARNEY	47'2	60'9	54'1	32	26th, 27th	69	2nd	25	6'65	1'03	29th	—	—
FOYNES	46'3	61'3	53'8	35	30th	70	2nd	27	4'61	0'62	8th	—	—

* For information see Table XVII.

MONTHLY WIND CHART FOR SEPTEMBER 1885.

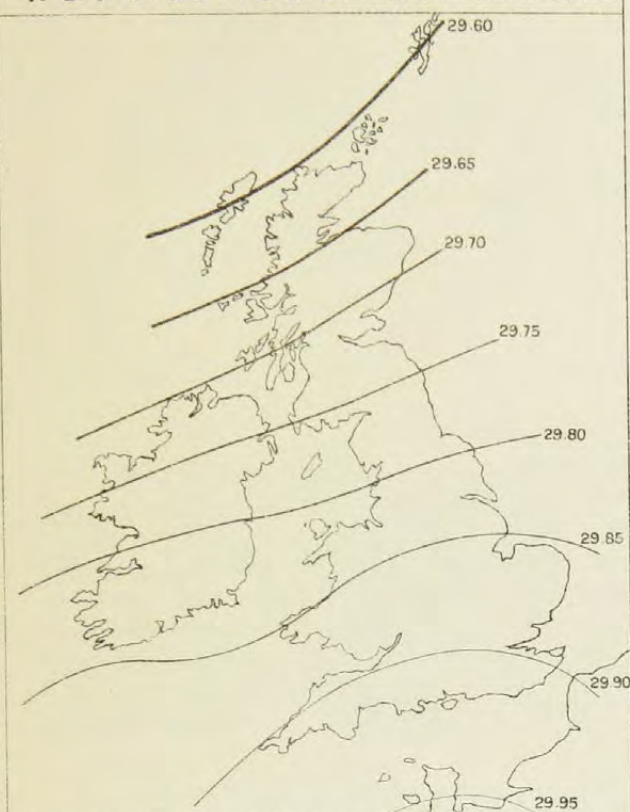
Plate XVII.



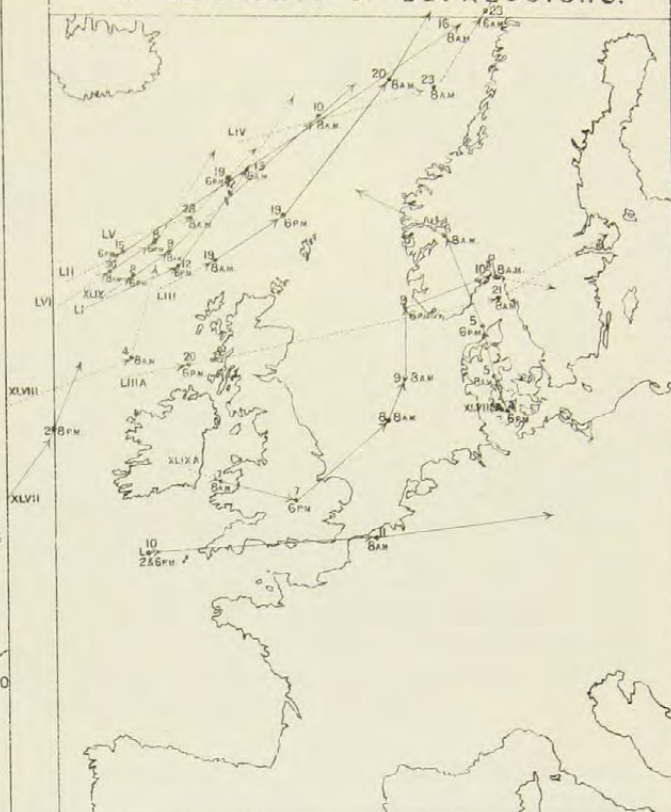
To face page 104.

DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 11089.

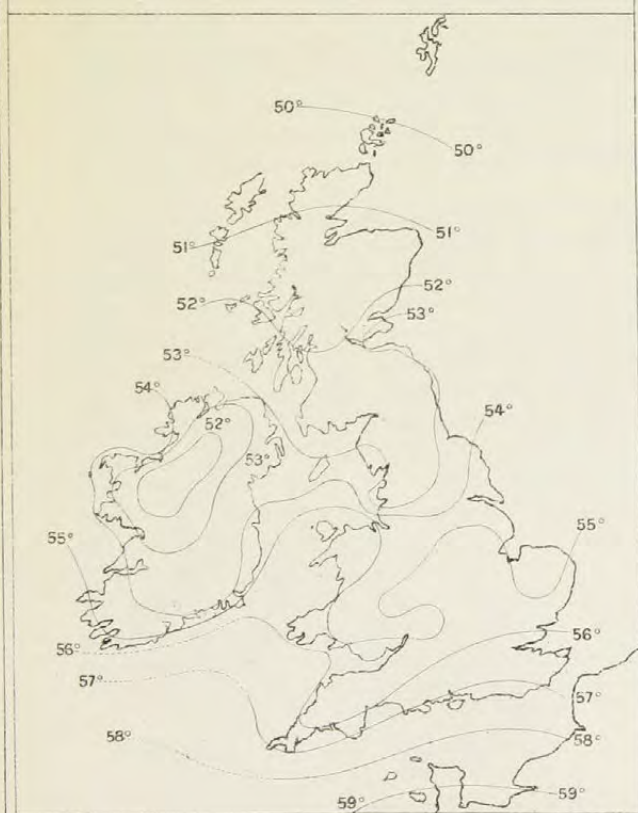
1. DISTRIBUTION OF MEAN PRESSURE



2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE



4. RAINFALL



MONTHLY WEATHER REPORT.

OCTOBER 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather during the month of October was exceedingly dull, wet, and unsettled over nearly the whole of the kingdom. Pressure has been low, and very unsteady; depressions have been numerous and complex, and they have appeared in all parts of our area; their movements have been unusually variable both in direction and rate, and while some systems have dispersed soon after reaching us, others have been formed within our area and become deep before leaving it. Temperature has been about 4° or 5° below the average; and rainfall has been in excess, except over the north-east of Great Britain and the south-west of Ireland. There were as many as 28 rainy days on our east coasts and in the Scilly Islands. Bright sunshine has been deficient, especially over the north-west of England.

October 1-6.—The dominant pressure systems during this portion of the month were cyclonic, and the types of distribution south-westerly to westerly—a continuation, in fact, of the conditions which set in towards the close of September. The gradients were often steep, and favourable for winds from between South-west and North-west. The weather was showery, and, as a rule, rather cold, and thunderstorms occurred in several localities. Two important depressions (Nos. LVII. and LVIII.*) passed by our northern coasts during this interval, the first bringing gales and strong winds from the Southward and South-westward, while in the other the range of direction was larger. In the rear of this second system (which was accompanied by a well-marked subsidiary) the barometer rose rapidly, and the wind veered almost to North, while the temperature fell fast, and the rainfall was very heavy.

October 7-14.—Cyclonic systems continued to traverse our area, but they now moved from a more westerly or north-westerly direction than those hitherto experienced, and their winds, though occasionally South-westerly, were on the whole from points much more Northerly than those experienced between the 1st and 6th. Temperature consequently decreased still further, and, after one fair day, cold rains again fell very generally, and lightning was seen over the south-west of England. The principal depression (No. LIX.*), which appeared over our northern districts during this time was followed closely by another well-marked disturbance (No. LIXA.*), the centre of which passed over the southern parts of the kingdom (see the charts in the Daily and Weekly Weather Reports for the 10th). The main disturbance then filled up, while the subsidiary moved on to Germany, and, uniting with some other systems, formed over Central Europe a vast and complex low-pressure area, having three distinct minima, which lay, at 8 a.m. on the 11th, one over Posen, another near Cassel, and a third (and deeper one) over the northern parts of the Adriatic. Over the United Kingdom, the North Sea, and France the gradients were northerly, and winds from that quarter were consequently prevalent. With the information at present available it is impossible to say precisely what were the movements of these three minima, but at 8 a.m. on

* See Section II., and Map 2, Plate XX., for the history and tracks of depressions.

the 12th (the gradients over our Islands and their neighbourhood being still northerly), a well-formed minimum (No. LX.*), appeared over the north of Denmark, and instead of moving eastwards, as its predecessors had done, it commenced travelling slowly to the south-westward, and after producing Northerly gales and cold showers on our north-eastern coasts dispersed suddenly off the north-eastern coast of Norfolk on the night of the 14th. The barometer then rose everywhere, and easterly gradients were established over the whole of our Islands and the North Sea.

October 15-16.—During this interval pressure was highest over the northern and lowest over the southern parts of our area. At 8 a.m. on the 15th, readings varied from a little above 30·4 ins. off our north-western coasts, and also over the southern parts of Scandinavia and the Baltic to 29·6 ins. over the extreme south of France, and over the whole of north-western Europe the barometer was rising briskly. The weather in our Islands was fine, but not very cold, and the winds were South-easterly to North-easterly. Over the Mediterranean, however, a large and somewhat deep depression had appeared (see the Paris and Italian bulletins for this time), the centre of which had advanced rapidly in a northerly direction from the central parts of Northern Africa. The eastern parts of this depression lay over Corsica and Sardinia, and, as its centre advanced northwards the system spread eastwards over Switzerland, Austria, and Germany (where it appears to have developed some serious subsidiary disturbances), and finally broke up into two parts. The first and shallower of these advanced northward over the eastern parts of France and western parts of Germany, but on reaching the neighbourhood of Metz dispersed, after causing a definite increase of Easterly wind, and several hours of rain not only over the north-east of France, but also over our south-eastern counties, where the appearance of the sky was, for a time, very threatening. The more southern and deeper portion took a north-westerly course, and travelling along the foot of the Pyrenees reached the Bay of Biscay, about 100 miles to the westward of Lorient, at 8 a.m. on the 16th, whence it passed away to sea, outside our area, during the day. One effect of these disturbances was the production of North-easterly to South-easterly gales and rains at the mouth of the Channel and over Brittany, which subsequently moderated, with a clearing sky, falling temperature, and increasing pressure.

October 17-20.—During this period the dominant pressure distribution was anticyclonic. Two systems prevailed, one having its centre to the north-westward of our Islands, while the other lay over the south-eastern parts of France and Italy and the Mediterranean. These were joined by a "col." which lay over Great Britain, Belgium, and the northern parts of France. (See Daily and Weekly Reports for this date.) Thus, while light North-easterly winds prevailed at our northern and eastern stations, Easterly and variable breezes prevailed in the west of our Islands, and South-easterly in the west of France. Temperature fell, and though a good deal of bright sunshine was reported, there were at first occasional showers, except in the south-west. The Northern anticyclone now moved along our western coasts, and spread south-eastwards over the United Kingdom to Belgium, while in the south of France pressure gave way, and thus it came about that at 8 a.m. on the 20th the readings varied from a little above 30·1 inches over the south-westerly parts of Ireland to 29·4 inches in the south-east of Sweden, and to 29·6 inches at Toulon. The wind was then light from North, except in the west of Ireland; temperature was low, the weather gloomy, and slight showers still fell in the east. The anticyclone in the west then gave way, and depressions once more advanced over us from the Atlantic.

October 21-29.—The distribution of pressure now became cyclonic again, and the type complex,—gradients for Easterly winds being prevalent over our Islands, while those over France were favorable for winds from the West. Two depressions appeared over the Channel; the first arrived off the south of Ireland from the westward early on the 21st, and moving slowly to a position between Havre and the Isle of Wight, dispersed there during the night of the 22nd. The second was formed between Penzance and the coast of Brittany

* See Section II., and Map 2, Plate XX., for the history and tracks of depressions.

early on the 23rd. Thence it moved north-eastwards somewhat slowly, and after growing deeper for a time, finally broke up in the neighbourhood of Stockholm on the 26th. Cold rains, with some sleet or snow, and strong cyclonic winds (chiefly North-easterly and Northerly on our coasts), were felt with these disturbances. On the night of the 25th, however, a change occurred, the barometer rising steadily over the southern districts, and falling in the north, while a new depression (No. LXIV.*) advanced over Scotland. The wind, therefore, backed round to South-west, and increased considerably in force, with rising temperature, and rain again fell in all parts of the kingdom. After the centre had reached the Skager Rack, a new system approached Scotland from the north-westward. An extensive trough was then formed, covering the whole of Scotland, the northern parts of the North Sea, and the south of Scandinavia; in this the two minima lay, and the whole system moved south-eastwards to the Baltic and North Germany. The wind veered round from West to North over our Islands as this change took place, and blew hard for a time, with low temperature, and on the whole drier weather, the gale lulling as the centre passed away, until on the night of the 29th calms prevailed almost all over England.

October 30-31.—The quiet weather did not last for more than a few hours, for at 8 a.m. on the 30th (pressure being then highest, and very uniform, in the east) a new and complex disturbance reached the west of Ireland. (See the charts in the Daily and Weekly Reports.) It apparently consisted of two parts, one of which moved northwards in about the direction indicated by the broken arrow marked LXV. on Map 2, Plate XX., causing Southerly and South-easterly breezes in Scotland, while the other (and deeper) part (No. LXVA.) took an easterly course, reaching the mouth of the Bristol Channel at 6 p.m. of the 30th, and the south-east of England next morning. Here it began to fill up, and turning suddenly to the southward dispersed entirely over the north-east of France on November 1. The weather which it brought to England and the Channel was again rough, cold, and very wet, strong North-east to North-west winds being felt everywhere, and gales in the West, with heavy rains. A strong Easterly gale blew for some hours on the coast of Norfolk during the afternoon of the 31st.

* See Section II., and Map 2, Plate XX., for the history and tracks of depressions.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—OCTOBER 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. LVII. October 2-3.	No. LVIII. October 4-6.	No. LVIIIA. October 6-7.
Form - - -	Angular and varying - - -	Apparently nearly circular - - -	Nearly circular at centre - - -
Size - - -	Large - - -	Large - - -	Small to moderate - - -
Depth - - -	Deep - - -	Moderate - - -	Shallow - - -
Where first Observed - -	Off our north-western coasts - -	Off our north-western coasts - -	Over the north-west of Ireland - -
Direction of Motion - -	North-easterly - - -	North-easterly - - -	Easterly - - -
Rate of Motion - - -	Moderate - - -	Slow - - -	Rapid - - -
Regions passed over by Steepest Gradients.	North-western and northern parts of our Islands.	Northern parts of our Islands and North Sea.	Southern parts of the United Kingdom, and the Channel.
Termination - - -	Travelled away to the northward -	Apparently dispersed off the north-west coast of Norway.	Travelled away to the eastward -
Time under Observation -	About 36 hours - - -	About 60 hours - - -	About one day - - -
Accompanying Winds - -	Southerly to Westerly; gales in west, strong squally breezes elsewhere.	Strong South-westerly, followed by Westerly and North-westerly.	South-westerly to North-westerly; strong over all the southern half of our Islands.
" Weather -	Rainy, especially in the north-west; squally and changeable.	Rainy, squally, and very unsettled -	Squally, much rain - - -
" Rainfall -	More than an inch at Stornoway; very slight in south-east.	General, but heaviest in west and north-west. Slight in south-east.	General, and in many places heavy; more than an inch at Loughborough.
REMARKS - - -	<p>This disturbance followed very closely on No. LVI. (see the September Report), and at 6 p.m., 2nd, appeared as though subsidiary to it. It advanced when pressure was highest (30.3+) over the Peninsula and France and lowest to the northward of the Shetland Isles.</p> <p>This disturbance followed No. LVII. at a time when pressure was highest over Italy and the south-east of France and lowest to the northward of our Islands. Its progress, however, was not nearly so fast as that of No. LVII.</p> <p>At one time (early on the 5th) the disturbance <i>seemed</i> inclined to move south-eastwards over the North Sea, but this tendency soon disappeared and the centre moved northwards. (See also No. LVIIIA.)</p> <p>This system was apparently formed over Connaught during the morning of the 6th, as the system, No. LVII. (to which it was subsidiary) was passing away to the northward.</p> <p>In its rear temperature fell decidedly, the wind veered to North-west on all our coasts, and the sky cleared for a time.</p>		

SECTION II.

TABLE OF CYCLONIC SYSTEMS—OCTOBER 1885.

No. LIX. October 8-11.	No. LIXA. October 10-11.	No. LX. October 12-14.	No. LXI. October 15-16.
Varying, from nearly circular to oval -	Irregular, oval; but varying -	Irregular, but nearly circular about its centre.	Oval.
Large - - - -	Very large - - - -	Moderate to large - - -	Large.
Moderate to shallow - - -	Deep - - - -	Shallow to moderate - - -	Shallow.
Off our north-west coasts - -	Off the west of Ireland, late on the 9th.	Over the north of Denmark - -	Over the Mediterranean, near Corsica.
North-easterly at first, then easterly till 9th, then north-north-easterly.	East-south-east and east - -	South-westerly - - - -	Northerly and north-westerly.
Variable; very slow as a rule, but moderate after 9th.	Rapid - - - -	Very slowly - - - -	Rapid.
British Isles and North Sea - -	France, the Channel, and our southern counties.	Norway, the North Sea, and British Islands.	Switzerland, Germany, and southern parts of France.
Travelled northwards and apparently dispersed.	Passed away towards North Germany, and apparently filled up quickly after reaching Belgium.	Dispersed suddenly off our east coasts on night of 14th.	Passed away to the Atlantic.
About 3½ days - - - -	About 36 hours - - - -	About three days - - - -	One day.
Southerly to Westerly and North-westerly; strong in Ireland and England, moderate in Scotland.	Southerly to Northerly in our Islands, the latter strongest; severe West to North-west gales in France, the Bay of Biscay, and the Channel.	Northerly, strong to a gale in our Islands.	Strong Easterly (South-east—North-east) in our Islands; North-easterly to South-easterly gales in south of France.
Squally, showery; cold - - -	Very rainy and squally. Temperature changes not very great.	Cold, squally, and showery - -	Squally, unsettled, much rain on the Continent, especially over southern Europe.
General, but not heavy - - -	Heavy in south, slight in north -	Heavy on our eastern coasts, none in west.	Confined (in our Islands) to our southern and south-western stations.
<p>This depression reached the west of Scotland at a time when pressure was highest over the southern shores of the Bay of Biscay, and lowest over Finland, the gradients being moderate. Its movements were irregular, and several very shallow subsidiary disturbances were noticed on its southern side.</p> <p>Late on the 9th, however, when the centre lay off the south of Norway a new and deep system (No. LIXA.) advanced rapidly over Ireland to our south coast, causing severe Westerly gales over France, the Bay of Biscay, and the Channel, while the wind over our Islands drew into North.</p>	<p>This depression appeared when the system No. LIV. was lying off the south of Norway. Its rate of movement slackened greatly after it reached our southern coasts and the circulation soon broke up, but not until very severe weather had been experienced over France.</p> <p>On reaching Germany the system (in conjunction with another shallow one, already existing in that region) formed a large shallow low-pressure area, which soon dispersed.</p>	<p>This disturbance apparently advanced to Denmark from the south-east as a very shallow system, but grew much deeper after reaching that country.</p> <p>Its break up off our east coasts was very sudden and complete.</p>	<p>This depression apparently advanced northwards from Africa to the Mediterranean during the 14th. It brought with it a rapid increase of temperature to the Adriatic, Switzerland, and South Germany, and at least one local storm of great violence occurred in Bavaria. On reaching the south of France the system appears to have broken up into two parts—one of which was shallow and advanced northwards over France to neighbourhood of Chalons during the afternoon of the 15th, where it dispersed, while the other (and deeper) portion moved north-westwards, as shown by the arrows on Map 2, plate XX. But for the former and shallower depression it is not probable that the rainy weather would have extended to the south of England at all.</p>

SECTION II.—*continued*

TABLE OF CYCLONIC SYSTEMS, OCTOBER, 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. LXII. October 21-22.	No. LXIII. October 23-26.
Form - - - - -	Nearly circular at first, then oval - - -	Oval - - - - -
Size - - - - -	Small - - - - -	Large - - - - -
Depth - - - - -	Shallow - - - - -	Moderate - - - - -
Where first Observed - - - -	Off the west of Ireland - - - - -	At mouth of English Channel - - - -
Direction of Motion - - - -	East-south-east and east - - - - -	North-easterly - - - - -
Rate of Motion - - - - -	Moderate - - - - -	Very slow - - - - -
Regions passed over by Steepest Gradients	North-west of France, mouth of English Channel, and south of Ireland.	British Islands and North Sea - - - -
Termination - - - - -	Dispersed between Havre and the Isle of Wight.	Dispersed near Stockholm - - - - -
Time under Observation - - -	Two days - - - - -	Three days - - - - -
Accompanying Wind - - - - -	South-easterly to North-easterly in our Island, South-westerly to Westerly gales in France.	Strong North-easterly to Northerly on the north- western side of its track, South-westerly to Westerly in the south-east.
„ Weather - - - - -	Much rain - - - - -	Squally, cold, much rain; snow in north - -
„ Rainfall - - - - -	Heavy, but confined to our south-western and southern districts.	Heavy in southern and eastern districts, and on the Continent.
REMARKS - - - - -	<p>This depression advanced suddenly while a slight anticyclone lay over the Bay of Biscay, and a ridge extended northwards over Ireland and England.</p> <p>At 8 a.m. on the 21st (when its centre lay a little to the southward of Waterford), another, but very small and shallow system, had been developed off our north-eastern coasts, and caused a considerable fall of rain (locally) over our north-eastern counties, while a third, large but very shallow low pressure area lay over Norway. (See Daily Weather Report and Weekly Report, p. 170.)</p> <p>This system appears to have been developed at the mouth of the Channel in a trough, which at 6 p.m., 22nd, lay over all the southern parts of Ireland and England, the Channel, Belgium, and the north of France, and in which the depression No. LXII. dispersed. On reaching the North Sea it grew shallower, and, as the large system No. LXIV. advanced, it dispersed entirely.</p>	

- SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS, OCTOBER 1885.

No. LXIV. October 26-29.	No. LXIVa. October 27-29.	No. LXV. October 30-31.	No. LXVa. October 30-31.
Elongated and very irregular	Nearly circular	Elongated, somewhat irregular	Elongated and variable, nearly circular about centre.
Very large	Apparently moderate	Moderate	Small to moderate.
Moderate. Lowest readings about 28·7 ins.	Moderate. Lowest readings about 28·7 ins.	Varying, shallow to moderate	Shallow to moderate.
Off the north-west of Scotland	To the westward of the Shetlands	Off the west of Ireland	Off the south-west of Ireland.
Easterly and south-easterly	South-easterly	Northerly	Easterly.
Slow	Slow	Moderate and slow	Slow.
British Islands generally and north of France.	British Islands and north of France	British Isles, France, and the North Sea.	Southern parts of our Islands, the Channel, and north of France.
Passed slowly away to Germany and Russia, with No. LXIVa.	Passed slowly to Germany with No. LXIV.	Passed away to the northward	Moved suddenly southwards, and dispersed over north-east of France on November 1.
Four days	Three days	One day	Two-and-a-half days.
South to West and North-west in our Islands, Easterly over Scandinavia. The North-westerly current blew hard over our western coasts and in the Bay of Biscay.	Same as No. LXIV.	Southerly and South-easterly, felt chiefly in Scotland (see No. LXVa).	Variable. Chiefly South-westerly to North-westerly and Northerly.
Cold squally, and showery	Same as No. LXIV.	Rainy: rather cold	Much rain. Cold.
General; heavy in several places	Same as No. LXIV.	General; not very heavy	Heavy in many parts of England and France.
On the second of these two systems reaching our northern coasts, a long trough was formed. (See Daily Reports for 27th and 28th, and Weekly Report, p. 174.) In this trough lay the centres of the two depressions here described. At 8 a.m. on the 28th, the trough lay from west to east across Scotland, the northern part of the North Sea, and the southern parts of Scandinavia, whence its western extremity moved south-eastwards, as mentioned above. At 6 p.m., a third "minimum" had appeared near Wisby, and the North German Weather Report shows that while the western "minimum" had moved south-eastwards, the eastern one had moved north-eastwards, and in this way the whole combination became much modified as it passed out of our area.		On reaching the west of Ireland, these two systems appeared as one elongated depression, which at 8 a.m. on the 30th, lay off our extreme western coasts. The northern portion moved northwards, while the southern part travelled eastwards, and growing deeper at first moved in the same direction till it reached our east coast. Here it halted for a short time, and then, turning suddenly southwards, dispersed. The northern one soon passed out of our area.	

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEM, OCTOBER 1885.

NATURE OF CHARACTERISTICS OBSERVED.						No. XXXIII. October 15.
Form	-	-	-	-	-	Somewhat oval at first, then variable.
Size	-	-	-	-	-	Large.
Height	-	-	-	-	-	Moderate. Maximum reading, 30.6 ins. and upwards on 15th; apparently lower later.
Where first observed	-	-	-	-	-	Over Scandinavia.
Direction of Motion	-	-	-	-	-	Variable; but on the whole westerly and southerly.
Rate of Motion	-	-	-	-	-	Slow.
Regions passed over	-	-	-	-	-	Northern and western parts of our area.
Termination	-	-	-	-	-	Uncertain: apparently dispersed as it moved north-westwards over the Atlantic.
Accompanying Wind	-	-	-	-	-	Easterly to Northerly in our Islands.
„ Weather	-	-	-	-	-	Cold and dry.
REMARKS	-	-	-	-	-	<p>This system was apparently developed over Scandinavia in the rear of the peculiar cyclonic system, No. LX. It was then transformed into a long band of high-pressure (or "crest") which at 8 a.m. on the 16th lay from west-north-west to east-south-east from the Farö Isles to central Russia.</p> <p>Pressure then gave way over Russia, and the system moved westward and extended in the form of a ridge (or col) over the whole of western Europe from the 17th to the 19th. It subsequently took up a position off our western coasts (on the 20th), and apparently broke up when the cyclonic systems, Nos. LXII., LXIII., &c. advanced over us.</p>

SECTION III.

REMARKS FOR OCTOBER 1885.

(Tables XIX. and XX., with Plates XIX. and XX.)

Pressure.—The mean pressure for the month, at 8 a.m., varied from 29·85 inches at Valencia to between 29·63 inches and 29·65 inches, along the north-eastern and eastern coasts of Great Britain, and to 29·59 inches at Sumburgh Head. The mean gradients were therefore moderate and favourable for winds from the North-westward. These values are decidedly lower and are of a more northerly type than those for last month. Compared with the averages for the 20 years 1861–80, they show a deficit of more than 0·2 in. over our south-eastern counties, of about 0·1 in. in the extreme north-east of Scotland, and of about 0·05 in. on our north-western coasts. In the extreme south-west of Ireland, however, the mean values for the present year and those for the longer period are almost identical. The highest values were recorded at most stations on the 15th, when the anticyclone No. XXXIII. lay over Scandinavia and the north of Scotland, while the lowest occurred at the southern stations on the 10th, while the subsidiary cyclonic system No. LIXA. was passing over, and at the northern stations on the 26th, while depression No. LXIV. was travelling across our northern districts. The range was rather large (about an inch and three quarters) in the north, but moderate over the southern districts. The barometer was very unsteady throughout the month.

Movements of Depressions.—These were very remarkable, the systems having travelled in almost all directions, and over all parts of our area. The major part of them moved, as usual, in a more or less easterly direction, some north-easterly, some easterly, and one (No. LXIVA.) south-easterly. One moved south-westwards from the north of Denmark to the coast of Norfolk, another advanced northwards over France, and another north-westwards from the Mediterranean to the Bay of Biscay. Several of the disturbances were actually formed, and several dispersed while within our area. The movements of a few (notably Nos. LIX. and LXVA.) changed suddenly, and their rates of motion also varied greatly. Many of the systems were complex, some very deep, and others small and shallow.

Anticyclones.—Only one of these systems came fairly within the limits of our area. Its movements were very irregular, and, although some portion of it remained with us for several days, its centre was almost continuously outside the limits of our observation. It finally passed to the westward of the British Isles, and apparently broke up over the Atlantic.

Winds.—These varied greatly, but were chiefly from points between West and North, the Northerly element preponderating at the northern stations, and the Westerly in the south. They were, on the whole, strong in force, and gales were of very frequent occurrence, especially in the west. The amount of change in the direction of the wind was often very large, as the centres of the systems passed so frequently over our Islands.

Temperature.—The mean (sea level) temperature of the month varied from about 51° at Scilly and Jersey, and about 49° along the southern coasts of Ireland and England, to somewhat below 45° over the inland parts of Ireland, to a little below 44° over the north of England, and to below 42° over Scotland—indicating a decrease since September of about 7° over central Ireland, and 9° over Scotland and England. Even in the Channel Islands the decrease amounted to 8°, and at Scilly to 6°. Compared with the average values for the same month in the 20 years 1861–80, the values for this month show a deficit amounting to about 4° or 5° in Ireland and England, and to more than 5° in Scotland. Over England the highest values were recorded very generally between the 1st and 3rd, but over the greater part of Ireland the highest point was reached on the 17th, and on this occasion a second

maximum occurred over some parts of the west of England. In the north of Scotland the warmest day was the 15th. The lowest readings were registered at many of the English stations on the 12th, with the Northerly winds which blew in front of depression No. LX., as it advanced south-westwards from Denmark; but in Ireland and Scotland they occurred between the 22nd and 24th during the Northerly winds which blew in the rear of depressions Nos. LXII. and LXIII. The range was moderate, varying from 30° to 34° in many parts of England, and to 26° or 27° over central Ireland. Information from central Scotland is not available, but at Nairn the range was as much as 37° . At the detached island stations it was, of course, much smaller,—amounting to only 17° at Scilly and Jersey, and 22° at Sumburgh Head.

Vapour Tension varied from between 0·28 in. and 0·30 in. over our extreme south-western, southern, and south-eastern coasts, to between 0·22 in. and 0·24 in. over the greater part of Scotland, the northern counties of England, and the central parts of Ireland. *Relative Humidity*, however, was highest (90 per cent.) on our south and east coasts, lowest (80 to 87 per cent.) in Scotland and the north of England.

Rainfall.—This was heavy, except in some of the eastern parts of Scotland and the southern parts of Ireland, and the number of rainy days was very large. The largest aggregate falls reported amounted to nearly 9 inches at Falmouth and Laudale; 7·4 inches were measured at Arlington (north Devon), and upwards of 6 inches at Hawes Junction, Manchester and Cheadle. While the smallest are 1·1 inch at Leith, 1·7 inch at Nairn, and 2·2 inches at Aberdeen. In some parts of England the falls amounted to more than double the average. The numbers of “days with rain” varied from between 17 and 20 at several of the English and Scotch stations to between 20 and 24 at several of the western stations, and to 28 on the east coast of England and in the Channel Islands. The individual falls were at times heavy—considerably more than an inch falling in several places on the 13th and 23rd, and at some others on the 6th, 22nd, and 30th.

Bright Sunshine.—The amount of bright sunshine recorded was somewhat small everywhere, but especially so over the north and north-west of England. Assuming the total amount which could possibly have been registered at each station to be represented by 100, the amounts actually recorded, varied from between 30 and 33 over the Channel, the south of Ireland, and the south midland counties of England, to about 19 or 20 in the north of England. Further north, the values increase to 25 at Glasgow, 32 at Stornoway, and 33 at Aberdeen.

SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF OCTOBER, 1885.

TABLE XIX. -

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the Numbers of Days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			Means of				Absolute Extremes.			
			At 8 a.m.	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 29° 590	42° 5	38° 4	47° 0	42° 7	30	22nd	52	15th
	Wick	29° 630	42° 8	36° 4	47° 7	42° 1	22	23rd	55	15th
	Stornoway	29° 657	42° 0	37° 5	47° 8	42° 7	28	23rd, 24th	52	16th
1. SCOTLAND, E.	Nairn	29° 645	40° 5	35° 4	48° 0	41° 7	20	25th	57	2nd
	Aberdeen	29° 641	42° 3	37° 1	49° 4	43° 3	26	23rd	56	1st, 2nd
	Leith	29° 659	43° 7	39° 3	50° 5	44° 9	27	25th, 26th	58	7th
2. ENGLAND, N.E.	Shields	29° 654	44° 7	40° 7	49° 9	45° 3	35	25th	57	2nd
	York	29° 675	43° 9	39° 5	51° 1	45° 3	31	12th, 30th	58	2nd, 3rd
	Spurn Head	29° 632	46° 0	42° 4	50° 3	46° 4	38	14th	61	2nd
3. ENGLAND, E.	Yarmouth	29° 658	45° 5	41° 4	50° 3	45° 9	37	21st, 28th	56	1st, 2nd, 3rd
	Cambridge	29° 689	43° 9	38° 4	52° 3	45° 4	31	30th	63	16th
4. MIDLAND COUNTIES	Loughborough	29° 696	42° 3	39° 2	51° 5	45° 4	29	30th	62	16th
	Oxford	29° 718	43° 5	40° 2	51° 8	46° 0	32	30th	61	8th
5. ENGLAND, S.	London	29° 709	44° 7	40° 9	52° 9	46° 9	30	12th	60	4th, 16th
	Dungeness	29° 701	46° 5	41° 7	53° 8	47° 8	31	12th, 13th	62	3rd
	Hurst Castle	29° 725	46° 8	42° 9	54° 3	48° 6	35	12th	65	3rd
6. SCOTLAND, W.	Ardrossan	29° 684	44° 7	39° 8	49° 8	44° 8	30	25th	55	1st
7. ENGLAND, N.W.	Hawes Junction*	28° 437	39° 7	35° 4	44° 6	40° 0	28	30th	52	2nd
	Barrow-in-Furness	29° 676	44° 6	41° 5	50° 4	46° 0	34	12th	56	2nd
	Liverpool (Bidston)	29° 692	45° 0	41° 6	49° 7	45° 7	35	12th	58	2nd
	Holyhead	29° 710	47° 6	44° 3	51° 0	47° 7	39	25th	57	2nd
8. ENGLAND, S.W.	Pembroke	29° 735	48° 6	45° 3	52° 4	48° 9	40	12th, 13th	57	2nd, 18th
	Prawle Point	29° 744	48° 4	42° 3	54° 0	48° 2	37	12th, 13th, 14th, 25th.	59	7th, 18th
9. IRELAND, N.	Malin Head	29° 713	45° 9	42° 2	50° 2	46° 2	34	24th	55	28th, 30th
	Donaghadee	29° 715	45° 2	41° 4	50° 1	45° 8	33	25th	55	1st, 2nd, 8th
	Mullaghmore	29° 755	46° 1	43° 5	50° 8	47° 2	38	20th	56	2nd
	Belmullet	29° 783	46° 5	43° 3	50° 6	47° 0	38	22nd, 23rd	57	17th, 18th
10. IRELAND, S.	Parsonstown	29° 795	42° 4	37° 8	50° 6	44° 2	30	22nd, 23rd	56	2nd, 17th
	Valencia	29° 851	48° 7	44° 3	54° 3	49° 3	37	22nd, 23rd	59	17th
	Roche's Point	29° 794	46° 9	42° 5	53° 3	47° 9	37	23rd	58	6th, 17th
CHANNEL ISLANDS	Scilly (St. Mary's)	29° 765	51° 9	47° 6	54° 1	50° 9	41	25th	58	2nd, 4th, 6th
	Jersey (Noirmont)	29° 753	50° 2	46° 8	54° 2	50° 5	42	13th	59	18th, 6th

* Hawes Junction is 1,135 feet above Mean Sea Level, and the

TABLE XIX.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of October 1885.

Thunderstorms, and Gales are counted irrespective of the Hours at which they occurred.

beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	%		ins.	ins.																	
0.230	85	7.2	3.59	0.55	2nd	25	2	0	0	2	12	3	12	3	1	3	3	1	4	1	3
.234	85	7.2	2.81	0.52	25th	22	0	2	0	2	15	4	10	0	1	0	6	3	1	7	3
.252	94	6.0	6.23	1.13	2nd	25	2	3	0	11	12	12	9	2	1	3	2	3	3	8	0
.219	87	6.5	1.72	0.38	25th	21	0	0	0	8	16	4	3	4	0	2	1	6	8	1	6
.228	85	5.3	2.21	0.50	25th	20	0	2	0	10	7	9	7	1	1	1	2	5	5	8	1
.237	83	6.0	1.12	0.29	22nd	13	0	0	0	9	10	0	2	2	3	3	1	2	7	10	1
.251	85	7.0	3.85	0.51	10th	21	0	0	0	6	15	5	5	3	4	0	2	8	4	5	0
.251	87	6.4	4.02	0.69	23rd	22	0	0	0	7	14	0	6	3	5	0	3	2	6	6	0
.283	92	5.5	4.57	0.97	23rd	28	0	0	0	7	7	11	4	2	3	3	1	6	5	7	0
.284	93	6.3	6.45	1.36	13th	28	0	2	0	6	9	8	4	2	4	2	1	4	9	4	1
.258	90	6.8	4.57	0.96	23rd	19	0	0	0	7	16	0	3	1	3	2	4	5	7	6	0
.244	91	6.7	5.62	1.24	23rd	23	0	1	0	6	13	14	3	3	4	1	1	3	11	4	1
.246	86	5.7	3.73	0.81	23rd	17	2	0	0	13	13	1	1	4	3	1	2	6	6	6	2
.253	86	6.4	3.32	0.83	23rd	19	0	0	0	8	15	5	3	2	2	2	2	6	7	5	2
.279	89	8.0	5.06	0.92	10th	21	1	0	0	1	15	5	7	1	0	4	2	1	7	8	1
.287	90	5.7	3.92	0.72	21st	22	0	0	0	8	6	8	4	3	5	1	1	2	8	7	0
.247	84	6.5	3.51	0.58	25th	19	0	2	0	7	13	5	3	9	3	0	0	1	6	7	2
.231	95	7.7	6.74	0.78	2nd	27	0	0	0	3	20	3	9	1	7	1	0	5	5	3	0
.249	84	6.5	4.13	0.74	30th	20	0	0	0	3	11	3	5	7	0	3	1	6	3	6	0
.243	82	6.8	6.23	0.72	6th	24	0	4	0	5	14	2	4	3	4	2	2	4	7	4	1
.272	83	7.0	3.95	0.83	6th	20	0	1	0	2	10	5	8	5	2	1	2	3	7	3	0
.291	86	7.3	4.86	0.57	9th	25	0	2	0	1	11	10	6	5	2	2	1	1	9	5	0
.300	89	6.8	5.00	0.80	23rd	23	0	0	0	7	15	11	7	3	2	2	2	4	5	6	0
.260	85	6.8	3.22	0.48	25th	23	0	6	0	4	14	2	6	3	3	1	3	1	4	10	0
.253	85	4.9	3.00	0.89	30th	19	0	0	0	12	9	8	1	6	6	0	2	1	11	4	0
.262	84	7.2	4.65	0.70	25th	25	0	6	0	2	7	13	6	4	3	2	3	2	4	7	0
.286	90	5.7	5.78	0.66	4th	26	0	0	0	9	10	2	9	5	2	2	1	2	4	6	0
.239	88	6.7	3.52	0.66	6th	21	0	0	0	5	15	0	2	1	0	1	3	3	6	7	8
.290	85	7.4	4.99	0.71	25th	24	0	1	0	2	14	6	8	3	2	1	0	3	5	8	1
.269	85	5.3	3.12	0.58	29th	24	0	0	0	10	8	8	8	4	0	1	1	2	6	9	0
.314	82	8.5	5.35	0.44	15th	28	0	2	1	0	17	16	5	4	3	1	1	3	7	7	0
.296	82	7.0	6.07	1.15	30th	25	0	3	1	2	13	10	4	1	2	3	1	4	10	6	0

barometric observations at this Station are not corrected for altitude.

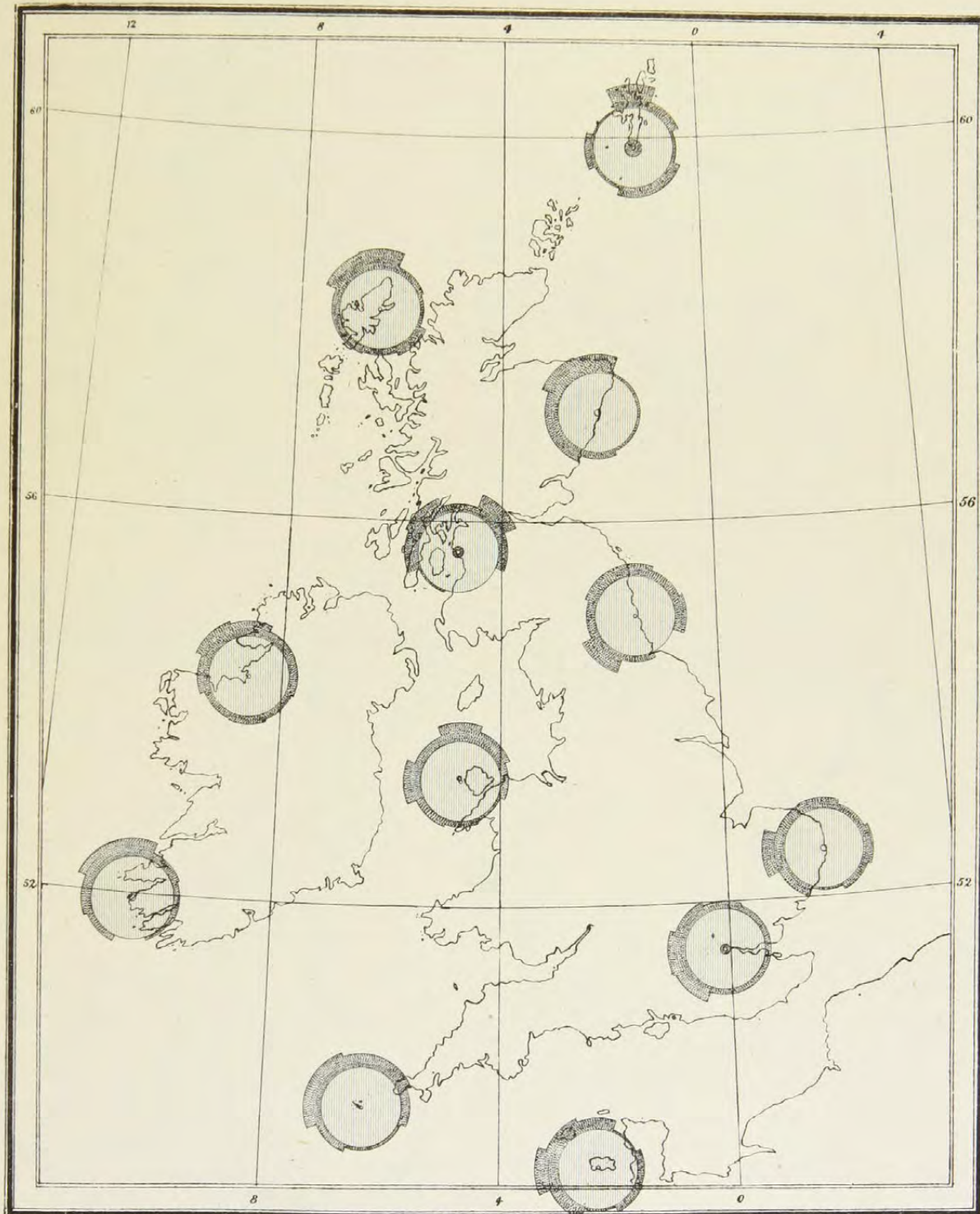
TABLE XX.

OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of October 1885.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY	*	*	*	*	*	*	*	*	*	*	*	99	32
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	104	33
AINWICK CASTLE	40°2	48°0	44°1	35	24th, 31st	56	2nd	23	4°12	0°54	30th	—	—
SCARBOROUGH	41°8	50°2	46°0	38	7th, 28th	56	1st, 3rd, 4th, 7th.	24	4°86	0°96	23rd	—	—
YORK	*	*	*	*	*	*	*	*	*	*	*	64	20
HILLINGTON	38°7	51°2	45°0	30	30th	63	16th	26	5°40	1°02	6th	87	27
GELDESTON	40°2	51°2	45°7	34	21st, 30th	63	16th	25	5°56	0°95	23rd	89	27
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	93	29
ROTHAMSTED	39°1	51°4	45°3	32	30th	60	2nd	27	4°82	0°88	6th	—	—
BAWTRY	39°4	51°0	45°2	30	29th	59	4th	23	4°55	1°26	23rd	—	—
LEICESTER	39°6	51°6	45°6	30	12th, 30th	64	16th	23	5°44	1°25	23rd	75	23
CHEADLE	37°8	48°4	43°1	31	12th	56	1st	24	6°05	1°18	6th	—	—
CHURCHSTOKE	37°5	49°7	43°6	28	12th, 13th	57	2nd, 4th	26	5°01	1°12	6th	80	25
HEREFORD	37°9	52°4	45°2	28	12th, 25th	61	3rd	21	2°82	0°51	6th	—	—
CIRENCESTER	38°6	50°6	44°6	32	12th, 25th, 30th.	56	2nd, 4th, 16th, 17th.	22	3°27	0°48	30th	105	32
OXFORD	*	*	*	*	*	*	*	*	*	*	*	102	32
LONDON	*	*	*	*	*	*	*	*	*	*	*	74	23
MARLBOROUGH	38°8	51°6	45°2	30	12th	60	17th	21	4°39	1°01	9th	103	32
STRATHFIELD TURGIS	39°6	53°3	46°5	31	12th, 30th	60	2nd	17	3°70	0°77	23rd	—	—
HASTINGS	42°5	52°6	47°6	34	12th	58	1st, 2nd, 3rd, 18th, 3rd.	21	4°88	0°71	23rd	100	31
SOUTHAMPTON	41°3	54°4	47°9	33	12th	62	3rd	18	3°94	0°67	9th	105	32
LAUDALE	38°1	48°6	43°4	28	24th	55	15th	20	8°81	1°30	25th	—	—
GLASGOW	38°0	48°8	43°4	26	25th	55	1st	16	3°50	0°83	30th	78	25
DOUGLAS	40°9	50°2	45°6	28	25th	56	1st	16	4°88	1°16	30th	117	36
NEWTON REIGNY	37°3	47°9	42°6	26	12th, 30th	55	2nd	24	4°11	0°55	30th	61	19
STONYHURST	39°2	49°2	44°2	31	25th, 30th	58	1st	23	5°72	0°74	30th	63	20
BLACKPOOL	40°5	50°0	45°3	29	30th	57	2nd	23	4°01	0°56	30th	76	24
MANCHESTER	39°1	48°8	44°0	31	12th, 30th	56	2nd	22	6°34	0°85	30th	—	—
LLANDUDNO	43°1	50°9	47°0	36	12th	57	2nd	20	4°65	0°89	6th	61	19
LLANDOVERY	36°4	52°8	44°6	25	24th	61	*	24	5°96	1°09	6th	—	—
PEMBROKE	*	*	*	*	*	*	17th	*	*	*	*	105	32
ARLINGTON	41°0	50°9	46°0	34	25th	57	3rd	25	7°39	1°19	25th	—	—
CULLOMPTON	40°6	53°5	47°1	32	14th	60	18th	25	5°45	0°77	9th	92	28
FALMOUTH	44°6	53°3	49°0	40	11th, 25th	58	6th	28	8°89	1°24	22nd	109	33
PLYMOUTH	42°0	54°3	48°2	34	25th	59	3rd	27	5°40	0°81	30th	96	29
JERSEY	*	*	*	*	*	*	*	*	*	*	*	110	33
LONDONDERRY	39°4	50°7	45°1	32	22nd	55	17th	25	4°55	0°91	4th	—	—
MARKREE CASTLE	38°4	50°4	44°4	27	22nd	56	15th, 17th	26	5°70	0°56	8th	94	29
BROOKBOROUGH	37°8	49°8	43°8	28	22nd	55	15th, 17th	19	5°43	0°90	4th	—	—
ARMAGH	38°3	50°3	44°3	31	22nd, 24th	57	1st	23	2°91	0°44	4th	93	29
EDGEWORTHSTOWN	38°3	50°1	44°2	28	25th	55	2nd, 17th	19	3°50	0°71	25th	—	—
DUBLIN	40°6	50°3	45°5	33	25th	57	2nd	22	3°50	0°99	6th	103	32
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	110	34
KILKENNY CASTLE	38°7	51°1	44°9	28	25th	57	17th	19	3°39	0°52	9th	—	—
WATERFORD	39°6	52°3	46°0	28	25th	58	1st, 8th, 18th	17	4°43	0°63	29th	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	96	30
KILLARNEY	40°4	52°0	46°2	31	22nd	60	2nd	25	5°19	0°81	25th	—	—
FOYNES	40°9	52°1	46°5	36	20th	58	3rd	24	5°31	0°91	25th	—	—

* For information see Table XIX.

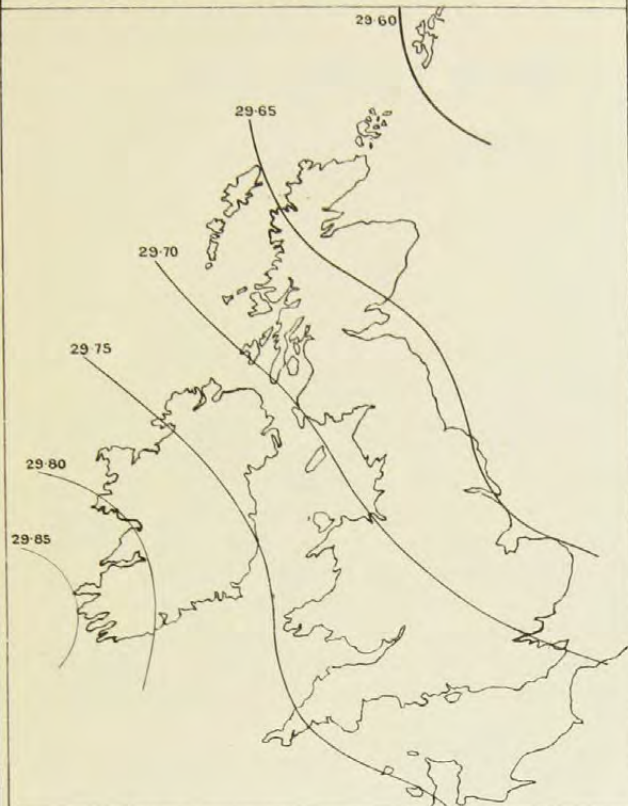
MONTHLY WIND CHART FOR OCTOBER 1885.



To face page 118

DANGERFIELD, LITH 22, BEDFORD ST COVENT GARDEN. 11161.

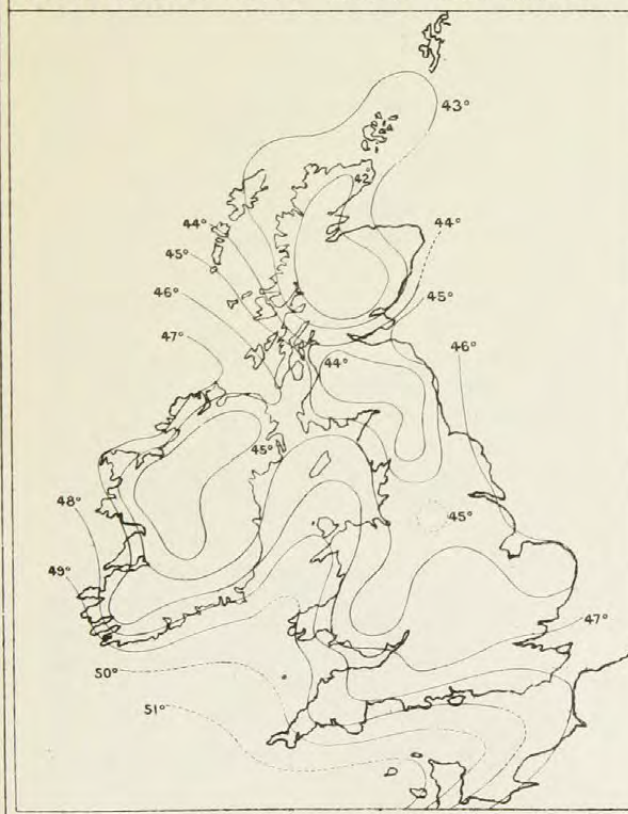
1. DISTRIBUTION OF MEAN PRESSURE



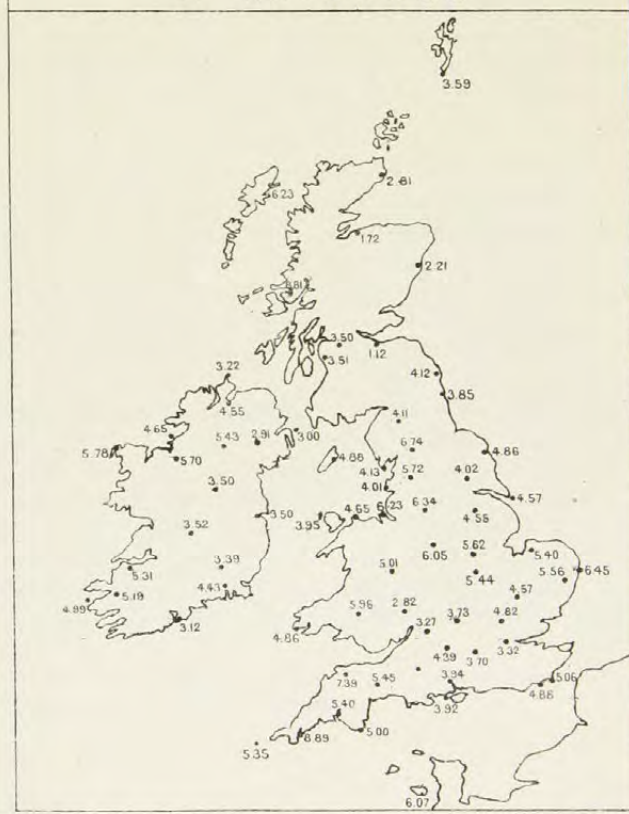
2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE



4. RAINFALL



MONTHLY WEATHER REPORT.

NOVEMBER 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of November varied greatly. The greater part of it was dry and quiet, but gloomy, foggy, and rather cold, and the winds were variable. During the latter part of the month, however, the conditions became very rough and stormy; some of the gales (and especially those from South-east experienced in the north-east of Scotland on the 26th and 27th) were unusually severe. The winds were nearly all South-easterly to South-westerly in direction, but at the southern stations there was a large admixture of wind from East. Pressure was, on the whole, rather below its average height, especially in the south-west. Temperature was about its normal value, and although the rainfall was decidedly in excess over England, it was somewhat defective in Ireland, and very much in defect over Scotland. Bright sunshine was deficient everywhere, owing to the prevalence of clouds with the cyclonic, and of fogs with the anticyclonic systems.

November 1.—The distribution of pressure at the commencement of the month was somewhat complex. An anticyclone lay off our west and south-west coasts, and another over Lapland and the north of Scandinavia, the two being joined by a col which stretched across the North Sea and the southern parts of Norway. To the north-westward of this col lay a somewhat small depression (No. LXVI.*), causing South-westerly winds and some rain on our northern and north-western coasts, while over the north-east of France (*i.e.*, on the southern side of the col) lay another very small cyclonic system, to which reference has already been made in the October report, which dispersed during the day. The North-easterly winds on its northern side, though fresh, were lulling, and fine cold weather was felt over our southern counties generally.

November 2-7.—The whole of the high-pressure system referred to above now moved south-eastwards, and until the 7th covered France, Germany, and occasionally the southern parts of England. The South-westerly winds consequently spread over the British Islands and the North Sea, but at times veered to West and North-west, as some depressions passed north-eastwards by our northern coasts, and their subsidiary systems travelled across England. (See charts in the Daily and Weekly Weather Reports for these dates.) No less than four such systems were traced during the first week of the month, but none of them were very large or deep. Their winds were consequently not violent, but the weather continued in a very changeable, showery condition, especially in the west and north-west. The main features of the first three (Nos. LXVI. to LXVIII.*) have been tabulated in Section II., though their tracks cannot be inserted with any great degree of exactitude on Map 2 Plate XXII., owing to the distance of their centres from our extreme north-western coasts and the rapidity with which the systems succeeded one another. Temperature was high during the period,—sometimes very high,—the maxima recorded on the 3rd being 61° at Nairn, and 63° at Leith. The rainfall, however, was not heavy, except over the east and south-east of England, to which regions the subsidiary disturbances brought large quantities on the 4th and 5th.

* See Section II. and Map 2 Plate XXII., for the history and tracks of depressions.

November 8-12.—A change now ensued, owing to the development of an anticyclonic system over the eastern shores of the North Sea and its extension westwards to our Islands. The weather became cold, foggy, gloomy, and dark, but was dry, and the winds varied from about East at the southern stations to Southerly in the west and north. On the 12th the anticyclone began to move southwards, and the wind then veered to the South-westward on our extreme northern coasts.

November 13-14.—During this brief interval the distribution of pressure was, on the whole, of a south-westerly type, but the gradients were constantly changing, owing to the advance of a well-marked, but not deep, depression (No. LXIX.*) to Scandinavia from the south-westward, and the subsequent rapid recovery of pressure at our north-western stations. At 8 a.m. on the 13th the centre of the system lay off the north of Scotland, and the gradients over our Islands were then favourable for South-westerly winds, whereas at 8 a.m. on the 14th the centre had reached Lapland, and the gradients over our Islands were in favour of North-westerly and Northerly winds. Temperature, which rose as the disturbance advanced, fell fast again in its rear, and Northerly breezes set in all over the kingdom, accompanied by cold rain, hail, and sleet.

November 15-23.—Conditions now became anticyclonic again. A well-formed anticyclone (No. XXXVI., p. 125) advanced over the United Kingdom and the German Ocean from the north-westward, and as it did so the wind veered round gradually from North-east to East and South-east, the change being preceded by some showers of cold rain, hail, or sleet, accompanied in most places by cold, dry weather and some fog. By 6 p.m. on the 17th the centre of the anticyclone had reached North Germany, and a long band of high pressure extended thence in a north-westerly direction across the North Sea to our own northern districts, causing strong Easterly winds over the United Kingdom, while South-westerly and Westerly gales and strong breezes prevailed over Scandinavia. The latter were increased by a well-marked depression which moved from west to east over Lapland, but was at too great a distance from us for its characteristics to be tabulated. At the northern extremity of the high-pressure band a second anticyclonic system (No. XXXVII.) was developed on the 18th, and moving south-eastwards caused a continuance of the Easterly winds over our Islands. The strength of these was greatly increased by the formation of a large, but not deep, low-pressure area over the Bay of Biscay on the 22nd, and its subsequent movement in a northerly direction at a great distance from our extreme western coasts. At 8 a.m. 23rd a third, but remarkably small and imperfectly developed anticyclone (No. XXXVIII.) appeared between the Shetland Isles and west of Norway, and moving north-eastwards to the northern parts of Sweden, it changed into a very large system, which, at 8 a.m. on the 24th, extended south-westwards over the North Sea and the northern parts of our Islands. At this time the barometer began to fall decidedly in the south-west, and the wind increased considerably from South-east over our Islands with showery, unpleasant weather.

November 24-30.—A cyclonic period of great intensity now ensued. It commenced with the sudden deepening of the depression in the south-west, to which reference has just been made, and (as pressure was highest in the north-east) a consequent increase in the force of the South-easterly wind, accompanied by fog and rain at our south-western stations, and a threatening appearance of the sky elsewhere. As the day (25th) wore on the centre of the storm came nearer to our western coasts, but in the evening the barometer again rose slightly in the west and south-west, as though the incoming system had begun to fill up. The morning observations of the 26th, however, showed a renewed fall of the barometer in the west, and it was evident that the centre of a large deep depression was moving northwards outside the west of Ireland, and that the gradients were growing much steeper. The wind now increased to a fresh or strong gale from South-east in Scotland and

* See Section II. and Map 2 Plate XVI., for the history and tracks of depressions.

the north of Ireland, while it veered to South and moderated on our south-western coasts. Temperature began to rise, dull rainy weather was very prevalent, and the sea ran high, especially in the north-east and north. By 8 a.m. on the 27th the centre of the storm lay between Barra and Mull, so that while very severe South-easterly gales continued to blow in the north-east of Scotland, the wind in Ireland veered to West, and that over England remained South-westerly. At 6 p.m. the centre had advanced to the northward of Cape Wrath, and although a South-easterly gale still held at Sumburgh Head, the wind had veered to South-west in all parts of Scotland, and lulled rapidly, with a rising barometer and improved weather. At this very time, however, the mercury was again falling fast in the west, and a new depression (No. LXXI.*) was approaching us rapidly from the Atlantic (see chart for 6 p.m. 27th, in Weekly Weather Report, 1885, p. 190). In the course of the night the centre of a new system passed across Ireland, and at 8 a.m., 28th, lay in a very elongated form over the borders of England and Scotland. Strong South-westerly to North-westerly gales had set in over Ireland and England, accompanied by rainy, but much milder, weather, while calms, variable breezes, and colder weather were being experienced in Scotland. The centre, however, travelled so fast that by 6 p.m. it had reached the south of Norway, and moderate to fresh Westerly to North-westerly breezes prevailed throughout our Islands, with rapidly increasing pressure and improving weather. This was the second storm of the series, and although at 6 p.m. there was no indication of any new system, the chart for 8 a.m. 29th showed that a fresh one (No. LXXII.*) had already reached the west of Ireland, causing South-easterly to South-westerly gales there, with a renewal of the rainy, squally weather, and a rise of temperature. This system also travelled with great rapidity, but being smaller than its two predecessors, and taking a more northerly course, its gales were confined to our western and northern coast, though its effect in bringing in the warm South-westerly current of air again, was felt all over the kingdom. This was the last of the series, and as it passed off the barometer rose quickly, the wind veered to West, and the month closed with pressure as high as 30·3 inches over the southern shore of the Bay of Biscay, and as low as 29·0 inches over the south-west of Norway. The wind was generally Westerly, and though showers still fell in some places, the general condition was improving.

* See Section II. and Map 2 Plate XXII., for the history and tracks of depressions.

SECTION II. - - - - -

TABLE OF CYCLONIC SYSTEMS.—NOVEMBER 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. LXVI. November 1-2.	No. LXVII. November 3-4.	No. LXVIII. November 4-5.
Form - - - - -	Apparently circular - - -	Uncertain; apparently oval - -	Uncertain; apparently oval, and somewhat irregular.
Size - - - - -	Small - - - - -	Apparently large - - -	Apparently large - - -
Depth - - - - -	Shallow to moderate - - -	Apparently moderate - - -	Moderate - - - - -
Where first Observed - -	Off our north-west coasts. (See the October Monthly report.)	Far away to the north-westward of our Islands.	To the north-westward of our Islands
Direction of Motion - -	North-easterly - - - - -	North-easterly - - - - -	North-easterly - - - - -
Rate of Motion - - -	Slowly - - - - -	Moderate - - - - -	Slow - - - - -
Regions passed over by Steepest Gradients.	Scotland, the Hebrides, and Shetlands	British Isles and North Sea - -	British Islands - - - - -
Termination - - - -	Travelled away to the northward -	Travelled away to the northward -	Travelled away to the northward -
Time under Observation -	Nearly two days - - -	About 36 hours - - -	About two days - - - - -
Accompanying Winds - -	South-westerly; moderate to strong -	South-westerly; strong to a gale in west and north, fresh elsewhere.	South-westerly to North-westerly, and variable.
" Weather - - -	Showery and misty - - -	Showery squally, and very mild. Temperature above 60° in east of Scotland.	Showery, except in north-east of Scotland, and mild.
" Rainfall - - -	Confined to our western and northern coasts, and south-west of Norway. Heavy at Skudesnaes.	General, but not heavy until a subsidiary system arrived. (See below.)	General over Ireland and England, but not very heavy.
REMARKS - - - -	<p>This depression arrived while pressure was highest off our west and south-west coasts, whence a col extended north-eastwards to a second high-pressure area over northern Europe. It was the first of a series, but was apparently not in other respects an important system.</p> <p>This disturbance followed closely on No. LXVI., but was by much the more important system of the two. It was accompanied on the evening and night of the 3rd by a "V"-shaped subsidiary, which brought heavy rains to many parts of our Islands (notably the north-western), and sudden changes of wind and temperature.</p> <p>This depression followed No. LXVII. closely, and its centre was so far from our coasts that there is great difficulty in separating the phenomena of the one from those of the other.</p> <p>There were likewise so many shallow subsidiary disturbances with them, that the gradients were much reduced, and varied over Great Britain and the North Sea, while those on our south-west coasts produced North-westerly gales of considerable force.</p>		

- SECTION II.—continued.

TABLE OF CYCLONIC SYSTEMS.—NOVEMBER 1885.

No. LXIX. November 13-14.	No. LXX. November 24-27.	No. LXXI. November 28-29.	No. LXXII. November 29-30.
Apparently circular at first; then variable.	Uncertain at first, owing to distance from our coasts; oval later.	Elongated, apparently having a double minimum.	Uncertain.
Moderate - - - - -	Very large - - - - -	Very large - - - - -	Moderate.
Moderate - - - - -	Apparently moderate at first, then much deeper. Minimum readings about 28.5 inches at 6 p.m. on 26th.	Deep; minimum readings rather below 28.9 inches.	Moderate.
Off the north-west of Scotland	Over the Bay of Biscay, and off our south-west coasts.	Off the west of Ireland - - -	Off the west of Ireland.
North-easterly and easterly - -	Northerly at first, then north-easterly, and then northerly again.	North-easterly - - - - -	North-north-easterly and north-easterly.
Moderate at first, then rapid - -	Slow; nearly stationary at first -	Rapid - - - - -	Rapid.
Scotland and west of Norway - -	Western and northern parts of our Islands.	Ireland, England, the north of France, and the North Sea.	Ireland and Scotland.
Travelled away over northern Europe	Travelled away to the northward -	Travelled away to the Gulf of Bothnia and Russia.	Travelled away to the northward.
About 36 hours - - - - -	Four days - - - - -	About two days - - - - -	About one day.
South-westerly to North-westerly; strong to gale in north.	South-easterly to South-westerly and Westerly gales; the South-easterly gales were especially severe in Scotland and north of Ireland.	Strong South-westerly gales over Ireland and England, followed by strong North-westerly winds. Winds moderate in Scotland throughout.	South-easterly breezes, followed by South-westerly and Westerly gales.
Rather showery; temp. very unsteady	Dry at first, then very rainy; violent squalls in north.	Severe squalls, much rain; air mild -	Squally, rainy; very mild.
Confined to northern and western parts of kingdom.	Became heaviest over England and Ireland when wind drew Southwards.	Very general; heavy in many places -	General, but less heavy than with No. LXXI.
This depression arrived off our northern coasts as the anticyclonic system No. XXXV. was settling down over Germany and France. Its effects were not noticeable in the southern parts of our Islands, and were not severe anywhere.	This depression showed some signs of breaking up on the evening of the 24th, but grew much deeper during the succeeding night, and then began to move northwards, at too great a distance from our western coasts for that portion of its track to be depicted on Map 2 Plate XXII. On its centre approaching Ireland it began to fill up.	This depression advanced very suddenly, just as No. LXX. was moving away to the northward of Scotland. It seems, however, to have pursued its course without in any way feeling the presence of No. LXX., the effect of which was merely to cause light winds on its northern side, by reducing the gradients there.	This depression also advanced very suddenly, and moved rapidly away to the north-eastward. In its rear the barometer rose very fast, and pressure became highest off our south-western coasts.
The telegrams from the United States appear to indicate that the progress of these depressions over the Atlantic was very rapid. See Daily Weather Reports for December 28 and 29.			

SECTION II.—*continued*

TABLE OF ANTICYCLONIC SYSTEMS.—NOVEMBER 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXXIV. November 6.	No. XXXV. November 8-12.
Form - " - - - -	Uncertain, but irregular - - - -	Somewhat oval, but irregular. Central part about oval.
Size - - - - -	Apparently large - - - - -	Large - - - - -
Height - - - - -	Small. Value of maximum readings not known -	Moderate. Maximum readings 30·5 inches and upwards.
Where first Observed - - - -	Over the Bay of Biscay - - - -	Over Denmark and south of Scandinavia - -
Direction of Motion - - - -	None - - - - -	Slight northerly at first, then southerly - -
Rate of Motion - - - - -	None - - - - -	Slow - - - - -
Regions passed over - - - -	Bay of Biscay - - - - -	Eastern parts of North Sea, Germany, and France
Termination - - - - -	Broke up <i>in situ</i> - - - - -	Passed away to south-eastern Europe - - -
Accompanying Wind - - - -	Westerly over our southern districts, Northerly in France, North-easterly over Spain.	Easterly to Southerly in our Islands; strong on our western coasts, light elsewhere.
Weather - - - -	Dry, but cloudy; not cold - - - -	Fine, dry, rather cold; fog at times - - -
REMARKS - - - - -	<p>This system appears to have been merely a temporary development of the one which on the 1st lay over the Atlantic off our western and south-western coasts (see p. 119). It gave us a passing spell of dry weather over the south of England, but soon dispersed.</p> <p>This system at first showed some tendency to move northwards, and its centre at one time lay over the Skager Rack. On the 11th it began to move southwards, and a depression, No. LXIX., appeared off our northern coasts.</p>	

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—NOVEMBER 1885.

No. XXXVI. November 15-17.	No. XXXVII. November 18-21.	No. XXXVIII. November 23-27.
Somewhat oval, but irregular - - -	Somewhat oval, but irregular - - -	Very irregular at first, then oval.
Small - - - - -	Small - - - - -	Small to large.
Moderate. Maximum readings 30·5 ins. and upwards, on 17th.	Small. Maximum reading 30·2 ins. and upwards	Very small. Maximum readings reported on its first appearance were all below 29·7 ins., but pressure afterwards increased decidedly.
Off our north-western coasts - - -	Off our northern coasts - - -	Near the Shetlands.
South-easterly - - - - -	South-easterly - - - - -	North-eastwards.
Slow - - - - -	Slow - - - - -	Moderate.
The north and east of our Islands and the North Sea.	North of our Islands and the North Sea - -	North-eastern parts of our area.
Travelled away over Germany - - -	Passed away to eastward - - -	Travelled away to Russia.
Northerly to Easterly and South-easterly in our Islands; light to moderate.	Easterly and South-easterly in our Islands -	Easterly and South-easterly in our Islands, freshening decidedly.
Frosty, foggy, and dry - - -	Fine, except in south-west and west, where showers fell on 21st, as pressure began to give way.	Fair to showery in the British Islands. Very cold and fine over Scandinavia.
As the centre of this system reached the south-eastern shores of the North Sea, an arm was extended north-westwards to our northern coasts, and at the extremity of this arm or ridge the next system appeared. As it moved south-eastwards it grew higher, the highest values being recorded just as it was passing away from our area. There were evidently depressions over the Atlantic at this time, making the winds on our western coasts very strong.	The track of the centre of this system lay rather to the north-eastward of that of No. XXXVI. As it moved south-eastwards a low-pressure area appeared for a time over the Bay of Biscay and Spain (on the 19th), causing a temporary increase in the force of our Easterly winds, and producing some cold rains in the west of France, the Channel Islands, and our south-western coasts. The showers afterwards spread to our western stations as pressure gave way in the west, and the wind then veered Southwards.	This system was remarkably small and ill-developed at first, but grew very large on reaching Scandinavia. On the 24th a depression appeared off our south-western coasts, and growing larger and deeper next day, produced, in conjunction with this system, South-easterly gales in nearly all parts of our Islands. (See cyclonic system No. LXX.)

SECTION III.

REMARKS FOR NOVEMBER 1885.

(Tables *XXI.* and *XXII.* with Plates *XXI.* and *XXII.*)

Pressure.—The mean pressure of the month at 8 a.m. varied from a little above 29·9 inches over our eastern and east Midland counties to 29·75 inches at Belmullet and in the extreme north-west of Scotland. The distribution was anticyclonic. The gradients are favourable for a prevalence of South-easterly and Southerly winds, but the changes were so frequent that although the wind-roses on Plate *XXI.* show a larger percentage of the winds named than of those from other points, there are several important local exceptions, shown more particularly in the admixture of winds from the Eastward at several southern stations, and of North-easterly winds on the north-western coasts of Great Britain (see below). The values when compared with the average distribution for the corresponding month in the 20 years 1861–80, show a deficit of nearly 0·2 in. at Valencia, and of about 0·1 in. in Sligo and in the Scilly Islands. Going eastwards, however, the deficit is slighter, and on our eastern and north-eastern coasts there appears to have been a slight excess, not exceeding one or two hundredths of an inch. The highest readings occurred in most places on the 16th, while the well-marked anticyclone No. XXXIV. was passing over our Islands in a south-easterly direction; the lowest were recorded between the 26th and 28th, during which time the depression No. LXX. passed northwards up our western coasts and the deep elongated system (No. LXXI.) travelled across Ireland and the southern parts of Scotland. The range was moderate except in the far west, but exceeded 1·5 inch in most places.

Movements of Depressions.—These were very simple. The systems tabulated were only seven in number. Of these, the centres of six passed outside our extreme north-western coasts, while one (No. LXXI.) travelled directly over Ireland and the southern parts of Scotland. All moved north-eastwards, but while those observed on the 1st and 27th travelled slowly, those which reached us on the 28th and 29th moved with great rapidity, especially prior to their reaching our coasts.

Anticyclones.—These were somewhat numerous. The first appeared off our western coasts at the commencement of the month, and moving south-eastwards reached the Bay of Biscay and dispersed. The second was developed over Denmark and the Sound, and subsequently moved southwards to Austria, while the three others all appeared in the neighbourhood of our north-western and northern coasts. Two of them passed out of our area in a south-easterly direction, but the third, which was very small and low, moved north-eastwards to Scandinavia, where it developed into a large system, which gave way as the depressions Nos. LXXI. to LXXII. advanced in that direction.

Winds.—These were chiefly easterly at the southern stations, south-easterly in the west, and south-westerly in the north. There were, however, some distinct exception, chiefly of a local character, *e.g.*, the large per-centage of North-easterly winds in the north-west of England and west of Scotland (see the observations at Holyhead, Barrow-in-Furness, and Ardrossan). There is a remarkable tendency often observed when South or South-east winds are prevailing generally for the wind over these districts to draw off the land more than seems warranted by the gradients. This phenomenon has already been the subject of some remark, but not of any systematic inquiry as to its cause. Gales were not of frequent

occurrence, except in the far west, where the depressions experienced during the earlier part of the month were sufficient to produce Southerly and South-westerly gales, which did not spread to the more eastern parts of the kingdom.

Temperature.—The mean (sea-level) temperature of the air during the month varied from a little above 50° at Scilly, and from about 48° in the south of Ireland and the Channel Islands, to a little below 44° over the inland parts of the north of Ireland, a little below 42° over the extreme north of England and south of Scotland, and to less than 40° over Scotland. The values show a decrease during the month, amounting to about 3° over the greater part of England, but to less than 2° in Ireland and Scotland, and to less than 1° at our extreme south-western stations. Compared with the averages for the 20 years 1861–80, they show hardly any difference at all, except over Devon and Cornwall, where there was an excess amounting to one or two degrees. The winter type of distribution (of cold inland and relatively warm coast stations) was strongly marked, and there was a very decided subsidiary patch of cold over Cambridgeshire and the north-west of Norfolk, in which the deficit was about 2° greater than that at other places in the neighbourhood. The highest readings occurred in most places about the 2nd or 3rd, when cyclonic conditions of a south-westerly type prevailed all over the country, but in several cases a corresponding height was attained on the 28th or 29th, at which time also cyclonic conditions of great intensity and of a south-westerly type were generally prevalent. The lowest readings were recorded with exceptional uniformity between the 15th and 18th, at which time the well-marked anti-cyclone No. XXXVI. was passing over the kingdom. Neither of the extremes were in any way exceptional, and as a result the range for the month was moderate, except at Leith, where it amounted to 45° . Over most of the inland parts of England it varied from 30° to 35° , but over central Ireland (at Parsonstown) it was as much as 39° .

Vapour Tension varied from 0·33 in. at Scilly and from 0·30 in. over the south-west of Ireland and in the Channel Islands, to about 0·25 in. over central Ireland, 0·21 in. over the north-west of England, and to 0·21 in. over Aberdeenshire. *Relative Humidity*, however, was as high as 93 to 95 per cent. over the midland and some of the southern counties of England, while it was below 90 per cent. all over Scotland and the greater part of Ireland.

Rainfall.—This was largely in excess over England, owing mainly to the disturbed weather which occurred there during the latter part of the month. In Ireland, however, the fall was scarcely so great as the average for November, while in Scotland the deficiency was very decided. At Wick the fall did not amount to more than one fourth of the average. The total fall during the month exceeded 5 inches at Cirencester, and 4 inches over Devonshire, Cornwall, a part of Wiltshire, and the extreme south of Ireland, as well as at Llandovery and Newton Reigny, but in the north-east of Scotland it was less than an inch.

Bright Sunshine.—There was a very small amount of bright sunshine in all parts of the kingdom. Assuming the total possible duration at each station to be represented by 100, the amounts actually recorded varied from about 20 over the greater part of Ireland, the Isle of Man, and some parts of the south-eastern counties, to between 15 and 17 over the western parts of England, to 12 at Durham, 10 in London, 7 at York, and 6 at Glasgow. At Aberdeen, however, the per-centage was 19.

TABLE XXI.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the numbers of days of Rain, Snow, Hail,
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head - - -	ins. 29° 766	42° 4	37° 6	45° 5	41° 6	28	15th	53	3rd, 7th
	Wick - - -	29° 779	41° 8	36° 4	45° 7	41° 1	25	17th	58	8th
	Stornoway - - -	29° 731	42° 7	38° 1	46° 7	42° 4	28	20th, 21st	54	3rd
1. SCOTLAND, E.	Nairn - - -	29° 773	39° 2	33° 9	45° 9	39° 9	22	16th	61	3rd
	Aberdeen - - -	29° 830	39° 8	34° 8	46° 1	40° 5	18	18th	59	2nd
	Leith - - -	29° 827	41° 0	36° 0	47° 5	41° 8	18	18th	63	3rd
2. ENGLAND, N.E.	Shields - - -	29° 869	43° 0	37° 9	47° 2	42° 6	26	18th	59	3rd
	York - - -	29° 899	41° 5	37° 5	47° 0	42° 3	24	18th	59	3rd
	Spurn Head - - -	29° 877	44° 0	40° 6	46° 5	43° 6	35	15th	54	28th
3. ENGLAND, E.	Yarmouth - - -	29° 912	43° 5	40° 2	46° 5	43° 4	37	17th	55	28th
	Cambridge - - -	29° 913	40° 8	35° 8	47° 4	41° 6	24	18th	59	28th, 29th
4. MIDLAND COUNTIES	Loughborough - - -	29° 905	40° 0	36° 8	47° 2	42° 0	22	17th, 18th	57	2nd, 29th
	Oxford - - -	29° 903	41° 2	38° 1	47° 1	42° 6	26	18th	58	28th, 29th
5. ENGLAND, S.	London - - -	29° 909	42° 9	38° 8	49° 2	44° 0	30	16th	59	28th
	Dungeness - - -	29° 899	44° 8	40° 8	49° 7	45° 3	33	6th	54	2nd, 3rd, 30th
	Hurst Castle - - -	29° 885	44° 9	41° 3	49° 8	45° 6	35	16th	55	3rd
6. SCOTLAND, W.	Ardrossan - - -	29° 822	42° 2	38° 4	45° 9	42° 2	26	18th	53	2nd, 3rd, 7th
7. ENGLAND, N.W.	Hawes Junction* - - -	28° 619	37° 8	33° 9	41° 9	37° 9	23	16th	52	3rd
	Barrow-in-Furness - - -	29° 859	41° 7	38° 6	46° 2	42° 4	31	15th, 24th,	53	3rd
	Liverpool (Bidston) - - -	29° 867	42° 0	39° 2	46° 9	43° 1	30	15th, 16th	59	3rd
	Holyhead - - -	29° 839	44° 0	40° 7	48° 2	44° 5	32	16th	54	2nd, 3rd, 7th
8. ENGLAND, S.W.	Pembroke - - -	29° 830	46° 1	43° 6	49° 0	46° 3	34	18th, 19th	54	6th, 7th, 27th, 29th.
	Prawle Point - - -	29° 860	47° 6	43° 0	50° 8	46° 9	35	17th	55	2nd, 6th, 7th
9. IRELAND, N.	Malin Head - - -	29° 782	43° 3	41° 0	47° 9	44° 5	33	16th	59	7th
	Donaghadee - - -	29° 822	44° 3	40° 8	48° 1	44° 5	34	5th, 6th, 29th	57	3rd
	Mullaghmore - - -	29° 760	45° 0	42° 3	48° 8	45° 6	33	15th	57	3rd
	Belmullet - - -	29° 747	44° 8	42° 1	48° 1	45° 1	32	18th, 19th	55	2nd
10. IRELAND, S.	Parsonstown - - -	29° 808	43° 5	39° 0	49° 6	44° 3	22	15th, 16th	61	3rd
	Valencia - - -	29° 772	48° 4	44° 2	52° 8	48° 5	32	18th	58	28th
	Roche's Point - - -	29° 793	48° 0	43° 4	51° 8	47° 6	31	15th	57	6th
CHANNEL ISLANDS	Scilly (St. Mary's) - - -	29° 813	50° 8	47° 5	53° 0	50° 3	44	16th	57	7th, 22nd
	Jersey (Noirmont) - - -	29° 876	46° 4	43° 9	49° 9	46° 9	31	17th	59	29th

* Hawes Junction is 1,135 feet above Mean Sea Level and the

TABLE XXI.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of November 1885.

Thunderstorms, and Gales are counted irrespective of the hours at which they occurred,

beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.		Date.	WEATHER.							WIND.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
			Total Fall in the Month.	Maximum Fall in One Day.		No. of Days of							No. of Observations of																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
						Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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barometric readings at this station are not corrected for altitude.

TABLE XXII.

OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of November 1885.

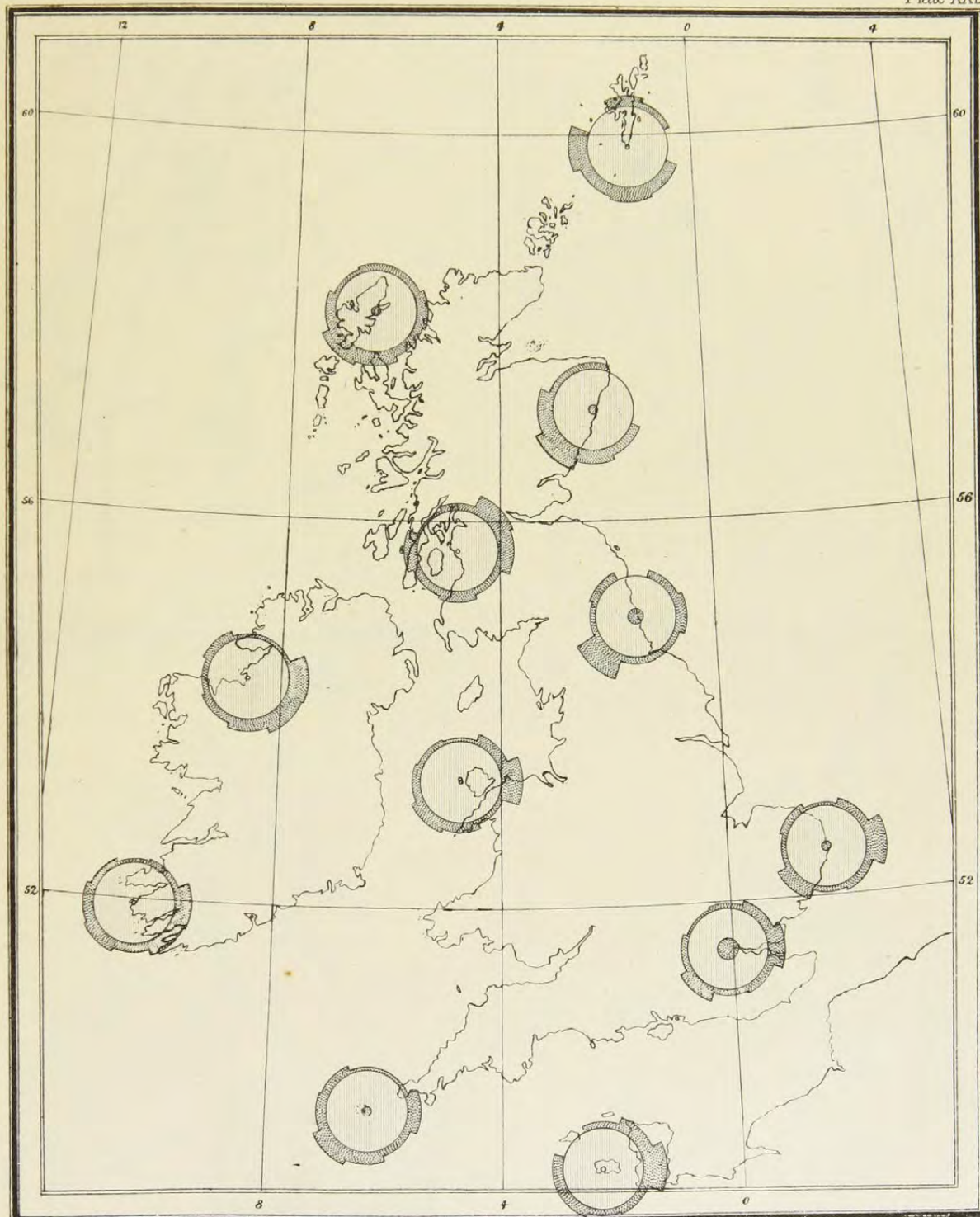
STATIONS.	AIR TEMPERATURE.						RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.			No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.						
STORNOWAY	.	.	.	.	.	.	.	.	.	.	30	13
ABERDEEN	.	.	.	.	.	.	.	.	.	.	45	19
ALNWICK CASTLE	38'1	46'1	42'1	23	17th	59	13	2'29	0'87	26th	—	—
DURHAM	36'4	46'3	41'4	22	18th	58	13	1'89	0'69	26th	31	12
SCARBOROUGH	41'0	47'0	44'0	34	6th	57	13	1'49	0'42	26th	—	—
YORK	.	.	.	.	.	.	.	.	.	.	17	7
HILLINGTON	36'9	46'2	41'6	26	18th	56	15	3'31	0'75	3rd	46	18
GELDESTON	38'7	47'2	43'0	32	19th	58	16	2'40	0'42	4th	57	22
CAMBRIDGE	.	.	.	.	.	.	.	.	.	.	52	20
ROTHAMSTED	37'2	47'2	42'2	28	18th	58	23	3'78	0'51	26th	—	—
BAWTRY	37'5	46'7	42'1	23	17th, 18th	57	17	2'10	0'71	24th	36†	14
LEICESTER	37'8	47'2	42'5	26	16th	57	18	2'86	0'39	29th	38	15
CHREADE	36'3	44'8	40'6	29	15th	54	21	3'57	0'70	27th	—	—
CHURCHSTOCK	36'3	46'2	41'3	23	18th	58	18	3'36	0'69	26th	39	15
HEREFORD	37'3	47'6	42'5	24	16th	58	16	2'71	0'67	26th	—	—
CIRENCESTER	37'5	45'5	41'5	28	17th, 18th	56	19	5'51	0'92	24th	45	18
OXFORD	.	.	.	.	.	.	.	.	.	.	42	16
LONDON	.	.	.	.	.	.	.	.	.	.	25	10
MARLBOROUGH	37'6	46'3	42'0	28	16th	57	19	4'64	0'75	3rd	30	11
STRATHFIELD TURGIS	37'3	48'2	42'8	26	16th	58	18	3'26	0'52	26th	—	—
HASTINGS	41'0	48'4	44'7	32	18th	54	15	2nd, 28th, 29th, 30th.	0'72	24th	55	21
SOUTHAMPTON	39'8	49'3	44'6	30	18th	58	17	3'02	0'77	26th	41	16
LAUDALE	38'7	46'5	42'6	25	15th, 18th	54	17	4'69	0'61	1st	—	—
GLASGOW	37'0	45'2	41'1	19	18th	57	10	2'22	0'59	27th	14	6
DOUGLAS	40'8	47'6	44'2	31	15th	54	14	3'18	0'84	2nd	52	21
NEWTON REIGNY	34'0	45'0	39'5	20	16th	57	12	2'18	1'13	26th	40	16
STONYHURST	37'4	45'9	41'7	30	17th, 23rd	56	13	3'83	0'89	2nd	38	15
BLACKPOOL	37'5	46'2	41'9	26	16th	56	13	3'21	1'06	2nd	38	15
MANCHESTER	37'8	46'4	42'1	30	15th, 16th	57	16	3'14	0'85	27th	—	—
LLANDUDNO	39'8	48'2	44'0	31	16th	59	11	2'54	0'60	27th	44	17
LLANDOVERY	37'2	48'1	42'7	25	14th	55	16	2nd, 3rd, 26th, 29th.	1'59	27th	—	—
PEMBROKE	.	.	.	.	.	.	.	.	.	.	50	19
ARLINGTON	40'3	48'5	44'4	30	17th	55	18	4'93	0'93	29th	—	—
CULLOMPTON	40'5	49'8	45'2	30	16th, 17th	59	16	3'74	0'72	25th	46	18
FALMOUTH	45'9	51'6	48'8	38	15th	56	22	4'79	1'11	27th	45	17
PLYMOUTH	43'1	51'7	47'4	35	15th	57	17	4'24	0'88	25th	41	15
JERSEY	.	.	.	.	.	.	.	.	.	.	45	17
LONDONDERY	38'0	49'1	43'6	26	18th	58	14	2'18	0'48	4th	—	—
MARKEE CASTLE	37'5	47'8	42'7	20	15th	56	18	2'31	0'48	3rd, 26th	49	20
BROOKBOROUGH	37'9	47'6	42'8	22	15th	56	11	2'42	0'75	26th	—	—
ARMAGH	37'8	48'0	42'9	24	15th	60	17	1'84	0'64	26th	50	20
EDGEWORTHSTOWN	38'9	47'8	43'4	26	15th	58	13	2'05	0'48	26th	—	—
DUBLIN	41'8	49'9	45'9	31	15th	62	17	2'40	0'88	26th	52	20
PARSONSTOWN	.	.	.	.	.	.	.	.	.	.	52	20
KILKENNY CASTLE	40'4	50'1	45'3	25	15th	59	18	2'39	0'51	25th	—	—
WATERFORD	41'5	49'6	45'6	28	15th	55	18	3'73	1'39	25th	—	—
VALENCIA	.	.	.	.	.	.	.	.	.	.	42	16
KILLARNEY	41'9	51'2	46'6	25	15th	58	18	4'52	0'86	27th	—	—
POYNES	40'9	51'9	46'4	28	14th	61	22	3'25	0'56	3rd	—	—

* For information see Table XXI.

† The bright sunshine values given for Bawtry are recorded at Worksop.

MONTHLY WIND CHART FOR NOVEMBER 1885.

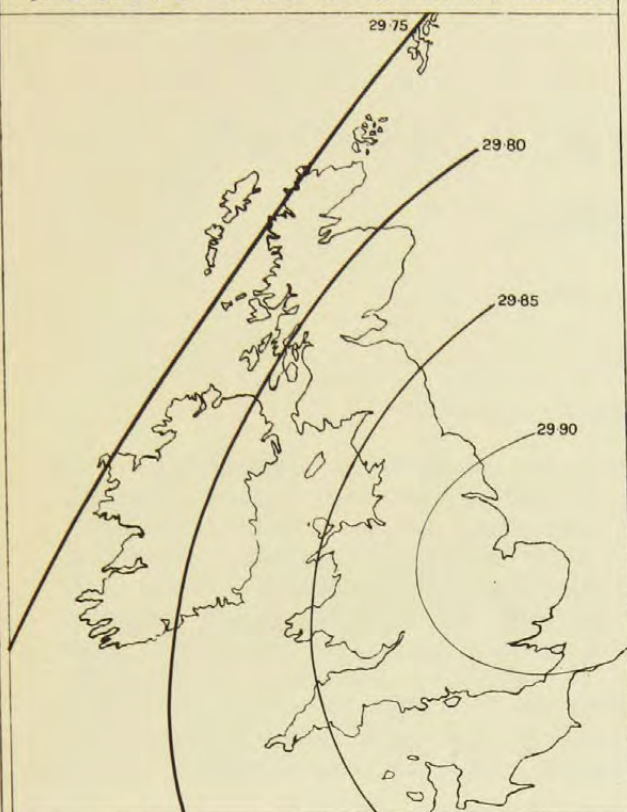
Plate XXI.



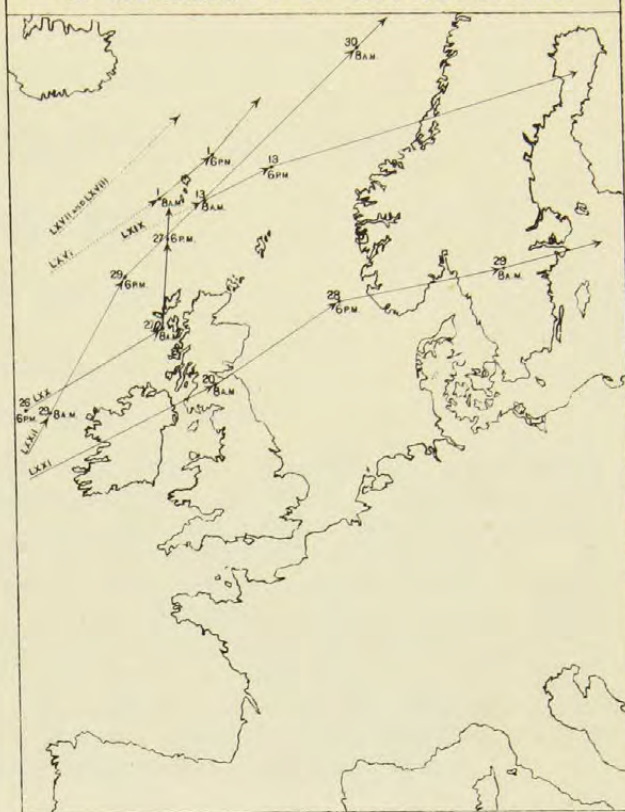
To face page E30.

DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 11227

1. DISTRIBUTION OF MEAN PRESSURE



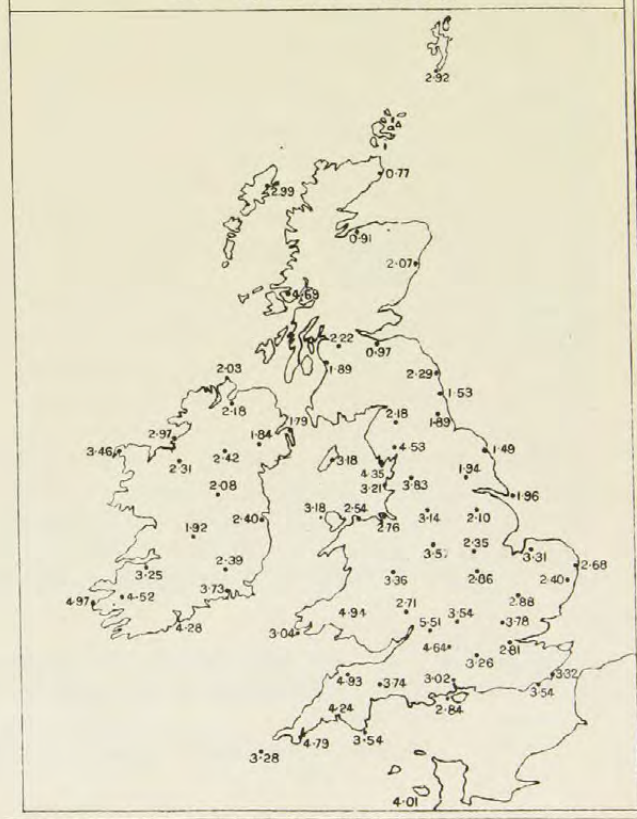
2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE



4. RAINFALL



MONTHLY WEATHER REPORT.

DECEMBER 1885.

SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of December was, on the whole, quiet. Pressure was considerably above its normal value for the time of year—especially in the south. Depressions were far more numerous in the north than elsewhere, and anticyclonic conditions prevailed frequently. Temperature was as a whole slightly high in Scotland, and slightly low over Ireland and England, and the changes from mild to frosty periods were somewhat frequent, and very sharply defined. The wind was mainly from Westerly and South-westerly points, and at times blew hard on our extreme northern and western coasts; in the south, however, there was a considerable admixture of wind from North-east and East, but this current was of little strength. Clear sky prevailed in the north-east and east, but there was also a considerable quantity of dry fog reported, which kept the record of Bright Sunshine at a low point. Rainfall was very deficient, except in the extreme north and north-west.

December 1-5.—During this period the dominant systems of pressure-distribution were cyclonic over our Islands and anticyclonic over the Bay of Biscay and France. The gradients were chiefly favourable for Westerly (North-west to South-west) winds, and were at times very steep. Temperature was above the average for the time of year, and a good deal of rain fell in the west and north, followed by snow in most places. Three well-marked depressions (No. LXXIII. to LXXV.*) passed over or near to the British Islands during this period. The first was apparently large, but travelled at so great a distance outside our extreme north-west coasts, that the winds and weather at our eastern and southern stations were but little affected, until the evening of the 2nd, when a shallow subsidiary system advanced over England from the westward, causing some rain and a fresh breeze. The second depression was both large and deep, and, as its centre passed immediately over the north of Scotland, its gales were felt in all parts of the kingdom. At the English stations they varied in direction from South to West, but on our north and north-west coasts, the wind, after blowing hard from these points veered to North-west and North, and for a time blew very hard, with a fall of temperature, cold rain, and in places hail. During this depression the barometer fell below 29 inches, all over Scotland, and to 28.5 inches at Wick. The third depression was both smaller and shallower than either of those just mentioned, and, as its centre passed in about an east-south-easterly direction over the extreme south-west of our Islands and the northern parts of France, the wind veered round to North-east and East over England, and temperature began to give way decidedly—especially at the northern stations. A heavy fall of rain occurred in the south and south-west, while snow and hail fell in the north, and the weather became very wintry.

December 6-10.—A cold, and chiefly anticyclonic, period now set in, the barometer rising decidedly on our northern and western coasts as the depression last named moved on

* See Section II. and Map 2 Plate XXIV., for the history and tracks of depressions.

to the neighbourhood of Strasbourg and dispersed. On the 7th (pressure being then highest off our north-west coasts) a new and large depression appeared over Finland, while a shallow one advanced over the Bay of Biscay; the combined effect of these systems was to draw down a current of cold dry Northerly and Easterly wind over the whole of our Islands, producing a hard frost, which spread gradually to the southward, so that by the morning of the 8th it was felt at all but our extreme south-western stations. Some snow fell in the north and east, but over the greater part of England the weather was dry, and occasionally foggy. The anticyclone then moved slowly to the south-westwards, and at 8 a.m. on the 9th lay over, and to the westward of Ireland; the wind consequently backed to North-west in the north, and to North over our southern counties, and some snow fell in several places, with some temporary increase of temperature. At 8 a.m. on the 10th, however, frost again prevailed very generally, with brisk Northerly winds over England and Ireland, and light breezes in Scotland.

December 11-16.—Pressure now gave way decidedly in the north, and as the high-pressure area in the west moved southwards, Westerly breezes spread gradually over the British Islands, with warmer weather, the change commencing in the extreme north, and spreading rapidly thence in a southerly direction. At 8 a.m. on the 11th the thermometer had risen to 42° at Sumburgh Head, where rain and a Westerly breeze had set in, while over central England there were North-westerly and Northerly airs, and the temperature was as low as 20° to 22° in the shade. By the next morning the thermometer had risen to between 45° and 48° over Ireland and the Hebrides, and to between 40° and 45° over the northern and western parts of Great Britain, and at 8 a.m. on Sunday (13th), the temperature ranged from 37° at Yarmouth and 41° in London, to 49° or 50° at all our extreme western and northern stations. The wind at this time had become South-westerly on all our coasts (though a North-easterly wind and hard frost still held in the east and south of France), and blew hard at several of the extreme northern and western stations. Rain fell in considerable quantities over the extreme northern parts of the country, and some showers were reported subsequently at the Irish stations, but it is remarkable how dry the weather remained over England, considering how complete the change of conditions had been. It was evident that during this period depressions of great size and depth were advancing from the Atlantic over northern Europe, causing strong South-westerly and Westerly gales over Scandinavia, the Shetlands, Hebrides, and northern parts of Scotland, while over Ireland and England the wind was moderate to fresh in force. The centre of these systems, however, lay so far to the northward of our Islands that it has been found impossible to tabulate them in Section II., or to draw their tracks on Map 2 Plate XXIV.

December 17-20.—The anticyclone (No. XL.) now spread northwards from France, and for a time covered nearly the whole of western Europe. The gradients were slight, but were mainly favourable for Southerly (South-east to South-west) winds, which were consequently experienced in all parts of our Islands, but blew strongly at the western and north-western stations only. The weather was mild; some rain fell almost daily in the west and north-west, but over the greater part of England and the east of Scotland the weather was dry. On the 20th a complication appeared, in the formation of a shallow depression (No. LXXVI.*) over the south of Ireland, whence it moved north-eastwards during the day. Showery weather became prevalent, except in the south-east of England and the north of Scotland, but temperature showed no important change.

December 21.—The weather of this day was transitional, the shallow depression just referred to, after reaching Ayrshire, began to move in a south-easterly direction, and travelling across the northern and eastern counties of England, dispersed between the mouth of the Thames and Holland on the following morning. In its rear the barometer rose quickly and decided gradients for Northerly winds were formed over the United Kingdom, the Northerly current bringing with it a fresh burst of cold weather, preceded by some showers of rain, hail, and snow, especially on our north-western coasts.

* See Section II. and Map 2 Plate XXIV., for the history and tracks of depressions.

December 22-31.—The distribution of pressure during this interval was variable, being alternately anticyclonic with northerly gradients, and cyclonic with westerly gradients. A well-marked anticyclone (No. XLI., p. 136) advanced from the Atlantic, immediately in the rear of the depression No. LXXVI.,* and was accompanied by a great fall of temperature, light Northerly (N.E.-N.W.) winds, dry weather, and a good deal of fog. On the 23rd, however, the anticyclone began to give way on its northern side, so that although the cold weather still held over Ireland, the greater part of England, and the north of France, milder Westerly winds and gales again set in over Scotland and northern Europe, while very large depressions passed in from the Atlantic to northern Europe, but having their centres too far to the northward of our area for their tracks to be shown on Plate XXIV. On the 26th the anticyclone in the West again spread over the kingdom; but the 27th and 28th brought a new series of large and deep depressions to the northern parts of our area, with Westerly gales, strong winds, and mild weather, in the rear of which the wind again veered to North-west (on the 29th and 30th), with frosts and cold showers. On the last day of the month there was yet another depression—shallower and of smaller area than either of those recently experienced—the effect of which was to break up the frost again and restore the mild Westerly breezes over all parts of the kingdom. Thus the year closed with mild and comparatively fair weather, Westerly winds, and unsteady pressure. It is remarkable how little rain fell with the Westerly winds this month, although the systems which produced them were unusually large, some of them very deep, and the changes of temperature which they brought were considerable.

* See Section II. and Map 2 Plate XXIV., for the history and tracks of depressions.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—DECEMBER, 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. LXXIII. December 2-3.	No. LXXIV. December 3-5.	No. LXXV. December 5-6.
Form - - - -	Apparently circular at first, then irregular.	Oval (see map for 8 a.m. 4th in Daily and Weekly Reports).	About oval - - - -
Size - - - -	Very large - - - -	Very large - - - -	Moderate - - - -
Depth - - - -	Deep - - - -	Very deep; lowest readings about 29.5 ins.	Moderate. Lowest readings about 29.0.
Where first Observed - -	Off the north-west coast of Scotland -	Off the west coast of Ireland -	To the south-westward of Valencia -
Direction of Motion - -	North-easterly - - - -	North-easterly - - - -	Easterly and south-easterly - -
Rate of Motion - - - -	Rapid - - - -	Rapid - - - -	Rapid - - - -
Regions passed over by Steepest Gradients.	Western and northern parts of the British Islands.	British Islands and North Sea; especially northern portions.	West of France and mouth of Channel
Termination - - - -	Travelled away to the northward -	Travelled eastward to Gulf of Bothnia Russia.	Advanced to Belgium and north-east of France, filling up gradually as it progressed.
Time under Observation -	About 40 hours - - - -	About 48 hours - - - -	About 1 day - - - -
Accompanying Winds - -	Southerly and South-westerly gales in west and north; moderate breezes in south-east.	Southerly to Westerly; and to Northerly at some northern stations. Severe gales in West and North, moderate gales in South-east and East.	Moderate. South-easterly to Easterly over our southern counties; South-easterly to Westerly gales in France and at mouth of Channel.
" Weather - - - -	Squally, showery, changeable -	Strong squalls, rainy, great changes of temperature.	Much rain; mild in France, cold in our islands. London 16° colder than Brest at 6 p.m. on 5th.
" Rainfall - - - -	General; very slight in south-east, not heavy anywhere.	Very considerable in extreme north and north-west, slight in south-east.	Confined to our southern counties, the Channel and France.
REMARKS - - - -	This depression arrived while anti-cyclone No. XXXIX. was lying over the north of France and south of our islands. When its centre lay north of Shetland, a small and shallow angularly formed subsidiary passed eastwards across England. But for this the rainfall would probably not have reached our extreme southern and south-eastern station.	This depression followed closely on No. LXXIII., and advanced very steadily. Its centre passed right over the northern half of Scotland, and the Northern winds in its rear brought on considerable fall of temperature to our northern stations. As it passed off the barometer rose very decidedly, and a new anticyclonic area (No. XL) appeared off our north-western coasts, while a new and somewhat local depression appeared off our south-western coasts (see No. LXXV.).	This depression came to our south-western coasts while pressure was rising fast in the rear of the previous system, but began to fill up as soon as it reached us. As its centre passed up Channel to the southward of our southern coasts its gales were not felt in our Islands. In its rear the high-pressure area in far south spread northward, while the new one in the north spread southwards and the two became united by a col which lay over our eastern counties and the Netherlands, while a "hollow" appeared in the south-west.

SECTION II.

TABLE OF CYCLONIC SYSTEMS.—DECEMBER, 1885.

No. LXXVI. December 20-22.	No. LXXVII. December 30-31.	NOTES.
Varying; chiefly oval - - - - -	Nearly circular.	
Small - - - - -	Large.	
Very shallow - - - - -	Moderate.	
Off the south of Ireland - - - - -	Off the north of Scotland.	
North-easterly till the evening of the 21st, then south-easterly.	South-easterly till evening of 30th, then north-easterly.	
Moderate - - - - -	Moderate.	
Ireland and England (gradients very slight) -	Northern parts of our Islands and Norway.	
Dispersed off our south-east coasts - - -	Travelled away to northward.	Between the 11th and 14th of December and again between the 23rd and 29th some exceedingly large and deep depressions passed in from the Atlantic over northern Europe, causing strong South-westerly to Westerly gales, rain, and mild weather over the northern parts of our area. Their centres, however, were too far from our Islands for their movements to be accurately shown on Map 2, Plate XXIV., or for their characteristics to be tabulated in this section.
Two days - - - - -	Two days.	
Very light, cyclonic circulation - - - - -	South-westerly to North-westerly; strong.	
Rather showery - - - - -	Squally, showery, changeable; sleet and snow in places.	
Heaviest over Ireland, Irish Sea, and north-west of England, very slight elsewhere.	Very general; heavy in far north.	
<p>This depression was formed on the western side of an anticyclone which at 8 a.m. on the 20th lay over North Germany, France, and the North Sea.</p> <p>On its reaching the north of England a new anticyclone appeared off our western coasts, while the old one in the east gave way. The depression then moved south-eastwards and dispersed, and the new anticyclone spread all over the kingdom.</p>		<p>The movements of this depression were rather peculiar. At first the motion was south-easterly, but during the night of the 30th it changed suddenly to north-easterly, and a "hollow" was formed over the North Sea.</p> <p>There is no apparent reason for this change.</p>

SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS—DECEMBER 1885.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXXIX. December 1-3.	No. XL. December 6-21.	No. XLI. December 22-28.	NOTES.
Form - - - -	Irregular, oval - - -	Uncertain and varying at first; then oval, and then again varying.	Uncertain at first; somewhat oval later.	
Size - - - -	Large - - - -	Apparently large - -	Large.	
Height - - - -	Moderate. Maximum readings rather above 30° 3 ins.	Moderate. Maximum readings rather above 30° 5 ins.	Small to moderate. Maximum readings rather above 30° 5 inches.	
Where first Observed	Over the Bay of Biscay -	Off our north-western coasts -	Off our western and north-western coasts.	
Direction of Motion -	South-easterly and easterly -	Varying between south-westerly and south-easterly till 13th; afterwards spread northwards and then receded over south-eastern Europe.	Southerly and easterly, but irregular.	
Rate of Motion - -	Slow - - - -	Very variable; generally slow	Varying, generally very slow.	
Regions passed over	Bay of Biscay and France -	Northern and western parts of our Islands, the Bay of Biscay, and France.	Our western coasts.	Between the 29th and 31st a new anticyclone appeared to the south-westward of our Island, but its centre did not come near enough to the United Kingdom for its characteristics to be tabulated.
Termination - - -	Passed south-eastwards out of our area.	Passed away to eastward of our area.	Passed away to south-eastward of our area.	
Accompanying Wind -	Westerly to South-westerly in our Islands. Easterly in south of France.	Varying greatly; Northerly and North-easterly at first, afterwards backing to North-west, West, and South-west.	Northerly to Westerly and South-westerly, blowing hard in north, but slightly elsewhere.	
„ Weather -	Fine, dry; not cold - -	Fine; cold till centre moved to the southward of our Islands.	Fair and cold. Temperature rising over our Islands as the anticyclone moved southwards.	
REMARKS - - - -	This system advanced quickly at first, but afterwards moved less decidedly. As it moved eastwards two depressions (Nos. LXXIII. and LXXIV.) passed rapidly over the western and northern parts of our area. (See p. 134.)	This system advanced quickly as the depression No. LXXIV. passed off, and brought with it the first steady frost of the winter. The cold was very sharp indeed—especially in the north, but did not last long, as the wind began to back to the South-westward on the 11th. It was while this system lay over our northern regions that the depression No. LXXV. appeared off our south-western coasts, and caused the North-easterly wind to spread all over the kingdom.	This system advanced as the shallow depression No. LXXVI. moved away to the south-eastward, and it brought with it the second period of frost experienced in December. The cold, however, was not very severe, and occasionally gave way for a few hours at a time, breaking up over England finally on the 27th.	

SECTION III.

REMARKS FOR DECEMBER 1885.

(Tables XXIII. and XXIV. with Plates XXIII. and XXIV.)

THE mean pressure of the air, at 8 a.m., varied from a little above 30·2 inches along our southern coasts to about 30·05 inches over the south of Scotland, and to 29·75 inches at Sumburgh Head. The readings were, therefore, higher than the means for the corresponding month in the 20 years 1861–80, by about 0·3 in. over Ireland, and by 0·2 in. over England, but by only 0·15 in. over the north of Scotland, and only 0·05 in. at Sumburgh Head. The gradients were favourable for Westerly winds and were steeper than usual over Scotland, and that the prevailing winds during the month were South-westerly and Westerly will be at once evident on referring to Plate XXIII. The highest readings were recorded in the north and south between the 10th and 12th, in the west on the 24th, and in the east on the 18th, but second maxima occurred in the south between the 24th and 27th, when the anticyclone No. XLI. moved southwards from our western stations to the Bay of Biscay and France. The lowest values were recorded on the 4th, at which time the deep depression No. LXXIV. passed over Scotland. The range was large (about 1·9 in.) in the north of Scotland, but was slight for the time of year in the south.

Movements of Depressions.—These were chiefly north-easterly and easterly, but in two instances (namely with systems No. LXXVI. and LXXVII.), the direction of motion changed suddenly—see the tracks drawn on Map 2, Plate XXIV. Some other depressions of great size passed in an eastern direction from the Atlantic to Lapland and northern Russia, about the middle and end of the month, but their centres lay so far north that their movements cannot be shown in detail on Map 2, nor their characteristics be adequately tabulated in Section II. Their effect on the steepness of the barometric gradients and the winds over Scotland was, however, very decided.

Anticyclones.—Anticyclones were prevalent in some portion or other of our area during nearly the whole of the month, and were very large in size. The first lay over France, and subsequently broke up, as a new system came towards our Islands from the Atlantic. Those experienced afterwards reached our shores from the Atlantic, whence they moved south-eastwards to France or southwards to the Bay of Biscay, occasionally spreading northwards again, and causing some of those alternations of temperature which have been the peculiar feature of the month. On two occasions the continental anticyclone, over France and Germany, gave way to a shallow and small depression, advancing from the Atlantic and followed by a new anticyclonic system, which after a time moved southwards and eastwards and occupied the position of the system which had previously given way.

Winds.—The prevailing winds, except at Scilly, Jersey, and Valencia, were South-westerly and Westerly, owing to the large proportion of the depressions which passed by or over our northern districts. In force they varied considerably, from a light breeze to a gale. Gales were not, however, of very frequent occurrence, those recorded at our western and northern stations being due chiefly to the depressions noticed between the 1st and 5th and between the 24th and 31st.

Temperature.—The mean (sea-level) temperature of the air at 8 a.m. varied from 46°·5 at Scilly and from between 44° and 45° at the extreme south-western points of Ireland and England, to a little below 40° over the northern parts of central Ireland, to somewhat below 39° over Scotland, and to a little below 38° over Lincolnshire, Bedfordshire, Cambridgeshire, and Norfolk. The winter type of distribution was strongly marked (see

Map 3, Plate XXIV), and a subsidiary cold area of considerable magnitude lay over South Wales, Herefordshire, Monmouthshire, and Gloucestershire. The mean values when compared with the averages for the 20 years 1861–80, show a slight excess so far as the Scotch stations are concerned, but a slight deficit (of about 1°) over Ireland and England. The lowest readings occurred between the 8th and 12th in all parts of the kingdom, at which time the anticyclonic system No. XL. prevailed, and the coldest morning generally was that of the 11th, when the sheltered thermometer fell to between 14° and 20° in many parts of Great Britain. The highest values were recorded on the 16th or 17th, except over the north-western and some of the northerly districts, where the maximum for the month was registered on the 3rd while the anticyclone No. XL. lay over the southern and south-eastern parts of our area. The range was not very large inland, but was somewhat considerable at the insular stations, the values varying from 40° at Newton Reigny, 37° at Llandovery, and 36° at Killarney, to 22° at Scilly, and 29° at Douglas (Isle of Man).

Vapour Tension.—The mean values for the month varied from slightly below 0.20 in. in the east of Scotland, and the north-eastern, eastern, and midland parts of England, to between 0.21 in. and 0.24 in. over central Ireland, and to 0.26 in. at Valencia and Scilly; while *Relative Humidity* was as low as 82 per cent. at Scilly, 84 to 88 per cent. at most stations on the shores of the Irish Channel, and 85 to 90 at most of our north-eastern and eastern stations, but was as high as 95 to 98 per cent. on our southern coast, and 90 to 93 over the greater part of England, as well as at Ardrossan and Malin Head.

Rainfall varied from only half-an-inch at Bawtry, and from considerably less than an inch over many of the inland parts of England, and at Parsonstown, to upwards of 3 inches at Wick, Hawes Junction, Roche's Point, and Belmullet, to 4 inches at Sumburgh Head to 6.9 ins. at Stornoway, and to 10.28 ins. at Laudale (Loch Sunart), the fall at this station being of a very local character. The amounts for this month show a very considerable deficit when compared with the normal values for December in the 15 years 1866–80, except in the extreme north and north-west of Scotland and the adjacent islands. These parts were fully within the influence of the large depressions which passed by our extreme northern coasts at about the middle and latter parts of the month, and consequently received a much larger fall than the stations situated further south. The number of rainy days varied from 8 at Leith to 11 or 12 at many of the midland and south-eastern stations, to between 15 and 19 on most parts of our western coasts (but 23 at Valencia), and to 21 at Wick, 28 at Stornoway, and 29 at Sumburgh Head.

Bright Sunshine.—The amount of bright sunshine registered was very low in the large towns (such as London, Glasgow, and Leicester), and was not large in any place. Assuming the total possible duration at each station to be represented by 100, the amounts actually recorded were as low as 7 at Leicester, 8 at Glasgow, 9 in London, while in other parts of Great Britain they varied somewhat irregularly between 14 and 28. At the Irish stations the values varied from 13 at Armagh, and 18 at Valencia, to 21 at Dublin. The values for York for December are not reliable.

SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF DECEMBER 1885.

TABLE XXIII.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC
Observations are made at 8 a.m. daily, but the Numbers of Days of Rain, Snow, Hail
(The Stations are grouped in Districts, and then arranged in order of Latitude,

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 29° 75' 1	40° 3	35° 1	43° 9	39° 5	20	8th, 9th,	59	17th
	Wick	29° 87' 3	39° 3	33° 7	43° 7	38° 6	20	8th, 10th	54	16th
	Stornoway	29° 88' 5	40° 8	35° 3	44° 6	40° 0	23	7th, 8th, 30th	53	16th
1. SCOTLAND	Nairn	29° 91' 9	39° 4	34° 4	44° 7	39° 6	19	10th	56	16th
	Aberdeen	29° 94' 5	37° 5	32° 6	43° 7	38° 2	22	11th, 12th	57	16th
	Leith	30° 05' 0	39° 7	35° 3	44° 8	40° 1	23	7th, 11th	56	16th
2. ENGLAND, N.E.	Shields	30° 07' 8	39° 0	33° 5	44° 2	38° 9	20	11th	57	16th
	York	30° 14' 4	36° 6	31° 5	43° 7	37° 6	16	11th	53	3rd, 16th
	Spurn Head	30° 12' 6	38° 3	34° 9	42° 6	38° 8	27	9th, 11th	52	3rd
3. ENGLAND, E.	Yarmouth	30° 16' 6	37° 9	33° 5	42° 2	37° 9	23	30th	49	17th
	Cambridge	30° 20' 5	36° 5	31° 5	43° 3	37° 4	20	11th	51	3rd, 15th, 17th, 31st.
4. MIDLAND COUNTIES	Loughborough	30° 18' 7	37° 1	32° 9	43° 6	38° 3	21	8th	52	16th, 17th
	Oxford	30° 22' 3	36° 7	33° 4	43° 4	38° 4	23	11th	51	3rd, 15th
5. ENGLAND, S.	London	30° 22' 2	37° 3	33° 5	44° 7	39° 1	22	11th, 12th	52	3rd, 15th
	Dungeness	30° 20' 6	39° 5	35° 1	45° 0	40° 1	23	11th, 12th	52	1st
	Hurst Castle	30° 23' 3	39° 8	35° 3	46° 6	41° 0	22	11th, 12th	53	6th, 7th
6. SCOTLAND, W.	Ardrossan	30° 06' 8	41° 2	37° 4	44° 8	41° 1	22	8th	51	16th
7. ENGLAND, N.W.	Hawes Junction*	28° 86' 4	34° 3	29° 4	39° 2	34° 3	15	11th	50	18th
	Barrow-in-Furness	30° 13' 8	39° 6	36° 1	43° 7	39° 9	25	8th, 11th	51	3rd
	Liverpool (Bidston)	30° 16' 4	39° 8	36° 6	44° 2	40° 4	27	8th, 9th	53	3rd
	Holyhead	30° 17' 3	42° 6	35° 7	46° 0	40° 9	29	11th	51	3rd
8. ENGLAND, S.W.	Pembroke	30° 21' 5	43° 7	40° 6	46° 3	43° 5	30	11th	51	3rd
	Prawle Point	30° 24' 1	41° 5	37° 0	46° 4	41° 7	25	9th	53	1st
9. IRELAND, N.	Malin Head	30° 06' 7	42° 5	39° 7	46° 8	43° 3	30	29th	54	16th
	Donaghadee	30° 12' 3	40° 7	36° 8	44° 9	40° 9	27	11th	56	16th
	Mullaghmore	50° 11' 2	43° 4	40° 0	46° 8	43° 4	33	6th, 8th, 11th, 20th.	56	16th
	Belmullet	50° 12' 8	43° 6	40° 1	46° 7	43° 4	30	8th	52	15th, 16th, 18th
10. IRELAND, S.	Parsonstown	30° 12' 8	39° 3	34° 8	45° 5	40° 2	20	8th	57	16th
	Valencia	30° 19' 4	44° 2	40° 2	49° 3	44° 8	29	9th	55	3rd, 15th, 16th
	Roche's Point	30° 10' 6	43° 4	39° 4	48° 3	43° 0	30	9th, 10th	55	19th, 20th
CHANNEL ISLANDS	Scilly (St. Mary's)	50° 21' 6	46° 6	43° 0	49° 4	46° 2	32	9th	54	5th
	Jersey (Noirmont)	50° 23' 8	42° 8	39° 6	46° 4	43° 0	31	25th	54	5th

* Hawes Junction is 1,135 feet above Mean Sea Level and the

- TABLE XXIII.

REPORTING STATIONS in the BRITISH ISLANDS, during the Month of December 1885.

Thunderstorms, and Gales are counted irrespective of the hours at which they occurred.

(beginning in each case with the Station lying furthest North.)

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calm.
ins.	%		ins.	ins.																	
0'227	92	8'7	4'01	0'95	3rd	29	5	0	0	1	21	2	8	1	0	0	2	5	12	3	0
219	92	7'3	3'69	0'80	28th	21	6	0	0	4	16	5	3	0	0	0	4	7	5	9	3
245	97	7'8	6'93	0'95	3rd	28	6	7	0	5	20	9	4	1	0	0	5	11	6	3	1
210	87	5'2	2'147	0'36	30th	211	7	0	0	10	9	3	1	0	0	0	0	9	13	2	6
190	85	4'5	2'28	0'67	21st	16	8	1	0	11	7	5	2	0	0	0	3	11	8	7	0
216	88	5'5	0'70	0'14	3rd	8	1	1	0	8	5	3	0	1	0	1	0	1	21	6	1
209	88	6'2	0'64	0'15	30th	12	6	1	0	6	10	4	2	1	0	0	4	13	8	3	0
197	91	5'9	0'84	0'28	9th	12	2	0	0	10	11	0	7	0	1	1	6	5	9	2	0
217	94	5'9	0'79	0'20	30th	13	4	1	0	8	10	3	2	2	0	1	2	10	8	6	0
202	89	5'6	1'81	0'40	8th	17	6	2	0	5	5	2	3	2	0	1	2	6	10	7	0
202	93	6'7	0'80	0'80	30th	13	3	0	0	8	16	0	3	1	0	1	3	11	2	7	3
197	89	6'9	0'50	0'21	28th	11	4	1	0	6	15	1	1	1	2	4	2	4	10	6	1
200	91	6'2	0'98	0'25	5th	11	4	1	0	9	14	1	1	3	1	2	3	9	9	2	1
203	92	6'6	1'22	0'36	5th	11	3	0	0	10	17	2	3	2	1	2	5	8	5	2	3
235	98	6'2	1'08	0'48	5th	11	1	0	0	8	11	2	7	3	2	1	0	5	6	6	1
230	95	6'0	1'66	0'65	5th	18	0	0	0	7	7	4	4	8	4	0	2	3	7	3	0
237	92	7'6	1'76	0'38	30th	16	2	2	0	6	21	5	3	2	2	1	5	6	7	3	2
182	92	6'6	3'14	0'49	30th	15	4	0	0	9	19	2	5	2	2	2	1	10	6	2	1
219	90	6'8	1'41	0'41	30th	17	0	0	0	2	14	3	3	6	1	3	4	5	2	7	0
208	86	6'2	1'55	0'37	30th	15	0	2	1	9	12	3	3	3	2	3	2	7	9	2	0
238	87	7'8	1'45	0'36	20th	13	0	2	0	2	16	6	1	3	1	0	3	8	8	4	3
241	84	7'3	1'44	0'55	5th	16	0	2	0	3	12	4	5	4	2	3	3	5	4	5	0
228	88	5'9	1'62	0'59	5th	15	0	0	0	9	13	3	7	4	2	2	2	5	4	5	0
250	92	7'7	1'76	0'37	30th	18	0	4	0	3	17	4	4	2	1	0	6	8	5	5	0
224	88	5'1	1'16	0'31	3rd	14	2	0	0	11	6	4	1	3	3	1	2	5	11	5	0
243	86	6'9	2'17	0'53	20th	16	2	4	0	4	7	8	2	4	1	0	6	9	6	2	1
248	89	7'3	3'30	1'11	3rd	19	0	4	0	4	15	5	4	4	2	2	5	5	5	4	0
213	89	8'0	0'92	0'17	2nd	14	1	1	0	6	23	0	0	1	1	2	3	8	1	4	11
261	90	7'7	2'54	0'40	19th	23	0	1	0	4	18	8	2	7	2	5	2	5	3	3	2
251	90	7'2	3'43	0'90	5th	16	0	0	0	6	17	3	7	2	2	2	2	7	5	4	0
258	82	8'2	1'79	0'81	5th	17	0	0	0	0	17	7	2	3	3	2	6	5	3	3	4
244	89	7'8	1'48	0'71	5th	12	0	1	0	1	17	7	5	6	4	2	2	7	2	3	0

Barometer at this station is not reduced for altitude.

TABLE XXIV.

OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT, during the Month of December 1885.

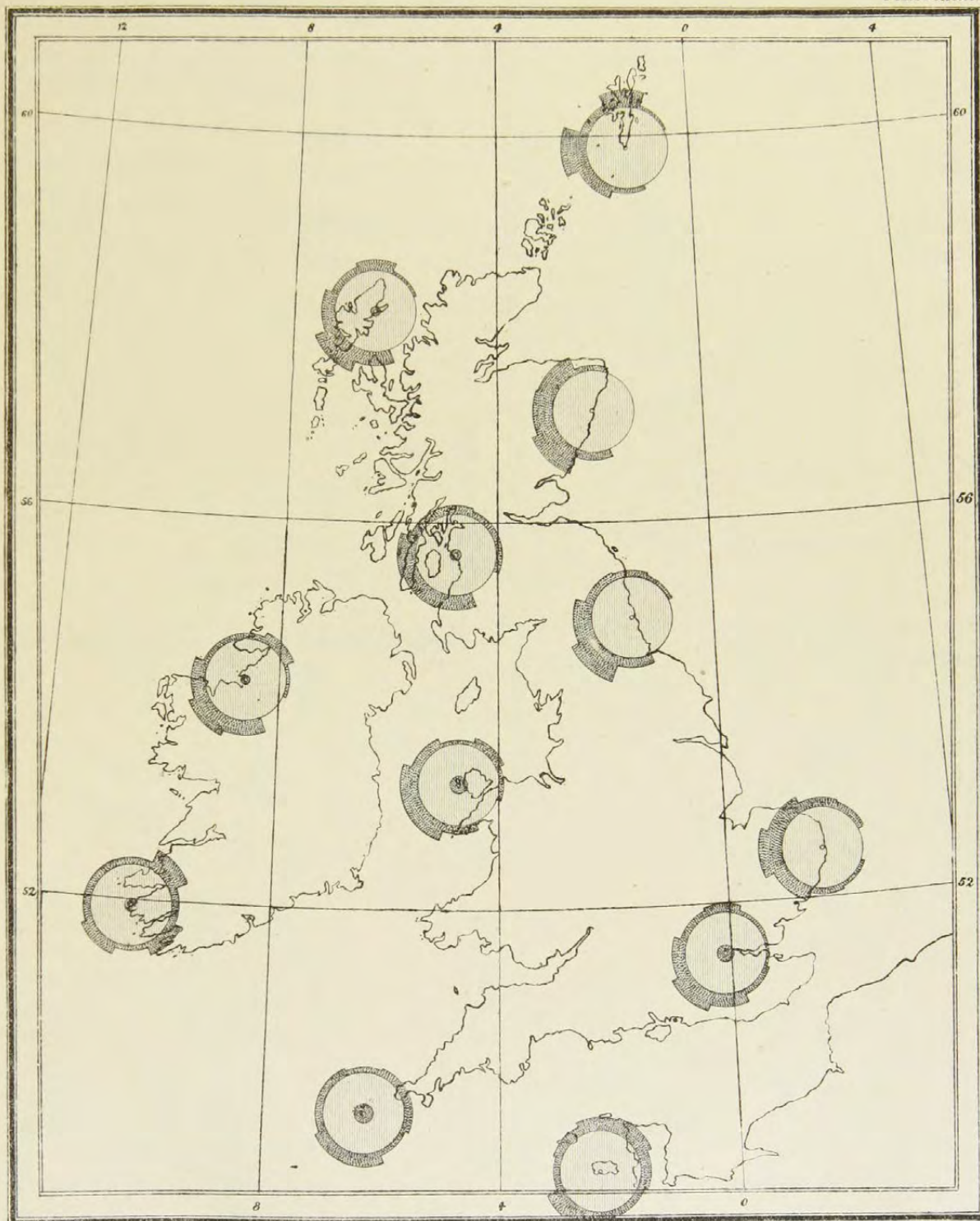
STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STERNOWAY	0	0	0	0		0		*	*	*	*	20	10
ABERDEEN	*	*	*	*		*		*	*	*	*	56	28
ALNWICK CASTLE	35'2	42'9	39'1	22	10th	54	17th	10	1'19	0'36	30th	—	—
DURHAM	31'9	43'1	37'5	19	8th	56	16th	10	0'56	0'20	9th	51	24
SCARBOROUGH	34'6	43'1	38'9	25	11th	51	16th, 17th	17	1'09	0'27	30th	—	—
YORK	*	*	*	*		*		*	*	*	*	712	75
HILLINGTON	32'1	42'1	37'1	16	11th	50	4th, 17th	12	1'38	0'42	30th	47	21
GELDESTON	33'3	42'9	38'1	20	11th, 12th	50	15th, 17th	17	1'00	0'26	30th	65	28
CAMBRIDGE	*	*	*	*		*		*	*	*	*	55	24
ROTHAMSTED	32'4	43'0	37'7	22	11th, 12th	50	4th, 17th, 22nd	25	1'33	0'35	30th	—	—
BAWTREY	32'5	44'3	38'4	21	11th	54	16th	11	0'96	0'25	4th	128	12
LEICESTER	33'7	43'0	38'4	22	11th	52	17th	10	0'64	0'19	30th	16	7
CHEADLE	32'1	42'1	37'1	21	11th	50	4th	14	1'07	0'45	30th	—	—
CHURCHSTOKE	32'1	43'2	37'7	18	11th	52	17th	13	0'89	0'23	28th	32	14
HEREFORD	31'9	44'3	38'1	17	11th	52	16th, 31st	13	0'74	0'32	5th	—	—
CIRENCESTER	31'6	42'2	36'9	18	11th	50	31st	17	0'99	0'46	5th	48	21
OXFORD	*	*	*	*		*		*	*	*	*	48	21
LONDON	*	*	*	*		*		*	*	*	*	21	9
MARLBOROUGH	32'3	42'8	37'6	19	11th	49	1st, 3rd, 4th, 17th.	13	1'11	0'48	5th	47	20
STRATHFIELD TURGIS	32'0	43'2	37'6	19	11th	51	17th	12	1'03	0'33	5th	—	—
HASTINGS	36'3	43'8	40'1	24	11th	51	3rd	15	1'19	0'55	5th	63	26
SOUTHAMPTON	34'9	44'5	39'7	23	11th	52	3rd	15	1'84	0'60	5th	52	22
LAUDALE	37'6	45'7	41'7	20	7th	55	16th	28	10'28	1'90	3rd, 31st	—	—
GLASGOW	34'6	43'6	39'1	20	7th	52	16th	19	1'87	0'47	3rd	17	8
SILLOTH	—	—	—	—	—	—	—	—	—	—	—	—	—
DOUGLAS	37'3	45'1	41'2	25	8th, 10th	54	16th	16	1'93	0'52	30th	33	15
NEWTON REIGNY	30'7	43'2	36'5	14	8th, 11th	54	16th	14	1'75	0'33	28th	32	15
STONYHURST	32'8	43'9	38'4	20	8th, 11th	51	4th	14	2'70	0'99	30th	37	17
BLACKPOOL	34'4	43'7	39'1	19	8th	52	3rd	17	1'70	0'46	30th	35	16
MANCHESTER	33'6	43'3	38'5	22	11th	54	1st	15	2'91	0'95	30th	—	—
LLANDUDNO	37'0	46'1	41'6	26	8th	55	16th	8	1'33	0'40	30th	31	14
LLANDOVERY	30'8	44'0	37'4	14	10th	51	3rd	18	2'44	0'49	28th	—	—
PEMBROKE	*	*	*	*		*		*	*	*	*	39	17
ARLINGTON	33'8	43'8	38'8	20	11th	50	3rd, 17th	17	2'07	0'62	5th	—	—
CULLOMPTON	32'8	44'5	38'7	16	11th	51	1st, 3rd, 17th	16	2'12	0'75	5th	34	14
FALMOUTH	39'7	47'1	43'4	27	9th	54	5th	15	2'73	1'15	5th	61	25
PLYMOUTH	36'2	47'0	41'6	23	11th	53	3rd	15	2'09	0'93	5th	50	21
JERSEY	*	*	*	*		*		*	*	*	*	59	24
LONDONERRY	36'7	46'8	41'8	24	7th	57	16th	17	2'64	0'55	3rd	—	—
MARKREE CASTLE	34'1	45'0	39'6	18	8th, 11th	54	16th	21	2'62	0'65	20th	34	15
BROOKEBOROUGH	33'9	44'3	39'1	18	11th	53	16th	9	1'96	0'52	3rd	—	—
ARMAGH	35'3	44'4	39'9	23	8th, 11th	55	16th	12	1'29	0'32	3rd	30	13
EDGEWORTHSTOWN	34'5	43'4	39'0	23	23rd	55	16th	11	1'18	0'25	3rd	—	—
DUBLIN	37'8	46'2	42'0	24	11th	58	16th	10	0'74	0'16	5th	49	21
PARSONSTOWN	*	*	*	*		*		*	*	*	*	39	17
KILKENNY CASTLE	34'6	45'0	39'8	19	11th	54	3rd, 16th	14	1'03	0'25	5th	—	—
WATERFORD	35'8	45'0	40'4	21	12th	52	3rd, 31st	15	1'95	0'49	5th	—	—
VALENCIA	*	*	*	*		*		*	*	*	*	41	18
KILLARNEY	36'4	47'6	42'0	19	9th	55	3rd, 17th	14	2'73	0'50	3rd	—	—
VOYNES	—	—	—	26	12th, 22nd	59	16th	—	—	—	—	—	—

* For information see Table XXIII.

† The bright sunshine values given for Bawtry are recorded at Worksop.

MONTHLY WIND CHART FOR DECEMBER, 1885.

Plate XXIII.



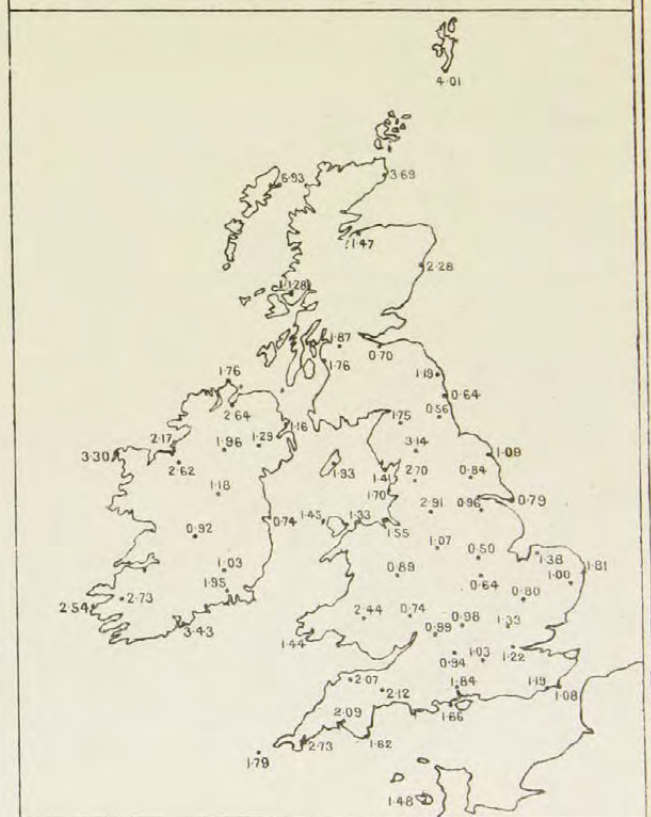
To face page 142.

DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 1887.

2. MOVEMENTS OF DEPRESSIONS.



4. RAINFALL



APPENDIX.

APPENDIX I.

ON the IMPURITIES in LONDON AIR.—By W. J. RUSSELL, Ph.D., F.R.S.

IN a previous report I have treated of the impurities washed out of London air by rain, and of the variation of the amount of carbonic acid in the air, and I now deal with the general question of impurities in the air, and how they can be readily and accurately determined. I have put together the results obtained up to the present time, and although the number of experiments for such a subject is small, still they indicate the amount of impurity usually present in London air, and, more clearly than might have been anticipated, indicate the relationship between the state of the weather and the amount of impurity in the air. The case of a dense fog has not yet been examined.

The practical difficulties of this inquiry are considerable, and arise from the large bulk of air which has to be dealt with, and the small amount of impurity in it, for even when the air is most impure the weight of the extraneous substances present is, compared to that of the air itself, exceedingly small, it is therefore not easy rapidly and completely to remove this small amount of impurity.

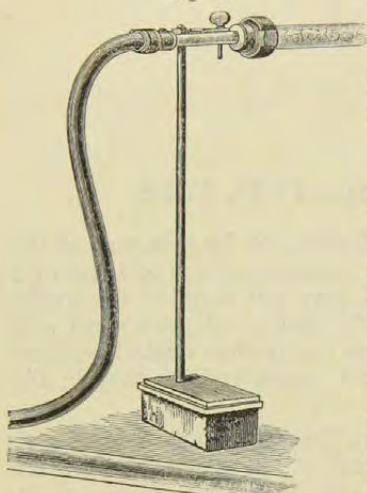
To draw and to measure a sufficient quantity of air for experiment it was found that aspirators of manageable size would not answer; a large double-barrelled air pump, made specially for these experiments by Messrs. Owens & Co., answered, however, very well. The cylinders were of such size as to draw a quarter of a cubic foot of air at each stroke. Metal tubes connected with the pump were carried to the place at which the air for experiment was to be collected. In the following experiments this place was an open space about 12 feet from the ground at St. Bartholomew's Hospital, close to where the rain and carbonic acid experiments were made.

The plan first tried for abstracting the impurities from the air was to filter and wash it by drawing it through plugs of glass wool. Glass wool, which resembles so closely cotton wool in appearance, has the property of holding mechanically a very large amount, about five times its weight, of water, consequently it was thought that it would be easy not only to remove all suspended matter, but in the same experiment very thoroughly to wash the air, and, by examining the wool afterwards, to determine what had been abstracted from the air. It will not be necessary here to give in detail an account of the numerous experiments made, and the many failures to obtain satisfactory results, but it may be briefly stated that it was found impracticable to use this method of washing the air, not on account of the washing being imperfect, but because the sulphates and chlorides washed out of the air could not be accurately estimated in the wool. Carefully selected glass wool was always used, and it was washed first with very dilute acid, and afterwards with very pure water and then carefully dried. The sulphates and chlorides which this purified wool still yielded to water was determined, but as this amount varied with the length of time the glass and water were in contact, and since the amount of these salts washed out of the air is very small, reliable results could not be obtained, and ultimately this method of washing the air was abandoned. Slag wool and asbestos were also tried, but they did not give satisfactory results. Although the air could not be washed in this way, still for removing the floating matter from the air, and enabling the carbon and nitrogen in such matter to be determined, this wool seemed well adapted. Even after it had been carefully washed, it still yielded, when mixed with copper oxide and heated, a small amount both of carbon and nitrogen. The amount was, however, carefully determined in each lot of wool, and the necessary correction applied to the subsequent analyses.

The following experiments, then, with the glass wool had for their object to determine the amount of carbon and nitrogen existing as impurity in the air and not in the gaseous state; this would include different organic matters, soot and such like products, from imperfect combustion. The experiments were carried out as follows: 13 grams of glass wool which had been washed and assayed for carbon and nitrogen, were carefully packed into a tube about $1\frac{1}{2}$ inches in diameter, and 9 or 10 inches long; a lamp glass is suitable for the purpose. A piece of wide wire gauze in the large end of the lamp glass prevents the wool being drawn along by the current of air, and the metal tube from the air pump is also fastened into this end of the glass by an india-rubber plug (Fig. 1 p. [2]). The above amount of glass wool, when so used, seemed able to withdraw the organic matter from the air passed through it, if not with absolute completeness, still very thoroughly. An experiment made to test this point by using two plugs and analysing them separately was carried out

under the most trying circumstances,—that of a fine day. In the first plug .0043 of carbon and .0005 nitrogen were found, and in the second plug .0009 carbon and .0003 nitrogen,—amounts which are really

Fig. 1.



within the error of observation. The reason in the first instance for selecting this amount of glass wool was, that it is the largest quantity which can conveniently be heated in the combustion tube at one time, and obviously it is very disadvantageous, and liable to lead to error, to have to analyse only a sample instead of the whole of the wool which has been used.

To draw the air through this plug of glass wool the pump was usually worked at a rate of about 1,000 strokes in the hour, thus drawing about 250 cubic feet of air, or a little less, in that time. On a fine day at least 1,000 cubic feet of air are required for a single experiment. The amount of carbon and nitrogen abstracted from the air, and representing the organic and carbonaceous impurities floating in the air, was determined by combustion with copper oxide in the ordinary way.

The glass wool, after the experiment, was wetted with sulphurous acid (perhaps an unnecessary proceeding to eliminate the presence of any carbonates), dried, powdered, and intimately mixed with copper oxide, and introduced into a combustion tube, the carbonic acid and nitrogen evolved, carefully collected by a Sprengel pump and then measured. Thus the weight of carbon and nitrogen in the air experimented on was determined.

The great power which glass wool has of removing dust from the air is seen by the slight brown colouration which occurs, even on the finest days, where the air and wool first come into contact, and in case of fog a very few cubic feet of air are sufficient to render the wool at this point quite black. The glass wool, owing to its being a lead glass, appears to act as a very delicate test for sulphuretted hydrogen, but it is difficult to distinguish between the brown shade produced by dust and that produced by a trace of lead sulphide.

This method for estimating the organic floating matter in the air was finally arranged in the autumn of 1883, and, omitting all previous experiments as imperfect, the following are all the determinations made since that date. No dense fog that could be experimented on occurred, but on looking through the descriptions of the weather made at the time, the experiments may be classed as occurring in fine, dull, and foggy weather, and that classification of weather has been adopted in arranging all the experiments in this report.

FINE WEATHER.

Grams per 1,000 Cubic Feet of Air.

—				Carbon.	Nitrogen.	Total Organic Matter.
October 20, 1883	-	-	-	.0043	.0005	.0048
June 26, 1884	-	-	-	.0025	None	.0025
June 24, 1885	-	-	-	.0032	None	.0032
Mean	-	-	-	.0033	.0002	.0035

DULL WEATHER.

Grams per 1,000 Cubic Feet of Air.

—				Carbon.	Nitrogen.	Total Organic Matter.
October 30, 1883	-	-	-	.0068	None	.0068
December 8, "	-	-	-	.0092	.0011	.0103
February 18, 1884	-	-	-	.0067	.0004	.0071
March 27, "	-	-	-	.0114	None	.0114
April 28, "	-	-	-	.0115	None	.0115
" 29, "	-	-	-	.0150	None	.0150
January 20, 1885	-	-	-	.0101	.0003	.0104
Mean	-	-	-	.0101	.0002	.0103

FOGGY WEATHER.

Grams per 1,000 Cubic Feet.

—				Carbon.	Nitrogen.	Total Organic Matter.
January 18, 1884 -	-	-	-	·0182	None	·0182
February 8, „ -	-	-	-	·0310	·0010	·0320
January 9, 1885 -	-	-	-	·0226	·0005	·0231
Mean -	-	-	-	·0239	·0005	·0244

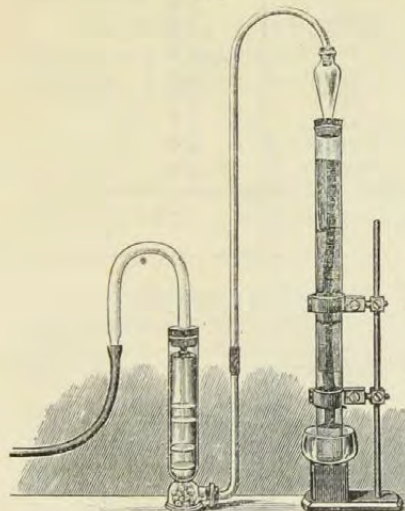
The above experiments very clearly indicate the considerable variation which occurs in the amounts of organic matter in the air, at different times. A very much larger number of experiments should be made, but taking the mean of each set of experiments, the following numbers are obtained, viz. :—

Carbon ·0033, Nitrogen ·0002; for fine weather.
 „ ·0101, „ ·0002; for dull weather.
 „ ·0239, „ ·0005; for foggy weather.

They indicate that a close relationship exists between the weather and the amount of organic matter in the air.

The method first tried for washing the air, viz., with moist wool, was not, as before stated, successful; another method had therefore to be found in place of it. To wash every trace of soluble matter out of a large bulk of air in a short space of time is all but impossible; all that is feasible is to make the washing as complete as possible. The difficulty of washing the air thoroughly for the present purpose is much increased owing to the necessity for using a small bulk of water, for since the absolute amount of impurity in the air is so little if it be diffused through a large bulk of water, it cannot be accurately determined. Another

Fig. 2.



difficulty is the rapidity with which the washing has to be done. Fig. 2 shows the form of apparatus finally adopted, and it seems to fulfil the above requirements and acts well. It consists of a glass cylinder 2 feet 9 inches long and 2½ inches in diameter; inside this cylinder and reaching from near the top to within some 4 inches of the bottom two pieces of a somewhat coarse (about 300 meshes to the inch) wire gauze are fixed at right angles to one another, and held in position by the elasticity of the gauze, thus from the centre of the tube four arms radiate out, dividing the inside into equal spaces. This wire gauze is cut into six different lengths, and between each length a disc of wire gauze is placed across the tube. A stopper of pure india-rubber fits into the top of the cylinder and carries a glass adapter, which serves to collect the water carried along by the current of air, and in order still further to prevent this loss of water, a disc of platinum foil is held by a platinum strap, cut out of the same piece of foil, in front and a little below the small end of the adapter, and another disc is placed at the end of the tube passing from the top of the adapter. The lower end of this washing cylinder is open and is placed a little above the bottom of a glass vessel,—a strong glass finger-bowl answers exceedingly well. To use the apparatus, the necessary

amount of water, some 400 c.c., is placed in this bowl, then on working the pump the air forces the water up into the tube, some falling back between each stroke; but the strong current of air passing up the tube carries the water gradually higher and higher in the tube, till at last it becomes stationary, and if the upper wire discs be of a little finer gauze than the lower ones, then, as long as the flow of air continues, a layer of water will rest on each disc, and through each of these the air will have to pass in succession, throwing the water into spray, and beating it against the wire gauze uprights,—in fact, the air before it leaves the tube has undergone six distinct washings, and washings in which it has been brought most intimately in contact with the water. As soon as the pump stops, all the water trickles down from cylinder and gauze, and collects again in the bowl. In this way as large an amount of washing as possible is done with this small amount of water, still, soluble salts passed through, and a second washing apparatus was added; it consists simply of a large sized eprouvette of the same diameter as the washing cylinder. The bottom chamber is partly filled with glass marbles to lessen the amount of water necessary, and to break up the air as it enters;

four discs of gauze are placed above and act as in the first washing cylinder, they are held in their place by pieces of glass tube cut of different lengths, and of such diameter as to slip inside the éprouvette; these reach to the cork which holds them all in their places. 200 c.c. of water was usually used in this part of the apparatus, making altogether 600 c.c. of water used for the washing; through this some 500 to 1,000 cubic feet of air were passed at about the same rate as in the glass wool experiments. The wire gauze should all be of platinum. The discs used in the following experiments were of platinum, but the upright gauze in the first washer was brass thickly nickelled. The whole apparatus before being used was carefully cleaned and soaked in distilled water till the water yielded no trace of sulphates or chlorides. In hot weather very considerable evaporation occurs, and if not obviated by adding more water the washing may become less complete from loss of liquid.

Since the above experiments were completed Mr. Fletcher, chief inspector of alkali works, mentioned to me a case in which the washing power of a given quantity of water used as above had been very considerably increased by suspending in it a solid, in that particular case sulphate of lime. Acting on this idea, I have made a few experiments with pure sand, suspended in the 400 c.c. of water used. In the first experiment the sand did apparently increase the washing power of the water, in the second experiment this is doubtful.

Again omitting the earlier experiments, the following have all been made with the apparatus in the form above described. They are arranged, with regard to weather, under the same three heads: fine, dull, foggy.

FINE WEATHER.

Grams per 1,000 Cubic Feet of Air.

—				Sulphuric Acid.	Hydrochloric Acid.	Total.	Volumes of Carbonic Acid in 10,000 of Air.
January 26, 1883	-	-	-	·0078	·0010	·0080	4·1
February 6, "	-	-	-	·0048	·0002	·0050	3·7
" 22, "	-	-	-	·0142	·0014	·0156	4·2
May 1, "	-	-	-	·0146	·0014	·0160	3·6
" 24, "	-	-	-	·0114	·0008	·0122	3·4
July 13, "	-	-	-	·0142	·0036	·0178	3·9
" 19, "	-	-	-	·0142	·0011	·0153	3·8
January 24, 1884	-	-	-	·0078	·0001	·0079	4·1
" 28, "	-	-	-	·0367	·0029	·0396	3·8
June 26, "	-	-	-	·0119	None.	·0119	3·7
April 29, 1885	-	-	-	·0095	None.	·0095	4·0
June 24, "	-	-	-	·0069	None.	·0069	3·15
Mean -	-	-	-	·0128	·0010	·0138	3·78

DULL WEATHER.

Grams per 1,000 Cubic Feet of Air.

—				Sulphuric Acid.	Hydrochloric Acid.	Total.	Volumes of Carbonic Acid in 10,000 of Air.
January 17, 1883	-	-	-	·0184	·0029	·0213	4·7
" 19, "	-	-	-	·0160	·0028	·0188	4·7
February 27, "	-	-	-	·0136	·0022	·0158	3·9
August 1, "	-	-	-	·0179	·0019	·0198	4·1
December 8, "	-	-	-	·0475	·0066	·0541	4·6
" 10, "	-	-	-	·0529	·0021	·0555	4·3
January 22, 1884	-	-	-	·0213	·0013	·0226	3·3
February 18, "	-	-	-	·0416	·0012	·0428	4·0
March 27, "	-	-	-	·0496	·0018	·0514	3·7
April 28, "	-	-	-	·0363	·0055	·0418	4·8
" 29, "	-	-	-	·0360	·0109	·0469	4·8
Mean -	-	-	-	·0319	·0036	·0355	4·5

FOGGY WEATHER.

Grams per 1,000 Cubic Feet of Air.

—				Sulphuric Acid.	Hydrochloric Acid	Total.	Volumes of Carbonic Acid in 10,000 of Air.
February 1, 1883	-	-	-	·0433	·0029	·0462	5·6
January 16, 1884	-	-	-	·0535	·0009	·0544	5·5
" 18, "	-	-	-	·0476	·0016	·0492	4·5
February 8, "	-	-	-	·0397	·0058	·0455	5·0
Mean	-	-	-	·0460	·0028	·0488	5·1

The difference in the amount of sulphates in the air in fine, dull, and foggy weather appears to be considerable. Taking the mean of each set of the above experiments, we find in 1,000 cubic feet of air in the city sulphates which correspond to ·0128, ·0319, ·0460 of sulphuric acid in fine, dull, and in foggy weather respectively.

From the analysis of London rain, it was shown that the amount of chlorides in the air, as judged by the amount found in rain, was much less than the amount of sulphates. With the artificial washing of the air the same of course is the case; and in fine weather, when some 800 cubic feet of air were washed as above described, the water used did not yield more than the slightest trace of chlorides,—in fact not sufficient to admit of their estimation. The mean amount of chlorides obtained in dull weather, it will be seen, is somewhat higher than the mean of the foggy weather experiments. Although it is not possible to say what amount of air has been washed by falling rain, or how thorough that washing has been, still it is of much interest to compare the relative amount of sulphates and chlorides in the artificial washing of air with that in rain.

The washing experiments were made at irregular intervals, and for the purpose of roughly comparing the two sets of experiments we may take the mean of all the washing experiments and compare them with the mean of all the rain experiments, both sets having been carried on at the same place:—

Mean of Washing Experiments.
In 1,000 Cubic Feet of Air.

Sulphuric acid ·0184
Hydrochloric acid ·0023
1 : 8

Mean of Rain Experiments.
In 1 Litre.

Sulphuric acid ·0388
Hydrochloric acid ·0179
1 : 2·2

The amount of sulphates washed out of a 1,000 cubic feet of air, by a curious coincidence, is very nearly identical with that found in a litre of rain, but there is considerable difference in the amount of chlorides in the two cases,—the litre of rain water containing three or four times as much as the 1,000 cubic feet of air. Of course this might arise from the artificial washing being either more perfect, and thus taking more sulphates out of the air, or more imperfect, and leaving more chlorides in the air; or it might be that in the higher atmosphere there are more chlorides present than in the lower. From experiments made with dew, to be mentioned further on, it would seem that the proportion between chlorides and sulphates in the rain is most probably the correct one, but it is not obvious why, if the sulphates are washed out completely, the chlorides should, to so large an extent, remain behind. It seemed possible that during the washing hydrochloric acid might be formed and be removed by the large quantity of air passing through the washing water; to test whether this was the case two experiments were made in which the washing water was made alkaline, in one case by a very small quantity of sodium carbonate, in the other by a very small quantity of caustic soda; in neither case was there an increase in the proportional amount of chlorides.

Some samples of this washing water were also examined for ammonia salts and for organic matter, but water through which so much air has been driven is not suitable for their determination.

Dew.—In my report on the London rain waters I mentioned having made a few experiments on the impurities found in dew. These experiments have been continued, and the following results obtained. In order to collect a sufficient amount of dew a large conical metal vessel, previously described, was first

used, but was abandoned in favour of a large glass funnel, about 10 to 12 inches in diameter the tube end of it was sealed up and drawn out to a point. From such a funnel more moisture was collected than from the metal vessel; this apparently arises from the fact that when the metal funnel was filled with ice the surface became studded all over with drops of dew, which do not unite and flow off, and consequently preventing to a considerable extent any further condensation taking place, whereas on the glass the moisture as it forms into drops runs down the side of the funnel, and fresh moisture takes its place. This artificial formation of dew may be looked upon as another way of washing the air, and has many advantages: it is local, apparently thorough, and goes on without constant attention. On the other hand, it cannot practically be carried on in a very dry atmosphere and of course there is the inconvenience in many places of obtaining considerable quantities of ice. The following experiments were made as above described, and the dew was condensed at the same place where the rain had been collected, and where the washing of the air had been carried on, so far as possible to make the experiments comparable with the former ones. The dew thus collected is diluted with water, and the sulphates and chlorides determined in it by the same process as that adopted with the rain water.

The dew thus formed is also well adapted for indicating other important impurities in the air, specially ammonia, which, as being a product of the decomposition of nitrogenous bodies, it is important to recognise and to estimate, and also the organic and other oxydisable matter contained in it. The ammonia was estimated by the Nessler test, and the oxygen required to oxydise the organic matter by the permanganate test as described by Dr. Tidy. The numbers given below indicate the weight of oxygen required to oxydise the organic matter in a litre of dew; the weight of ammonia is also expressed per litre of dew. The dew is at times more or less dilute according as the air is more or less moist, and consequently the numbers are not absolutely comparable.

A record of the length of time taken to from the dew was in all cases kept, but it does not appear worth adding to the table.

DEW.

Grams per Litre of Dew.

—				Sulphuric Acid.	Hydrochloric Acid.	Ammonia.	Tidy.
October	14, 1884	-	-	·0413	·0149	·0020	—
"	15, "	-	-	·0268	·0182	·0030	—
"	17, "	-	-	·0248	·0122	·0040	—
"	18, "	-	-	·0165	·0091	·0036	—
"	22, "	-	-	·0583	·0365	·0080	—
"	24, "	-	-	·0248	·0084	·0035	—
"	25, "	-	-	·0331	·0219	·0050	—
November	5, "	-	-	·0354	·0237	·0080	—
December	1-2, "	-	-	·1417	·0405	·0175	—
"	4, "	-	-	·0197	·0148	·0060	—
"	8, "	-	-	·0198	·0146	·0030	—
"	10, "	-	-	·0496	·0234	·0050	—
"	11, "	-	-	·0331	·0131	·0020	—
"	12, "	-	-	·0221	·0146	·0060	—
January	9, 1885	-	-	—	—	·0080	·0230
"	26, "	-	-	·0331	·0168	·0100	·0420
"	26 (night), 1885	-	-	·0248	·0102	·0100	·0280
"	27, 1885	-	-	·0141	·0116	·0040	·0250
"	27-28, "	-	-	—	—	·0080	·0280
"	29-30, "	-	-	—	—	·0130	·0265
"	29, "	-	-	·0331	·0331	·0066	·0220
February	17, 1885	-	-	—	—	·0150	·0314
"	17-18, 1885	-	-	—	—	·0300	—
Mean	-	-	-	·0382	·0188	·0079	·0282

The amount of sulphates and chlorides in the dew, it will be seen, is very considerable, and is curiously near to the amount which I have, in my former report, shown to be present in London rain. These impurities vary much in the same kind of way in dew as in rain; the most impure dew collected was that

on the night between December 1st and 2nd, the weather being then dull, moist, and foggy. Again, if these results be arranged according to the description of the weather recorded at the time of the experiments, they show in a remarkably clear and definite way how considerable is the variation of impurity in the air in different states of the atmosphere.

		Fine Weather.	Dull Weather.	Foggy Weather.
Sulphuric acid	- -	·0237	·0392	·0832
Hydrochloric acid	-	·0145	·0197	·0245

With regard to the sulphates and chlorides, the following numbers, which are the mean of all the rain and all the dew experiments made at St. Bartholomew's, will show how singularly near in composition the dew is to that of the rain:—

		Rain.	Dew.
Sulphuric acid	- - -	·0388	·0382
Hydrochloric acid	- - -	·0179	·0188
Total	- - -	·0567	·0570
Proportion of chloride to sulphate	-	1 : 2·2	1 : 2·0

These natural ways, by rain and dew, of washing the air appear complete and satisfactory, and probably are better than the artificial washing, and it certainly seems that considerable information can be obtained of the impurities in the air by examining the dew. It is worthy of note that the ammonia varies with the weather in the same marked way as the other impurities do. The following table gives the weight of ammonia in grams per litre of dew collected at St. Bartholomew's:—

		Fine Weather.	Dull Weather.	Foggy Weather.
Mean	-	·0034	·0055	·0110

The estimation of the organic matter in the dew as represented by the amounts of oxygen required to oxidise it was only commenced in the present year, consequently very few results have been obtained, but these seem to indicate that the determination is of interest and worth carrying on.

GRAMS of OXYGEN required to OXIDISE the ORGANIC MATTER in LITRE of DEW.

Fine Weather.	Dull Weather.	Foggy Weather.
·0265	·0420	·0314

The total number of these experiments is only five, and only one of them was made on a day recorded as foggy.

This process of examining the air by the dew obtained from it has also been tested in other cases. Taking first the remaining out-of-door experiments. Two simultaneous experiments were made on December 12, 1884, at St. Bartholomew's, to see whether a variation of place would make much difference in the composition of the dew. One experiment was made at the usual place, the other on the ground in an open space at the distance of about 100 yards. In all respects except position the two experiments were similar. The samples of dew thus obtained gave on analysis the following results:—

		Leads.	Ground.
Sulphuric acid	- - -	·0221	·0283
Hydrochloric acid	- - -	·0146	·0109
Ammonia	- - -	·0060	·0080

Evidently the composition of both samples were nearly the same.

Two other experiments were made in a garden at Hackney where the samples of rain had been collected. The dew was collected on November 12 and on the 13th, both days being fine.

The two samples gave on analysis the following results :—

—	Nov. 12.	Nov. 13.
Sulphuric acid - - -	·0099	·0099
Hydrochloric acid - - -	·0036	·0037
Ammonia - - -	·0040	·0040

The two samples are then identical in composition and as might naturally be expected, are far purer than dew collected at St. Bartholomew's.

With the object of ascertaining what results would be given by an exceptional pure air, dew was condensed on Dartmoor in the same way, by means of ice and large glass funnels, as in London. Three experiments were made with the following results :—

Grams per Litre.	Dec. 31.	Jan. 1.	Jan. 2.
Sulphuric acid - - - -	trace.	trace.	trace.
Hydrochloric acid - - -	·0146	·0097	·0193
Ammonia - - - -	·0003	·0002	·0003
Oxygen required to {oxydise organic matter.	·0056	·0031	·0051

Except the chlorides present there were only traces of the other substances, and the organic matter present proved on microscopic examination to be only dead vegetable matter, grass and seeds blown against the funnels by the wind, and then washed into the collecting bottles.

This absence of organic matter may possibly account for what is very noticeable in this and some other pure airs, namely, the feeling of freshness which they excite even when saturated with moisture.

It certainly appears that the composition of dew may be fairly taken as indicating correctly the relative purity of the air; but still further to test the method a few experiments were made on the air of rooms and closed spaces. The following experiments show in a very marked way the composition of dew in different situations :—

—	Sulphuric Acid.	Hydrochloric Acid.	Ammonia.
In an empty cellar - - -	·0198	·0044	·0080
In an empty cellar - - -	·0099	·0015	·0025
In room with people waiting, but windows open.	·0703	·0219	·0175
In room with people waiting, but windows open.	·0248	·0018	·0085
In a dissecting room - - -	·0763	·0073	·0450
In a stable (Dew collected during the night. Stable closed and smelt strongly of ammonia.)	trace.	·0061	·1000
Large room filled with children at Hoxton.	·0354	·0044	·0125
Same room after ventilating -	·0198	·0073	·0125
Same room, children present -	·0248	·0043	·0143
Water condensed from gas flame -	·2480	·0037	·0150

The above analyses are too few in number to do more than indicate the amount of the variation which may be looked for in the impurities in air from different sources, but this variation appears to be so considerable and characteristic that the examination of the dew may lead to more definite knowledge with regard to the impurity of an air, and may also indicate the nature and source of the impurity.

Before placing together the results obtained by these different methods of analysis I would add, as a supplement, the former experiments on rain, and as connecting the composition of rain with those of dew some further analyses lately made of rain, in which not only the amount of sulphates and chlorides has been determined, but also the ammonia and oxygen required to oxidise the organic matter, in fact rain water which has been examined in exactly the same way as the dew. These samples of rain were collected simultaneously at St. Bartholomew's and at Hamilton Terrace, St. John's Wood, two of the stations previously used.

Grams per Litre.	St. Bartholomew's.	Hamilton Terrace.	St. Bartholomew's.	Hamilton Terrace.	St. Bartholomew's.	Hamilton Terrace.	St. Bartholomew's.	Hamilton Terrace.
	January 10-12.		January 29-30.		January 30-31.		January 31-February 2.	
Sulphuric acid -	·0331	·0198	·0198	·0124	·0331	·0248	·0165	·0165
Hydrochloric acid -	·0124	·0081	·0112	·0083	·0251	·0164	·0167	·0167
Ammonia -	·0040	·0020	·0030	·0034	·0040	·0034	·0024	·0030
Oxygen -	·0080	·0053	·0073	·0056	·0057	·0063	·0044	·0055

	February 4.		February 16.		February 16-17.		Mean.	
Sulphuric acid -	·0198	·0066	·0271	·0066	·0191	·0082	·0241	·0135
Hydrochloric acid -	·0095	·0073	·0073	·0036	·0095	·0048	·0131	·0093
Ammonia -	·0014	·0020	·0020	·0012	·0026	·0014	·0028	·0023
Oxygen -	·0063	·0063	·0104	·0044	·0142	·0090	·0080	·0061

The results are interesting, for they show very clearly that the ammonia and organic matter, like the sulphates and chlorides, increase in amount very appreciably in the town as compared to the country air, and that ammonia and organic matter in rain are important constituents as indicators of the purity of an atmosphere.

Chemical tests can then readily distinguish town and country air, and even town from suburban air, and can strikingly show the difference in the composition of the air at the same place in different weathers. The extreme case, that of dense fog, the case in fact for which these experiments were instituted, has not yet been examined, and it will no doubt give far more marked results than any of the foregoing experiments. In a former report I showed the great variation which occurs in the amount of carbonic acid in London air at different times, and then pointed out that probably the special interest of determinations of carbonic acid in the air would be as indicating the amount of general impurities present. These later experiments quite confirm this, and the amount of carbonic acid in air appears to vary exactly with the amount of floating matter in the air, and with the amount of soluble matter which can be washed out of it. This is seen in the following table, which contains all the complete experiments made at the same time and place:—

FINE WEATHER.

Grams per 1,000 Cubic Feet of Air.

—	Carbon.	Nitrogen.	Total Organic Matter.	Sulphuric Acid.	Hydrochloric Acid.	Total Sulphuric and Hydrochloric Acid.	Carbonic Acid, per 10,000 Vols. of Air.
June 26, 1884 -	·0025	None	·0025	·0119	None	·0119	3·7
June 24, 1885 -	·0032	None	·0032	·0069	None	·0069	3·2

DULL WEATHER.

Grams per 1,000 Cubic Feet of Air.

—			Carbon.	Nitrogen.	Total Organic Matter.	Sulphuric Acid.	Hydrochloric Acid.	Total Sulphuric and Hydrochloric Acids.	Carbonic Acid, per 10,000 Vols. of Air.
December 8, 1883	-	-	·0092	·0011	·0103	·0475	·0066	·0541	4·6
February 18, 1884	-	-	·0067	·0004	·0071	·0416	·0012	·0428	4·0
March 27, "	-	-	·0114	None	·0114	·0496	·0018	·0514	3·7
April 28, "	-	-	·0115	None	·0115	·0363	·0055	·0418	4·8
" 29, "	-	-	·0150	None	·0150	·0360	·0109	·0469	4·8

FOGGY WEATHER.

Grams per 1,000 Cubic Feet of Air.

—			Carbon.	Nitrogen.	Total Organic Matter.	Sulphuric Acid.	Hydrochloric Acid.	Total Sulphuric and Hydrochloric Acids.	Carbonic Acid, per 10,000 Vols. of Air.
January 18, 1884	-	-	·0182	None	·0182	·0476	·0016	·0582	4·5
February 8, "	-	-	·0310	·0010	·0320	·0397	·0058	·0455	5·0

My assistant, Mr. W. Lapraik, has much aided me in the above work, and has made for me all the determinations of carbon and nitrogen.

APPENDIX II.

TABLE showing the MEAN MONTHLY and ANNUAL RAINFALL at the WEEKLY and MONTHLY WEATHER REPORT STATIONS for the 20 YEARS, 1866 to 1885.

STATIONS.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.	Limits of Periods for which Observations have been used.	No. of Years.
SUMBURGH HEAD -	3'66	3'29	2'92	2'16	1'71	2'07	2'09	3'21	3'46	4'33	4'24	4'33	37'47	1871 to 1885	15
STORNOWAY -	5'17	3'97	3'87	2'51	2'64	2'99	3'02	3'57	4'13	4'94	4'65	5'66	47'07	1855 " 1885	31
WICK -	1'97	2'02	1'97	1'56	1'62	1'75	2'25	2'35	2'66	2'94	2'97	3'18	27'24	1866 " 1885	20
NAIRN -	2'02	1'51	1'72	1'23	1'67	1'88	2'57	2'81	2'73	2'38	2'32	2'08	24'92	" "	"
ABERDEEN -	2'34	2'51	2'24	2'23	1'90	1'88	2'74	3'13	3'22	2'88	3'16	3'34	31'57	" "	"
LEITH -	1'98	1'58	1'36	1'65	1'65	1'84	2'84	2'62	2'47	1'94	2'11	2'01	24'05	" "	"
ALNWICK CASTLE -	2'17	2'32	2'15	2'37	2'18	1'93	2'84	2'96	3'03	2'81	3'23	3'27	31'26	" "	"
DURHAM -	2'11	1'75	2'06	2'28	2'10	2'10	2'79	2'85	2'55	2'98	2'95	3'21	29'73	" "	"
SHIELDS -	1'79	1'63	1'60	1'94	1'75	1'82	2'63	2'81	2'58	2'46	2'63	2'74	26'38	" "	"
SCARBOROUGH -	1'88	1'78	1'81	1'95	1'85	2'09	2'69	2'62	3'01	3'13	3'10	3'04	28'95	" "	"
YORK -	1'88	1'88	1'63	1'86	1'71	2'45	2'57	2'47	2'98	2'64	2'21	2'45	26'73	" "	"
SPURN HEAD -	Six years' observations only available.														
HILLINGTON -	1'88	1'94	1'52	1'85	1'83	2'33	2'80	2'62	3'04	2'64	2'81	2'60	27'86	1866 to 1885	20
YARMOUTH -	2'06	2'02	1'77	1'80	1'85	2'02	2'68	2'17	3'17	2'97	3'15	2'95	28'61	" "	"
GELDESTON -	1'59	1'73	1'53	1'54	1'70	1'76	2'49	1'88	2'79	2'68	2'74	2'38	24'81	" "	"
CAMBRIDGE -	1'57	1'60	1'33	1'76	1'76	2'40	2'30	2'25	2'48	2'36	2'02	1'99	23'82	" "	"
ROTHAMSTED -	2'77	2'33	1'63	2'23	2'05	2'28	2'66	2'55	3'02	3'10	2'69	2'58	28'89	" "	"
BAWTRY -	1'88	1'73	1'57	1'77	1'89	2'58	2'78	2'42	2'79	2'95	2'19	2'41	26'96	1866 to 1875 and 1881 to 1885.	15
LOUGHBOROUGH -	2'08	2'00	1'47	1'77	1'96	2'43	2'34	2'61	3'06	2'98	2'30	2'36	27'36	1872 to 1885	14
LEICESTER -	1'95	2'02	1'50	1'93	1'99	2'62	2'72	2'82	2'98	2'76	2'27	2'36	27'92	1866 to 1885	20
CHEADLE -	2'72	2'82	2'22	2'20	2'20	3'14	3'09	3'69	3'58	3'80	3'17	3'34	36'06	" "	"
CHURCHSTOKE -	2'90	2'92	1'96	1'70	1'84	2'29	2'54	2'68	3'04	3'60	3'50	3'14	32'11	1876 to 1885	10
HEREFORD -	2'68	2'39	1'68	1'74	1'90	2'28	2'33	2'56	3'20	2'96	2'41	2'40	28'53	1866 to 1885	20
CIRENCESTER -	3'39	2'85	2'03	2'24	2'05	2'51	3'06	3'26	3'51	3'23	3'05	2'95	34'13	" "	"
OXFORD -	2'33	2'06	1'52	1'79	1'83	2'28	2'51	2'33	2'91	2'72	2'30	2'13	26'71	" "	"
LONDON -	2'20	1'89	1'43	1'86	1'73	2'12	2'17	2'20	2'59	2'74	2'14	2'14	25'21	" "	"
MARLBOROUGH -	3'42	2'88	2'04	2'29	2'11	2'41	2'72	2'95	3'72	3'31	3'23	2'80	33'88	" "	"
STRAATHFIELD TURGIS -	2'61	2'20	1'47	1'87	1'59	2'08	2'27	2'20	2'83	2'75	2'50	2'20	26'57	" "	"
DOVER -	2'68	2'12	1'86	1'81	1'77	1'72	1'82	2'06	2'86	3'28	3'56	3'20	28'74	" "	"
HASTINGS -	2'88	2'14	1'83	2'06	1'81	1'72	1'93	2'38	3'00	3'68	3'22	3'03	29'68	" "	"
SOUTHAMPTON -	3'53	2'88	1'94	2'10	1'96	1'99	2'51	2'65	3'35	3'31	2'88	3'14	32'24	" "	"
HURST CASTLE -	3'10	2'63	1'80	1'87	1'70	2'07	2'15	2'31	3'35	3'24	2'98	2'84	30'04	" "	"
LAUDALE -	8'49	8'64	7'22	3'71	3'94	5'20	5'93	4'82	7'28	7'84	9'49	9'64	82'20	1876 to 1885	10
GLASGOW -	4'52	3'76	2'51	2'25	2'30	2'89	3'60	3'83	4'14	4'10	3'78	4'30	41'98	1866 to 1885	20
ABDROSSAN -	4'53	3'47	2'59	2'23	2'20	2'62	2'91	4'08	3'87	4'31	3'92	4'04	40'77	" "	"
DOUGLAS -	5'00	3'81	2'82	2'30	1'89	2'25	2'88	3'65	3'87	4'35	4'55	4'51	41'88	" "	"
NEWTON REIGNY -	3'90	3'14	2'24	1'86	1'80	2'25	3'00	3'15	3'45	3'56	3'42	3'49	35'26	" "	"
BARROW-IN-FURNESS -	3'98	2'78	2'49	1'94	1'82	2'45	3'02	3'59	3'92	4'15	3'85	3'45	37'44	" "	"
STONTHURST -	4'17	3'85	3'36	2'43	2'53	3'45	4'53	4'66	5'06	5'47	4'65	4'87	49'03	" "	"
BLACKPOOL -	3'05	2'52	2'16	1'71	1'85	2'22	3'14	3'00	3'88	4'29	3'43	3'35	34'60	" "	"
MANCHESTER -	3'29	2'44	2'42	2'08	2'28	3'22	3'86	3'44	4'20	4'31	3'63	3'75	38'92	" "	"
LIVERPOOL -	2'23	1'85	1'69	1'56	1'74	1'96	2'99	2'79	3'56	3'62	2'87	2'70	29'56	" "	"
LLANDUDNO -	2'92	2'44	1'99	1'73	1'71	1'89	2'74	2'65	3'32	3'93	3'49	3'27	32'08	" "	"
HOLYHEAD -	3'49	2'90	2'21	1'86	1'88	2'10	2'32	2'89	3'35	4'53	3'71	3'84	35'08	" "	"
LLANDOVERY -	5'55	4'62	3'37	2'81	2'72	3'13	3'81	4'69	5'11	5'55	4'93	5'44	51'73	" "	"
PEMBROKE -	3'92	3'20	2'45	2'10	1'97	2'09	2'31	2'91	3'89	4'13	3'96	4'06	36'99	1871 to 1885	15
ARLINGTON -	4'23	5'04	3'37	3'05	2'96	4'00	4'82	5'58	5'27	5'82	6'16	6'31	56'61	1876 to 1885	10

TABLE showing the MEAN MONTHLY and ANNUAL RAINFALL, &c.—*continued.*

STATIONS.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.	Limits of Periods for which Observations have been used.	No. of Years.
CULLOMPTON - -	3'48	3'34	2'43	2'64	2'08	2'58	2'80	2'80	3'89	3'98	3'39	3'57	36'98	1866 to 1885	20
FALMOUTH - -	5'82	4'60	3'36	3'23	2'73	2'77	3'09	3'69	5'13	5'59	5'50	5'31	50'82	1871 to 1885	15
PLYMOUTH - -	4'10	3'40	2'48	2'55	2'03	2'11	2'63	2'83	4'23	3'76	3'50	3'69	37'31	1866 to 1885	20
PRAWLE POINT - -	Seven years observations only available.														
MALIN HEAD - -	One year's observations only available.														
LONDONDERRY - -	4'05	2'95	2'80	2'31	2'37	2'58	3'38	3'57	3'75	4'33	4'31	3'97	40'37	1866 to 1885	20
MULLAGHMORE - -	3'65	3'56	2'94	1'95	2'59	3'15	3'90	3'42	4'81	4'13	4'86	4'20	43'16	1876 to 1885	10
BELMULLET - -	One year's observations only available.														
MARKREE CASTLE -	3'45	2'77	2'49	2'46	2'03	3'04	3'28	3'60	3'25	3'88	3'53	3'47	37'25	1833 to 1863	31
BROOKEBOROUGH -	Six years observations only available.														
ARMAGH - -	2'96	2'58	2'09	2'24	1'96	2'16	3'20	2'73	3'19	3'12	2'73	2'85	31'81	1866 to 1885	20
DONAGHADEE - -	3'03	2'71	1'99	2'02	2'15	2'04	2'67	2'99	3'22	3'35	3'13	2'84	32'14	1873 to 1885	13
EDGEWORTHSTOWN -	2'91	3'28	2'91	2'44	2'32	3'32	3'65	3'43	3'44	3'07	3'62	3'18	37'57	1876 to 1885	10
DUBLIN - -	2'15	2'30	2'03	2'07	1'90	1'98	2'39	2'84	2'52	3'08	2'26	2'44	27'96	1866 to 1885	20
PARSONSTOWN - -	3'09	2'45	2'35	2'15	2'23	2'46	3'01	3'48	3'49	3'27	2'84	3'02	33'84	" "	"
KILKENNY - -	3'64	2'97	2'20	2'28	1'87	2'29	2'41	3'33	3'26	3'11	2'61	3'11	33'08	" "	"
WATERFORD - -	4'81	3'95	3'05	2'88	2'31	2'50	2'81	3'67	3'91	4'17	3'84	4'06	41'96	" "	"
ROCHE'S POINT - -	5'63	4'86	3'71	3'43	3'05	3'26	3'16	3'59	4'39	4'17	4'56	4'74	48'55	1868 to 1885	18
VALENCIA - -	6'79	5'29	4'24	4'01	2'89	3'42	3'91	4'65	4'87	6'09	5'50	5'82	57'48	1866 to 1885	20
KILLARNEY - -	Four years observations only available.														
FOYNES - -	Six years observations only available.														
SCILLY - -	3'93	2'98	2'38	2'45	1'66	1'94	2'29	2'45	3'69	3'84	3'76	4'10	35'47	1871 to 1885	15
JERSEY - -	3'24	2'72	2'32	2'04	1'74	1'83	2'21	2'26	3'51	4'34	4'24	3'87	34'32	1866 to 1885	20

NOTE.—When the records available have not extended over the whole of the period 1866 to 1885, the following rules have been observed:—

1. When the record has covered less than half of the period, the values have been rejected.

2. When the record has covered half or more than half of the period, the means have been either—

A. Reduced to their approximate value for the whole period by comparison with the values at adjacent stations; or

B. When such comparison was impossible have been entered in the above Table without any correction whatever. In the latter case the values are printed in Egyptian type.