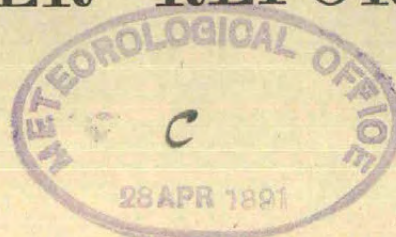


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THE  
MONTHLY WEATHER REPORT  
OF THE  
METEOROLOGICAL OFFICE



For the Year 1887.

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Published by the Authority of the Meteorological Council.  
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LONDON:  
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE,  
BY EYRE AND SPOTTISWOODE,  
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

And to be purchased, either directly or through any Bookseller, from  
EYRE AND SPOTTISWOODE, EAST HARDING STREET, FLEET STREET, E.C.; or  
JOHN MENZIES & Co., 12, HANOVER STREET, EDINBURGH, and  
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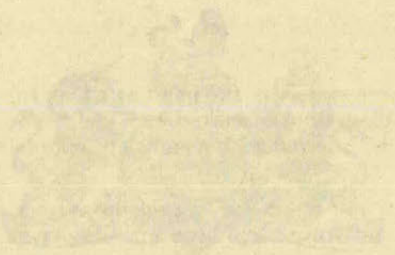
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# MONTHLY WEATHER REPORT

## METEOROLOGICAL OFFICE

For the Year 1887



FOR THE YEAR 1887  
PREPARED BY THE METEOROLOGICAL OFFICE  
OF THE METEOROLOGICAL DEPARTMENT  
OF THE IMPERIAL ROYAL AUSTRIAN  
NAVY AND ARMY  
VIENNA  
PUBLISHED BY THE IMPERIAL ROYAL AUSTRIAN  
NAVY AND ARMY  
VIENNA  
PRINTED BY THE IMPERIAL ROYAL AUSTRIAN  
NAVY AND ARMY  
VIENNA



## PREFACE.

WITH this Volume, which is compiled on principles similar to that for 1886, the series of "MONTHLY WEATHER REPORTS," as a distinct publication, is brought to an end. With the commencement of 1888, Summaries for Calendar Months, with modifications of the Maps and Tables, appear as Monthly Supplements to the Weekly Weather Report; the Tables of Cyclonic and Anticyclonic Systems are discontinued.

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, describing the most marked variations which have occurred, arranged with reference to the principal changes which have taken place in the general 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 showing 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.

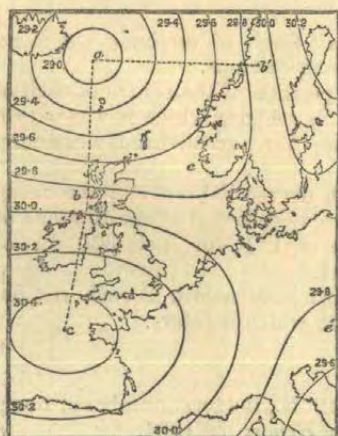
The area enclosed by the outermost of a system of isobars in which the pressure decreases from without inwards is termed an "area of low pressure," or "cyclonic area," or "depression."

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 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 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 above 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 secondary to larger anticyclones or (b) appear as a temporary phenomenon, between two cyclonic disturbances, and 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.

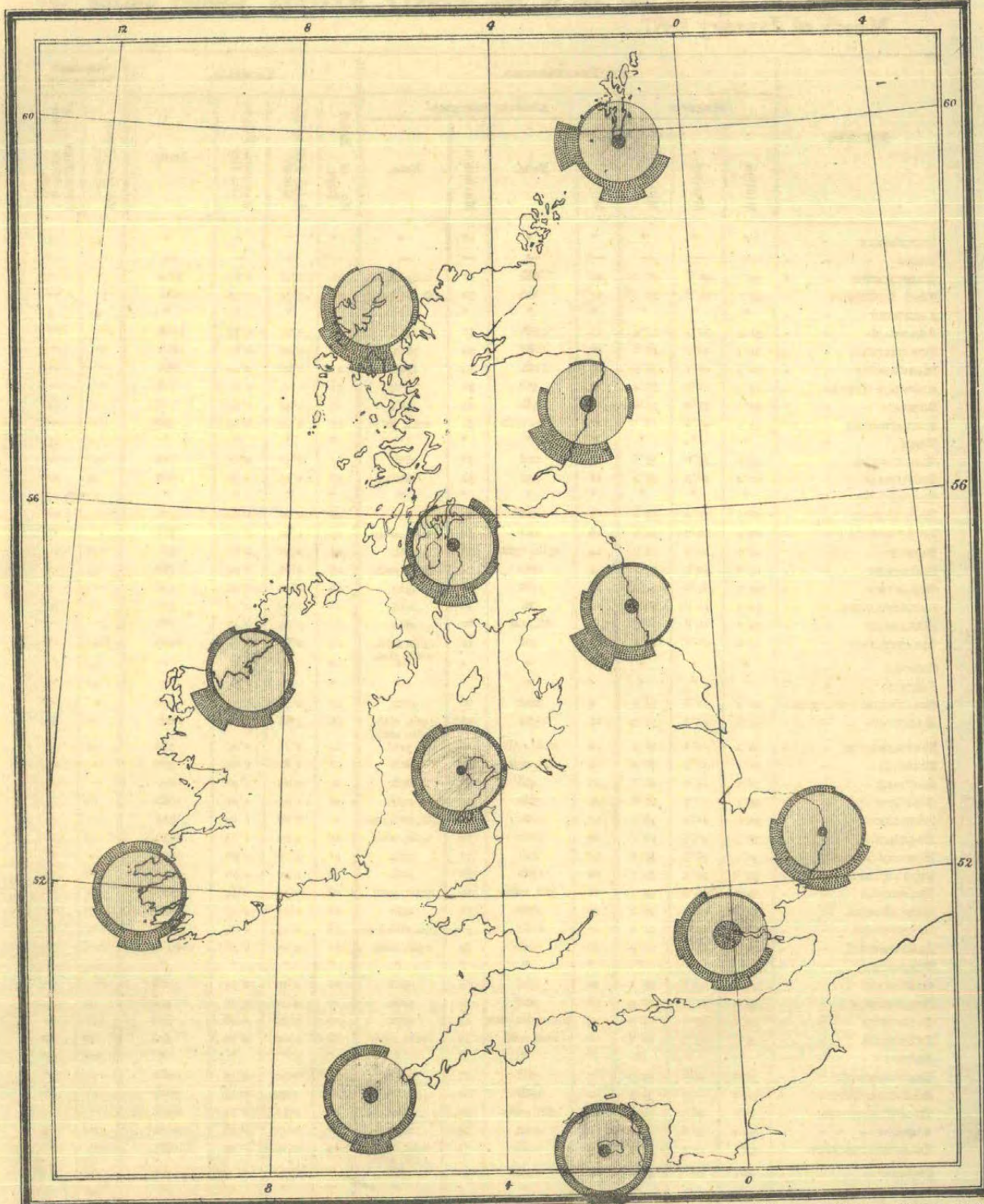
(4.) The Rainfall chart shows in figures the Total Amount of Rain recorded during the month at each station. Each value is inserted close to a dot, indicating the geographical position of the station to which it refers.

For 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, see Preface to the *Monthly Weather Report for 1884*.



# MONTHLY WIND CHART FOR JANUARY, 1887.

Plate I.



To face p. 12.

DANGERFIELD, LITH. 22, BEDFORD ST COVENT GARDEN. 15363



# MONTHLY WEATHER REPORT.

JANUARY 1887.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather experienced during this month was somewhat rough in the extreme western and northern parts of the kingdom, but quiet elsewhere. Pressure was rather in excess of the average over the southern parts of the kingdom, but slightly in defect in the north, and its range over England was large. Depressions were numerous, but except in one case, they did not pass very near to the British Islands; the anticyclones, though few in number, were of a very decided character. Temperature was below the average except in the north, and the extremes recorded over England were somewhat striking—readings as low as  $8^{\circ}$  or  $10^{\circ}$  being registered in some of the more southern counties early in the month, while maxima as high as  $60^{\circ}$  were reported at Hereford and Strathfield Turgis near its close. Rainfall was large in the west and north-west, small in the east and south, and Sunshine was deficient in many places. The wind was chiefly South-westerly, and gales occurred on 14 days at Stornoway, 12 at Aberdeen and Mullaghmore, 11 at Belmullet, and 9 at Valencia and Scilly. Over the greater part of England very few were reported.

January 1-3.—At the commencement of the year an elongated high-pressure area lay over Russia, the south of Sweden, the North Sea, England, and the north of France, its major axis stretching from north-east to south-west. Its maximum readings varied from 30.3 inches to a little above 30.5 inches, and while in a north-westerly direction the values decreased to about 30.0 inches in the Hebrides, and to 29.95 inches at Bodö; in the opposite direction they decreased to about 29.8 inches over the Gulf of Genoa and all the eastern part of the Mediterranean, with Italy and the Adriatic. Temperature was very low within the high-pressure system, the 8 a.m. readings being  $6^{\circ}$  at Stockholm,  $12^{\circ}$  at Moscow,  $14^{\circ}$  to  $22^{\circ}$  over some of the inland parts of England,  $25^{\circ}$  at Brussels, and  $26^{\circ}$  at Paris. In the west of Ireland, however, and the Hebrides, the thermometer had risen to between  $45^{\circ}$  and  $47^{\circ}$ , from a slightly lower value on the previous day, and the South-westerly winds prevailing in those regions had become strong, and appeared to be spreading over the kingdom while the high-pressure band moved south-eastwards. The reports for the following day showed a further encroachment of the milder weather, while on the 3rd a deep depression (No. I.\*) reached our north-western coasts, and caused the South-westerly current to spread all over the British Islands, with force varying from a strong breeze to a strong gale. Temperature rose rapidly; the high-pressure area and zone of frost—now much reduced in intensity—was pushed south-eastwards to central France and Germany, while over the Mediterranean the barometer rose.

January 4-10.—The conditions during this period were cyclonic, and of a complex character; on the 4th a well marked "V"-shaped system advanced over the United Kingdom, and within its area several minima appeared. Thus while South-easterly winds set in over the eastern shores of the North Sea, strong North-westerly winds and gales were felt at our western stations, South-westerly winds over France, and variable breezes over Great Britain. Rain, sleet, and snow fell over the British Islands and France, and thunderstorms occurred in the south-west; but over Scandinavia the weather was at first fine, though snow fell afterwards in considerable quantity. On the 6th and 7th pressure was as low as 28.9 inches, and less, over the greater part of England and the north of Ireland, and, as the primary depression in the north passed away the "V" developed into an independent system

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



(No. II.\*), which, after remaining stationary for a day or two, dispersed during the 9th and the earlier part of the 10th.

January 10-11.—In this brief period a new depression (No. III.\*) appeared off the west of Ireland, and passing quickly to the north-eastward, had reached the Hebrides by 8 a.m. on the 11th. Another "V"-shaped secondary disturbance was developed over the western parts of the kingdom as it passed, and in consequence of this the variations in temperature were large, the weather was rainy, and the wind, after blowing hard from South-east and South, shifted suddenly to the North-westward, and blew strongly from that quarter at the western stations.

January 12-16.—The barometer now rose quickly, and anticyclonic conditions became prevalent over nearly the whole of Europe. By 8 a.m. on the 13th readings exceeded 30·5 inches over the Baltic provinces of Russia, and were above 30·4 inches in a ridge which extended thence in a westerly direction over North Germany, the southern parts of the Baltic and North Sea, and the greater part of England. To the north-westward of this ridge pressure decreased to about 29·8 inches off the extreme north-west coasts, while to the south-eastward it decreased to rather below 30·1 inches over Italy and the Balkan Peninsula. Temperature became very low as the high pressure system was developed, the thermometer falling to between 17° and 25° over our Midland counties, but owing to the advance of a second anticyclonic system from the westward, the weather did not become fine until after the 14th. The two systems subsequently merged, and while moderate to rather steep gradients for South-westerly winds were formed over northern Europe, slight ones for Easterly winds appeared in the south.

January 17-31.—Depressions now again began to pass north-eastwards over north-western Europe from the Atlantic, and continued to do so almost without interruption till the end of the month. Temperature increased decidedly over the British Isles and their neighbourhood, and Southerly to Westerly and North-westerly winds became general, at times blowing a hard gale in the north and west, but at others lulling to a moderate breeze. The first of these was a comparatively small and unimportant system, which, after producing fresh Southerly gales in the north of Scotland only on the 16th, moved northwards, and was followed by a much more important system early on the 17th (No. IV.\*). The third (No. V.\*) was of moderate size and depth, but passed much nearer to our coasts than its predecessor. Then followed a slight anticyclonic interregnum, but this soon gave way, and some enormous depressions advanced towards Lapland from the south-westward at so great a distance from us that their tracks cannot be accurately shown on Map 2, Plate II. So great was their size, however, and so steep their gradients that their South-westerly and Westerly winds were felt even on parts of our coasts, where they blew a gale at times. On the morning of the 21st the pressure (30·7 inches and more) on our south-western coasts and at the mouth of the Channel was more than 2 inches higher than that prevailing at the same hour in Lapland, the gradients being then steep over Scandinavia and the North Sea. An anticyclone (No. II.), in which the maximum readings exceeded 30·7 inches, was then approaching our south-western coasts from the Atlantic, and as it passed eastwards over France (and decreased in intensity) southerly gradients were again restored in the west, and the movement of the depression, in a northerly and north-easterly direction, outside our western and north-western coasts, was resumed. These gradually became larger, so that by the 29th a cyclonic system covered all the northern parts of our area, and barometric readings varied from nearly 30·7 inches over western Germany to about 28·7 inches in the west of Lapland. The centres of the systems, however, passed by us at so great a distance from our coasts that their characteristics cannot be given in Section II., nor can their tracks be drawn accurately on our Map. The month closed with a continuation of cold anticyclonic weather over Germany and France, while depressions were moving north-eastwards in quick succession outside our extreme north-western coasts.

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



# TABLE OF DEPRESSIONS.

3

## SECTION II.

TABLE OF CYCLONIC SYSTEMS, JANUARY 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. I. January 3-4.	Nos. II. and IIIA. January 5-9.	No. III. January 11.
Form - - - -	Somewhat oval - - - -	IIA. varied greatly. It appeared at first as a "V"-shaped secondary to a circular system (No. II.). Afterwards it became more nearly circular, but irregular. See "Remarks," below.	Uncertain; apparently almost circular near its centre.
Size - - - -	Moderate - - - -	Small to large - - - -	Large.
Depth - - - -	Moderate. Minimum readings about 28.8 ins.	Moderate. Minimum readings however were as low as 28.7 ins. on 5th.	Deep.
Where first Observed - -	Off the west of Scotland - -	Near Liverpool, over the Irish Sea -	Off our west and north-west coasts.
Direction of Motion - -	Easterly and north-north-easterly -	South-easterly, Northerly, and irregular.	North-north-easterly
Rate of Motion - - - -	Moderate - - - -	Very slow, sometimes stationary -	Moderate.
Regions passed over by Steepest Gradients.	British Isles, North Sea, and north of France.	North Sea and France - - - -	British Islands generally.
Termination - - - -	Travelled away to the northward -	Filled up over North Sea - - - -	Travelled away to the northward.
Time under Observation -	About one day - - - -	Five days - - - -	One day.
Accompanying Winds -	Southerly gales and strong wind, followed by North-westerly and Northerly winds, strong to a gale in the west and south-west.	Complete cyclonic system; South-easterly in north-east, North-westerly in south-west and south; gales at times.	Southerly gales, followed by West-north-west winds; strong to moderate.
" Weather	Very changeable from mild to cold; much rain, followed by snow, sleet, and hard frost.	Cold, and very unpleasant, sleet showers almost daily in most places. Thunderstorms in west and south on 5th.	Squally, showery; temperature varying considerably.
" Rainfall	Heaviest, as a rule in south-west, but snow very heavy at Oxford and at Stornoway.	Very general; not heavy - - - -	Heavy in Ireland with the Southerly gale; more general later, but less heavy.
REMARKS - - - -	<p>This disturbance was accompanied by a strongly-marked V-shaped subsidiary, in which a local depression was formed early on the 4th (see charts in Daily and Weekly Reports). The latter moved south-eastwards, while the main system passed northwards, and by 8 a.m. 5th, both had disappeared from our area, while new ones had taken their place.</p> <p>The system No. IIA. was formed in the "V"-shaped secondary of a depression (No. II.) which appeared off our north-west coasts on the 5th, and apparently broke up <i>in situ</i>. The "V" then became an independent system, with no definite movement worth mentioning.</p> <p>On the 6th and 7th two new minima appeared in the west, while the first one filled up. The system was, however, now growing shallower, and on the 10th gave way in consequence of No. III., which advanced slowly towards our north-west coasts. No track can be drawn for IIA. on Map 2.</p> <p>This disturbance also was accompanied by a "V"-shaped secondary system which stretched southwards over England on the 11th, but passed off next day. It was followed by an anticyclonic system from the Atlantic, and by a complete change of weather for a few days.</p>		



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—JANUARY 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. IV. January 17-18.	No. V. January 18-19.
Form - - - - -	Uncertain, apparently somewhat oval; major axis lying south-west to north-east.	Apparently nearly circular - - - - -
Size - - - - -	Apparently very large - - - - -	Moderate - - - - -
Depth - - - - -	Apparently deep - - - - -	Moderate - - - - -
Where first Observed - - - - -	To the north-westward of the British Isles -	Off the west of Ireland on evening of 18th -
Direction of Motion - - - - -	North-easterly - - - - -	North-easterly - - - - -
Rate of Motion - - - - -	Somewhat uncertain; apparently moderate -	Moderate - - - - -
Regions passed over by Steepest Gradients-	Ireland, Scotland, Norway, and the northern parts of the North Sea.	First over the north of Ireland and Scotland; afterwards over England and the North Sea.
Termination - - - - -	Travelled away towards the western coast of Lapland.	Travelled away towards Norway - - - - -
Time under Observation - - - - -	About 36 hours - - - - -	About 36 hours - - - - -
Accompanying Winds - - - - -	Strong Southerly gales in Ireland, Scotland, and Norway. Moderate to fresh South-easterly and Southerly winds over England.	Southerly and South-westerly gales in west and north; strong breezes elsewhere. North-westerly gales and strong winds later on.
Weather - - - - -	Very wet in the west and north, but milder in those districts than it had been previously.	Wet and unsettled; mild at first, cold later
Rainfall - - - - -	Considerable in extreme west and north-west; slight elsewhere.	General, except in the south-east, but not heavy.
REMARKS - - - - -	The centre of this system lay so far from our coasts that its movements can be only approximately stated. It appeared first on the north-western side of a "col" which united a high-pressure area lying over northern Europe and the Baltic, with another which lay to the westward or south-westward of the Spanish Peninsula. A somewhat well-marked secondary system appeared off our south-west coasts on the 18th, but merged very gradually with a new system (No. V.), which appeared in the far west on the same day.	
	This system was accompanied by a well-marked "V"-shaped secondary, in the rear of which the wind shifted quickly to the North-west and Northward, with a sudden fall of temperature and some cold showers, followed by anticyclonic conditions and a temporary clearance of weather. (See reports for 20th.)	



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—JANUARY 1887.

No. VI. January 20-22.	No. VII. January 25-26.	No. VIII. January 31—February 1.
Uncertain; more or less circular - - -	Uncertain; apparently more or less circular -	Uncertain; apparently nearly circular.
Very large - - - - -	Very large - - - - -	Large.
Very deep - - - - -	Uncertain; apparently deep - - - - -	Apparently moderate.
Far away to the northward of our Islands -	To the westward of Ireland - - - -	Off our extreme north-west coasts.
About easterly at first, and then south-easterly -	North-easterly at first, then easterly, and finally south-easterly over Russia.	North-easterly.
Moderate - - - - -	Rapid - - - - -	Moderate.
Northern Europe, the Baltic, and Russia -	The west and north of our Islands, and northern Europe.	Ireland, Scotland, and Scandinavia.
Passed away to Asiatic Russia - - - -	Travelled away to Asiatic Russia - - -	Travelled away to northern Europe.
About two days - - - - -	About two days - - - - -	About 36 hours.
Strong South-westerly to Westerly gales over northern Europe; Westerly breezes in our Islands.	Southerly and South-westerly gales in the west and north.	Southerly and South-westerly gales in the west and north; moderate to fresh breezes elsewhere.
Rough, squally, showery, and mild - - -	Rather showery in west and north-west; foggy over England and Holland.	Showery in the west and north, mild over the United Kingdom, frosty in France.
Confined to northern Europe and the northern parts of the British Isles.	Slight, even in the west and north - - -	Somewhat heavy in places, but confined to our western and northern districts.
This disturbance was of unusual size and depth, and, so far as the British Isles are concerned, was very free from complication. It advanced to northern Europe while the anticyclonic system No. II. was advancing eastwards over the south of our Islands and France, and was followed closely by cyclonic system No. VII.	This disturbance arrived after the anticyclone No. II. had reached Germany, and took a more northerly course than No. VI. It subsequently moved eastwards over the Arctic Sea, and south-eastwards over Russia. This disturbance was followed by other cyclonic systems on the 27th-29th, but their centres lay at too great a distance from our north-western coasts for their movements to be indicated accurately in Map II., or for their characteristics to be entered in this table.	Although this disturbance was not apparently so deep as those reported between the 27th and 31st, its centre came sufficiently near to our Islands for its main features to be described. It was followed closely by a small "V"-shaped secondary, which brought rain, sleet, and hail to many parts of England on February 7th.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—JANUARY 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. I. January 12-16.	No. II. January 20-29.
Form - - - - -	Broad band, at times having two maxima in it -	Elongated: major axis lying from west to east.
Size - - - - -	Large - - - - -	Large.
Height - - - - -	Slight - - - - -	Great. Maximum readings exceeding 30·7 ins.
Where first Observed - - - - -	Off our south-western coasts - - - - -	Off our south-western coasts.
Direction of Motion - - - - -	Easterly and north-easterly - - - - -	Easterly at first, then south-easterly.
Rate of Motion - - - - -	Varying; moderate to very slow - - - - -	Varying greatly; light to rapid and <i>vice versa</i> .
Regions passed over - - - - -	British Islands, France, North Sea, and Baltic -	The south-west of our Islands and France.
Termination - - - - -	Travelled away to north-eastwards - - - - -	Passed away to south-eastern Europe.
Accompanying Wind - - - - -	North-westerly to North-easterly at first, then South-easterly to South-westerly.	Westerly (North-west to South-west) over our Islands; strong for anticyclonic winds.
„ Weather - - - - -	Fair as a whole, but not so fair at first as is usual with such systems.	Fine except in north; air very mild for anti-cyclonic system at this time of year.
REMARKS - - - - -	This anticyclone, together with the larger high-pressure area in the east, formed a system of a somewhat complex character: at first they were separated by a long "lane" of low pressure, which at 8 a.m. on the 12th lay from north-east to south-west over the Netherlands, the Straits of Dover, the Channel, and north of France, and apparently united the low-pressure area which existed in the north, with a smaller cyclonic system over the Bay of Biscay (see Daily and Weekly Reports for this time). Later on the two systems merged, but early on the 14th another maximum appeared in the west (see Reports for 14th), and, like its predecessor, merged in the eastern system by 16th.	
	This system was without complication, although its "height" was great and its gradients so steep. It decreased very much in intensity after its centre had reached central France, and on reaching central Europe its temperature decreased rapidly.	



## SECTION III.

## REMARKS FOR JANUARY 1887.

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

*Pressure.*—The mean pressure of the atmosphere, at 8 a.m., varied from a trifle above 30 inches over the Channel and the southern and south-eastern counties of England, to about 29·7 inches over the extreme north of Ireland and Aberdeenshire, and to a little above 29·6 inches at Stornoway and Sumburgh Head. The gradients were therefore somewhat decided, and favourable for a predominance of wind from South-west and South, which the “roses” on Plate I. show to have been very prevalent. When compared with the means for December 1886 they show a decided increase generally, amounting to more than three-tenths of an inch over our southern counties, and a change in the type from gradients favourable for North-westerly and Westerly to those for South-westerly winds. When compared with the averages for the month of January in the 20 years 1861–80, they show a deficit over the extreme northern parts of the kingdom, amounting to about 0·05 inch over the north-west of Scotland and the north of Ireland, but an excess in the south, amounting to about 0·07 inch over the south of Ireland and 0·06 inch over the Home Counties. The highest readings were recorded at the south-western and southern stations between the 20th and 22nd, at which time the well-marked anticyclone No. II. was passing over us, but at the northern stations the highest values were recorded on the 15th, when the anticyclone No. I. was prevailing. The lowest occurred very generally between the 5th and the 9th, when the complex depression No. IIA. covered the United Kingdom, and the barometer fell to below 28·9 inches in most places. These values show that the range for the month was large (nearly 2 inches) in the south and considerable even in the north.

*Movements of Depressions.*—A mere glance at Map 2, Plate II., is sufficient to show that the general direction of the movement of these systems was North-easterly, and their rate of movement moderate. Most of the systems were large, some exceedingly large (see Section II.) and deep. Their gradients, however, were less steep than those found occasionally round disturbances which cover a much smaller area (*e.g.*, the storms of October and December 1886). Secondary disturbances of a “V” shape have occurred very frequently, the most striking being that of January. One depression, No. IIA., had no well-defined movement, and no track can therefore be shown on the map.

*Anticyclones.*—These were only two in number. They were both large; but the first one being somewhat complex in structure, did not bring with it the perfectly tranquil weather so common with such systems. The second was striking on account of its intensity, and the fact that while over France and our Islands the temperature within its limits was not nearly so low as in the anticyclonic systems usually experienced during winter. On reaching Germany, however, the system became much colder.

*Winds.*—These were mainly Southerly and South-westerly, as will be seen at once on examining the wind-roses on Plate I., but there was a considerable mingling of wind from the Westward, especially at Sumburgh Head. At Jersey the proportion of winds from the eastern and western sides of the compass was about equal, but there was some excess of wind from South. This is explained by the fact that as the anticyclonic system which passed over us lay so far to the northward, the Easterly winds on their southern sides were felt in the Channel Islands, while Westerly and South-westerly breezes prevailed over the more northern parts of the kingdom.

*Temperature.*—The mean (sea-level) temperature of the air varied from a little below 34° over the Fen districts of England, and from between that value and 37° over the inland



parts of this country and the north of Scotland generally, to between  $37^{\circ}$  and  $39^{\circ}$  on our north-eastern coasts, to a little above  $40^{\circ}$  off the extreme west of Scotland, to between  $42^{\circ}$  and  $45^{\circ}$  off the west of Ireland, and to rather above  $45^{\circ}$  at Valencia and Scilly. The values show a considerable increase of temperature since December, amounting to about  $7^{\circ}$  in Scotland,\* and to nearly  $3^{\circ}$  over the inland parts of the north of Ireland. Over the south of England, however, the thermometer has been lower by about  $2^{\circ}$  than it was in the month of December 1886. When compared with a chart showing the distribution for January during the 20 years 1861-80, it would seem that during this year the month was rather colder than the average over Ireland, England, and the west and north of Scotland, the difference being about  $3^{\circ}$  over the Fen districts and our eastern counties and  $2^{\circ}$  over the northern parts of England and France, but much smaller in the extreme south-west of Ireland and on the shores of the Irish Channel. Over the eastern central parts of Scotland the excess amounted to two or three degrees. The lowest readings of the month were recorded on various dates in different districts; in the extreme north of Scotland the cold was sharpest between the 7th and 9th, over the remainder of Scotland, the north of England, and the north of Ireland it was the 16th or 17th, while over the different parts of England the dates were too varied to be singled out and mentioned separately. The highest values were recorded in the northern and western districts of Great Britain on the 28th or 29th, and in the Irish districts on the 26th or 27th, but in the more eastern parts of England the dates were also too varied to be specified. In the western and some of the northern parts of the kingdom the maximum value was reached at the various stations on more than one occasion; thus at Valencia the highest reading was recorded on five different days, at Killarney, Edgeworthstown, Pembroke, Prawle Point, Cirencester, and Hastings on four days, and at many other stations on three days. The changes of temperature were frequent and sudden, and the range was considerable, amounting, it is said, to  $51^{\circ}$  at Strathfield Turgiss and  $43^{\circ}$  at Rothamsted (in both of which places the minima on the 2nd appear to have been exceptionally low),  $42^{\circ}$  at Cambridge,  $41^{\circ}$  at Hereford and Glenlee, and between  $35^{\circ}$  and  $40^{\circ}$  in many other localities. At Scilly, however, the range was only  $17^{\circ}$ , at Sumburgh Head  $18^{\circ}$ , and at Valencia  $21^{\circ}$ .

*Tension of Vapour* varied from 0.27 in. in the Scilly Islands and the extreme south-west of Ireland to rather below 0.20 in. over the east of Scotland and the greater part of England, and to about 0.18 in. over the South Midlands and the Fens. *Relative Humidity* varied greatly in different localities, ranging between 95 per cent. at Ardrrossan and Donaghadee, and 94 at Hurst Castle and Hastings on the one hand, to 89 in London, 87 at Liverpool, and 85 at Leith, Aberdeen, and Sumburgh Head on the other.

*Rainfall*.—This varied from 11.5 inches at Glencarron, 10.0 inches at Laudale, and 7.8 inches at Stornoway, 7.3 inches at Valencia, and nearly 7 inches at Glenlee, to 0.6 in. at Leith, 1.0 in. at Spurn Head, and between that value and 1.5 inches at many of the north-eastern and eastern stations. Of "days with rain," there were 29 at Sumburgh Head, 28 at Stornoway, and from 20 to 26 over the western parts of Ireland, and in the hilly country about both Newton Reigny and Llandovery. In the south and east of England the numbers were much smaller—ranging from 14 to 18. At Southampton only 10 rainy days were reported, but this value is singularly low, especially when we find there were 17 at Hurst Castle. The fall was in excess of the mean in the west and north-west, but short of it in the east and south.

*Bright Sunshine*.—Assuming the total possible duration of bright sunshine during the month at each station to be represented by 100, then the values actually recorded were as low as 6 in London, 7 at Glasgow, 12 at Oxford, 13 at Collumpton, and less than 20 at many other stations. At Jersey, however, the amount was 37, at Hastings 27, at Dublin 24, and at Aberdeen 23; these were the highest recorded.

\* Several new stations are now reporting from central Scotland, see Table II., p. 12.



# SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF JANUARY 1887.



TABLE I.

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° 642	41° 7	37° 6	44° 2	40° 9	33	7th, 8th, 9th	51	28th, 29th
	Wick	29° 687	39° 5	34° 6	43° 7	39° 2	25	9th	53	28th
	Stornoway	29° 622	40° 6	34° 9	44° 6	39° 8	25	9th, 10th	52	28th
1. SCOTLAND, E.	Nairn	29° 697	39° 4	33° 3	45° 2	39° 3	22	11th, 18th	59	29th
	Aberdeen	29° 772	38° 3	34° 1	43° 3	38° 7	24	15th, 16th	54	29th
	Leith	29° 805	39° 6	34° 8	44° 6	39° 7	23	17th	54	26th, 29th
2. ENGLAND, N.E.	Shields	29° 882	37° 4	32° 6	42° 5	37° 6	23	17th	54	29th, 30th
	York	29° 946	34° 3	29° 6	40° 7	35° 2	18	17th	52	28th, 29th
	Spurn Head	29° 949	36° 1	31° 4	40° 0	35° 7	25	7th, 11th	48	28th, 29th, 31st.
3. ENGLAND, E.	Yarmouth	30° 005	35° 2	31° 2	39° 3	35° 3	23	7th	50	29th
	Cambridge	30° 006	33° 7	28° 3	40° 3	34° 2	12	2nd	54	28th
4. MIDLAND COUNTIES	Loughborough	29° 969	33° 2	28° 7	40° 7	34° 7	14	17th	54	28th, 30th
	Oxford	30° 011	33° 6	29° 2	39° 6	34° 4	14	2nd	52	31st
5. ENGLAND, S.	London	30° 013	34° 9	30° 5	41° 2	35° 0	15	2nd	54	19th
	Dungeness	30° 001	37° 1	32° 5	42° 0	37° 3	21	17th, 18th	49	28th
	Hurst Castle	30° 012	37° 5	32° 0	43° 3	37° 7	23	2nd	49	31st
6. SCOTLAND, W.	Ardrossan	29° 813	39° 9	36° 0	42° 8	39° 4	24	7th	49	22nd
7. ENGLAND, N.W.	Hawes Junction*	28° 646	33° 1	28° 8	37° 8	33° 3	13	17th	49	26th, 27th
	Barrow-in-Furness	29° 908	36° 4	33° 2	40° 2	36° 7	27	7th, 8th, 17th, 18th.	47	19th, 29th, 30th
	Liverpool (Bidston)	29° 926	36° 6	33° 2	42° 3	37° 8	25	1st, 2nd, 17th	53	29th
	Holyhead	29° 910	40° 8	38° 2	44° 7	41° 5	29	17th	50	19th, 26th
8. ENGLAND, S.W.	Pembroke	29° 953	42° 0	39° 2	44° 9	42° 1	31	16th	49	18th, 19th, 25th, 26th, 11th, 25th, 27th, 28th.
	Prawle Point	30° 010	40° 4	35° 9	45° 7	40° 8	30	1st, 2nd, 17th	50	
9. IRELAND, N.	Malin Head	29° 726	40° 9	37° 4	44° 6	41° 0	31	6th, 7th, 17th	52	25th, 26th, 27th
	Donaghadee	29° 844	39° 2	34° 4	44° 5	39° 5	25	6th, 7th, 10th	53	18th, 19th, 29th
	Mullaghmore	29° 772	42° 0	37° 5	47° 3	42° 4	29	4th, 8th	56	25th
	Belmullet	29° 773	43° 3	39° 5	46° 8	43° 2	32	4th	52	20th, 25th, 26th
10. IRELAND, S.	Parsonstown	29° 882	38° 9	34° 3	45° 5	39° 9	25	10th, 15th	55	29th
	Valencia	29° 881	45° 3	40° 8	49° 5	45° 2	33	15th	54	18th, 19th, 25th, 26th, 27th.
	Roche's Point	29° 910	43° 1	39° 0	47° 1	43° 1	29	10th	51	18th, 19th, 26th
CHANNEL ISLANDS	Scilly (St. Mary's)	29° 971	45° 6	41° 9	48° 4	45° 2	37	5th, 9th, 16th	54	25th, 26th
	Jersey (Noirmont)	30° 030	38° 7	35° 4	43° 5	39° 5	25	16th	51	31st

\* 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 1887.

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. 0.223	% 85	9.1	ins. 4.14	ins. 0.61	8th	20	1	0	0	0	24	5	0	0	0	5	9	3	11	1	2
216	90	7.3	2.15	0.30	30th	19	1	1	0	3	12	8	1	0	1	1	10	7	7	3	1
238	94	7.1	7.76	1.60	3rd	28	5	2	0	4	13	14	0	1	2	1	12	9	5	1	0
210	87	6.6	1.31	0.22	7th	19	3	0	0	3	7	1	0	1	0	1	2	13	6	0	8
196	85	5.8	2.92	0.53	17th	18	5	2	0	9	9	12	1	0	2	0	9	12	4	0	3
207	85	5.4	0.62	0.14	6th	13	3	0	0	9	6	1	0	1	0	2	3	11	11	1	2
194	87	7.4	1.46	0.22	9th, 13th	16	8	0	0	4	14	3	1	1	0	1	6	14	4	2	2
182	92	7.8	2.04	0.37	7th	19	3	0	0	5	21	0	3	1	3	4	9	2	6	1	2
196	92	6.4	1.01	0.22	5th	14	4	0	0	5	10	3	1	0	1	5	11	5	5	3	0
184	89	5.9	1.24	0.35	5th	15	3	0	0	6	9	2	2	1	1	4	8	7	5	2	1
178	91	7.7	1.54	0.23	3rd, 17th	13	7	0	0	5	19	0	2	0	2	2	10	7	1	0	7
178	94	8.4	2.44	0.71	7th	15	9	1	0	3	21	2	0	3	3	8	4	4	5	2	2
179	92	7.9	2.49	1.18	3rd	15	8	0	0	6	22	1	3	1	2	3	5	8	4	1	4
181	89	8.4	1.53	0.38	3rd	13	6	1	0	4	24	1	1	1	0	3	7	4	5	3	7
207	94	7.3	2.43	0.41	7th	15	3	1	0	4	14	1	5	0	1	3	7	8	4	2	1
212	94	7.5	4.95	0.87	3rd	17	2	1	0	2	11	3	3	5	3	2	2	6	6	4	0
231	95	7.1	2.79	0.45	4th	21	4	0	0	6	19	9	0	4	2	3	9	7	3	1	3
185	98	7.2	5.57	0.87	10th	22	10	0	0	6	18	0	2	2	3	3	9	6	3	2	1
203	94	7.5	2.62	0.48	10th, 31st	17	4	0	0	1	16	3	2	7	1	8	5	3	1	4	0
188	87	6.5	2.40	0.48	31st	17	7	2	0	9	16	2	1	1	2	9	3	4	8	3	0
231	92	7.1	4.59	0.78	31st	18	4	1	0	4	13	4	2	2	2	1	10	5	4	4	1
241	91	7.1	3.05	0.41	3rd	25	2	0	0	2	13	5	1	2	2	5	8	3	4	6	0
226	91	7.2	2.70	0.73	3rd	18	3	4	1	4	15	2	6	2	1	3	4	4	3	7	1
238	92	9.2	2.07	0.42	18th	22	1	4	0	1	26	2	1	2	0	1	11	10	4	2	0
228	95	4.5	2.69	0.50	10th	19	1	0	0	13	7	10	0	1	2	0	6	11	9	2	0
229	86	7.0	3.39	0.43	4th	18	2	6	0	4	9	12	1	2	1	3	7	13	2	3	0
258	92	8.1	5.46	0.56	30th	26	1	1	1	4	23	11	3	0	0	3	5	10	6	4	0
215	91	6.9	2.81	0.53	31st	20	1	0	0	7	15	0	0	0	0	4	11	4	1	1	10
272	90	8.2	7.34	0.92	31st	25	0	2	0	0	17	9	4	1	2	4	8	4	3	5	0
244	87	7.1	4.77	1.05	10th	18	0	0	0	7	18	6	3	1	0	1	6	10	5	5	0
267	87	8.3	3.19	0.45	3rd	23	0	4	0	0	15	9	4	0	2	3	8	5	3	4	2
214	91	5.9	2.77	0.42	19th	20	2	3	1	9	13	6	3	4	3	3	7	4	4	2	1

barometer at this Station is 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 1887.

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	*	*	*	*	*	*	*	*	*	*	*	15	7
LAIRG	—	—	—	—	—	—	—	—	—	—	—	—	—
GLENCARRON	33°7	41°7	37°7	21	6th	53	25th, 27th	26	11°46	2°61	21st	—	—
FORT AUGUSTUS	34°7	43°8	39°3	21	6th	53	25th, 26th, 29th	20	5°94	1°33	18th	—	—
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	51	3
BRAEMAR	30°9	39°9	35°4	14	15th	51	29th	16	2°27	0°75	11th	—	—
OCHTERTYRE	32°7	42°9	37°8	20	16th	54	28th	19	4°50	0°81	11th	—	—
MARCHMONT	30°3	40°7	35°5	19	17th	53	27th	17	2°08	0°40	8th	—	—
ALNWICK CASTLE	33°3	41°4	37°4	22	7th	52	27th	14	1°49	0°25	5th	—	—
DURHAM	30°1	39°9	35°0	14	7th	53	30th	17	1°45	0°32	7th	41	17
SCARBOROUGH	33°3	40°8	37°1	26	7th, 17th	51	29th, 30th	15	2°49	0°54	5th	—	—
YORK	*	*	*	*	*	*	*	*	*	*	*	31	13
HILLINGTON	28°6	39°0	33°8	15	2nd	52	28th	15	2°52	0°95	5th	47	19
GELDESTON	30°4	40°3	35°4	21	1st	54	28th	16	1°63	0°37	9th	49	20
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	42	17
ROTHAMSTED	28°1	39°4	33°8	8	2nd	51	31st	16	2°22	0°72	3rd	—	—
INGATESTONE	29°4	39°7	34°6	18	2nd	51	19th, 26th	15	1°20	0°22	7th	—	—
BAWTRY	28°6	39°2	33°9	14	13th, 17th	53	29th	14	2°30	0°60	7th	†39	16
LEICESTER	29°7	40°5	35°1	14	17th	54	28th, 30th	16	2°67	0°99	7th	33	13
CHEADLE	20°5	39°0	34°3	16	17th	52	29th	15	2°92	0°45	4th	—	—
CHURCHSTOKE	30°7	41°9	36°3	15	1st	58	29th	16	2°20	0°40	3rd	71	29
HEREFORD	30°3	42°8	36°5	19	1st, 2nd	60	28th	15	1°89	0°48	7th	—	—
CIRENCESTER	27°2	40°8	34°0	10	1st	49	19th, 27th, 28th, 31st.	17	2°41	0°42	10th	42	17
OXFORD	*	*	*	*	*	*	*	*	*	*	*	30	12
LONDON	*	*	*	*	*	*	*	*	*	*	*	16	6
STRATHFIELD TURGISSE	26°9	40°8	33°0	9	2nd	60	28th	15	2°39	0°98	3rd	—	—
HASTINGS	33°1	41°5	37°3	22	17th	48	19th, 26th, 27th, 28th.	16	3°06	0°62	11th	69	27
SOUTHAMPTON	32°2	41°2	36°7	20	2nd, 17th	53	31st	10	3°11	0°95	3rd	39	15
STOWELL	31°1	41°5	36°3	14	1st, 2nd	52	28th	18	2°84	0°89	3rd	—	—
LAUDALE	36°0	45°0	40°5	23	4th	56	26th	25	10°01	1°46	10th	—	—
GLASGOW	35°4	41°7	38°6	25	15th	51	19th	16	1°85	0°27	18th	17	7
GLENLEE	30°8	41°4	36°1	10	10th	51	19th, 26th, 29th	21	6°88	1°03	3rd	—	—
DOUGLAS	36°3	43°8	40°1	26	10th	50	19th, 26th	19	3°92	0°73	10th	44	18
NEWTON REIGNY	30°1	40°3	35°2	14	8th	51	30th	21	3°02	0°66	10th	40	17
STONYHURST	31°8	39°5	35°7	19	17th	52	30th	19	3°20	0°58	19th	38	16
BLACKPOOL	30°8	40°9	35°9	20	7th, 10th	50	29th, 30th	16	2°33	0°54	31st	44	18
MANCHESTER	32°2	40°6	36°4	21	17th	54	29th	18	2°35	0°33	4th	—	—
LLANDUDNO	36°7	45°2	41°0	27	16th	56	25th, 26th, 29th	16	2°75	0°69	31st	27	11
LLANDOVERY	29°4	43°1	36°3	16	1st	54	25th, 26th	21	4°19	0°58	3rd, 19th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	44	18
ARLINGTON	32°6	43°5	38°1	24	2nd	53	29th	21	4°30	0°54	7th	—	—
CULLOMPTON	32°2	43°5	37°9	18	2nd	55	28th	17	3°31	0°70	3rd	33	13
FALMOUTH	39°2	46°1	42°7	33	8th, 13th, 16th	53	28th	19	3°37	0°56	3rd	52	20
PLYMOUTH	34°8	45°5	40°2	28	2nd, 10th	52	19th, 25th	18	4°00	0°72	3rd	52	20
JERSEY	*	*	*	*	*	*	*	*	*	*	*	100	37
LONDONDERY	34°9	44°9	39°9	22	7th	57	27th	23	2°71	0°45	10th	—	—
MARKREE CASTLE	34°2	44°8	39°5	21	15th	54	26th	24	3°43	0°65	18th	41	17
BROOKEBOROUGH	32°2	42°9	37°6	15	7th, 10th	52	26th	12	3°53	0°77	10th	—	—
ARMAGH	34°2	43°8	39°0	12	10th	54	26th	16	2°12	0°50	10th	32	13
EDGEWORTHSTOWN	32°6	43°9	38°3	21	10th	53	25th, 26th, 27th, 29th.	13	2°79	0°99	10th	—	—
DUBLIN	36°9	46°1	41°5	23	10th	57	26th	16	1°82	0°44	10th	50	24
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	48	20
KILKENNY CASTLE	33°5	47°1	40°3	23	10th	55	18th, 27th	13	2°71	0°61	10th	—	—
WATERFORD	35°3	45°6	40°5	22	10th	52	26th	16	4°57	1°42	10th	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	51	20
KILLARNEY	36°9	48°3	42°6	27	8th, 12th, 14th	55	25th	24	9°75	1°60	31st	—	—
FOYNES	37°8	47°7	42°8	29	14th	55	18th, 25th, 26th, 27th, 29th.	20	3°91	0°75	31st	—	—

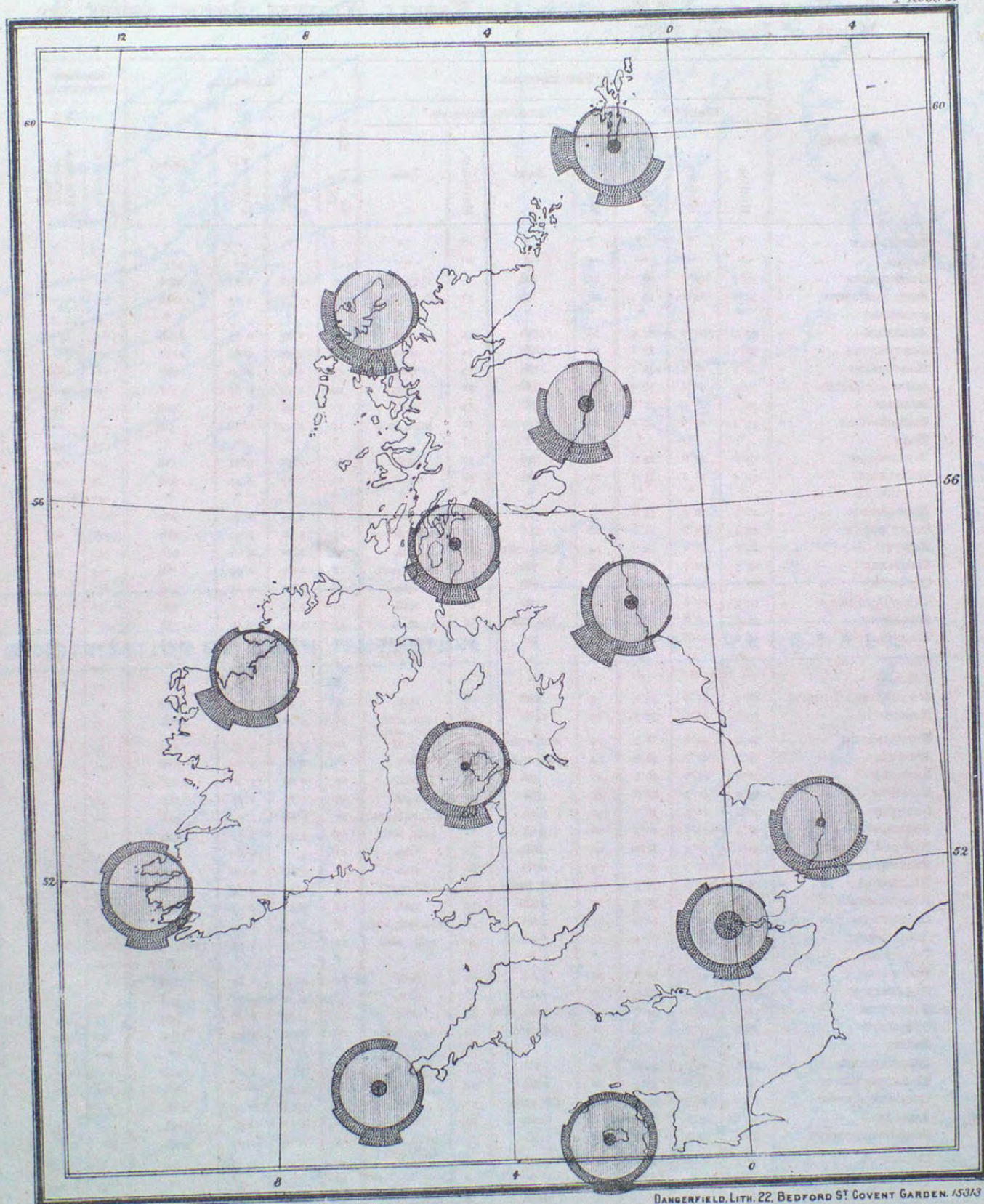
\* For information see Table

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



# MONTHLY WIND CHART FOR JANUARY, 1887.

Plate I.

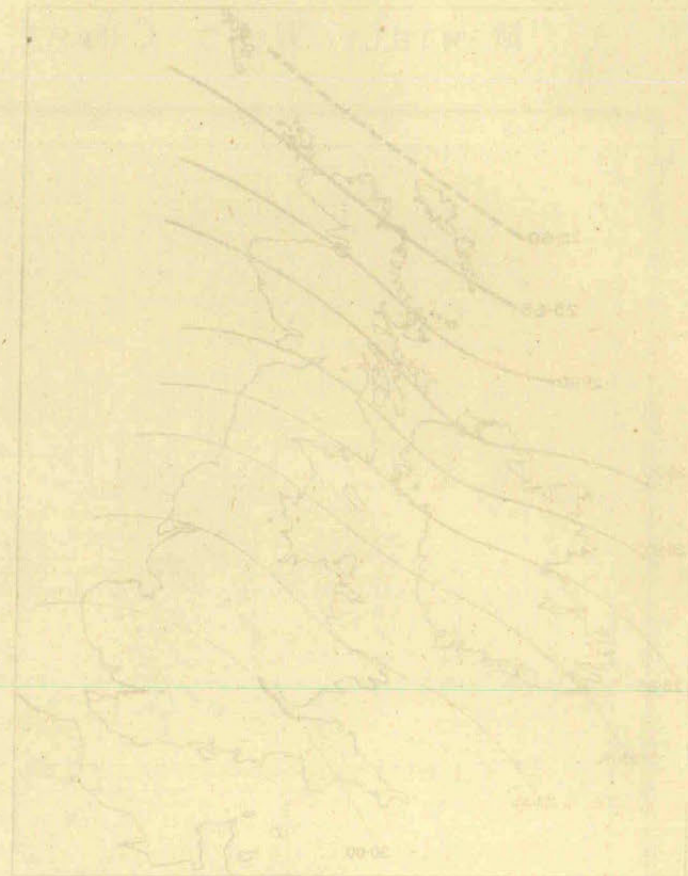


To face p. 12.

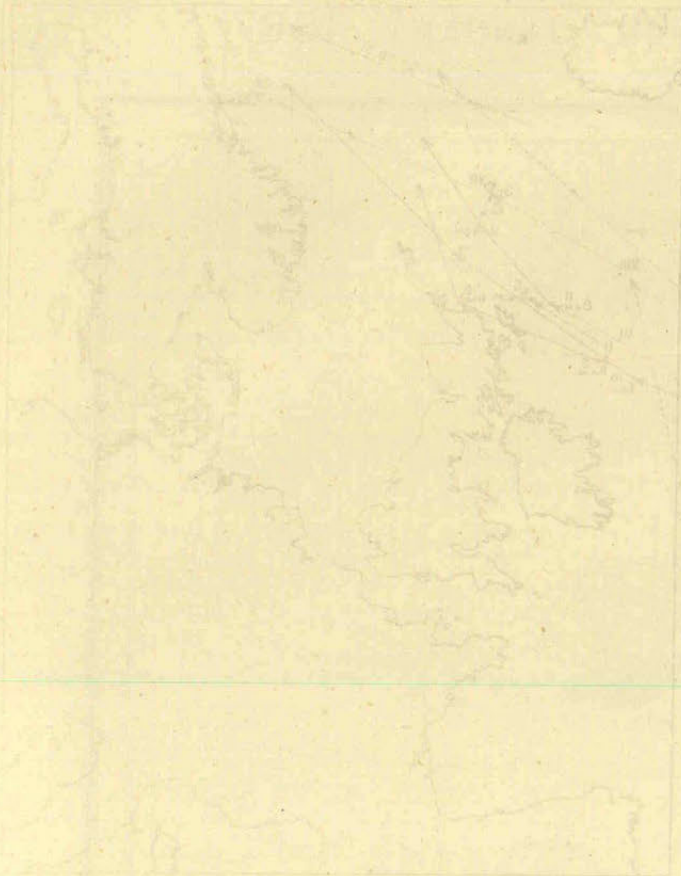
DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 15343



DISTRIBUTION OF MEAN PRESSURE



MOVEMENTS OF DEPRESSIONS



DISTRIBUTION OF MEAN TEMPERATURE

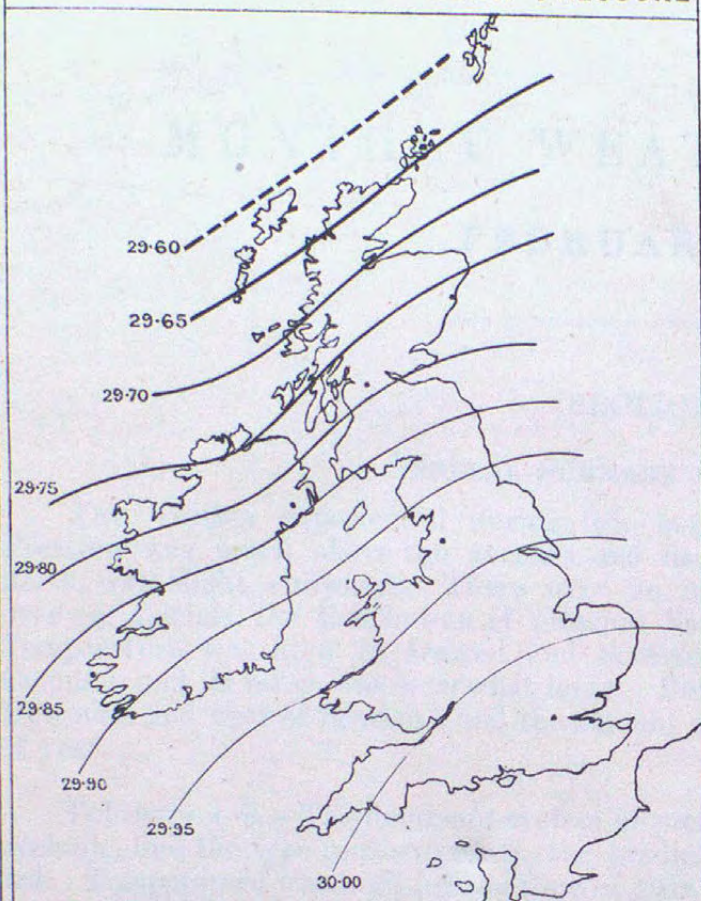


RAINFALL

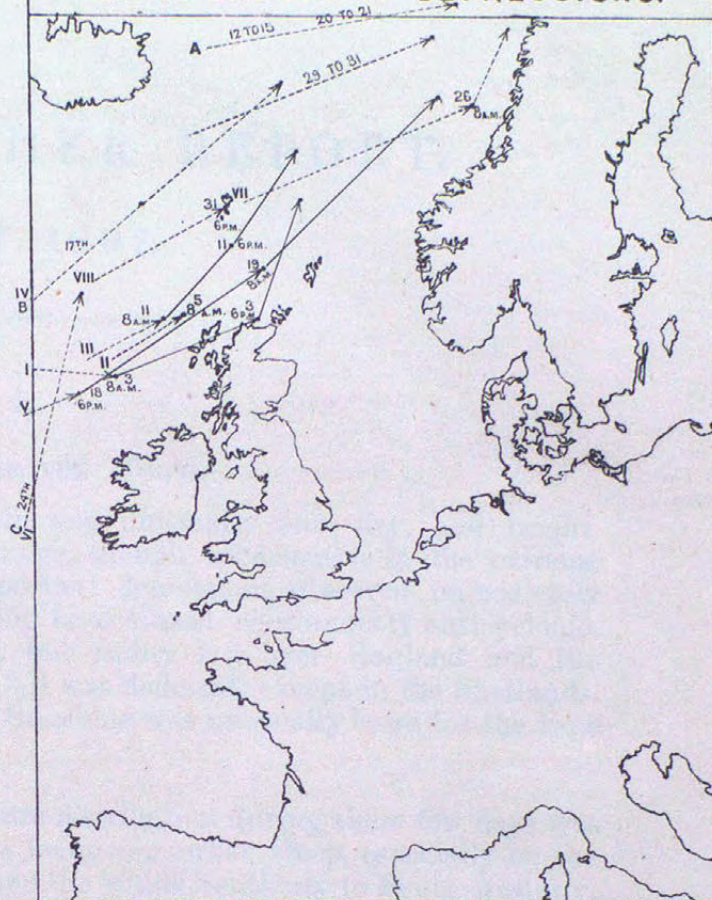




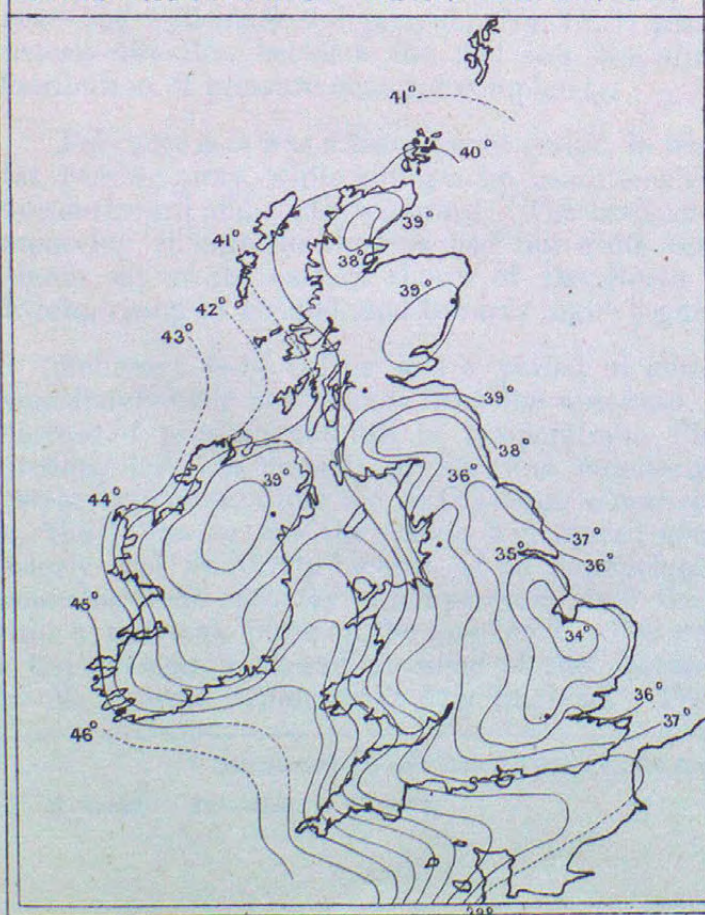
## 1. DISTRIBUTION OF MEAN PRESSURE



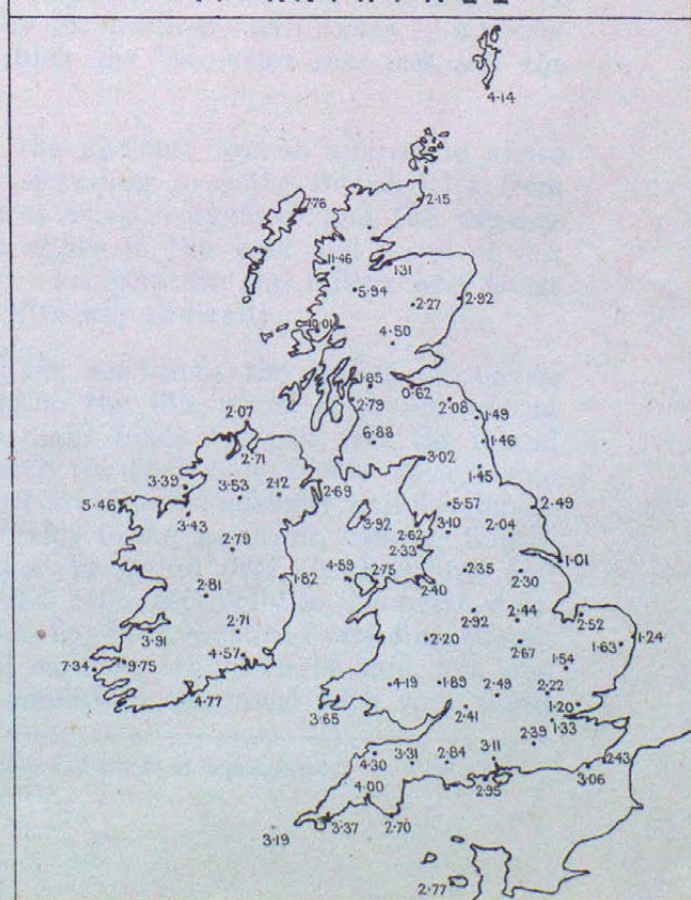
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL









# MONTHLY WEATHER REPORT.

FEBRUARY 1887.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather experienced during this month was unusually fine, dry, and bright. Pressure was much above the average, and its range, though considerable in the extreme north, was slight elsewhere. There were no important depressions observed immediately over our Islands, the distribution of pressure having been almost continuously anticyclonic. Temperature was high in Ireland and Scotland, but rather low over England and the Channel, and its range was somewhat large. Rainfall was deficient, except in the Shetlands, Hebrides, and west of Scotland, and the amount of Sunshine was unusually large for the time of year.

February 1-3.—The dominant system of pressure distribution during these few days was cyclonic, and the type south-westerly, the gradients being somewhat steep, especially on the 3rd. Temperature was high for the time of year, and the winds Southerly to South-westerly, blowing a gale at times in the west and north, and a strong to moderate breeze elsewhere. Rain fell abundantly in the extreme north and west, but there was very little in the east and south, where, however, cloud and some showers were experienced, with bright intervals. A large and well-marked depression (No. IX.\*) passed by our north-western coasts, in a north-easterly direction between the 2nd and 3rd, after which the barometer rose fast, and the distribution of pressure changed completely.

February 4-5 was a transitional period in which the cyclonic system referred to above was passing away, while anticyclone conditions were spreading over the British Isles from the southward and south-westward. The barometer was rising everywhere, and the weather improving, though the showers had not quite ceased either in the west and north of our Islands, or on the eastern shores of the North Sea. Temperature was falling over Great Britain, rising in Ireland, and towards night began to give way generally.

February 6-17.—This was a period of anticyclonic conditions, the system advancing immediately over our Islands from the westward early on the 6th, where it caused a rapid increase of pressure and fall of temperature. Sharp night frosts occurred over the inland districts, but the amount of fog was singularly small for such a decidedly anticyclonic system in winter, while the anticyclonic circulation of wind was unusually well developed. On the following day the system had moved considerably to the eastward, causing South-easterly and Southerly breezes, of an anticyclonic type, to spread over the kingdom, and producing some recovery of temperature over the British Isles, especially in the north-west, while a fall took place on the Continent. The weather, however, remained very fine, except in the extreme west, and at some of the continental stations, where slight rain fell, and the air became rather foggy over England. These conditions continued with very slight

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



modification till the 10th—cold nights being followed by comparatively mild days, and dry weather continuing almost everywhere. On the 10th a large shallow depression advanced over northern Europe from the north-westward, and owing to its influence the anticyclonic system broke up into two parts, one of which moved westward, and occupied a position more directly to the northward of us than it had done previously; the wind over the United Kingdom consequently became more generally Easterly, but the weather remained dry, and temperature was a little higher. On the night of February 12th another large depression advanced over the extreme north of Europe from the north-westward, and the result was that the anticyclone receded still further in a westerly direction (see daily charts for the 13th), and for a little while North-westerly winds and showers were felt over Scandinavia, the north of Scotland, and the North Sea, while fresh North-easterly breezes continued in the south and south-east. This disturbance soon passed off, and the next low-pressure area which affected us spread over our area from the southward on the 14th. This system, however, soon passed away, and the 15th found us with the anticyclonic conditions restored, the centre of the system being over the eastern shores of the North Sea. Easterly winds and dry weather prevailed over France and the southern parts of England, while South-westerly winds and some showers were felt in the north. Frosts and fogs were soon felt over the inland counties, the former being especially sharp early on the 17th, just as a shallow depression was approaching our north-western coasts.

February 18-25.—This period was throughout partially cyclonic and partially anticyclonic, the former condition being prevalent mainly over the northern and the latter over the southern parts of our area. Thus, while strong South-westerly and Westerly winds, occasionally attaining the force of a gale in the more exposed places, were felt in the more northern regions with rather showery weather, light breezes and fine bright weather were experienced in the south, and the daily range of temperature was very large. It was during this interval that several cyclonic systems passed in a north-easterly direction outside our extreme north-western coasts, in about the direction shown by the broken arrow marked "A" on Map 2, Plate IV., but at such a distance that their characteristics cannot well be tabulated in Section II. One of these, however, was accompanied by a well-marked "V"-shaped secondary, which stretched far to the southward on the 18th (see the charts in the daily and weekly reports for that date), and caused more or less rain in nearly all parts of the kingdom. This was succeeded by a sudden shift of wind to the northward (after those from a southerly point had been prevalent), with a considerable fall of temperature. The anticyclonic system No. V. (Section II.) then advanced over the British Isles and France, and remained in our neighbourhood, more or less, till after the end of the month. It suffered some temporary interruption again on the 21st, as a less clearly marked "V" passed over us and disappeared to the eastward.

February 26-28.—The anticyclonic system (No. V.) now spread northwards again from France, and became the dominant system over western and north-western Europe, so that, although Southerly to Westerly breezes and gales were still felt in the far north, Easterly (North-east to South-east) winds were re-established at the southern stations, and the weather became very fine and dry, but rather foggy. These conditions were still in force when the month closed, and while the night temperatures were low, the days were mild and very bright.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—FEBRUARY 1887.

NATURE OF CHARACTERISTICS OBSERVED.		No. IX. February 2-4.
Form	- - - - -	Uncertain; apparently nearly oval.
Size	- - - - -	Large.
Depth	- - - - -	Deep.
Where first Observed	- - - - -	Off the west of Ireland.
Direction of Motion	- - - - -	North-eastward.
Rate of Motion	- - - - -	Apparently moderate.
Regions passed over by Steepest Gradients	- - - - -	British Isles, the North Sea, and Scandinavia.
Termination	- - - - -	Travelled away to the north-eastward.
Time under Observation	- - - - -	About two days.
Accompanying Winds	- - - - -	Southerly to Westerly gales and strong winds.
Weather	- - - - -	Squally, showery, mild.
Rainfall	- - - - -	General, but heavy only at the extreme northern and north-western stations.
REMARKS	- - - - -	This system advanced when pressure was highest over southern and south-eastern Europe, and lowest in the extreme north-west. It was very free from complication, but as it disappeared an imperfectly formed "V"-shaped depression travelled across the kingdom, in the rear of which the wind veered permanently and anti-cyclonic conditions became prevalent.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—FEBRUARY-MARCH 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. III. February 1-5.	No. IV. February 6-17.	No. V. February 18-March 8.
Form - - - -	Somewhat oval, but varying - - -	Varying; nearly circular at first -	Varying greatly.
Size - - - -	Large - - - -	Large - - - -	Large.
Height - - - -	Small at first, then moderate. Max. reading 30·6 inches and more on 4th.	Small to great. Max. readings 30·8 inches to 30·9 inches on 7th and 8th.	Uncertain at first, moderate later. Readings in centre increasing to 30·8 inches over Germany on 27th.
Where first observed - -	Off the coast of Portugal - - -	Off the west coast of Ireland - -	Off west of Ireland.
Direction of Motion - -	Easterly, but varying - - -	Eastwards and east-north-eastwards at first, then in very various directions.	Southerly at first, afterwards north-easterly and northerly; later on south-easterly, southerly, and westerly.
Rate of Motion - - -	Slow - - - -	Varying from moderate to nil -	Moderate to very slow.
Regions passed over - -	Southern Europe - - -	British Isles and North Sea to Baltic	Bay of Biscay, France, British Islands, Baltic, and Germany.
Termination - - -	Moved away to the south-eastward and dispersed.	Travelled away to central Russia -	Travelled away to south-eastern Europe, and dispersed.
Accompanying Wind - -	Light to moderate; direction varying as centre advanced.	Light to moderate and fresh, varying in direction as the system altered its position.	Light, and anticyclonic direction varying according to movements.
„ Weather - - -	Fine on the Continent, showery in our Islands.	Fine generally, foggy at times. Cold in night, mild and bright during daytime.	Fine and bright within the limits of the anticyclone. Showery over our Islands while it lay over France.
REMARKS - - - -	<p>This system showed itself first over the north of Spain on the morning of the 1st. From this position it moved east-north-eastwards, and uniting with a larger system already prevalent over southern and south-eastern Europe, remained there for several days, but apparently dispersed on the 6th.</p> <p>This system when it first appeared was comparatively small for the type, and was of little height, but afterwards increased greatly both in height and size. On the 10th-13th it moved westwards, and its height decreased, as large depressions advanced over the Arctic regions in a south-easterly direction towards Russia. Subsequently the system moved eastwards again, and after undergoing some modifications, its central area lay over Denmark and the Baltic from the 15th to 17th, when it suddenly travelled away to the eastward, and passed out of our area.</p>		



## SECTION III.

## REMARKS FOR FEBRUARY 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from rather above 30·3 inches over the southern half of England, and a little above 30·2 inches over the northern counties and the south-east of Ireland, to a little below 30·0 inches in the Hebrides and the extreme north of Sutherlandshire, and to 29·96 inches in the south of the Shetlands. Compared with the values for January the above indicate an increase of about three-tenths of an inch in the mean height of the barometer over the United Kingdom generally; and, comparing them with the mean values for the corresponding month in the 20 years 1861–80 they show an excess varying from about four-tenths of an inch in the South Midlands to between two and three-tenths over Scotland and Ireland. Thus, while the pressure was, in all districts, much above its average value, the gradients (in favour of South-westerly winds) were rather steeper than the mean ones, and this occurred mainly over Scotland and the north of Ireland. The highest individual readings occurred in England on the 6th when the anticyclone No. IV. was passing over, and the barometer rose to 30·7 inches, and more, at several stations. In Ireland and Scotland, however, the maximum values occurred on the 13th; on this occasion also the barometer rose to upwards of 30·7 inches at many of the Scotch and Irish stations, as the same anticyclone (No. IV.) lay over those regions, but did not rise to nearly so high a level over England. The lowest values were recorded very generally on the 2nd or 3rd, when the barometer fell to rather below 29·0 inches in the north of Scotland and to a little below 30·0 inches in the south of England, as the depression No. IX. passed over the kingdom. Thus, while the range of pressure was considerable (about 1·75 inches) in the extreme north, it was slight (less than 0·75 in.) in the south of the British Islands.

*Movements of Depressions.*—These were uniformly from south-west to north-east, and their pace was moderate. Only one fully-formed depression, however, came sufficiently near to us for its track to be drawn accurately on Map 2, Plate IV., and its characteristics to be tabulated in Section II. Some “V”-shaped systems crossed the country in a similar direction, but these are referred to in Section I., and are discussed in detail in the Daily and Weekly Reports.

*Anticyclones.*—These were the dominant systems of the month, and their details are given in Sections I. and II. Their movements were, as is usual with the larger systems, slow and irregular, and the maximum readings recorded about their centres were very high (30·6 inches to 30·8 inches).

*Winds.*—The winds varied a great deal; they were mainly South-westerly at our most northern stations and at Holyhead and Shields. In Ireland and the south-west of England, however, there was a considerable percentage of wind from South-east, and in the Channel and south-east of England from North-east, caused by the changing positions of the anticyclonic systems as they moved about in our neighbourhood. In force they were, as a rule, light to moderate, gales being very rare except in the extreme west and north, which districts were most under the influence of the depressions which skirted our extreme north-western coasts in the direction indicated by the arrow marked A on Map 2, Plate IV.

*Temperature.*—The mean (sea-level) temperature for the month varied from slightly above 44° in the extreme west of Ireland, and the Scilly Islands, and from about 42° at the extreme western stations of Great Britain to a little below 42° over central Ireland and the north-eastern counties of Scotland, and to rather below 39° both over the Fen districts and some of the northern counties of England. Thus, between January and February there had



been an increase of temperature, amounting to about  $3^{\circ}$ , over central Ireland, Scotland, and Wales, and to as much as  $5^{\circ}$  over the Fen districts and eastern counties of England. A comparison between the values for the present month with the means for the 20 years 1861-80 shows, however, that central Ireland and Scotland were warmer than the average, by  $2^{\circ}$  in the former country, and by  $3^{\circ}$  to  $4^{\circ}$  in the latter; while in England and the south of Ireland the thermometer has this year been lower than the average by amounts varying from  $1^{\circ}$  over our eastern counties and about  $2^{\circ}$  in the south of Ireland and Dorsetshire to  $3^{\circ}$  in the west of Cornwall and the Scilly Islands. These results are explained by the predominance of South-westerly winds in the north, and of anticyclonic airs and Easterly breezes in the south and south-west. The lowest values were recorded over the southern, eastern, and midland counties on the 17th or 18th, at which time the anticyclonic system No. IV. was passing away to the eastward; in Scotland and Wales they occurred on the 9th or 10th, and in Ireland on the 11th, during the prevalence of the anticyclone No. III. The maxima were very high for the time of year, and were registered in almost all districts between the 26th and 28th, when the anticyclonic system No. V. lay over Germany and the Netherlands. The range of temperature, though considerable, was less so than might have been anticipated with so much bright weather; it varied from  $42^{\circ}$  at Cambridge and from between  $35^{\circ}$  and  $40^{\circ}$  at many of the inland stations to only  $18^{\circ}$  at Sumburgh Head,  $21^{\circ}$  at Scilly,  $24^{\circ}$  in the Isle of Man, and  $26^{\circ}$  at Jersey and Valencia.

*Tension of Vapour.*—This varied from a little below 0.20 in. over central England and the eastern parts of Scotland, and from rather below 0.22 in. over central Ireland and the south coast of England to 0.24 in. off our north-western coast, and to 0.26 in. at Valencia and Scilly. *Relative Humidity* at 8 a.m. was, on the contrary, highest (90 per cent. and more) at the inland stations, while it was lowest (below 85 per cent.) in the east of Scotland, and but little above that value at the stations in Devonshire, Cornwall, and the south-west of Ireland.

*Rainfall* was short of the average except in the Shetlands, Hebrides and extreme west of Scotland, where it was in excess. In the Hebrides the excess was more than an inch, and was caused by the constant prevalence of South-westerly winds in that region; over the eastern and midland parts of England the deficit was very large,—the fall at most of the stations being less than one-third of the average. The number of days with rain varied from only 5 at Cambridge and at Hereford, and from 6 or 7 over the midland stations as a whole, to 19 at Sumburgh Head and Lairg, and to 16 or 17 at the extreme north-western stations generally.

*Bright Sunshine.*—This was greatly in excess except in some of the larger towns, there being no record of so large an amount in February from the time of the establishment of the recorders. Assuming the total possible duration of sunshine for the month at each station to be represented by 100, then the values actually recorded varied from 46 at Geldeston, 43 at Plymouth, 41 at Churchstoke and Hastings, and 40 at Cambridge, to 19 at Glasgow and to 18 in London (where fog was very prevalent). Over both England and Ireland, as a whole, the percentage ranged a little on either side of 35; at Aberdeen the value was 27 and at Stornoway 23.



## SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS,

DURING THE MONTH OF FEBRUARY 1887.



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° 960	41° 7	37° 6	44° 9	41° 3	33	2nd	51	27th
	Wick - - -	30° 016	40° 7	35° 8	45° 8	40° 8	27	10th	55	27th
	Stornoway - - -	29° 003	41° 8	36° 9	46° 7	41° 8	29	17th	53	11th
1. SCOTLAND, E.	Nairn - - -	30° 042	40° 4	34° 2	47° 8	41° 0	27	9th	59	27th
	Aberdeen - - -	30° 120	39° 1	34° 8	46° 4	40° 6	22	10th	54	23rd
	Leith - - -	30° 172	39° 1	34° 4	47° 4	40° 9	21	9th, 10th	58	28th
2. ENGLAND, N.E.	Shields - - -	30° 231	38° 7	34° 1	46° 5	40° 3	24	10th	59	27th
	York - - -	30° 290	36° 2	31° 8	46° 8	39° 3	24	8th, 9th, 10th	56	3rd, 28th
	Spurn Head - - -	30° 292	38° 6	35° 3	44° 5	39° 9	28	7th	53	28th
3. ENGLAND, E.	Yarmouth - - -	30° 283	38° 1	34° 0	42° 8	38° 4	25	17th	53	4th, 5th
	Cambridge - - -	30° 330	35° 5	29° 9	47° 2	38° 6	16	17th	58	28th
4. MIDLAND COUNTIES	Loughborough - - -	30° 311	35° 5	31° 9	48° 0	40° 0	22	17th	58	27th, 28th
	Oxford - - -	30° 335	35° 6	32° 4	45° 6	39° 0	21	17th	56	5th
5. ENGLAND, S.	London - - -	30° 333	37° 2	33° 5	46° 3	39° 9	20	17th	56	28th
	Dungeness - - -	30° 304	38° 4	34° 4	43° 9	39° 2	21	17th, 18th	52	5th, 25th
	Hurst Castle - - -	30° 329	38° 7	34° 4	44° 8	39° 6	22	18th	52	25th
6. SCOTLAND, W.	Ardrossan - - -	30° 168	40° 4	36° 9	45° 1	41° 0	27	9th	49	18th
7. ENGLAND, N.W.	Hawes Junction - - -	28° 979	33° 7	29° 3	41° 0	35° 2	15	10th	51	27th
	Barrow-in-Furness - - -	30° 250	37° 7	34° 8	43° 8	39° 3	25	10th	50	27th
	Liverpool - - -	30° 282	37° 4	34° 3	44° 9	39° 6	25	10th, 11th	54	28th
	Holyhead - - -	30° 259	40° 7	38° 2	45° 0	42° 1	31	9th	52	27th
8. ENGLAND, S.W.	Pembroke - - -	30° 287	40° 5	38° 1	44° 3	41° 2	28	10th	50	3rd
	Prawle Point - - -	30° 316	41° 0	37° 4	45° 9	41° 7	28	17th	55	21st
9. IRELAND, N.	Malin Head - - -	30° 125	41° 4	38° 1	46° 3	42° 2	33	6th, 9th, 10th, 16th.	53	26th
	Donaghadee - - -	30° 202	40° 8	36° 9	46° 8	41° 9	29	6th, 7th, 10th	53	3rd, 22nd
	Mullaghmore - - -	30° 131	42° 5	38° 6	48° 4	43° 5	32	6th	55	26th, 28th
	Belmullet - - -	30° 127	43° 4	39° 7	47° 9	43° 8	32	13th	54	26th
10. IRELAND, S.	Parsonstown - - -	30° 220	39° 3	34° 1	47° 9	41° 0	24	10th, 11th	56	27th, 28th
	Valencia - - -	30° 205	44° 8	39° 7	49° 7	44° 7	28	11th	54	26th
	Roche's Point - - -	30° 241	43° 1	39° 4	48° 0	43° 7	30	10th, 11th, 13th, 14th.	52	27th, 28th
CHANNEL ISLANDS	Scilly (St. Mary's) - - -	30° 267	44° 9	41° 2	47° 9	44° 6	33	11th	54	4th, 23rd, 24th
	Jersey (Noirmont) - - -	30° 310	39° 7	37° 0	44° 3	40° 7	25	11th	51	4th, 25th

\* 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 1887.

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.							WIND.								
			Total Fall in the Month.		Date.	No. of Days of							No. of Observations of								
			ins.	in.		Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calm.
0.226	86	8.9	3.61	0.56	17th	19	1	0	0	0	20	1	0	2	0	1	8	5	6	2	4
0.216	85	5.8	1.33	0.38	24th	16	1	0	0	7	6	2	3	0	0	0	9	8	3	4	1
0.237	90	7.7	5.00	0.99	2nd	22	5	3	1	2	11	11	1	1	0	0	10	9	5	1	1
0.220	88	6.2	1.31	0.23	4th	14	1	0	0	3	7	1	0	0	0	0	1	12	6	1	8
0.194	82	4.9	0.89	0.27	2nd	12	0	0	0	9	5	7	0	0	0	0	8	10	5	3	2
0.208	87	5.6	0.72	0.17	3rd	12	0	0	0	8	6	0	0	2	0	2	4	7	12	1	0
0.203	87	6.9	0.34	0.18	2nd	7	1	0	0	3	8	5	1	1	1	1	6	13	8	1	2
0.193	90	6.0	0.61	0.15	17th	11	0	0	0	11	14	0	5	1	2	2	9	4	3	1	1
0.209	89	4.3	0.51	0.12	18th	7	0	0	0	11	3	3	1	2	2	4	7	8	1	2	1
0.207	90	4.5	0.63	0.26	1st	6	0	0	0	10	4	4	1	3	6	2	3	5	4	2	2
0.191	91	5.0	0.67	0.21	1st	5	1	0	0	12	9	0	3	5	2	0	7	5	0	2	4
0.187	90	6.8	0.61	0.30	2nd	7	1	0	0	5	11	3	0	5	3	4	1	5	6	3	1
0.186	89	6.6	0.70	0.24	2nd	9	1	0	0	8	14	1	3	8	0	2	5	5	2	1	2
0.191	86	7.8	0.51	0.16	2nd	6	2	1	0	4	16	3	1	6	5	3	5	5	0	1	2
0.214	93	5.3	0.61	0.18	2nd	8	1	0	0	9	6	1	2	4	8	1	1	7	4	1	0
0.215	92	5.7	0.99	0.38	2nd	9	1	0	0	6	3	2	2	8	6	1	1	7	2	1	0
0.228	91	7.1	2.14	0.40	2nd	15	1	0	0	6	16	5	0	5	5	2	9	2	3	1	1
0.187	96	5.5	4.32	1.16	24th	13	1	0	0	12	14	0	0	4	5	5	8	4	1	0	1
0.202	90	5.6	1.74	0.38	22nd, 24th	10	0	0	0	8	10	3	1	8	5	4	3	4	1	2	0
0.183	82	4.5	0.50	0.12	2nd	9	1	1	0	12	6	2	1	2	3	9	3	4	4	2	0
0.226	89	5.0	0.66	0.13	20th	11	0	0	0	8	1	2	1	3	2	2	9	6	2	1	2
0.225	90	5.9	0.53	0.12	20th	8	0	0	0	6	7	2	3	4	4	5	4	4	1	3	0
0.223	87	5.9	0.53	0.15	17th	9	2	0	0	6	9	4	2	7	6	1	0	7	1	4	0
0.246	95	9.1	3.96	0.86	3rd	15	0	1	1	1	23	1	0	3	1	2	10	6	3	3	0
0.239	95	5.9	0.76	0.30	2nd	11	0	0	0	7	11	7	0	2	3	1	3	13	4	2	0
0.230	85	6.0	3.92	0.96	4th	17	0	2	0	5	6	10	1	1	4	6	4	7	3	1	1
0.249	88	5.8	3.61	0.69	4th	17	0	0	1	12	15	6	0	1	2	3	8	6	5	3	0
0.215	90	5.6	1.24	0.27	2nd	12	0	0	0	7	9	0	0	0	0	5	7	2	1	1	12
0.259	88	6.3	2.85	0.49	24th	15	0	0	0	3	9	8	2	4	2	5	5	4	2	3	1
0.241	86	6.9	1.78	0.50	3rd	12	0	0	0	7	13	6	4	4	1	3	4	9	2	1	0
0.265	90	7.5	0.70	0.26	2nd	11	0	0	0	3	14	6	1	5	4	5	3	5	1	3	1
0.220	90	6.4	0.95	0.27	18th	11	2	1	1	8	13	0	0	6	9	2	2	6	3	0	0

barometric 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 1887.

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 -	*	*	*	*	*	*	*	*	*	*	*	59	23
LAIRG -	-	-	-	-	-	-	-	-	-	-	-	-	-
GLENCARRON -	35'2	45'8	40'5	27	9th	57	26th	17	8'78	1'70	23rd	-	-
FORT AUGUSTUS -	35'0	44'8	39'9	26	6th	54	28th	17	5'45	1'15	24th	-	-
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	70	27
BRAMMAR -	33'1	44'2	38'7	19	10th	57	28th	15	1'88	0'64	2nd	-	-
OCHTERTYRE -	33'3	47'5	40'4	20	8th	54	13th, 27th, 28th	13	2'76	0'76	2nd	-	-
MARCHMONT -	33'0	44'5	38'8	20	10th	54	28th	8	0'57	0'20	2nd	-	-
ALNWICK CASTLE -	34'4	44'5	39'5	19	9th	55	28th	9	0'59	0'24	2nd	-	-
DURHAM -	32'2	45'2	38'7	19	10th	57	27th	9	0'54	0'13	24th	88	33
SCARBOROUGH -	35'5	45'6	40'6	30	7th, 8th, 10th	54	3rd	8	0'54	0'21	2nd	-	-
YORK -	*	*	*	*	*	*	*	*	*	*	*	96	36
HILLINGTON -	31'4	45'6	38'5	17	17th	56	28th	6	0'73	0'24	1st	116	43
GILDESTON -	32'5	45'3	38'9	17	17th	56	5th	6	0'54	0'16	1st	126	46
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	110	40
ROTHAMSTED -	31'7	44'4	38'1	18	17th	55	5th	9	0'88	0'24	2nd	-	-
INGATESTONE -	32'4	44'9	38'7	20	17th	53	5th	7	0'55	0'13	2nd	-	-
BAWTRY -	31'3	46'2	38'8	22	8th	56	27th, 28th	7	0'31	0'11	17th	103	38
LEICESTER -	32'0	47'0	39'5	23	17th	57	27th, 28th	8	0'48	0'16	2nd	86	32
CHADDLE -	32'1	44'2	38'2	26	8th, 9th, 10th	54	27th	7	0'45	0'21	2nd	-	-
CHURCHSTOKE -	31'3	45'3	38'3	20	10th	56	27th	7	0'51	0'28	2nd	111	41
HEREFORD -	32'7	46'7	39'7	23	17th	57	5th	5	0'39	0'24	2nd	-	-
GIRENCESTER -	31'4	44'6	38'0	18	17th	55	5th	10	0'62	0'30	2nd	102	37
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	97	35
LONDON -	*	*	*	*	*	*	*	*	*	*	*	49	18
STRATHFIELD TURGIS -	31'7	45'6	38'7	21	17th	55	5th	9	0'69	0'24	17th	-	-
HASTINGS -	34'7	43'9	39'3	26	17th	52	25th	10	0'63	0'24	2nd	113	41
SOUTHAMPTON -	33'9	45'8	39'9	23	17th	55	25th	9	0'94	0'26	2nd	97	35
STOWELL -	33'3	44'2	38'8	21	17th	53	5th	10	0'59	0'14	2nd, 20th	-	-
LAUDALE -	38'2	46'3	42'3	31	13th	54	24th	16	8'11	1'46	2nd	-	-
GLASGOW -	36'4	44'6	40'5	26	9th	55	27th	10	3'00	0'63	24th	50	19
GLENNLEE -	32'7	44'4	38'6	18	9th	52	23rd	14	3'11	0'93	2nd	-	-
DOUGLAS -	37'2	45'2	41'2	27	11th	51	27th	11	1'35	0'37	17th	91	34
NEWTON REIGNY -	32'3	44'6	38'5	20	9th, 10th	55	28th	13	1'83	0'63	22nd	83	31
STONYHURST -	33'0	43'8	38'4	23	9th, 10th	52	3rd, 27th	8	1'91	0'61	22nd	89	33
BLACKPOOL -	32'7	44'1	38'4	20	10th	53	28th	9	1'49	0'35	22nd	82	31
MANCHESTER -	33'1	44'8	39'0	24	9th, 10th	55	28th	9	0'76	0'16	24th	-	-
LLANDUDNO -	36'5	47'3	41'9	25	10th	60	27th	10	0'55	0'13	5th	103	38
LLANDOVERY -	31'1	46'6	38'9	22	16th	61	27th	11	1'59	0'31	2nd	-	-
PREMBROKE -	*	*	*	*	*	*	*	*	*	*	*	105	38
ARLINGTON -	33'8	44'5	39'2	21	17th	53	27th	8	0'94	1'23	20th	-	-
CULLOMPTON -	33'4	46'0	39'7	19	17th	54	3rd, 5th	8	0'32	0'14	2nd	99	36
FALMOUTH -	38'5	45'9	42'2	29	10th, 17th	54	5th	10	0'86	0'27	2nd	90	32
PLYMOUTH -	35'8	45'9	40'9	23	17th	52	2nd, 3rd, 4th, 24th.	8	0'72	0'34	2nd	119	43
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	109	39
LONDONERRY -	36'6	49'0	42'8	30	6th, 10th	57	3rd	17	3'27	0'88	4th	-	-
MARKREE CASTLE -	35'1	47'0	41'1	24	11th	54	26th	17	3'11	0'85	2nd	88	33
BROOKEBOROUGH -	34'1	46'6	40'4	24	10th	54	26th, 28th	9	2'26	0'69	2nd	-	-
ARMAGH -	34'9	47'3	41'1	23	10th	55	22nd, 26th, 27th	13	1'38	0'44	2nd	91	34
EDGEWORTHSTOWN -	33'7	46'9	40'3	20	10th	54	26th, 27th	11	2'43	0'85	22nd	-	-
DUBLIN -	37'6	48'2	42'9	26	10th	57	27th	11	0'54	0'14	2nd	101	37
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	100	37
KILKENNY CASTLE -	35'1	49'5	42'3	21	10th	56	3rd, 22nd	7	0'85	0'19	17th	-	-
WATERFORD -	37'0	47'6	42'3	26	10th	52	22nd, 23rd, 25th, 28th.	10	1'35	0'76	1st	-	-
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	90	33
KILLARNEY -	36'2	49'2	42'7	22	11th, 14th	56	26th	14	4'06	0'91	2nd	-	-
FOYNES -	37'2	49'3	43'3	28	9th	57	26th, 28th	12	1'62	0'34	24th	-	-

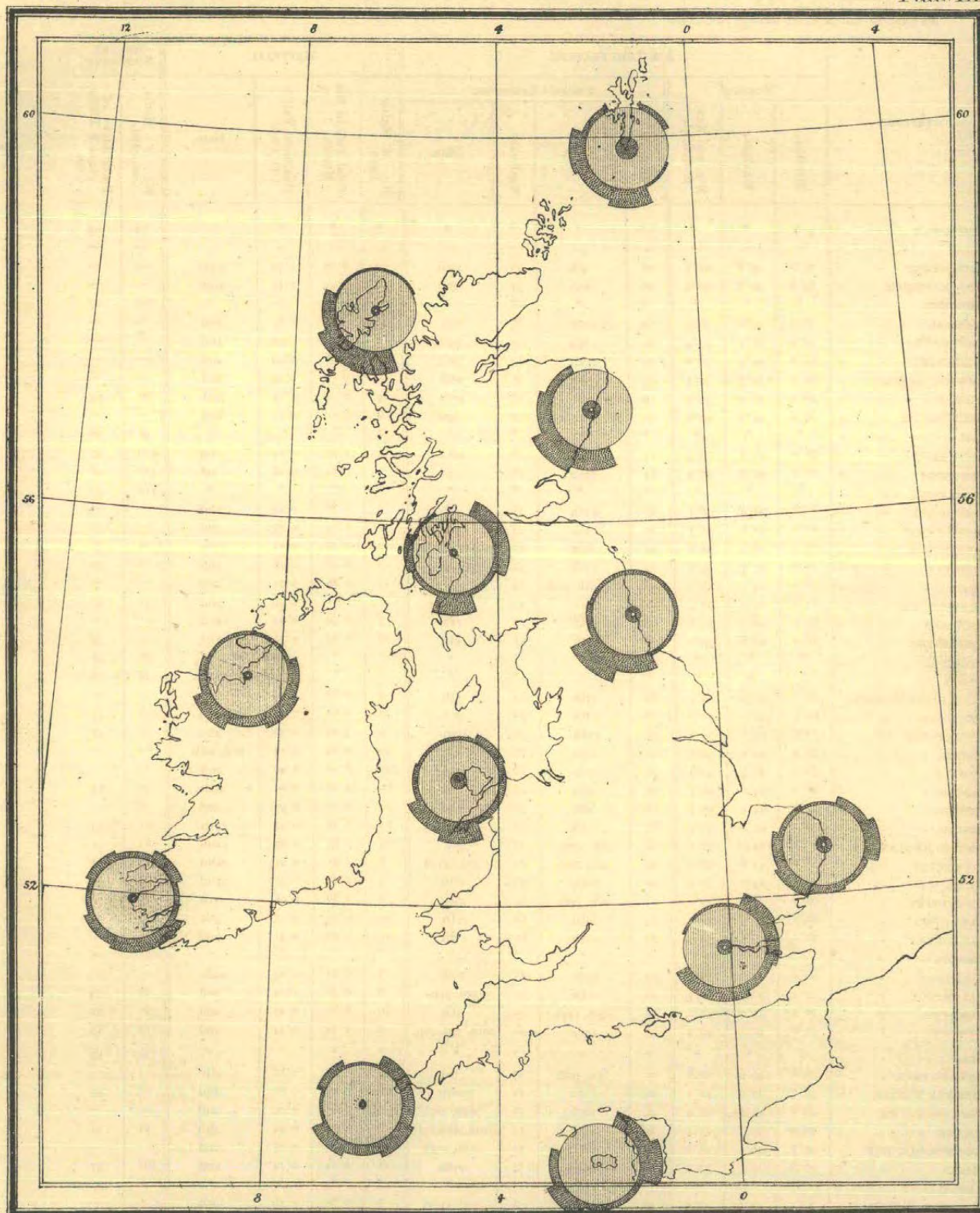
\* For information see Table III.

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



# MONTHLY WIND CHART FOR FEBRUARY, 1887.

Plate III.



To face p. 22.

DANGERFIELD, LITH. 22, BEDFORD ST COVENT GARDEN. 15624.



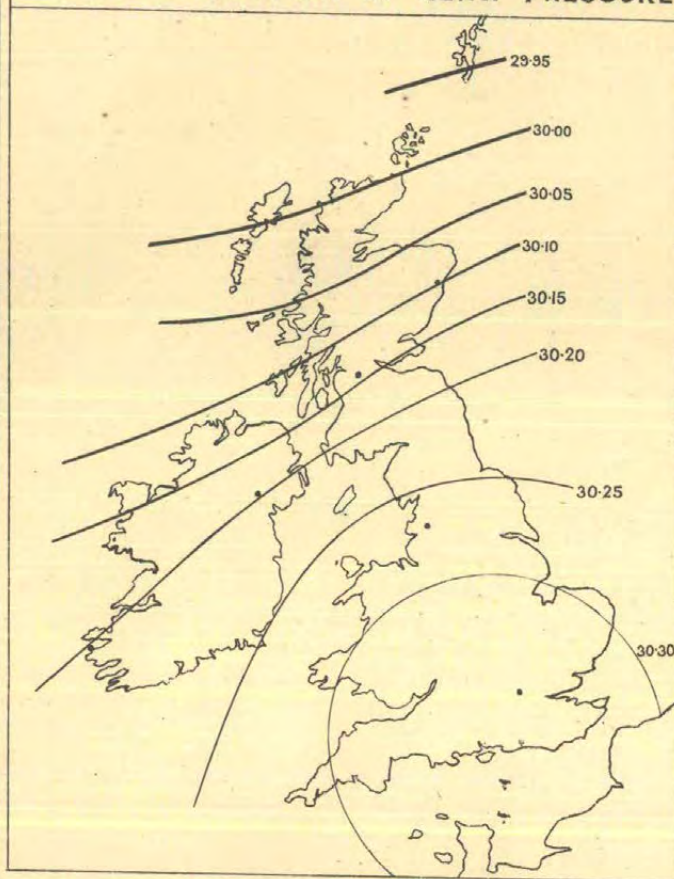




# MONTHLY WEATHER CHART, FEBRUARY, 1887.

Plate IV.

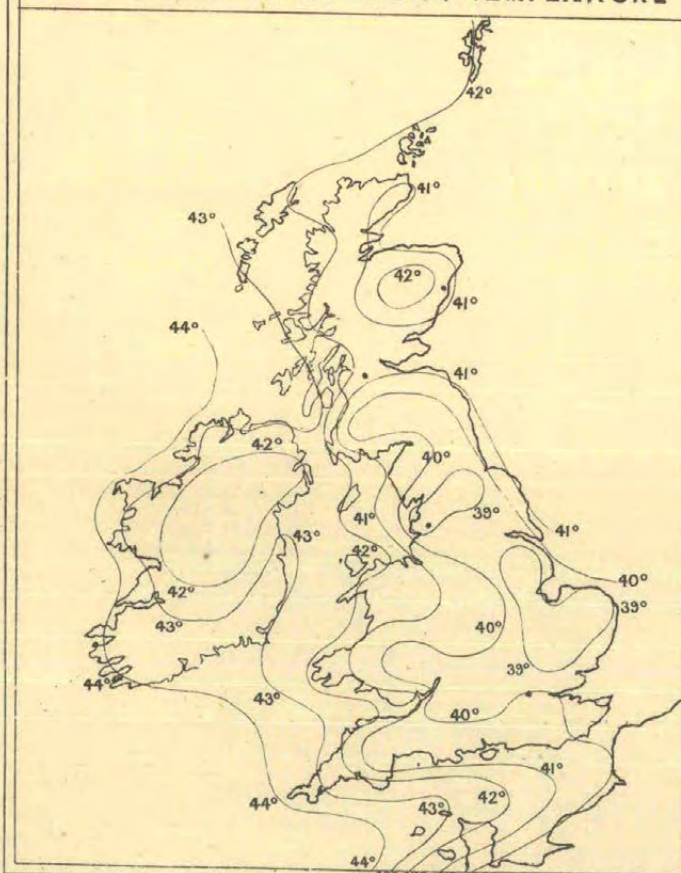
## 1. DISTRIBUTION OF MEAN PRESSURE



## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL



To follow Wind Chart for February.







# MONTHLY WEATHER REPORT.

MARCH 1887.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of March was of a changeable character, cyclonic and anticyclonic conditions alternating frequently, especially about the middle of the month, but neither of them were of great intensity. On the whole, however, the anticyclones were the more prevalent of the two. Pressure was high, and its range not large; temperature was rather below its average value, and its range considerable; the wind was variable in direction, and light to moderate in force; rainfall was rather below the mean for March, while the amount of bright sunshine large in the north and north-east, but only a little above the average in most other places. The month was free from extremes of any kind, so far as its meteorological condition was concerned.

March 1-8.—The dominant weather system over our area during this period was anticyclonic, being a continuation of the conditions which prevailed during the latter part of February. The central area of the anticyclone at first lay over France and the southern parts of the United Kingdom, but gradually moved north-westwards and northwards, until on the 7th it covered the more northern and eastern parts of the United Kingdom. Its winds were light and variable, its weather was dry, and, as a rule, bright, but local fogs of considerable density occurred from time to time, especially over the inland parts of England. Temperature was low generally; very low during the night time, but rose considerably in the day, especially over the north-eastern parts of Great Britain, where on one occasion maxima were recorded varying from  $57^{\circ}$  to  $61^{\circ}$ , while readings of 50 to 54 degrees were registered in England. The rainfall in our Islands was almost inappreciable, except in the north of Scotland, and even there it was slight; but in the north-west of Norway large quantities fell on two occasions, viz., between the mornings of February 28th and March 1st, and again between the mornings of March 3-4; these falls were occasioned by disturbances which travelled from the Atlantic across Lapland and the Arctic Sea, at too great a distance from the British Islands for their characteristics to be quoted in Section II.

The anticyclonic system was very large, covering the whole of Central Europe as well as our Islands and their neighbourhood; but over Russia the barometer was relatively low, gradients for North-westerly winds prevailed over eastern Europe, and frost was reported daily; in the British Isles and France frost occurred only at night-time.

March 9-11.—The anticyclonic system now broke up and the distribution of pressure over our Islands became irregular, though the gradients were not very steep. The wind became light and variable, snow, sleet, and rain showers were prevalent, and temperature changed irregularly. Some very small and shallow depressions began to pass over the British Isles and North Sea in a south-easterly direction, and, in their rear, the barometer rose fast, and North-



easterly to Northerly winds again spread temporarily over the country accompanied by cold squally weather, snow showers in the north and east, and rain in the west. The disturbances were, however, too small and shallow to be noticed in Section II.

March 12-13.—In this brief period there was a renewal of anticyclonic conditions over the British Islands with gradients favourable for Northerly (North-east to North-west) winds, which set in first at the north-western stations, as the depressions just mentioned passed away to the Continent. Temperature fell decidedly as the system spread over us, so that early on the 13th minimum readings were recorded in the shade as low as  $19^{\circ}$  at Parsonstown,  $21^{\circ}$  at Oxford and Cambridge, and  $22^{\circ}$  at Loughborough and Shields. The weather cleared up quickly, and the wind, after blowing freshly, lulled as it backed round to North and North-west and the barometer rose somewhat.

March 14-15.—Again the anticyclonic system gave way, and a fresh series of small shallow depressions appeared, and moved over our area in a more southerly direction than their predecessors. One was developed near the Mull of Cantyre early on the 14th, and, travelling southwards, reached the Bay of Biscay two days later, where it dispersed, after causing Northerly gales and snow at our western stations. Another appeared over the North Sea early on the 15th, and seems to have filled up during the following night without moving much. Temperature rose a little, showers of rain and wet snow fell in many places, and the wind, though chiefly Northerly, varied greatly in direction.

March 16-21.—High-pressure conditions now ensued, the system appearing at first in the form of a "col" which advanced over our area from the northward. At 8 a.m. on the 16th it lay from west-south-west to east-north-east across Scotland, apparently uniting a large anticyclonic system over the Baltic and Northern Europe with another such system lying over the Atlantic to the westward of Ireland. Westerly breezes were felt in the far north, North-easterly in the south, and variable airs within the col itself. The whole united system then moved slowly to the south-eastward, so that on the 18th and 19th the western anticyclone covered the whole of the United Kingdom and France; the weather consequently became cold again, but not so cold as in the earlier part of the month, calms and fogs were experienced, and the snow showers decreased. The anticyclone now moved eastward to the Baltic, Easterly winds of no great force set in over the kingdom and then gradually veered, until at 6 p.m. on the 21st Southerly and South-easterly breezes were prevalent all over the kingdom, while temperature was rising, and sleet and cold rain were spreading over us from the westward. (See maps in the Weekly Weather Report.)

March 22-25.—This was a period in which the dominant systems were cyclonic, the gradients variable, but never very steep; rainfall was above the average except over the north-eastern parts of Great Britain. The depressions which passed over us during this interval, though of moderate depth, were larger and deeper than any that had appeared for several weeks, and the wind, after being South-easterly for a short time, veered quickly to West and North-west, and blew strongly from the former point at several stations on the 23rd; a gale was felt from the latter along our western coast on the 25th. Temperature changed frequently and considerably, but was not high at any time. Much rain fell on the 22nd, and showers in most places subsequently. The first well-defined system observed was No. X.,\* which on reaching our north-western coast on the 22nd moved exceedingly slowly to the north-eastward and eastward while its "V"-shaped secondary passed quickly to the north-eastward and filled up. (See Daily and Weekly Reports.) Depression No. XI.\* then advanced, and it was this disturbance which brought the bulk of the rain to our coasts; on reaching the North Sea, however, it speedily filled up.

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



March 26-30.—The barometer now rose decidedly in the south-west, and while a new anticyclone appeared over Spain and the Bay of Biscay, a fresh depression (No. XII.\*) appeared off our northern coasts early on the 27th, accompanied by strong Westerly to North-westerly winds with renewed showers of rain and hail. As this depression passed off the anticyclone advanced north-eastwards, the North-westerly wind lulled, the weather dried up, and anticyclonic airs, with the warmest day temperatures of the month, were experienced on the 28th, 29th, and 30th. On the 31st, however, unsettled conditions again appeared—for an account of which see the Monthly Report for April.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS, MARCH 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. X. March 22-25.	No. XI. March 23.	No. XII. March 27.
Form - - - -	Uncertain; apparently nearly circular, with well-marked "V"-shaped secondary.	Somewhat oval; major axis lying north-north-west to south-south-east.	Uncertain; apparently circular.
Size - - - -	Apparently moderate - - -	Moderate - - - -	Apparently moderate.
Depth - - - -	Shallow - - - -	Moderate. Minimum readings were below 28.9 ins.	Moderate.
Where first Observed -	Off the west of Scotland - -	Off the west of Ireland - -	Off the north-west of Scotland.
Direction of Motion -	North-easterly and easterly - -	About east-north-easterly - -	Eastwards and north-eastwards
Rate of Motion - - -	Very slow; at times nil - - -	Rapid to moderate - - - -	Slow.
Regions passed over by Steepest Gradients.	West and north of British Isles -	The southern parts of our Islands and the Channel.	Scotland, and extreme northern parts of the North Sea.
Termination - - -	Filled up between the Shetlands and Skudesnaes.	Filled up over North Sea - - -	Filled up off the west of Norway.
Time under Observation -	Four days - - - -	About one day - - - -	About 36 hours.
Accompanying Winds -	South-easterly to North-westerly, strong at times.	Complete cyclonic circulation. The Southerly, Westerly, and North-westerly winds were strong to a gale in force; Easterly winds very light.	Westerly and North-westerly in our Islands; South-easterly in south-west of Norway; strong in the north and north-west only.
" Weather -	Showery; temperature changeable -	Very squally, rough, and wet, except in the north.	Showery, unsettled, and mild.
" Rainfall -	General, but not heavy - - -	General; heavy at the western stations; hail in places.	General; not heavy.
REMARKS - - -	<p>This system would not be worth recording in this section were it not (1) for the "V"-shaped secondary which accompanied it, and such sudden changes of strong wind from South-east to West and North-west, and (2) for its modifying influence on the force of the Easterly winds which were felt on the northern side of the system No. XI as it advanced over us on the 23rd.</p> <p>This system was very well marked, but filled up very suddenly on reaching the North Sea. At 8 a.m. on the 24th there was only a trace of it in the apex of an ill-formed "V" which lay near the Skager Rack.</p> <p>The system moved in the direction of its minor, not of its major axis.</p> <p>On reaching our northern coasts, this disturbance found its advance barred by a second high-pressure area over Scandinavia and northern Europe, and like its predecessor, filled up rapidly.</p>		



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—MARCH 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. VI. March 12-14.	No. VII. March 18-21.	No. VIII. March 28-31.
Form - - - - -	Uncertain; the portion seen was "ridge"-like.	Varying greatly - - - -	Irregular and varying.
Size - - - - -	Uncertain; apparently small - -	Small at first, then large - -	Small.
Height - - - - -	Unknown. Maximum reading recorded were 30'3 ins. and more, in west of Ireland on 15th.	Small to moderate. Maximum reading 30'2 ins., and more, on 18th, increasing to 30'4 ins. and more, on 21st.	Small; maximum readings 30'3 ins. and more.
Where first observed - -	Off our north-west coasts - -	Off our western coasts - - -	Over the Bay of Biscay.
Direction of Motion - -	Southerly - - - - -	Easterly - - - - -	North-easterly till 29th, then stationary, finally westerly.
Rate of Motion - - - -	Moderate - - - - -	Slow - - - - -	Very variable.
Regions passed over - -	Northern and western parts of our Island and Bay of Biscay.	British Islands - - - -	British Islands.
Termination - - - - -	Apparently dispersed - - - -	Passed eastwards out of our area, and became a large permanent system over Russia.	Passed westwards out to sea again. (See No. IX. in April Report.)
Accompanying Wind - -	North-easterly to North-westerly winds.	Very light and variable - - -	North-westerly at first, then light and variable.
„ Weather - - - - -	Fine in west; less settled elsewhere owing to local irregularities in pressure-distribution.	Fine, but very cold and foggy. Slight snow showers in several localities.	Fine and warm.
REMARKS	It was only the south-eastern and eastern parts of this system which lay over our Islands; and, as there were simultaneously shallow low-pressure areas over the North Sea and Scandinavia, the weather in the north and east was not fine.	This system appeared first at the western end of a col, which united it with a second high-pressure area over northern Europe. The latter gave way subsequently and the Atlantic system advanced eastwards as stated above.	This system seemed likely to last for some time, but on March 31st a new depression was developed off the west of Norway, and moving southwards, broke up the weather over our Islands, while the anticyclone receded in a westerly direction.



## SECTION III.

## REMARKS FOR MARCH 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from 30·12 inches at Valencia, and from a little above 30·10 inches over the south of Ireland generally, to about 30·05 inches on the east coast of England, 30·00 inches over central Scotland, and to 29·90 inches over the Shetland Islands. These values are less high than were those for February in all parts of the kingdom, the difference being greatest over the southern half of England, where it exceeded 0·25 in., and least at Sumburgh Head, where it amounted to only 0·04 in. When compared with the mean distribution of pressure in March for the 20 years 1861–80, it appears that the readings were this year in excess of the average at all stations, the amount of such excess varying from about 0·22 in. over the south of Ireland, and about 0·19 in. on the south coast of England and in the west of Scotland, to about 0·16 in. over the east of Scotland and the Shetland Islands. The highest individual readings exceeded 30·6 inches, and occurred in almost all places on the 29th or 30th, at which time the anticyclone No. V. lay over our area (see the February Report), but readings exceeding 30·3 inches were recorded on the 29th and 30th, when the system No. VIII. covered Ireland and England. The lowest readings were recorded very generally on, or within a few hours of, the 23rd, when we were under the influence of the two depressions Nos. X. and XI., and the mercury fell to below 28·9 inches over England. The range was therefore considerable, and was greater over Ireland and England than elsewhere.

*Movements of Depressions.*—The depressions of importance were few in number. The only three of which the details have been tabulated in Section II. moved in about a north-easterly direction, and all filled up soon after reaching the North Sea or the Norwegian coasts. Some other very small and shallow systems advanced over our area between the 9th and 11th, and again between the 14th and 16th; the former travelled in a south-easterly, and the latter in a southerly direction, but one filled up over the North Sea without showing any movement at all.

*Anticyclones.*—Four of these systems have been observed within our area during the month. The first (No. V.) has been already referred to in the Monthly Weather Report for February, and was a much more important system than the other three. One passed in a southerly direction over the Atlantic, off our extreme western coasts, another advanced directly over the United Kingdom from the westward, and grew very much after reaching Europe, while the last one came towards us from the south-westward, and, after remaining over the United Kingdom for about a day, moved westwards again and disappeared over the Atlantic.

*Winds.*—These were extremely variable in direction; in the south the dominant direction was North-easterly, but the percentage of Westerly wind was, nevertheless, large. In the north and north-east the Westerly current predominated, but Sumburgh Head experienced a great deal of wind from North, while Stornoway had most from South and South-west. At Mullaghmore winds from West, South, and East were very evenly represented, but there were none from North. In force the winds were, as a rule, light to moderate, and gales were few in number except in the west of Ireland and at Scilly.

*Temperature.*—The mean (sea level) temperature of the month varied from a little above 43° at Valencia and Scilly, from exactly 43° at Jersey, and from 42° on the north-west coast of Ireland to a little below 41° over central Ireland, a little below 39° over the central parts of Scotland and the north-west of England, and to rather below 38° over the eastern



counties of England. Its distribution was therefore of the winter type, but there was some tendency to change observable in many places—notably in the south and north-east of England. Compared with the values for February, those for the present month show a decrease amounting to nearly a degree in many places, which is unusual; when compared with the mean values for the 20 years 1861–80, they show that in almost all parts of the kingdom the month of March was, this year, colder than the average, by amounts varying from more than  $2^{\circ}$  on our extreme south-western coasts, and by  $3^{\circ}$  over our west Midland Counties, to only  $1^{\circ}$  in the south of Scotland, and still less over central Ireland and the north of Scotland. The lowest values were recorded at by far the majority of the stations early on the 13th, at which time hard frost prevailed, as the anticyclone No. VI. passed over the kingdom. Several of the north-eastern and some of the south-western stations, however, had their greatest cold between the 16th and 18th, under the influence of a col which joined an Atlantic anticyclone with another lying over Europe (see Section I.). The highest values were recorded in almost all places between the 28th and 30th during the anticyclonic North-westerly and Westerly winds which accompanied the system No. VIII., but in a few cases (notably in the extreme north and west of Scotland, and on the north-west coasts of England), the maxima occurred on the 3rd or 7th, while the Westerly winds of anticyclone No. V. were prevalent. The range during the month was considerable, amounting to  $48^{\circ}$  at Llandovery,  $45^{\circ}$  at Glenlee,  $44^{\circ}$  at Fort Augustus and Collumpton,  $43^{\circ}$  at Newton Reigny and Churchstoke,  $42^{\circ}$  at Aberdeen,  $41^{\circ}$  at Hereford and several Irish stations, and  $40^{\circ}$  at Cambridge; at Scilly it was only  $23^{\circ}$ , and at Stornoway and Sumburgh Head  $28^{\circ}$ .

*Tension of Vapour* varied from between 0·18 in. and 0·20 in. over the greater part of England, central Ireland, and the east of Scotland, to rather above 0·22 in. in the western parts of Scotland and Ireland, and to 0·24 in. over the Scilly Islands; while *Relative Humidity* ranged, at 8 a.m., from 85 to 90 per cent. at almost all stations, while it was as high as  $91^{\circ}$  at Hurst Castle,  $96^{\circ}$  at Stornoway and Dungeness, and  $97^{\circ}$  at Stonyhurst and Malin Head.

*Rainfall*.—The rainfall at our various stations varied from rather less than an inch at Prawle Point and Jersey, and from between 1·3 inches and 2·0 inches over all the eastern and midland parts of England and Ireland, and the central parts of Scotland, rather above 2 inches at several of our extreme south-western, western, and northern stations, to more than 2·5 inches at Llandovery and Stonyhurst, to all but 3 inches at Laudale, and to more than 3 inches at Hawes Junction and Glencarron. For the extreme northern, western, and south-western stations these values are decidedly below the average, but elsewhere the difference between the values and the normals is very slight and irregular.

*Bright Sunshine*.—The amount of bright sunshine recorded was large, for the time of year, in the north and north-east. Assuming the total possible duration for the month, at each station, to be represented by 100, then the values actually recorded would be indicated as follow: Plymouth, 50; Jersey, 48; Valencia, 46; Pembroke, 45; and Hastings and Aberdeen, 41. In London and at Leicester the values were as low as 20, and at Glasgow 21, but in nearly all other parts of the kingdom they ranged between 29 and 35.



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 33° 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°908	39°4	35°0	43°8	39°4	22	10th	50	29th
	Wick - - -	29°964	39°5	34°5	46°5	40°5	23	16th	55	3rd
	Stornoway - - -	29°983	39°0	34°5	45°1	39°8	25	12th, 13th, 16th.	53	7th
1. SCOTLAND, E.	Nairn - - -	29°994	37°8	32°4	46°9	39°7	23	13th	56	2nd, 3rd, 30th
	Aberdeen - - -	29°967	37°5	32°3	47°2	39°8	19	16th	61	3rd
	Leith - - -	30°031	38°2	33°8	46°8	40°3	24	13th	59	28th
2. ENGLAND, N.E.	Shields - - -	30°030	37°3	32°7	45°4	39°1	22	13th, 14th	55	28th
	York - - -	30°057	36°0	31°1	46°8	39°0	21	17th, 18th	60	29th
	Spurn Head - - -	30°035	38°1	34°2	43°5	38°9	27	13th, 14th	54	29th
3. ENGLAND, E.	Yarmouth - - -	30°050	36°7	32°2	42°5	37°4	23	14th, 15th	54	27th
	Cambridge - - -	30°071	35°9	29°0	47°6	38°3	18	19th	58	29th
4. MIDLAND COUNTIES	Loughborough - - -	30°067	35°1	31°1	46°5	38°8	22	13th, 17th, 21st, 22nd.	59	29th
	Oxford - - -	30°092	34°8	30°8	44°6	37°7	18	17th	56	29th
5. ENGLAND, S.	London - - -	30°072	36°5	32°2	45°6	38°9	23	14th, 19th	58	27th
	Dungeness - - -	30°048	37°0	32°3	44°8	38°6	23	2nd, 14th, 19th.	56	27th
	Hurst Castle - - -	30°098	37°2	32°4	45°6	39°0	21	14th	55	27th, 28th
6. SCOTLAND, W.	Ardrossan - - -	30°040	38°6	34°9	44°8	39°9	22	13th	50	4th, 25th, 28th.
7. ENGLAND, N.W.	Hawes Junction* - - -	28°776	32°6	28°9	40°7	34°8	16	13th	53	4th, 5th
	Barrow-in-Furness - - -	30°059	37°5	34°9	44°2	39°6	25	13th	53	30th
	Liverpool - - -	30°071	37°1	34°0	43°6	38°8	27	17th, 20th	50	29th
	Holyhead - - -	30°075	40°0	37°2	45°6	41°4	31	21st	53	5th
8. ENGLAND, S.W.	Pembroke - - -	30°094	39°4	36°8	44°8	40°8	29	13th	53	29th
	Prawle Point - - -	30°099	39°4	34°2	46°1	40°2	24	17th	61	28th
9. IRELAND, N.	Malin Head - - -	30°028	40°4	37°5	45°2	41°4	29	21st	55	30th
	Donaghadee - - -	30°065	40°3	37°2	46°4	41°8	31	12th	55	28th, 30th
	Mullaghmore - - -	30°068	40°7	36°5	47°9	42°2	27	17th	58	29th
	Belmullet - - -	30°078	41°5	37°7	47°7	44°7	29	13th	55	29th, 30th
10. IRELAND, S.	Parsonstown - - -	30°111	36°9	31°2	48°0	39°6	19	13th	60	29th
	Valencia - - -	30°118	42°4	37°1	49°7	43°4	29	14th, 17th, 20th.	59	30th
	Roche's Point - - -	30°106	41°0	37°6	47°0	42°3	29	13th, 16th	54	28th
CHANNEL ISLANDS	Scilly (St. Mary's) - - -	30°091	43°5	39°3	47°6	43°5	32	15th, 20th, 21st.	54	11th
	Jersey (Noirmont) - - -	30°087	39°7	36°6	45°5	41°1	28	20th	54	30th

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



- - - - - TABLE V.

REPORTING STATIONS in the BRITISH ISLANDS, during the Month of March 1887.

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.																	
0.210	87	6.7	1.42	0.30	31st	21	3	1	0	6	13	0	8	2	0	3	2	5	8	0	3
.210	87	5.5	0.83	0.14	12th	14	5	0	0	9	8	2	6	0	1	0	4	3	9	8	0
.228	96	7.5	2.85	0.67	26th	19	7	2	0	2	14	8	5	1	1	1	7	8	6	2	0
.194	86	5.4	0.79	0.28	10th	9	4	0	0	6	4	1	2	0	2	0	0	9	6	2	10
.182	81	5.5	2.11	0.42	10th	16	10	1	0	10	11	2	4	0	0	0	3	8	9	6	1
.202	88	6.7	1.39	0.45	10th	14	5	1	0	9	17	0	1	1	2	2	1	0	18	5	1
.197	89	7.6	1.39	0.22	11th	12	10	1	0	3	16	0	1	1	3	0	3	6	10	1	6
.188	88	5.9	1.50	0.54	22nd	12	4	0	0	10	14	0	6	2	3	2	3	0	9	5	1
.207	90	4.9	1.49	0.34	21st	14	7	0	1	8	7	3	5	2	3	4	3	1	7	6	0
.195	90	5.5	1.76	0.29	30th	14	7	1	0	6	8	4	1	6	4	1	3	3	7	4	2
.189	89	5.7	1.34	0.33	31st	10	5	0	0	12	14	1	7	3	4	1	4	2	2	4	4
.183	89	8.3	1.30	0.33	11th	15	7	0	0	2	22	3	2	6	2	3	1	2	9	4	2
.178	88	6.7	1.95	0.37	15th	13	10	2	0	9	16	1	4	9	2	1	0	6	5	1	3
.185	86	7.5	1.40	0.40	15th	12	7	1	0	6	20	2	0	8	4	1	1	5	5	3	4
.210	96	7.1	1.26	0.27	12th	11	4	0	0	4	14	2	6	7	6	1	0	2	4	3	2
.202	91	6.1	1.24	0.33	22nd	13	4	1	0	7	7	2	6	10	6	0	1	1	5	2	0
.211	90	6.7	1.40	0.49	10th	9	6	0	0	10	19	4	3	9	3	1	2	3	4	3	3
.180	97	8.1	3.34	0.88	22nd	16	9	4	0	5	23	0	5	4	5	2	1	6	3	1	4
.199	89	6.6	1.98	0.94	22nd	14	2	0	0	4	13	0	6	12	2	1	2	4	2	2	0
.190	86	7.2	1.35	0.39	11th	10	4	0	0	7	19	4	1	3	4	4	2	4	7	4	2
.218	89	6.1	2.28	0.77	22nd	13	3	1	0	5	4	1	1	6	5	1	2	3	6	3	4
.201	83	5.8	1.67	0.55	22nd	9	1	1	0	5	6	3	3	6	9	2	0	1	6	4	0
.208	87	5.7	0.98	0.23	15th	12	3	0	0	8	11	4	9	7	5	0	0	2	5	3	0
.242	97	8.1	2.37	0.51	10th	18	1	2	0	2	20	0	3	4	2	3	4	7	4	4	0
.229	92	6.3	1.27	0.43	22nd	11	3	0	0	5	8	3	2	3	5	1	3	3	12	2	0
.214	85	5.5	1.72	0.38	26th	18	3	5	0	10	6	8	0	2	5	4	5	4	6	4	1
.226	87	4.4	1.91	0.32	24th	17	3	1	0	14	7	6	3	1	6	7	3	3	3	5	0
.194	89	5.7	1.30	0.29	11th	12	1	0	0	10	14	0	1	1	0	2	2	5	4	0	16
.227	84	5.0	2.18	0.51	11th	11	1	3	0	9	9	2	3	7	4	3	2	1	3	5	3
.217	85	5.3	1.97	0.75	22nd	9	0	0	0	13	9	3	6	3	5	3	1	3	7	3	0
.248	87	7.0	1.19	0.50	22nd	12	4	1	0	3	10	6	2	4	11	4	1	0	4	4	1
.214	88	5.8	0.87	0.26	21st	14	5	1	0	9	12	2	1	12	4	2	1	3	4	3	1

barometrical observations 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 1887.

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 -	*	*	*	0	*	0	*	*	*	*	*	104	29
LAIRG -	—	—	—	—	—	—	—	—	—	—	—	—	—
GLENCARRON -	32'2	43'9	38'1	18	12th	56	7th	20	3'42	0'71	23rd	—	—
PORT AUGUSTUS -	31'4	45'6	38'5	12	12th	56	7th	15	1'76	0'66	22nd	—	—
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	150	41
BRAEMAR -	27'6	43'5	35'6	16	16th, 17th	54	30th	15	1'32	0'63	10th	—	—
OCHTERTYRE -	31'3	48'1	39'7	23	12th	60	28th, 30th	12	1'69	0'59	10th	—	—
MARCHMONT -	31'3	44'0	37'7	20	13th	55	28th	16	2'41	0'48	11th	—	—
ALNWICK CASTLE -	33'2	43'2	38'2	19	16th	52	2nd, 28th, 29th	16	1'96	0'43	11th	—	—
DURHAM -	31'1	45'9	39'5	18	17th	57	2nd, 29th	17	2'08	0'85	11th	138	38
SCARBOROUGH -	33'1	44'2	38'7	23	17th	54	2nd, 27th	18	1'96	0'35	18th	—	—
YORK -	*	*	*	*	*	*	*	*	*	*	*	110	30
HILLINGTON -	29'1	46'1	37'6	20	13th, 16th	58	29th	10	1'68	0'30	31st	129	35
GELDESTON -	30'4	45'0	37'7	19	19th	56	27th, 29th	12	1'60	0'30	31st	135	37
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	140	38
ROTHAMSTED -	30'6	44'8	37'7	20	14th, 19th	58	27th	11	1'64	0'45	22nd	—	—
INGATESTONE -	31'0	45'2	38'1	20	14th	55	27th, 28th	14	1'46	0'26	22nd	—	—
BAWTRY -	31'6	45'8	38'7	19	18th	59	29th	13	1'38	0'39	11th	†105	29
LEICESTER -	31'9	45'9	38'9	21	13th	59	29th	12	1'78	0'45	22nd	72	20
CHEADLE -	31'0	43'3	37'2	19	13th	57	29th	14	1'78	0'50	22nd	—	—
CHURCHSTOKE -	28'7	43'9	36'3	14	13th	57	29th	11	1'59	0'53	22nd	99	27
HEREFORD -	31'9	46'3	39'1	21	14th	62	29th	10	1'14	0'26	14th	—	—
CIRENCESTER -	29'7	43'6	36'7	15	14th	54	27th, 28th, 29th	12	1'50	0'41	15th	100	27
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	96	26
LONDON -	*	*	*	*	*	*	*	*	*	*	*	71	20
STRATHFIELD TURGIS -	29'9	46'5	38'2	15	19th	57	27th, 29th	11	1'70	0'45	15th	—	—
HASTINGS -	33'5	44'8	39'2	25	14th	56	27th	14	1'26	0'29	11th	151	41
SOUTHAMPTON -	32'5	47'6	40'1	23	14th, 17th	58	29th	10	1'74	0'41	22nd	131	36
STOWELL -	30'1	44'0	37'1	17	19th	55	29th	10	2'32	0'93	14th	—	—
LAUDALE -	33'9	45'8	39'9	17	12th	55	7th, 28th	20	2'94	0'87	26th	—	—
GLASGOW -	34'2	43'8	39'0	20	13th	54	30th	11	2'03	0'66	10th	78	21
GLENLEE -	30'9	45'7	38'3	14	13th	59	30th	12	1'71	0'39	22nd	—	—
DOUGLAS -	34'6	45'1	39'9	25	13th	53	30th	13	1'74	0'42	26th	129	35
NEWTON REIGNY -	30'1	44'9	37'5	11	13th	54	5th, 30th	13	1'53	0'49	11th	118	33
STONYHURST -	31'4	43'4	37'4	17	13th	53	30th	10	2'93	0'90	26th	123	34
BLACKPOOL -	32'0	43'7	37'9	20	13th	51	30th	9	2'07	0'85	22nd	110	30
MANCHESTER -	32'0	43'3	37'7	22	13th	54	29th	10	1'93	0'76	22nd	—	—
LLANDUDNO -	34'6	44'6	39'6	26	17th	51	5th, 28th, 30th	8	1'83	0'39	14th	104	29
LLANDOVERY -	29'7	48'1	38'9	14	13th	62	30th	11	2'69	0'60	22nd	—	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	*	164	45
ARLINGTON -	30'8	45'7	38'3	20	17th	59	5th	10	2'20	0'49	22nd	—	—
CULLOMPTON -	30'6	46'5	38'6	14	17th	58	30th	10	1'55	0'50	22nd	143	39
FALMOUTH -	36'3	45'9	41'1	26	14th	55	30th	10	1'75	0'53	21st	152	42
PLYMOUTH -	34'1	47'8	41'0	26	14th	57	29th	10	1'53	0'50	21st	183	50
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	173	48
LONDONERRY -	34'8	51'3	43'1	26	13th	64	30th	18	1'78	0'51	24th	—	—
MARKREE CASTLE -	32'5	47'9	40'2	18	13th	59	30th	20	1'79	0'52	24th	120	33
BROOKEBOROUGH -	32'3	47'0	39'7	19	13th	59	30th	8	1'17	0'42	24th	—	—
ARMAGH -	33'2	46'6	39'9	23	16th	60	30th	13	1'01	0'23	24th	106	29
EDGEWORTHSTOWN -	32'9	47'0	40'0	21	13th	59	30th	9	1'16	0'34	11th	—	—
DUBLIN -	35'7	46'8	41'3	26	13th	56	28th	15	1'49	0'59	11th	126	35
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	128	35
KILKENNY CASTLE -	32'0	49'5	40'8	23	17th	62	30th	10	1'33	0'49	22nd	—	—
WATERFORD -	34'2	47'9	41'1	24	17th	57	28th, 30th	12	1'82	0'80	22nd	—	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	166	46
KILLARNEY -	33'7	48'5	41'1	19	16th	60	29th	10	1'75	0'39	21st	—	—
FOYNES -	34'2	48'0	41'1	25	12th, 16th	60	29th	12	1'56	0'27	23rd	—	—

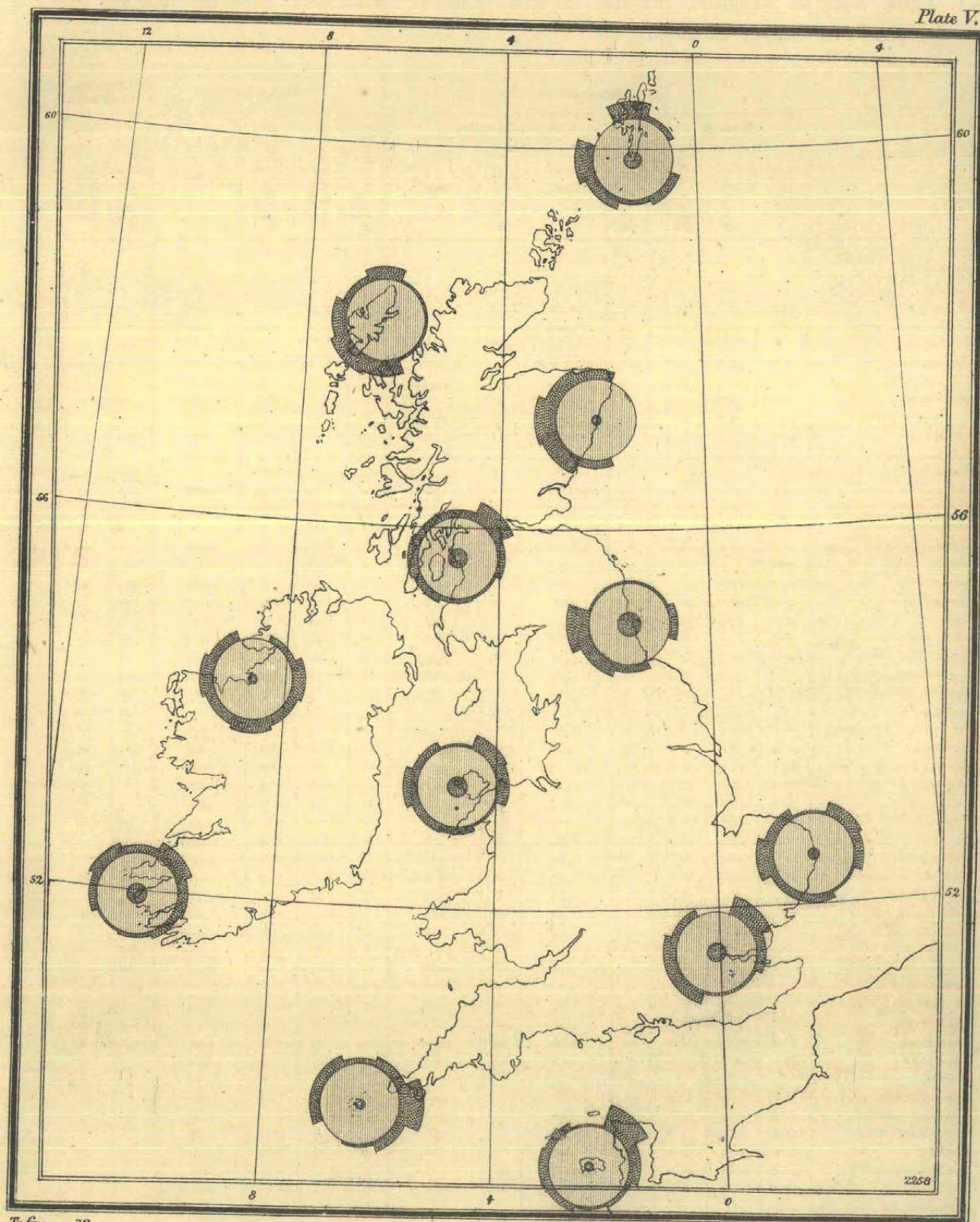
\* For information see Table V.

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



# MONTHLY WIND CHART FOR MARCH, 1887.

Plate V.



To face p. 32.

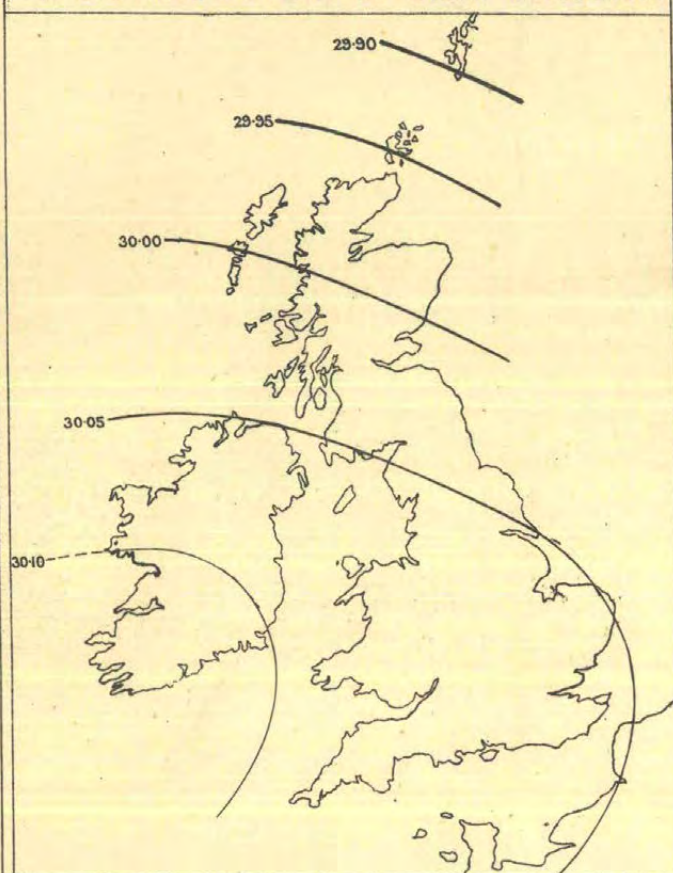
DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 3.88.15995.



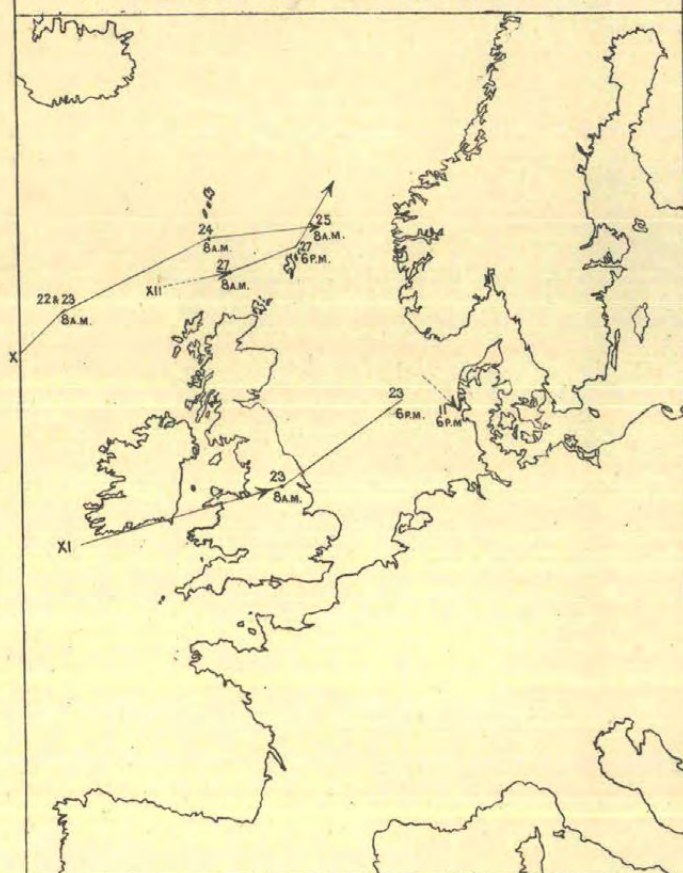




## 1. DISTRIBUTION OF MEAN PRESSURE



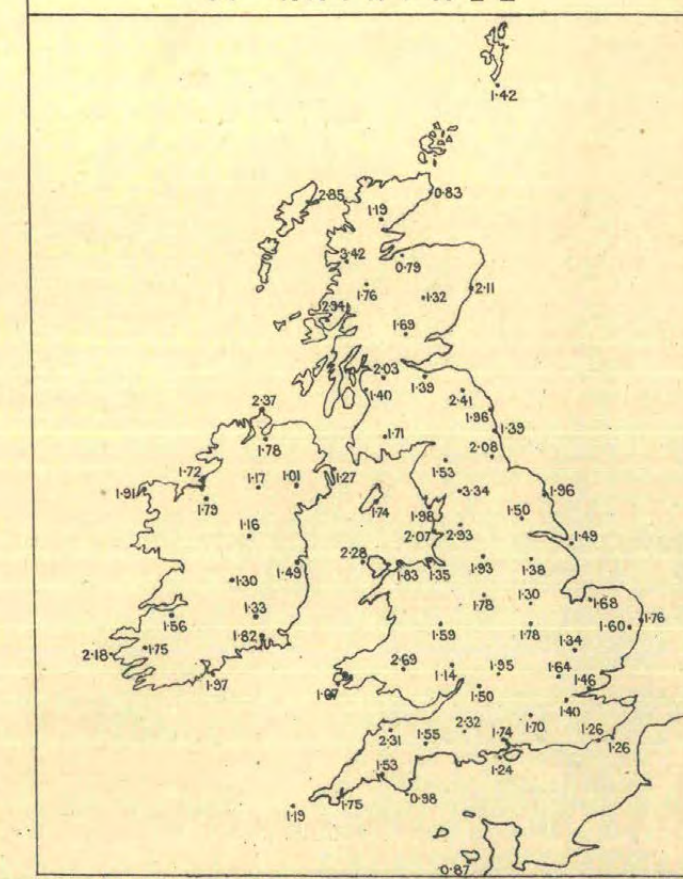
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL









# MONTHLY WEATHER REPORT.

APRIL 1887.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of April may be considered under several well-defined periods, in some of which the conditions were quiet, cold, and dry, while in the others they were unsettled and showery. At no time however, were they very severe. Pressure was in excess of the average for April, and on one occasion was very high over England; temperature was low—sometimes very low, and over the southern half of England its range was large; the wind was variable—usually light to moderate in force, the gales were few in number and of little strength; the air was dry; rainfall was short of the average except on the north-western coasts; and the amount of bright sunshine was large.

March 31–April 1.—During this brief interval the weather over the United Kingdom was rough, cold, and squally, with gradients favourable for Northerly winds, which blew with considerable strength during nearly the whole day. Over England and France the wind attained the force of a fresh gale, but in Ireland it was less strong. These conditions were brought about by a well-marked depression (No. XIII.\*), which showed itself between the Shetland Islands and the west of Norway at 6 p.m. on March 31st, and, travelling steadily to the southward, reached Holland by the following morning; it finally filled up over the east of France and south-west of Germany on the evening of the same day. For a time the anticyclone (No. VIII.) previously lying over England moved westward to the Atlantic, and cold showers fell in all parts of the country, but as the cyclonic system filled up, the anticyclone again spread eastward, the wind subsided, the weather improved, and temperature fell fast.

April 2–5.—During this period the distribution of pressure over our Islands and their neighbourhood was partly cyclonic and partly anticyclonic; the gradients were favourable for North-westerly to Westerly winds, but were slight, and while some well-formed disturbances moved eastwards from the Atlantic to northern Europe, some very shallow secondary systems passed south-eastwards over the North Sea. Very little rain fell over the British Islands till early on the 4th, when a shallow depression, secondary to a larger depression in the far north, began to be developed near the mouth of the Moray Firth, and, passing southwards, again drew the wind into North on our coasts and caused cold showers in all districts (see Charts in the Daily and Weekly Weather Reports for time referred to). The system was, however, of too slight intensity to be included in the Table of Cyclonic Systems given in Section II. or for the track to be drawn on Map 2, Plate VIII.

April 6–11.—The distribution of pressure now became anticyclonic, the gradients being favourable for North-easterly winds at first, but gradually giving way to those for North-westerly and Westerly winds, as the system (No. IX.) passed over us. The North-easterly winds in front of the anticyclone were strong to a gale in force, on account of the simultaneous development of some small depressions over central and southern Europe, but the weather was dry, fair, and very cold for the time of year over the United Kingdom, while it was unsettled and showery

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



on the Continent; heavy rains fell in the south of France and subsequently in many parts of Italy. As these disturbances moved south-eastwards the gradients in our Islands became slighter, and the wind lulled, but it was not until 8 a.m. on the 9th that the central part of the anticyclone began really to advance over us from the north-westward. At this hour the centre still lay off the west of Scotland, after which the anticyclone became less regular in form and moved south-eastwards to Germany, whence a ridge extended north-westwards across the North Sea and the northern parts of Great Britain.

April 12-20.—This period also was mainly anticyclonic, the new system (No. X.) appearing first off our north-western coasts early on the 12th and advancing very slowly in a south-easterly direction, until, on the 16th, it covered nearly the whole of the British Islands and their neighbourhood. The system then moved very slowly to the southward, and decreased in intensity; on the 9th it had moved westwards to our south-western coasts, and finally passed away over Spain on the 22nd, at which time the highest readings recorded had decreased to 29·8 inches. The weather over our Islands was fine and dry within the limits of the system, but in its neighbourhood showery unsettled conditions prevailed at times, owing to low-pressure systems which appeared over the Continent. This was especially so over France on the 13th and 14th, over Scotland and the North Sea on the 14th, and over Germany on the 15th. On the 19th pressure began to give way over northern Europe, and showery weather again began in Scotland, and spread to all parts of the kingdom as the anticyclone dispersed.

April 21-28.—The distribution of pressure over the British Isles and north-western Europe now became cyclonic, and the gradients favourable for Southerly to Westerly winds, which accordingly became general, and at times blew strongly, with squally showery weather. Three distinct, but not deep, depressions (Nos. XIV. to XVI.)\* advanced to our north-western and northern coasts during the interval, causing changeable, unsettled, showery weather, and at times strong South-westerly winds, while other shallow subordinate systems were developed further to the southward on the 26th and 27th, too insignificant to be included in Section II. or Map 2, Plate VIII. Temperature, however, was a little below the average, especially when in the rear of the depression Nos. XV. and XVI.; the wind veered to the North-westward for a time. The interval was consequently a very unsettled one, and terminated on the advance of a new anticyclonic area which advanced from the north-westward on the 30th. See the Report for May.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—MARCH-APRIL 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XIII. March 31-April 1.	No. XIV. April 21-22.	No. XV. April 22-24.	No. XVI. April 25.
Form - - - -	Irregular, but somewhat oval	Uncertain; probably somewhat oval near its centre.	Varying; somewhat circular, but irregular.	Apparently circular.
Size - - - -	Small to moderate - - -	Small - - - -	Large - - - -	Small.
Depth - - - -	Shallow; lowest readings 29.4 ins. and less; gradients moderate to slight.	Shallow - - - -	Moderate - - - -	Moderate.
Where first Observed -	Between the Shetland Isles and the coast of Norway.	Off the north-west coast of Ireland.	Off the north-west coast of Ireland.	To the northward of Stornoway.
Direction of Motion -	South-south-easterly and southerly.	North-easterly - - -	North-westerly and northerly	North-easterly and northerly.
Rate of Motion - -	Moderate - - - -	Moderate - - - -	Slow - - - -	Rapid.
Regions passed over by Steepest Gradients.	Great Britain and north of France.	The north of Ireland and west of Scotland.	British Islands. Gradients never steep.	Our most northern and north-western districts.
Termination - -	Filled up over the east of France.	Travelled away to the northward.	Travelled away to the northward.	Travelled quickly away to the northward.
Time under Observation	About 36 hours - - -	Two days - - - -	Nearly two days - - -	A few hours only.
Accompanying Winds -	Northerly gales and strong winds over the British Isles; Southerly breezes over the eastern shores of the North Sea.	South-easterly to South-westerly; strong.	Southerly to Westerly; fresh to strong.	Southerly to Westerly.
„ Weather -	Squally and showery; sleet, hail, and rain; very unsettled.	Squally and showery - -	Squally and showery - -	Squally and showery.
„ Rainfall -	General; fall largest in north-east and east, but not heavy anywhere.	Fell mainly over the British Isles, and at the mouth of the Channel. Very slight over the south-eastern and south Midland counties.	General over the British Isles, North Sea, and north of France.	Confined to our extreme northern coasts.
REMARKS - - -	As this depression advanced the anticyclonic system No. VIII. receded westwards to the Atlantic, but advanced again in its rear and covered the greater part of our Islands.	This disturbance was probably secondary to a larger system lying over the Atlantic, but of which we have no record at present. It was too indefinite for a track to be drawn on the Map.	This disturbance followed very closely on No. XIV., and was accompanied by a "V"-shaped secondary, which spread southward over the United Kingdom on the 24th.	This disturbance followed so very closely in the rear of No. XV. that it might easily be mistaken for a modification of the same system were it not for the peculiar irregularity of movement which such a theory would involve, and the evidence to the contrary furnished by the curve of the self-recording aneroid at Stornoway. In its rear other shallow local disturbances were developed over the United Kingdom, too shallow to be tabulated in this section. See Daily and Weekly Reports.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—APRIL 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. IX. April 6-11.	No. X. April 12-22.
Form - - - - -	Elongated; somewhat oval at first. Major axis lying from west-north-west to east-south-east.	Somewhat circular, but irregular and varying.
Size - - - - -	Large - - - - -	Large.
Height - - - - -	Small. Maximum readings 30·3 inches and upwards.	Moderate. Maximum readings 30·7 inches and more on 17th.
Where first Observed - - - - -	Off our extreme north-western coasts - - -	Off our extreme north-western coasts.
Direction of Motion - - - - -	Nil at first, then south-easterly - - -	South-easterly, southerly, westerly, and then southerly again.
Rate of Motion - - - - -	Very slow, to moderate - - -	Very slow.
Regions passed over - - - - -	The British Isles and North Sea - - -	British Isles, North Sea, and Bay of Biscay.
Termination - - - - -	Travelled away to south-eastern Europe - - -	Travelled towards Spain and dispersed.
Accompanying Wind - - - - -	North-easterly at first, then Easterly and South-easterly.	Northerly and Easterly at first, then North-westerly to Westerly and South-westerly.
,, Weather - - - - -	Fine, dry, and cold. Slight showers in the north-east with the Easterly winds.	Fine and dry; much sunshine.
REMARKS - - - - -	On reaching Germany the system became less regular in form than it had previously been, and a long ridge extended from it in a north-westerly direction to England and Scotland.	This system appeared first at the north-western end of the ridge, which on the 11th extended over the north from the anticyclone previously observed. As the centre moved south-eastward depressions began to move north-eastwards towards northern Europe, far away to the northward of our Islands (see chart of the 17th in Daily and Weekly Reports). These encroached gradually, and on the 22nd (when the anticyclone lay over the Bay of Biscay) had become the dominant system over our Islands.



## SECTION III.

## REMARKS FOR APRIL 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from a little above 30·05 inches over the extreme south-west of Ireland, and from 30·00 inches to 30·05 inches over nearly the whole of Ireland and England, to about 29·95 inches in the north of Scotland, and to 29·90 inches about the centre of the Shetland Islands. In a southerly direction also pressure decreased slightly over the Continent. These values are below those of March, except in the Shetland Islands, where the pressure in March was lower by a few thousandths of an inch than that for April. The relative distribution in the two months was, however, of the same general type, but the gradients were slighter in April than they were in March. When compared with the mean values for the corresponding month in the 20 years 1861–80 it appears that in April pressure was still in excess of the average, especially over the south-western and southern parts of the kingdom, and that the gradients were favourable for winds from a more westerly quarter than usual. The highest readings occurred very generally between the 14th and the 17th, at which time the anticyclone No. X. lay over the United Kingdom, and the barometer rose to 30·7 inches and more over the south-eastern and home counties. The lowest readings occurred on very various dates; in some places the lowest values were recorded on the 1st, as the depression No. XIII. passed southwards over the North Sea; in most regions, however, the minima were registered on the 23rd or 24th as the depression No. XV. and its subsidiary “hollow” passed over us. The range was not large, as, notwithstanding the considerable height of the barometer on 17th, the minima recorded were not at all extreme.

*Movements of Depressions.*—The principal depressions observed (none of them were deep) moved—one in a southerly direction, over the North Sea at the beginning of the month, while the other three travelled north-eastwards over, or near to, Scotland between the 23rd and 26th. In addition to these there were several other minor systems, some of which passed south-eastwards over Scandinavia at about the middle of the month, some moved north-eastwards over the northern parts of our Islands, while others, the movements of which are uncertain, appeared over the Bay of Biscay between the 9th and 12th. On the 15th a somewhat deep system was formed over the Gulf of Genoa, and caused a strong *Mistral* over the south of France, but this soon filled up, without any material change in its position.

*Anticyclones.*—Two of these systems advanced over our area during the month, travelling towards us from the north-westward. In one of them the barometer rose to 30·7 inches, and more, over the south-eastern parts of England (see Section II.), but the other was of much less intensity. A third system was advancing from the same direction at the close of the month, but its details will be found in the Report for May.

*Winds.*—These were very variable in direction. In the extreme north the Northerly and Westerly winds preponderated; in the north-east and north-west there was a large percentage of wind from the South-westward, while at the more southern stations the percentage of wind from North-east was very large; but a most striking feature in the “wind roses” given in Plate VII. is the absence of wind from a South-easterly quarter except at the Irish stations and Sumburgh Head. The dominant winds were just what might have been anticipated from the distribution of pressure shown on Map 1, Plate VIII., and the details as to the changes observed from time to time as given in Section I. The large percentage of wind from the North-eastward shown at Ardrossan and Barrow in Furness, and of Easterly winds at Mullaghmore, are local phenomena, which cannot be discussed here.



*Temperature.*—The mean (sea-level) temperature of the month varied from a little above  $46^{\circ}$  at Valencia and Scilly, and from between  $45^{\circ}$  and  $46^{\circ}$  over the extreme south-western counties of Ireland and England generally, to between  $43^{\circ}$  and  $44^{\circ}$  along our east coast,  $42^{\circ}$  in the north of Scotland, and about  $41^{\circ}$  at Stornoway and Sumburgh Head. Its distribution was very complex; in Ireland the winter type was still dominant—the inland stations being considerably colder than those on the coast, but over Great Britain the order was reversed, the inland stations being the warmer, though the differences were slight. The values for the month show an increase on those for March, amounting to between  $5^{\circ}$  and  $7^{\circ}$  over Great Britain, but to only  $2^{\circ}$  or  $3^{\circ}$  in Ireland; and when compared with the means for April in the 20 years 1861–80 they show a deficit of  $5^{\circ}$  or  $6^{\circ}$  in central Ireland,  $3^{\circ}$  to  $5^{\circ}$  over England, and  $1^{\circ}$  to  $2^{\circ}$  in Scotland. Along our south-western and southern coasts the deficit was about  $4^{\circ}$ . The lowest readings occurred over the greater part of the kingdom between the 15th and 17th, at which time the anticyclone No. X. lay completely over the British Islands, and was at its period of greatest intensity. In a few places, however, (principally in Ireland and Scotland) the cold was sharpest between the 5th and 11th when the anticyclone No. IX. was in force. The highest values were recorded very generally either between the 17th and 19th, or else on the 11th or 12th, *i.e.*, in the daytime, during the prevalence of the same anticyclonic system which gave the lowest minima at night. In nearly all parts of the country, therefore, the maximum and minimum readings occurred within a few days of one another. The range was very large over some of the inland parts of our southern counties—amounting to  $48^{\circ}$  at Strathfield Turgiss,  $45^{\circ}$  at Cirencester, and  $42^{\circ}$  at Southampton. At Jersey it was only  $27^{\circ}$ , at Sumburgh Head  $24^{\circ}$ , and at Scilly  $18^{\circ}$ .

*Vapour Tension* varied from 0.26 in. at Scilly and from 0.24 in. and more on our extreme western and southern coasts generally, to rather less than 0.22 in. over the central parts of England and Scotland, and to slightly above the same value over central Ireland. *Relative Humidity* (at 8 a.m.) was as high as 94 per cent. at Stornoway and 89 at Malin Head and Hurst Castle, but was less than 80 in the east of Scotland, the north-west of England, and the south of Ireland.

*Rainfall* varied from less than an inch at several of the English stations, and from only 0.55 in. at York and 0.59 in. at Hereford, to rather more than 2 inches at Markree Castle and Mullaghmore, to 3.5 inches at Glenlee and Belmullet, and to more than 4 inches at Glen Carron, and to more than 4.5 inches at Laudale and Stornoway. In the west of Scotland, therefore, and in the County Sligo, the fall was greater than the average for April in the 20 years 1866–85, but in other parts of the kingdom it was very deficient. At York the total fall was less than one third, and at Hereford just one third of the average. The number of rainy days was small generally,—varying from 18 at Sumburgh Head, Wick, and Malin Head, to only 8 at Prawle Point, Falmouth, and Hereford, and to 6 at Cullompton. Over the Midlands there were about 10 rainy days, and in London 11.

*Bright Sunshine.*—The amount of bright sunshine was again very large, except over our North Midland Counties. Assuming the total possible duration for the month at each station to be represented by 100, then the values actually recorded would be as follow: at Valencia 63, Pembroke 60, Isle of Man 58, Jersey and Plymouth 56, Falmouth 55, Dublin 54, Edgeworthstown 53, Hastings 52, and Cullompton 51. At the greater number of the English and Irish stations the percentage exceeded 40, but in London it was only 35, and at Leicester 29. At many of the Scotch stations the value was below 30, and at Braemar it was 22.



## SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS,

DURING THE MONTH OF APRIL 1887.



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 33° 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°906	40°4	34°7	45°8	40°3	28	14th	52	17th
	Wick - - -	29°943	42°6	35°2	48°9	42°1	27	10th	58	17th
	Stornoway - - -	29°961	41°2	35°1	47°2	41°2	29	7th	52	18th, 22nd
1. SCOTLAND, E.	Nairn - - -	29°962	41°5	35°0	49°7	42°4	28	26th	60	17th
	Aberdeen - - -	29°961	42°7	35°9	49°7	42°8	29	8th, 15th, 16th	67	17th
	Leith - - -	29°989	43°2	36°3	50°7	43°5	27	10th	61	2nd, 17th
2. ENGLAND, N.E.	Shields - - -	29°978	42°6	36°2	49°5	42°9	29	12th	59	18th
	York - - -	30°004	42°6	34°7	53°0	43°9	27	12th	64	19th
	Spurn Head - - -	29°985	42°9	37°4	48°5	43°0	32	14th	58	22nd, 23rd
3. ENGLAND, E.	Yarmouth - - -	29°981	43°3	37°6	48°0	42°8	31	17th	61	20th
	Cambridge - - -	30°012	43°2	34°0	54°4	44°2	23	17th	67	19th
4. MIDLAND COUNTIES	Loughborough - - -	30°015	41°8	35°4	53°7	44°6	28	17th, 30th	64	12th
	Oxford - - -	30°022	41°1	35°4	52°5	44°0	27	17th	66	19th
5. ENGLAND, S.	London - - -	30°005	42°4	36°3	53°9	45°1	27	17th	66	19th
	Dungeness - - -	29°966	43°1	37°6	49°1	43°4	28	15th	61	19th
	Hurst Castle - - -	30°013	42°6	36°1	51°6	43°9	26	15th	61	20th
6. SCOTLAND, W.	Ardrossan - - -	29°989	43°7	37°7	50°1	43°9	30	14th	57	12th
7. ENGLAND, N.W.	Hawes Junction* - - -	28°737	37°4	31°9	45°4	38°7	25	15th	54	11th, 12th
	Barrow-in-Furness - - -	30°000	41°9	38°1	49°9	44°0	33	8th, 9th, 10th, 14th	60	12th
	Liverpool (Bidston) - - -	30°018	42°8	37°9	50°2	44°1	32	8th, 14th	58	21st
	Holyhead - - -	30°023	44°2	39°5	49°1	44°3	35	15th	57	11th
8. ENGLAND, S.W.	Pembroke - - -	30°026	43°0	39°4	48°2	43°8	34	7th, 8th, 14th	53	11th, 12th
	Prawle Point - - -	30°021	44°7	37°3	51°7	44°5	30	15th	61	19th
9. IRELAND, N.	Malin Head - - -	29°993	43°1	39°4	47°5	43°5	33	6th, 26th, 27th	56	17th
	Donaghadee - - -	30°016	43°6	38°5	50°0	44°3	31	27th	61	18th
	Mullaghmore - - -	30°021	43°6	38°7	50°2	44°5	32	11th	59	17th
	Belmullet - - -	30°044	44°1	40°0	49°1	44°6	32	26th	56	13th
10. IRELAND, S.	Parsonstown - - -	30°045	42°8	33°8	52°3	43°1	27	8th, 14th	62	18th
	Valencia - - -	30°059	46°4	39°8	52°6	46°2	32	15th	60	12th, 13th
	Roche's Point - - -	30°039	44°4	38°1	50°6	44°4	32	15th	56	12th
CHANNEL ISLANDS	Scilly (St. Mary's) - - -	30°013	46°6	42°2	50°2	46°2	37	6th, 24th	55	22nd
	Jersey (Noirmont) - - -	29°992	46°0	41°3	51°8	46°6	34	17th	61	12th

\* 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 1887.

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. 0.203	81	7.5	ins. 1.72	ins. 0.54	22nd	18	2	0	0	3	13	0	6	3	1	4	2	2	4	4	4
229	84	6.4	1.63	0.27	21st	18	4	0	0	8	14	2	7	1	0	1	7	0	2	10	2
242	94	7.0	4.64	0.97	23rd	16	6	3	0	5	13	5	8	3	1	0	2	5	5	2	4
213	82	6.5	1.59	0.36	26th	13	3	4	0	4	8	0	5	3	0	1	0	5	6	1	9
214	79	6.2	1.82	0.52	21st	16	3	5	0	7	12	1	8	3	0	0	5	5	1	7	1
223	80	6.2	0.97	0.44	20th	9	1	1	0	4	5	0	3	3	2	5	0	3	9	5	0
223	82	6.5	0.64	0.25	21st	9	0	1	0	7	11	2	4	6	3	1	3	5	6	1	1
221	82	5.6	0.55	0.13	26th	13	1	0	0	9	9	0	8	2	3	0	6	2	8	1	0
233	84	4.4	1.05	0.28	23rd	16	2	0	1	11	4	2	4	7	2	1	3	4	6	3	0
229	81	5.2	1.04	0.34	28th	13	2	2	0	8	5	2	3	8	3	0	0	6	5	5	0
224	81	7.0	1.07	0.28	24th	13	3	1	0	7	17	0	9	3	2	1	4	4	2	4	1
213	80	6.7	1.15	0.75	26th	9	2	4	1	3	12	3	3	8	1	0	2	4	8	3	1
214	83	5.5	1.13	0.42	26th	9	2	2	1	13	12	3	4	8	1	1	1	7	3	4	1
210	78	6.1	1.52	0.25	24th	11	2	1	0	7	11	3	4	6	4	0	2	5	6	3	0
246	88	5.5	1.86	0.52	6th	16	4	0	0	8	8	1	6	7	4	1	0	3	7	2	0
242	89	5.1	0.96	0.29	28th	11	0	0	0	8	4	5	5	9	3	0	0	2	6	3	2
237	83	5.6	2.26	0.51	21st	13	1	1	2	11	12	0	2	10	3	1	0	4	4	4	2
206	92	7.2	2.95	0.54	4th	15	7	5	1	6	17	0	5	5	2	6	6	3	0	3	0
219	83	5.1	1.68	0.28	27th	11	0	0	0	9	7	3	5	9	1	1	3	5	1	5	0
208	76	6.6	0.93	0.23	26th	10	0	2	1	8	14	0	2	6	3	4	2	5	6	2	0
242	83	4.7	1.16	0.25	4th, 24th	10	1	3	0	7	1	1	4	5	4	0	1	6	5	3	2
228	82	4.3	0.62	0.22	25th	9	0	0	0	10	4	2	3	6	5	2	1	2	5	4	2
236	80	4.5	1.05	0.49	23rd	8	0	1	0	12	7	3	5	7	6	1	0	4	2	3	2
250	89	9.3	1.46	0.31	20th	18	1	4	1	1	26	0	4	3	1	4	4	3	6	5	0
238	83	5.6	2.04	0.47	23rd	11	2	1	0	6	8	2	2	4	8	0	2	4	8	2	0
228	80	5.7	2.44	0.47	25th	14	4	8	1	9	6	5	4	1	10	2	1	6	4	2	0
241	82	5.7	3.47	0.83	25th	14	1	0	0	9	9	1	5	5	5	1	2	4	3	5	0
226	83	4.6	1.82	0.57	21st	12	1	0	0	13	9	0	2	3	0	2	1	5	2	3	12
246	79	4.8	1.92	0.38	24th	11	2	1	1	7	4	0	5	6	3	3	0	3	3	3	4
230	79	3.9	0.96	0.18	21st, 24th	12	0	1	2	16	4	2	8	3	4	1	2	3	3	6	0
264	84	6.9	0.87	0.26	26th	10	0	3	0	5	11	3	3	6	9	1	1	3	4	3	0
248	80	4.8	2.34	0.82	22nd	13	0	0	1	10	8	6	3	12	4	1	0	4	2	3	1

barometer at this Station is 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 1887.

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	*	*	*	*	*	*	*	*	*	*	107	25
LAIRG	—	—	—	—	—	—	—	—	—	—	—	—
GLENCARRON	33°7	47°2	40°5	27	6th, 8th, 26th	63	17	4°19	0°82	3rd	104	24
FORT AUGUSTUS	33°7	49°4	42°6	23	8th	60	15	1°54	0°48	20th	—	—
ABERDEEN	*	*	*	*	*	*	*	*	*	*	147	35
BRAEMAR	32°3	47°9	40°1	23	8th	61	14	1°61	0°35	20th	92	22
OGHTERTYRE	33°9	54°0	44°0	26	7th, 26th	65	11	2°19	0°63	20th	—	—
MARCHMONT	34°1	49°4	41°8	28	5th	59	15	1°18	0°25	20th	136	32
ALNWICK CASTLE	35°0	47°6	41°8	29	14th	58	11	0°92	0°23	20th	—	—
DURHAM	33°7	50°7	42°2	27	12th, 15th	62	16	0°77	0°12	5th, 26th	145	35
SCARBOROUGH	36°8	50°1	43°5	31	15th	63	17	1°01	0°28	26th	—	—
YORK	*	*	*	*	*	*	*	*	*	*	182	44
HILLINGTON	35°0	52°0	43°5	24	17th	65	15	1°15	0°26	24th	182	44
GELDESTON	36°3	51°3	43°8	24	17th	66	11	1°00	0°35	28th	193	47
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	165	40
ROTHAMSTED	34°1	52°2	43°2	23	17th	63	14	1°10	0°26	23rd	—	—
INGATESTONE	35°1	52°4	43°8	26	17th	64	10	1°42	0°32	28th	—	—
BAWTRY	34°5	53°8	44°2	28	8th, 16th, 17th, 30th.	64	10	0°89	0°30	28th	†153	37
LEICESTER	35°4	53°2	44°3	29	17th, 30th	64	10	1°00	0°61	26th	119	29
CHEADLE	33°9	50°4	42°2	28	15th	59	10	0°85	0°20	23rd	—	—
CHURCHSTOKE	32°5	51°2	41°9	23	15th	63	10	1°44	0°36	26th	200	48
HEREFORD	34°2	54°5	44°4	24	15th	67	8	0°59	0°18	26th	—	—
CIRENCESTER	32°3	52°0	42°2	20	17th	65	11	1°27	0°68	26th	182	44
OXFORD	*	*	*	*	*	*	*	*	*	*	166	40
LONDON	*	*	*	*	*	*	*	*	*	*	142	35
STRATHFIELD TURGISS	34°2	54°9	44°6	22	17th	70	9	1°17	0°43	23rd	—	—
HASTINGS	37°9	50°3	44°1	31	15th	65	14	1°55	0°23	6th	214	52
SOUTHAMPTON	36°0	55°1	45°6	27	15th	69	10	1°32	0°30	25th	201	49
STOWELL	34°4	51°4	42°9	25	15th	61	10	1°21	0°34	23rd	—	—
LAUDALE	36°8	49°4	43°1	29	5th, 7th, 14th	58	17	4°54	0°80	20th	—	—
GLASGOW	36°3	50°7	43°5	31	14th	59	12	2°23	0°59	23rd	140	33
GLENLEE	32°6	50°6	41°6	24	8th, 17th, 27th	62	14	3°51	0°67	25th	—	—
DOUGLAS	36°2	49°4	42°8	29	5th	58	12	1°66	0°40	21st	243	58
NEWTON REIGNY	32°3	49°9	41°1	26	15th	62	11	1°75	0°29	20th	181	43
STONYHURST	34°9	49°0	42°0	27	15th	59	12	1°77	0°35	4th	180	43
BLACKPOOL	36°1	49°6	42°9	27	9th	61	10	1°05	0°18	4th	196	47
MANCHESTER	35°5	50°1	42°8	28	15th	59	13	1°03	0°24	21st	—	—
LLANDUDNO	38°3	49°0	43°7	31	15th	56	10	1°02	0°33	4th	167	40
LLANDOVERY	31°5	53°8	42°7	21	14th	65	12	2°53	0°45	21st	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	246	60
ARLINGTON	34°0	50°3	42°2	27	15th	60	9	1°74	0°56	26th	—	—
CULLOMPTON	33°6	53°5	43°6	23	15th	65	6	1°37	0°76	26th	208	51
FALMOUTH	38°7	50°0	44°4	32	15th	54	8	0°77	0°26	26th	225	55
PLYMOUTH	38°4	54°2	46°3	32	15th, 18th	63	9	1°16	0°30	26th	229	56
JERSEY	*	*	*	*	*	*	*	*	*	*	228	56
LONDONDERRY	36°8	56°6	46°7	31	8th	64	12	1°89	0°51	25th	—	—
MARKEE CASTLE	33°2	51°3	42°3	26	9th, 11th	61	14	2°08	0°33	4th	172	41
BROOKEBOROUGH	32°5	51°1	41°8	25	8th	61	9	1°81	0°53	21st	—	—
ARMAGH	34°1	51°4	42°8	26	8th	61	13	1°46	0°27	23rd	166	40
EDGEWORTHSTOWN	33°3	51°9	42°6	27	7th	61	12	1°55	0°31	23rd	—	—
DUBLIN	38°5	51°6	45°1	32	15th	62	10	1°77	0°44	29th	221	53
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	224	54
KILKENNY CASTLE	35°0	54°3	44°7	23	15th	64	10	1°40	0°31	24th	—	—
WATERFORD	35°4	52°2	43°8	24	15th	60	12	1°07	0°26	21st	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	258	63
KILLARNEY	34°2	52°2	43°2	24	8th	60	12	2°09	0°38	24th	—	—
FOYNES	35°9	51°4	43°7	28	14th	59	13	2°28	0°55	21st	—	—

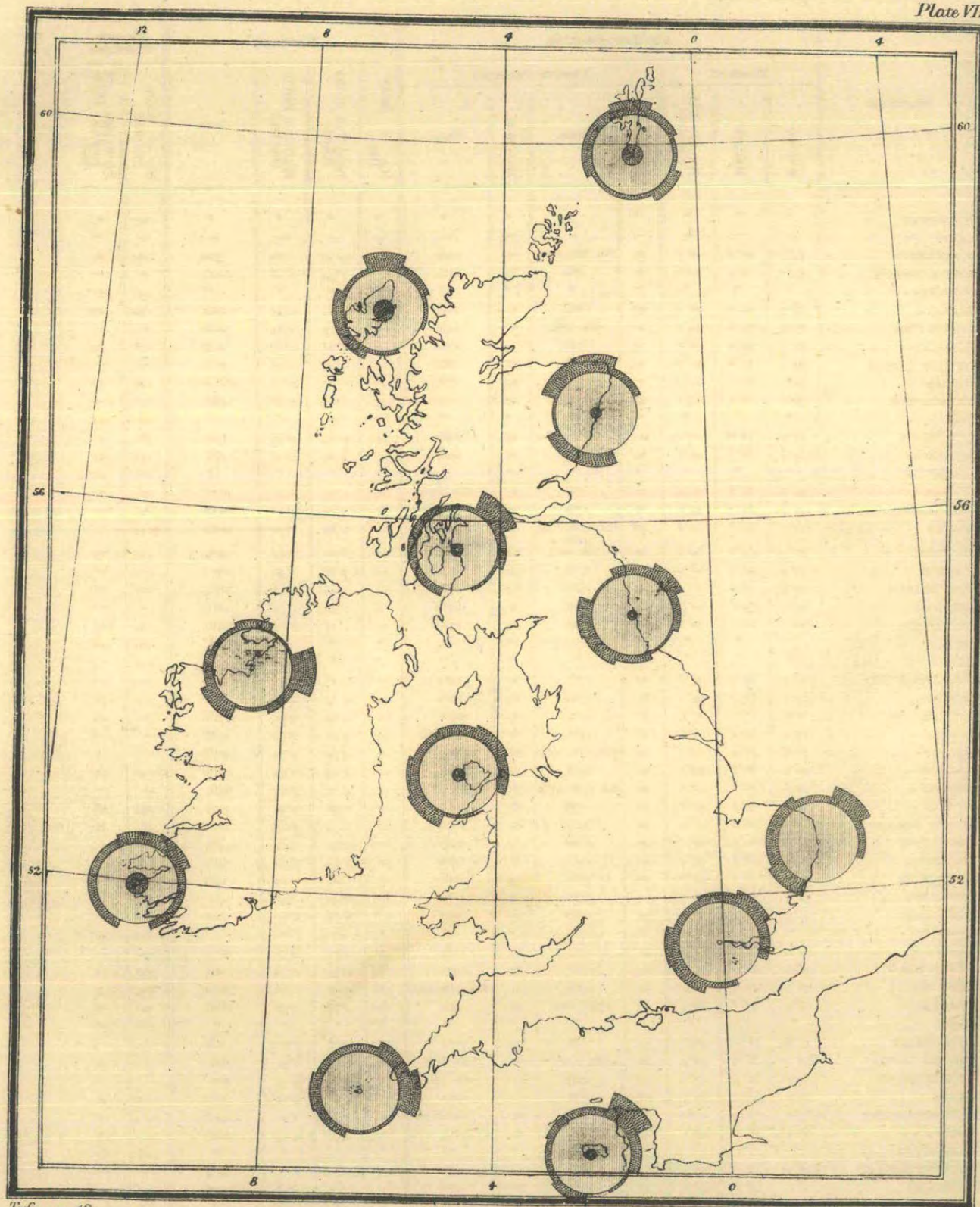
\* For information see Table VII.

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



# MONTHLY WIND CHART FOR APRIL, 1887.

Plate VII.



To face p. 42.

DANGERFIELD, LITH. 22, BEDFORD ST COVENT GARDEN. S. 88. 76/23.







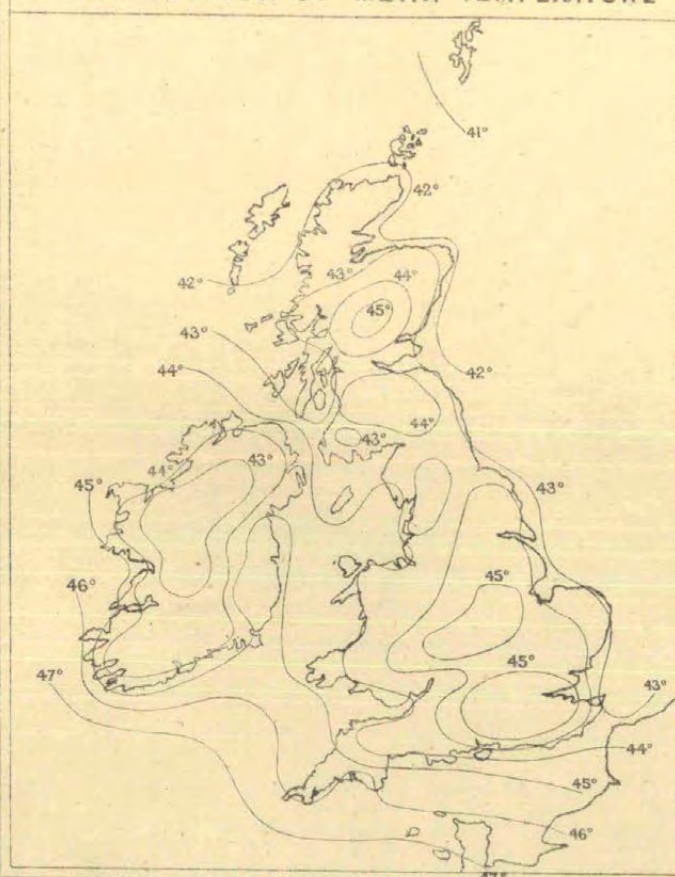
## 1. DISTRIBUTION OF MEAN PRESSURE



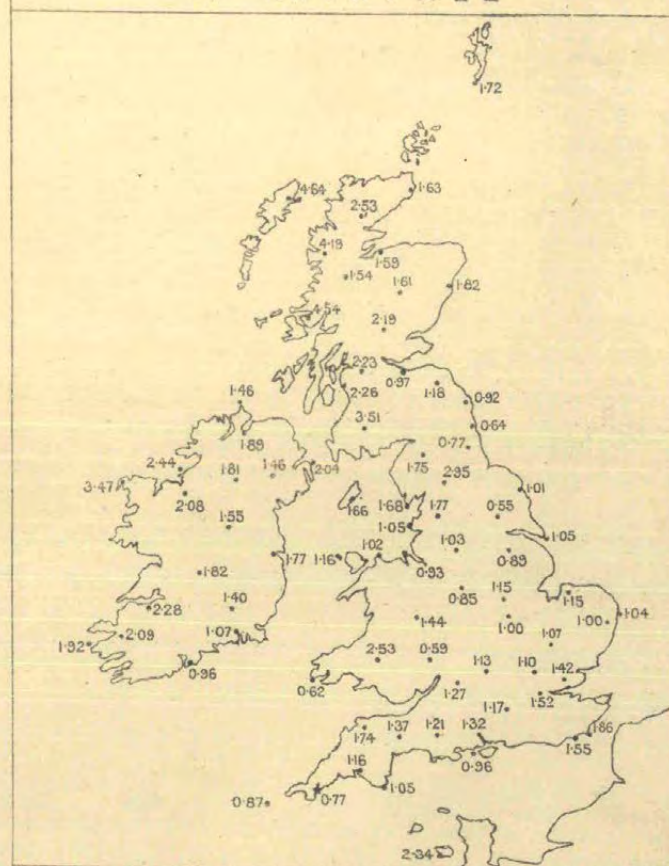
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL









OFFICIAL COPY.

MONTHLY WEATHER REPORT.

MAY 1887.

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SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of May was generally cold, changeable, and unsettled over England, but somewhat finer and drier in Ireland and Scotland. Pressure was in excess of the average in all but the south-eastern parts of the kingdom; temperature was below the normal over Ireland and England, but above it in Scotland, the excess being greatest over the central districts; the wind was chiefly light or moderate from the Northward, but on the 20th blew a strong gale from the Westward on our western and southern coasts; rainfall was in most cases less than the average; the amount of bright sunshine was small in the eastern and southern parts of the kingdom, but larger in the west. Thunderstorms occurred in many places, but were neither frequent nor severe.

April 30—May 1.—At the close of April an anticyclone of very little intensity spread over our Islands from the westward, and on the morning of the 1st of May the central portion of the system lay directly over Ireland, England, and the Netherlands. Light or moderate breezes from the South-westward and Westward prevailed in the north, but North-easterly or Easterly winds in the south. The weather, although fair generally, was decidedly cool for the time of year, the daily maxima on the 1st being very little above  $50^{\circ}$  in any districts excepting central England and the south-east of Scotland, where the thermometer slightly exceeded  $55^{\circ}$ . During the evening and night of the 1st the anticyclone quickly disappeared, the change being produced mainly by the advance of a depression from the southward.

May 2-6.—The distribution of pressure now became of a complex cyclonic type. Shallow disturbances advanced towards our Islands from the southward and south-westward. The first (No. XVII.\*) appeared over the north of Spain on the evening of the 1st, and subsequently travelled northwards to central England, where it apparently dispersed on the 3rd. During its progress thundery weather was experienced in many parts of England and France, and cold North-easterly winds blew in all our more southern districts, the daily maxima on the 2nd being below  $50^{\circ}$  in the south and east of England. The second depression also appeared over the north of Spain on the morning of the 5th, and afterwards travelled north-eastwards across the Bay of Biscay, France, and Belgium, to North Germany, where it broke up on the 7th. Owing to the presence of another low-pressure system to the westward of our Islands the North-easterly winds in the south were less decided than in the case of the former disturbance, but the weather again became dull, cold, and rainy. At Yarmouth 1.1 inches of rain fell on the 6th.

May 7-8.—In the rear of the last-mentioned depression the barometer rose briskly, and an anticyclone extended from Spain and France over the southern parts of the United Kingdom. Light Westerly winds consequently set in over the British Isles generally, with fair weather and a decided rise of temperature; on the 8th the thermometer in many parts of England rose above  $70^{\circ}$ .

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



May 9-16.—Between these dates the distribution of pressure was mainly anticyclonic. The central portion of the system was at first situated to the south-westward of our Islands, and the prevailing winds were therefore North-westerly or Westerly. After the 11th, however, the highest pressure moved slightly to the northward, and the winds on our southern coasts veered to the Eastward or North-eastward. The weather was generally fair, excepting on the 11th and 12th, when the anticyclonic conditions were temporarily interrupted by some exceedingly small and shallow depressions which travelled southwards down our east coasts and occasioned showers in several parts of Great Britain. Owing, however, to the prevalence of winds from a polar quarter temperature was decidedly below the average.

May 17-20.—On the 16th and 17th the anticyclone to the westward of us became gradually reduced in intensity and moved southwards. Depressions now began to approach our Islands from the Atlantic, while on the 18th and 19th a somewhat shallow but well-marked system (No. XVIII.\*) travelled in an unusual course from Germany to the south of Norway and away to the northward of our Islands. The most important disturbance of all, however, was that of the 19th to 21st (No. XIX.\*), the centre of which passed across the northern parts of Ireland and England on the night of the 19th, subsequently travelling first in a northerly direction over the North Sea, and afterwards in a north-westerly direction to the northward of the Shetlands. During its progress heavy rain fell in many parts of the United Kingdom, followed in some cases by showers of sleet or hail and local thunderstorms. The wind rose to a gale on nearly all coasts, the Westerly to North-westerly gale which prevailed over the Irish Sea on the 20th being of exceptional severity for so late a period in the season.

May 21-23.—The type of pressure distribution was at this time north-westerly. Between the 22nd and 24th a shallow depression moved southwards from the south of Sweden to western Germany, and although the main system had little effect upon the weather of our Islands, the secondary disturbances by which it was attended occasioned showers and local thunderstorms in some parts of Great Britain.

May 24-31.—An anticyclone which had previously existed to the south-westward of the British Islands, now extended north-eastwards across our northern districts to Scandinavia. North-easterly winds therefore became general, with fair weather in the north and north-west, but with cloudy weather and occasional showers in the more southern parts of the kingdom. Thunder was heard over central England on the 26th. The temperature of the period was slightly above the average in Ireland and Scotland, but below the normal over England, where the daily maxima seldom reached 65°. At the close of the month the anticyclone in the north was beginning to disperse and the general conditions were again becoming unsettled.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS, MAY 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XVII. May 1-3.	No. XVIII. May 18-19.	No. XIX. May 19-21.
Form - - - -	Elliptical - - - -	Nearly circular - - - -	Nearly circular.
Size - - - -	Moderate - - - -	Large - - - -	Very large.
Depth - - - -	Shallow - - - -	Shallow - - - -	Deep.
Where first Observed - -	Over Spain - - - -	Over north Germany; centre near Stralsund.	Off the west of Ireland.
Direction of motion - -	North-easterly - - - -	North-westerly - - - -	At first easterly, then northerly, and finally north-westerly.
Rate of Motion - - - -	Slow - - - -	Slow - - - -	Moderate.
Regions passed over by Steepest Gradients.	The Channel and south of England -	Denmark, the south of Norway, the Baltic, and the eastern parts of the North Sea.	Ireland, England, the Netherlands, and the north of France.
Termination - - - -	Apparently dispersed over England -	Passed away to the northward of our Islands.	Travelled away to the northward of Scotland, where it apparently filled up.
Time under Observation -	About 38 hours - - - -	24 hours - - - -	36 hours.
Accompanying Winds - -	Fresh from the North-eastward in the south and east of England.	Strong from the Westward in the rear of the depression.	Westerly to North-westerly gales in all parts of our Islands and their immediate neighbourhood. Over the Irish Sea there was a whole gale from the North-westward.
„ Weather - - - -	Dull and rainy. Thunderstorms in France and central England.	Rainy at first; showery afterwards -	Squally and rainy.
„ Rainfall - - - -	General over England and France, but not heavy.	General. Very heavy at some of the German stations.	General over western Europe, and heavy in the west of our Islands. Hail and sleet experienced in many parts of the United Kingdom on the 20th
REMARKS - - - -	The depression on reaching England split into two portions, one of which dispersed, while the other <i>apparently</i> travelled north-eastward to Denmark. The latter movement was, however, very doubtful.	This system appears to have been formed over eastern Germany on the evening of the 17th. Its development was accompanied by heavy rainfall, the largest amounts in 24 hours being 2.7 inches at Munich and 1.9 inches at Berlin.	The gradients to the westward and southward of this depression were unusually steep for the time of year.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS, MAY 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XI. April 30—May 1.	No. XII. May 7-10.	No. XIII. May 13-16.	No. XIV. May 24-26.
Form - - -	Irregular and varying -	Nearly circular - -	Uncertain, but most probably elliptical.	Varying greatly.
Size - - -	Small - - -	Small - - -	Large - - -	Large.
Height - - -	Very small - - -	Small - - -	Doubtful; central portion situated to the westward of our area.	Small.
Where first Observed -	To the north-westward of our Islands.	Over Spain - - -	To the westward of our Islands.	To the south-westward of our Islands.
Direction of Motion -	South-easterly - - -	At first northerly, then westerly.	Easterly - - -	Northerly and north-easterly.
Rate of Motion - -	Slow - - -	Slow - - -	Very slow - - -	Slow.
Regions passed over -	The British Islands and the Netherlands.	The Bay of Biscay, France, England, and Ireland.	The British Islands and the greater part of the North Sea.	The British Islands, the northern parts of the North Sea, and the west of Norway.
Termination - -	Dispersed over England and the Netherlands.	Travelled away to the Atlantic	Gradually dispersed on 16th -	Appears to have gradually dispersed in the north.
Accompanying Wind -	Light from South-west and West on our northern coasts; fresh from East-north-east in the Channel.	At first Westerly, then North-westerly.	Chiefly Northerly and North-westerly in the north, but North-easterly in the south.	North-westerly, veering to Northerly and North-easterly.
Weather	Fine, dry, cool - -	Fair, with local fogs on our southern and south-western coasts.	Fair at first, dull afterwards. Cool for time of year.	Cloudy and hazy, with slight rain in many parts of Great Britain.
REMARKS -	This system quickly gave way under the combined influence of depressions which advanced both to our extreme northern and our southern coasts.	During the prevalence of this system a series of depressions travelled north-eastward past our north-western and northern coasts.	This system appears to have given way spontaneously.	The slight rain which occurred over Great Britain appears to have been due to some trifling irregularities in pressure which were developed by the varying rate of barometric rise.



## SECTION III.

## REMARKS FOR MAY 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from a little above 30·10 inches over the south-western portions of Ireland to a little below 30·00 inches on the south-east coasts of England and to very little above 29·95 inches in the Shetlands. The general distribution was very similar to that observed in the previous month, but the barometer was everywhere higher than in April, the difference varying from about 0·05 in. in all the more western and northern parts of the kingdom to about 0·01 in. or 0·02 in. in the south-east of England. In comparison with the average for the 20 years 1861–80 it appears that the mean values were in excess in all but the extreme south-eastern districts, where there was no appreciable departure from the normal. In Scotland the excess varied from about 0·05 in. in the north to about 0·10 in. in the south, while in Ireland it varied from 0·10 in. to about 0·15 in. The highest readings were recorded between the 13th and 15th, where the barometer ranged from a little above 30·3 inches in the northern and eastern parts of the kingdom to about 30·5 inches in the extreme west. The lowest values were observed on the 19th and 20th, during the passage of depression No. XIX., when the barometer fell to 29·0 inches or less in the north-east of England and to between 29·1 inches and 29·4 inches in all other parts of the country. The range was somewhat large over the southern districts, but moderate elsewhere.

*Movements of Depressions.*—During the early part of the month such depressions as appeared in our neighbourhood (and they were mostly shallow) advanced north-eastwards from Spain to our south and east coasts. Later on the disturbances became less frequent and moved in varying directions mostly over the countries lying to the eastward of the North Sea. Between the 19th and 21st, however, an important system (of unusual depth for the time of year) advanced eastwards directly across our Islands, and subsequently travelled in a northerly and north-westerly course away to the northward of Scotland.

*Anticyclones.*—These were four in number, but their duration was in each case brief, the utmost limit being only four days. The systems usually appeared to the westward or south-westward of our Islands, and in the case of No. XIII. (observed between the 13th and 16th of the month) the central portion did not advance beyond our extreme western coasts.

*Winds.*—The prevailing winds were usually from the Northward (North-west to North-east), but at some of our western stations there was a fair proportion of breezes from the Westward. At Shields, Scilly, and Jersey there was an entire absence of winds from the Southward, while in London and at Yarmouth both the Southerly and South-easterly currents were unrepresented. Gales were very few in number, but there was hardly a station at which the storm of the 20th was not experienced. At Aberdeen, Spurn Head, and Roche's Point the wind reached the force of a gale on three separate occasions.

*Temperature.*—The mean (sea-level) temperature of the month varied from a little below 46° in the Shetlands, and a little above 47° on the east coasts of England, to 52° and upwards over the southern parts of central Scotland and Ireland, and to 53° or more in some parts of Devonshire. The summer type of distribution was in fact beginning to appear in many of our central districts, but it was less strongly marked than in some previous Mays. The mean values were considerably higher than in April, the increase of warmth varying from about 4° on the east coasts of England to about 7° over the central parts of Ireland and Scotland and the south-western counties of England. In the north of Scotland the mean values showed a fair agreement with the average for the 20 years 1861–80,



and over central Scotland there was an excess of heat varying from one to two degrees. Over Ireland and England, however, the values were everywhere below the normal, the deficit varying from about one degree in the former country to about three degrees over our midland counties, and to between four and five degrees on our east coasts. The lowest values were recorded mostly on the 1st or 2nd of the month, when the anticyclone No. XI. was dispersing; frost was then registered at nearly all the inland stations, the lowest temperatures of all being  $23^{\circ}$  at Fort Augustus and  $26^{\circ}$  at Braemar. The highest readings were recorded on the 8th over the greater part of England, on the 25th over Ireland, and at varying times during the concluding week in Scotland. The values were in most cases below  $70^{\circ}$ , the highest [of all (at Hereford)] being only  $73^{\circ}$ . The range was large at many of the inland stations,— $42^{\circ}$  at Hillington, Cambridge, Loughborough, and Markree Castle,  $43^{\circ}$  at Bawtry, and  $47^{\circ}$  at Fort Augustus. At Sumburgh Head, however, the range was only  $20^{\circ}$ , while at Scilly it did not amount to more than  $17^{\circ}$ .

*Vapour Tension* ranged from about 0·26 in. on our extreme north and north-east coasts, and also in the central parts of north-western England, to 0·32 in. or a little more on the south-west coasts of England and Ireland. *Relative Humidity* varied from about 75 per cent. in the east of Scotland to between 85 and 90 per cent. on the east, south, and south-west coasts of England. Over Ireland and the northern parts of England the values ranged mainly between 80 and 85 per cent.

*Rainfall* varied from less than an inch over central Scotland and the south-east of Ireland (where the amounts were considerably less than the average for the 20 years 1866 to 1885) to about two inches and a half in isolated parts of England, to 2·9 inches at Hawes Junction, and to 4·1 inches at Glencarron. At Ochertyre the aggregate amount was only 0·5 in. The number of rainy days was very small (8 to 12) over the western parts of the kingdom generally, and also in the south of Scotland; at Ochertyre and Kilkenny there were only 7 such occasions. At the central and eastern stations, however, the falls were more frequent, Hastings, Marchmont, and Jersey reporting 20 rainy days, London 21, and Rothamsted and Leicester 22.

*Bright Sunshine*.—The amount of bright sunshine was small in the eastern and central parts of the kingdom, but larger in the west. Assuming the total possible duration to be represented by 100, the amount was only 16 at Glencarron, 20 at Durham and Leicester, and 22 at Bawtry. In the south-western districts, however, the per-centage exceeded 40, the largest amount of all (43 per cent.) being recorded at Jersey.



**SUMMARY OF THE METEOROLOGICAL OBSERVATIONS**

**MADE AT**

**TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS,**

**DURING THE MONTH OF MAY 1857.**



TABLE IX.

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.							
			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°963	45°7	40°1	50°5	45°3	35	5th	55	17th, 25th, 26th
	Wick	29°995	48°8	40°3	54°3	47°3	29	4th	63	15th
	Stornoway*	29°011	48°8	42°9	53°5	48°2	236	13th	62	25th
1. SCOTLAND, E.	Nairn	30°014	48°6	40°0	56°7	48°8	32	3rd	68	16th
	Aberdeen	30°017	49°3	40°8	55°9	48°4	31	21st	67	8th
	Leith	30°036	50°4	41°9	58°5	50°2	29	2nd	70	24th
2. ENGLAND, N.E.	Shields	30°020	46°9	41°1	52°5	46°8	34	4th	68	8th
	York	30°034	48°0	41°6	56°9	49°3	29	1st	69	8th
	Spurn Head	30°008	47°6	42°9	51°3	47°1	36	1st	66	8th
3. ENGLAND, E.	Yarmouth	29°986	48°5	42°6	52°1	47°4	35	21st, 22nd	61	9th
	Cambridge	30°019	49°3	41°2	58°4	49°8	28	1st	70	8th
4. MIDLAND COUNTIES	Loughborough	30°035	47°7	42°4	56°8	49°6	30	1st	72	8th
	Oxford	30°043	47°7	42°5	56°5	49°5	32	1st	68	8th
5. ENGLAND, S.	London	30°019	48°8	43°5	58°2	50°9	36	1st	70	8th
	Dungeness	29°976	48°8	43°7	55°4	49°6	35	23rd	62	11th, 12th
	Hurst Castle	30°036	49°9	43°9	57°4	50°7	37	1st, 22nd	66	24th
6. SCOTLAND, W.	Ardrossan	30°047	49°2	43°1	57°2	50°2	35	1st	67	27th, 28th
7. ENGLAND, N.W.	Hawes Junction†	28°787	43°6	38°1	51°5	44°8	28	2nd	60	17th, 24th
	Barrow-in-Furness	30°036	47°6	43°8	55°5	49°7	36	4th	65	28th, 31st
	Liverpool	30°056	48°4	43°8	55°1	49°5	36	2nd	66	8th
	Holyhead	30°070	49°3	44°6	54°2	49°4	38	5th	61	31st
8. ENGLAND, S.W.	Pembroke	30°069	48°4	44°3	53°0	48°7	36	20th	62	25th
	Prawle Point	30°054	50°8	45°7	57°3	51°5	39	1st, 2nd, 3rd, 5th.	71	24th
9. IRELAND, N.	Malin Head	30°057	48°5	44°9	53°0	49°0	36	1st	57	5th, 16th
	Donaghadee	30°077	49°5	44°3	56°2	50°3	35	1st	66	17th
	Mullaghmore	30°092	50°3	44°9	55°8	50°4	34	1st	65	28th
	Belmullet	30°106	50°8	46°0	55°1	50°6	37	20th	63	16th, 26th
10. IRELAND, S.	Parsonstown	30°109	50°4	42°1	59°0	50°6	32	2nd	68	25th
	Valencia	30°132	53°1	46°2	57°8	52°0	38	1st	68	25th
	Roche's Point	30°098	51°3	45°7	56°9	51°3	38	1st, 2nd	65	27th
CHANNEL ISLANDS	Scilly (St. Mary's)	30°072	51°2	46°8	54°1	50°5	41	22nd	58	9th
	Jersey (Noirmont)	30°028	51°1	46°0	56°4	51°2	38	5th	64	31st

\* Owing to the death of the observer at this  
 † 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 1887.

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.
in.	%		ins.	in.																	
0.251	82	7.2	1.47	0.46	20th	15	0	0	0	7	19	0	3	6	0	2	1	4	5	5	5
285	82	6.6	1.11	0.48	21st	14	0	1	0	5	12	1	4	3	1	1	6	1	4	10	1
293	85	6.5	1.75	0.32	8th	14	0	0	0	8	13	2	3	5	3	1	4	5	5	4	1
267	78	6.3	0.85	0.27	21st	12	1	1	0	6	8	0	1	5	1	0	1	3	9	5	6
263	74	5.2	1.95	0.68	21st	16	1	0	0	13	10	3	10	1	0	0	6	2	3	9	0
272	75	5.6	1.43	0.76	19th	10	0	1	0	8	7	0	2	4	4	4	1	2	10	4	0
261	82	8.5	1.31	0.32	19th	12	0	2	0	0	18	1	10	5	2	1	0	5	4	2	2
264	80	6.7	1.93	0.50	19th	16	0	0	0	5	19	0	11	5	2	0	0	3	6	4	0
286	88	5.7	1.31	0.33	27th	17	0	1	0	5	4	3	10	6	3	1	0	3	4	4	0
292	87	6.1	2.50	1.13	6th	18	0	0	0	4	3	2	7	9	2	0	0	2	3	8	0
292	83	7.7	2.45	0.55	3rd	19	0	0	5	6	19	0	14	3	2	0	1	2	4	4	1
276	84	8.6	1.58	0.45	19th	18	0	3	1	0	21	2	6	8	3	0	0	1	7	6	0
274	83	7.3	1.51	0.31	6th	18	0	2	2	7	19	1	5	13	1	0	1	2	4	5	0
274	79	8.1	1.65	0.28	19th	21	0	2	1	3	20	1	8	8	3	0	0	2	3	6	1
302	88	7.0	1.75	0.39	1st	14	0	0	0	3	11	1	7	10	4	0	0	1	5	3	1
313	88	6.2	1.45	0.29	6th	17	0	2	1	6	5	1	5	9	4	0	1	2	5	4	1
283	80	6.4	1.92	1.10	19th	10	1	1	0	8	16	1	1	7	4	0	1	2	6	7	3
244	86	8.3	2.92	1.18	19th	15	2	1	0	1	20	0	6	4	5	5	3	3	1	4	0
272	83	7.0	1.66	0.60	19th	10	0	1	0	2	14	1	1	12	3	2	1	3	1	8	0
260	77	7.6	1.82	0.75	19th	13	0	2	0	4	19	1	1	6	5	3	0	2	9	5	0
290	83	5.8	1.40	0.66	19th	10	0	1	0	6	7	1	4	7	4	1	1	4	4	5	1
305	90	6.5	1.21	0.36	31st	11	0	0	0	2	10	1	8	8	3	3	0	1	3	5	0
306	82	6.6	1.77	0.26	2nd	18	0	2	1	6	12	2	2	10	6	1	0	2	6	4	0
301	88	8.7	1.79	0.33	10th	17	1	1	0	2	24	0	1	2	4	2	3	5	5	9	0
299	85	5.5	1.45	0.47	19th	11	0	0	0	8	9	1	4	10	4	1	2	5	3	2	0
292	80	6.1	1.58	0.55	19th	11	0	3	0	7	7	1	3	1	5	2	2	4	4	7	3
301	81	6.6	1.93	0.60	19th	12	1	0	0	9	16	2	4	5	2	1	3	2	7	7	0
294	81	7.0	1.40	0.78	19th	10	0	1	0	3	13	0	2	3	1	1	1	2	5	5	11
334	82	7.7	1.58	0.45	5th	11	1	1	0	3	16	1	6	6	1	1	2	2	3	7	3
302	80	5.7	0.86	0.16	20th	13	0	0	0	7	8	3	10	2	5	2	2	1	2	7	0
325	86	7.8	1.38	0.66	29th	14	0	0	0	1	15	2	10	5	4	2	0	2	3	5	0
312	83	6.5	1.97	0.45	5th	20	0	4	1	4	13	2	4	10	5	1	0	2	3	6	0

station 8 days observations have been interpolated.  
 barometric observations at this station 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 1887.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Falls in the Month.	Maximum Falls in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Maxima.	Minima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY -	*	*	*	*	*	*	*	*	*	*	*	?	?
LAIRG -	-	-	-	-	-	-	-	-	-	-	-	-	-
GLENCARRON -	40°1	54°9	47°5	33	1st, 13th, 21st	65	26th, 31st	18	4°10	1°48	21st	84	16
FORT AUGUSTUS -	39°6	56°4	48°0	23	1st	70	31st	17	0°99	0°20	18th	-	-
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	195	39
BRAEMAR -	37°3	55°3	46°3	26	2nd	65	25th	13	1°11	0°60	21st	167	33
OCHTERTYRE -	40°3	61°5	50°9	31	1st	71	28th	7	0°48	0°26	19th	-	-
MARCHMONT -	40°0	54°9	47°5	31	2nd, 5th	68	17th	20	2°62	1°23	19th	135	27
ALNWICK CASTLE -	41°9	51°7	46°8	32	3rd	64	8th	13	1°92	0°82	19th	-	-
DURHAM -	39°8	54°3	47°1	30	4th	68	8th	17	2°02	0°42	19th	98	20
SCARBOROUGH -	41°6	51°6	46°6	32	1st	60	8th	19	1°88	0°54	19th	-	-
YORK -	*	*	*	*	*	*	*	*	*	*	*	111	25
HILLINGTON -	40°7	55°6	48°2	27	1st	69	8th	16	1°81	0°48	19th	142	29
GELDESTON -	41°2	54°4	47°8	31	1st	67	8th	17	1°68	0°47	6th	142	29
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	116	24
ROTHAMSTED -	41°2	56°5	48°9	30	1st	69	8th	22	2°22	0°52	19th	-	-
INGATESTONE -	41°5	56°2	48°9	33	1st	67	8th	18	1°80	0°34	1st	132	27
BAWTRY -	41°7	57°2	49°5	29	1st	72	8th	13	1°28	0°30	19th	†109	22
LEICESTER -	42°1	57°1	49°6	30	1st	71	8th	22	2°18	0°32	21st	95	20
CHEADLE -	40°6	54°2	47°4	32	14th	69	8th	16	1°70	0°73	19th	-	-
CHURCHSTOKE -	40°0	54°6	47°3	31	1st	67	8th	19	1°50	0°49	19th	135	28
HEREFORD -	43°0	58°0	50°5	35	1st	73	8th	16	1°75	0°63	2nd	-	-
CIRENCESTER -	41°7	56°2	49°0	32	1st	67	8th	18	1°62	0°30	2nd, 19th	167	35
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	137	28
LONDON -	*	*	*	*	*	*	*	*	*	*	*	121	25
STRATHFIELD TURGISS -	42°3	59°4	50°9	31	15th	70	8th, 31st	17	1°52	0°46	21st	-	-
HASTINGS -	43°8	55°8	49°8	35	21st	65	31st	20	1°71	0°31	12th	169	35
SOUTHAMPTON -	44°1	60°0	52°1	34	1st	69	8th, 10th	16	1°12	0°26	6th	167	35
STOWELL -	43°0	56°6	49°8	34	1st	64	31st	18	2°05	0°44	1st	-	-
LAUDALE -	42°6	57°9	50°3	31	3rd	67	5th	15	2°41	0°53	18th	-	-
GLASGOW -	43°1	57°9	50°5	35	21st	67	24th	8	1°12	0°73	19th	170	34
GLENLEE -	40°7	58°2	49°5	26	1st	67	31st	11	1°70	0°60	20th	-	-
DOUGLAS -	43°1	55°7	49°4	31	2nd	65	25th	12	1°71	0°88	19th	186	38
NEWTON REIGNY -	39°4	55°2	47°3	29	2nd	64	17th	11	1°81	0°62	20th	147	30
STONYHURST -	41°7	54°9	48°3	32	4th	63	24th	10	2°75	1°07	19th	172	35
BLACKPOOL -	41°6	55°5	48°6	31	4th	65	31st	12	1°70	0°79	19th	174	35
MANCHESTER -	41°8	54°8	48°3	34	1st, 2nd	67	8th	16	2°19	0°89	19th	-	-
LLANDUDNO -	44°2	54°5	49°4	36	1st	64	8th, 31st	14	1°51	0°49	19th	137	28
LLANDOVERY -	40°8	58°9	49°9	30	13th	68	31st	14	2°50	0°88	19th	-	-
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	*	149	31
ARLINGTON -	41°7	55°6	48°7	36	2nd, 5th, 8th, 14th, 21st	63	31st	16	2°54	0°66	31st	-	-
CULLOMPTON -	43°5	59°3	51°4	33	21st	68	8th, 24th	13	1°83	0°37	1st	165	35
FALMOUTH -	44°9	55°8	50°4	37	5th	63	25th	17	1°72	0°30	19th	198	42
PLYMOUTH -	46°1	60°3	53°2	39	5th	67	8th	15	2°09	0°35	2nd	197	42
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	199	43
LONDONDERRY -	43°2	62°6	52°9	33	1st	70	25th	13	2°84	1°06	19th	-	-
MARKREE CASTLE -	41°8	56°3	49°1	27	1st	69	28th	13	2°36	0°75	19th	161	33
BROOKBOROUGH -	41°1	57°2	49°2	29	1st	67	25th	8	1°71	0°54	19th	-	-
ARMAGH -	42°2	58°1	50°2	31	1st	66	25th	12	1°32	0°60	19th	173	35
EDGORTHSTOWN -	40°9	57°9	49°4	32	1st, 2nd	67	25th	8	1°58	0°74	19th	-	-
DUBLIN -	44°9	58°7	51°8	36	1st	67	25th	10	0°88	0°52	19th	199	41
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	169	35
KILKENNY CASTLE -	42°5	61°8	52°2	33	2nd	72	25th	7	0°84	0°40	19th	-	-
WATERFORD -	42°9	60°2	51°6	31	1st	68	25th	10	0°89	0°35	31st	-	-
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	192	40
KILLARNEY -	43°8	58°4	51°1	30	1st	68	25th	10	1°26	0°47	19th	-	-
FOYNES -	45°4	58°4	51°9	37	1st	68	25th, 28th	13	1°12	0°32	19th	-	-

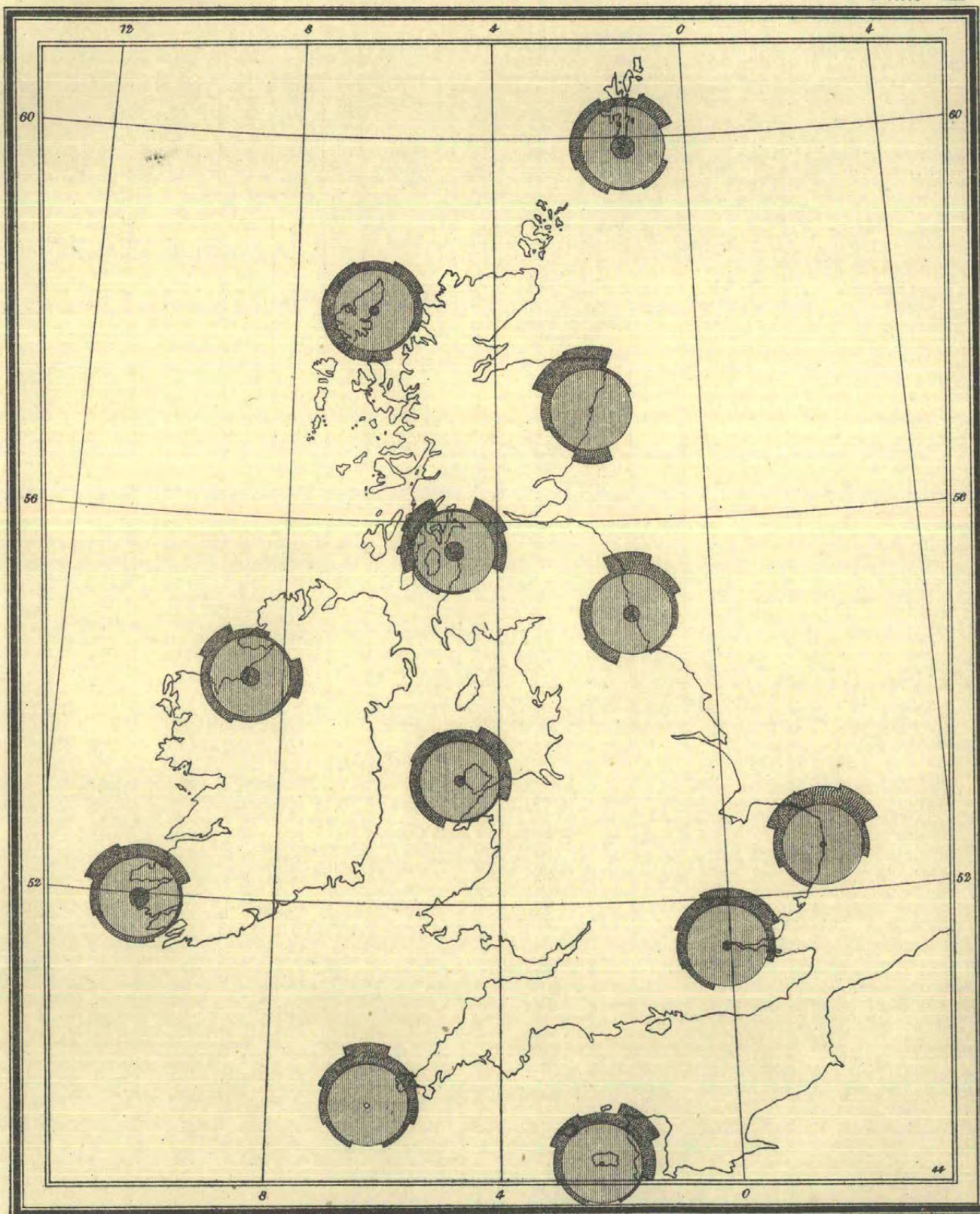
\* For information, see Table IX.

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



# MONTHLY WIND CHART FOR MAY 1887.

Plate IX.

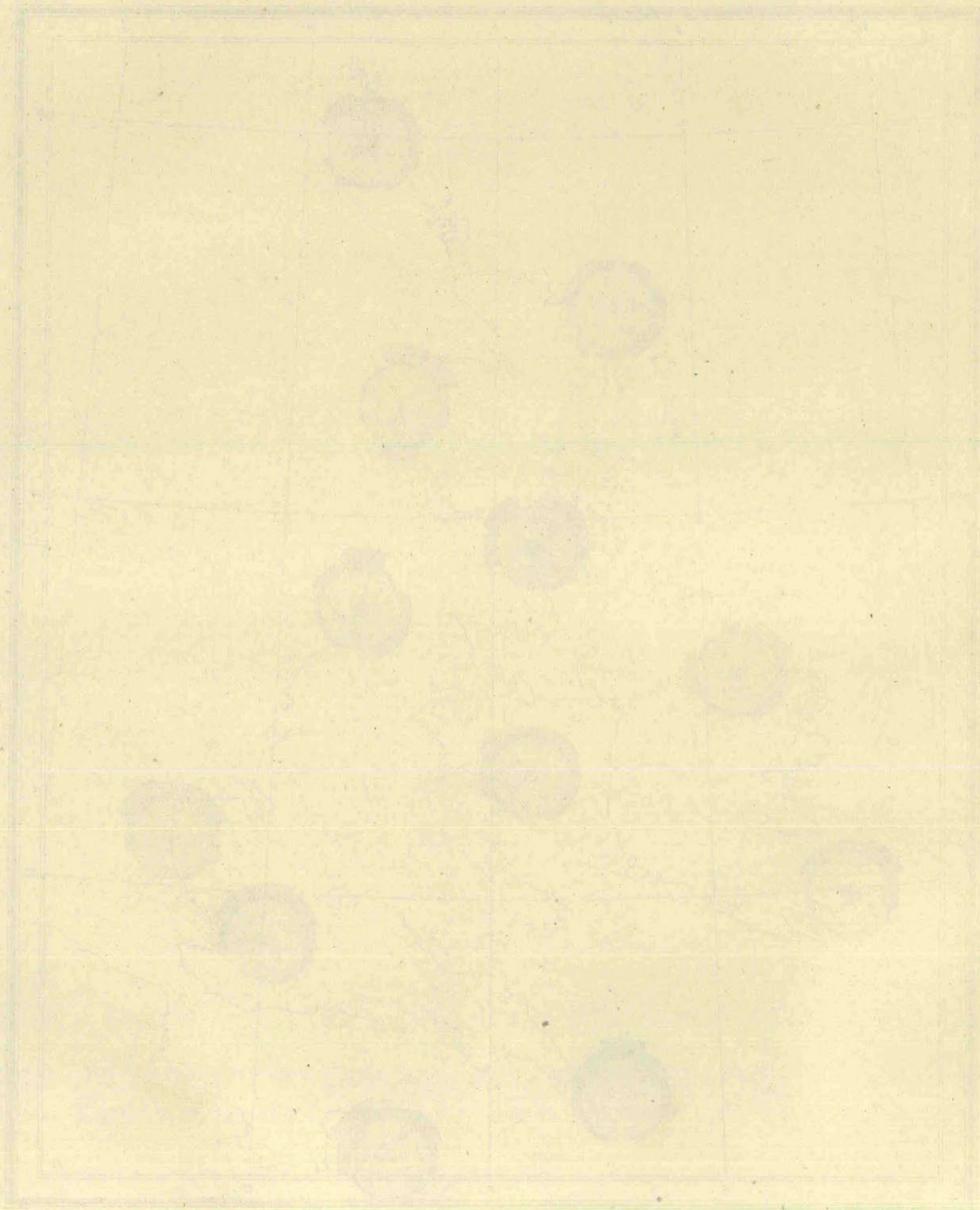


To face p. LII.

Judd & Co. Lith. 73 & 75, Farringdon Rd & Doctors Commons 83N 4/90.



MONTHLY WIND CHART FOR MAY 1887

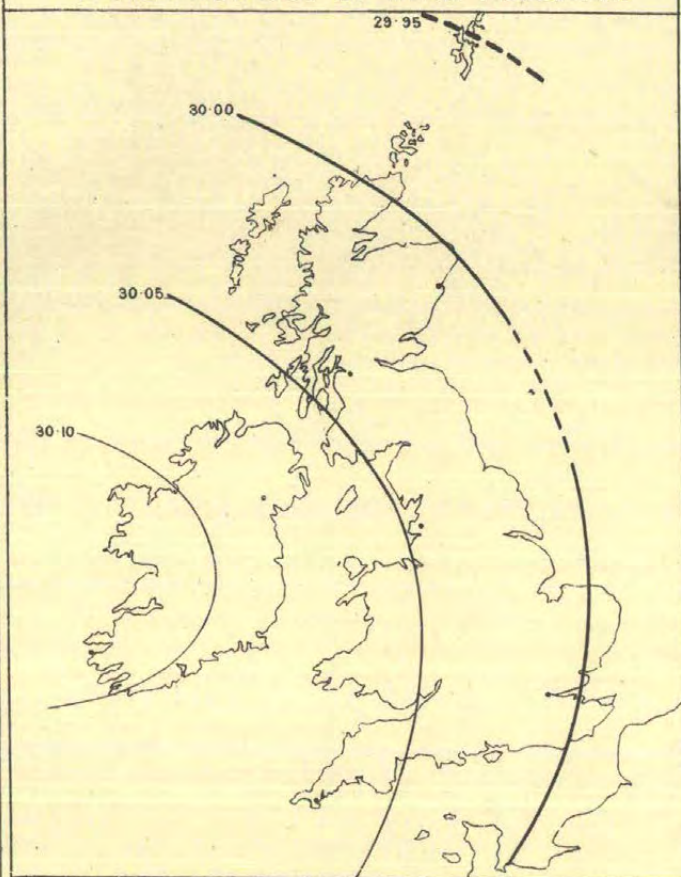




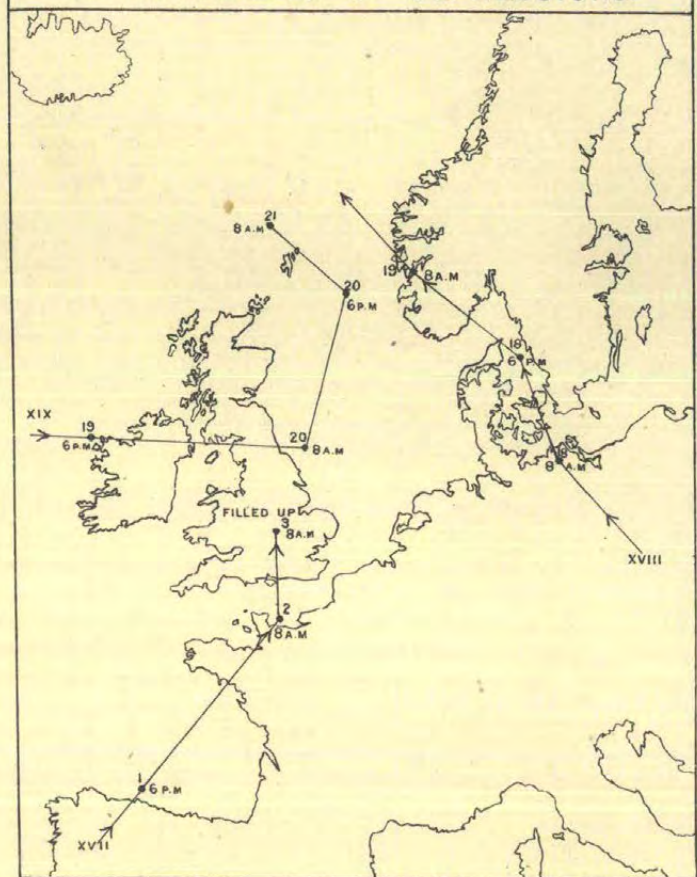
# MONTHLY WEATHER CHART MAY 1887.

Plate X.

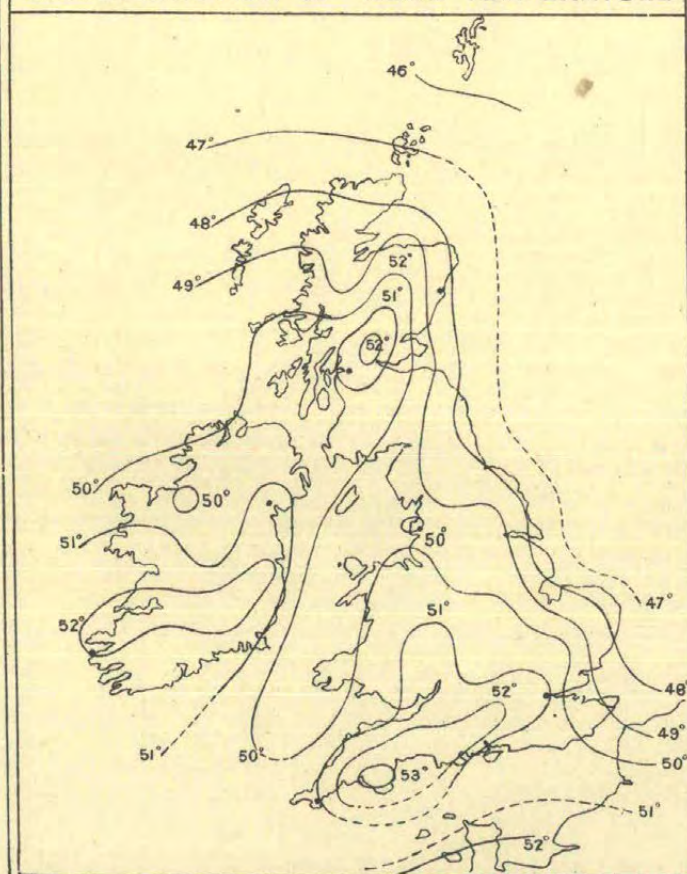
## 1. DISTRIBUTION OF MEAN PRESSURE.



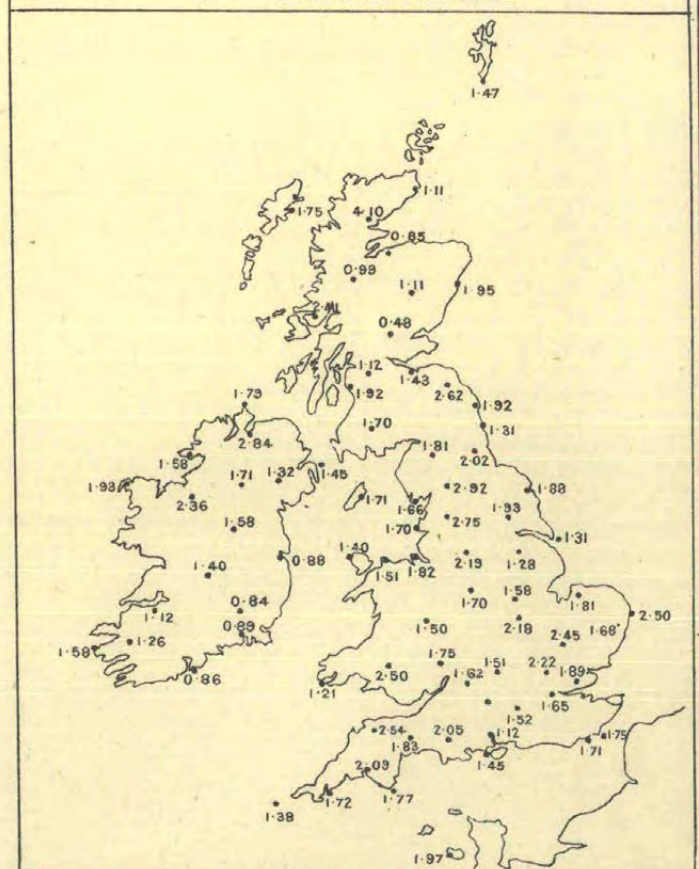
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE.



## 4 RAINFALL.









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MONTHLY WEATHER REPORT,  
JUNE 1887.

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SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of June was unusually fine, warm, and dry, especially over England and the greater part of Ireland, where no rain fell after the 8th. Pressure was considerably in excess of the normal; temperature was above the average in all but the eastern and south-eastern portions of England; the winds were chiefly Easterly in the west and south, but Westerly in the far north, their force being usually light or moderate; the amount of rainfall was in most instances excessively small; and bright sunshine was unusually abundant.

June 1-4.—During this period barometrical pressure was highest over Scandinavia, and lowest to the southward or south-westward of our Islands. The prevailing winds were therefore Easterly, and temperature decidedly low for the time of year. In Ireland and Scotland the weather was mostly fine, but over England, and particularly over our south-eastern districts, it was less settled, owing to the advance of two small depressions from France and Spain. The first of these systems appeared near the mouth of the Garonne on the morning of the 1st and subsequently travelled to the north-east of France, where it gradually dispersed. The second (No. XX.\*) appeared near Biarritz on the evening of the 1st, and thence travelled first in a northerly direction over a portion of the Bay of Biscay and afterwards in a north-easterly direction to Holland and North Germany, where it also filled up. The former disturbance occasioned very little rain over our Islands, but the latter produced considerable amounts of very cold rain in many parts of England and France, with local thunderstorms. Snow was observed at Lutterworth early on the 3rd.

June 5-8.—In the rear of the last-mentioned depression the barometer rose steadily, and on the 5th an area of high readings spread northwards from Spain to France and the Channel. South-westerly and Westerly winds now set in over our Islands generally, with some increase in temperature; but owing to the passage of some depressions outside our extreme north-western and northern coasts the weather remained in a somewhat showery state. The only disturbance of any consequence was that of the 7th (No. XXI.\*), which occasioned strong South-westerly to Westerly winds in Ireland and Scotland.

June 9-12.—The anticyclone in the south now extended northwards over all the more southern parts of the kingdom, where fine weather set in, with a further rise of temperature. Thick fog was, however, very prevalent over the English Channel between the 8th and 10th. In the extreme north of our Islands conditions were still affected by some depressions moving eastwards towards the north of Scandinavia, and the weather in these districts therefore remained cool and showery.

June 13-26.—On the 13th the high-pressure system spread still further to the northward, and from this time onward till the 26th the conditions were almost continuously

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



anticyclonic. Light or moderate breezes and fine warm weather were experienced generally, but owing to changes in the position of the anticyclonic centre, the direction of the wind varied greatly in different localities. As a rule the highest barometrical readings were found in the north, so that while light varying breezes were reported over Scotland and the north of Ireland, moderate to fresh winds from East or North-east were felt in the more southern districts. With the exception of a little rain at some of the Irish and Scotch stations on the 14th and 16th, the weather of the whole period may be said to have been absolutely dry, and over England and Ireland the amount of bright sunshine was unusually large. At times, when the North-easterly wind blew strongly, temperature over England was somewhat low, but on other occasions the thermometer rose to a very high level, the warmest days of all being the 15th, the 18th, and the 19th over England and the south of Scotland, and the 23rd and 24th over Ireland and our extreme northern districts. The daily maxima on these occasions were above  $80^{\circ}$  in many places, the highest readings of all being (?)  $92^{\circ}$  at Kilkenny,  $89^{\circ}$  at Llandovery, and  $88^{\circ}$  at Ochertyre. On the 25th and 26th, however, when a good deal of cloud prevailed, the maxima in the south-east of England were very little above  $60^{\circ}$ , and on the night of the latter date the thermometer on the grass at Cambridge registered three degrees of frost.

June 27-30.—The central portion of the anticyclone, after drifting in various directions, now settled down to the westward of our Islands, and moderate breezes from the Northward and North-westward set in generally, with a decided reduction in temperature. The weather, however, remained dry in all districts excepting the extreme north of Scotland, where showers were produced by some depressions travelling south-eastwards across Scandinavia. At the close of the month the anticyclone appeared to be again spreading eastwards over the United Kingdom.



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—JUNE 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XX. June 2-4.	No. XXI. June 7.
Form - - - - -	Nearly circular - - - - -	Uncertain, but probably more or less circular.
Size - - - - -	Moderate - - - - -	Large.
Depth - - - - -	Shallow - - - - -	Moderate.
Where first Observed - - - - -	Over the north of Spain - - - - -	To the westward of Ireland.
Direction of Motion - - - - -	At first northerly, then north-easterly - - - - -	North-easterly.
Rate of Motion - - - - -	Slow - - - - -	Moderate.
Regions passed over by Steepest Gradients	The Channel, France, and the east of England - - - - -	Ireland and Scotland.
Termination - - - - -	Filled up over Holland and North Germany - - - - -	Travelled away across the north of Scandinavia.
Time under Observation - - - - -	About two days - - - - -	Two days.
Accompanying Winds - - - - -	Fresh from the Northward or North-eastward in the east of England, and from the Westward or North-westward in France.	Strong South-westerly to Westerly winds on our western and northern coasts; gales in Norway.
„ Weather - - - - -	Cold and rainy over England and France, with local thunderstorms.	Dull and showery in the west and north of the United Kingdom.
„ Rainfall - - - - -	Heavy at many of the English and French stations. Snow fell at Lutterworth.	General in the west and north, but not heavy.
REMARKS - - - - -	{ This disturbance was of interest solely on account of the heavy rains and thunderstorms which accompanied its progress. The system was at no time of sufficient depth to produce any great increase in the force of the wind.	
	The centre of this disturbance remained at a considerable distance from our shores, and the weather over the United Kingdom was therefore not generally affected.	



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—JUNE 1887.

	NATURE OF CHARACTERISTICS OBSERVED.	No. XV. June 5-30.	
	Form - - - - -	Varying greatly, but usually elliptical.	
	Size - - - - -	Large, embracing at times the greater part of western Europe.	
	Height - - - - -	Small at close of month; very small at other times.	
	Where first Observed - - - - -	Over Spain and the Bay of Biscay.	
	Direction of Motion - - - - -	Northerly at first, then westerly.	
	Rate of Motion - - - - -	Varying, but usually very slow.	
	Regions passed over - - - - -	Nearly the whole of western Europe.	
	Termination - - - - -	The system was still in existence at the close of the month.	
	Accompanying Winds - - - - -	At first Westerly; then variable in the north, and North-easterly in the south; finally Northerly or North-westerly on all coasts.	
	„ Weather - - - - -	Mostly fine, warm, and excessively dry, but cloudy and cool over England on the 25th and 26th.	
	REMARKS - - - - -	This system underwent great modifications both in form, size, and height, but its identity was never entirely lost. The leading feature in connexion with the system was the unusually severe and prolonged drought which prevailed in so many parts of the United Kingdom.	



## SECTION III.

REMARKS FOR JUNE 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from a little above 30·20 inches over the east of Ireland, St. George's Channel, the Irish Sea, Wales, and the greater part of England to 30·10 inches in the Hebrides and Orkneys, and to a little below that value in the Shetlands. The barometer was therefore higher than in May, the difference varying in most cases between 0·15 in. and 0·20 in. The distribution was quite abnormal, for in place of a decided westerly gradient over the entire country, the mean values showed a well-marked anticyclonic system over Ireland and England, with a slight easterly gradient over the Channel, and a moderate south-westerly gradient over Scotland. Compared with the average for the corresponding month in the 20 years 1861–80, the mean values were everywhere in excess of the normal, the difference varying between 0·20 in. and 0·25 in. The highest readings occurred as a rule on the 29th or 30th, when the barometer rose to between 30·4 inches or 30·5 inches in nearly all parts of the kingdom, but readings of almost equal height were recorded at various times during the latter half of the month. The lowest readings were recorded over the southern and south-eastern portions of the country on the 2nd during the passage of depression No. XX.; in the northern districts, however, they occurred on the 7th during the passage of system No. XXI. In each case the barometer fell to between 29·4 inches and 29·6 inches. The range was not large, its amount in most cases being about an inch.

*Movements of Depressions.*—Very few depressions appeared in the neighbourhood of our Islands, the only two worthy of note being:—1. A shallow system which advanced north-eastwards from the Bay of Biscay to the north-west of Germany between the 2nd and 4th, and which subsequently dispersed near the Danish coast; and 2. A larger and deeper disturbance which travelled north-eastwards outside our extreme north-western and northern coasts on the 7th. Between the latter date and the 15th a series of depressions travelled eastwards from the Atlantic across the north of Scandinavia, while at the close of the month some large systems passed south-eastwards from the north of Norway to Russia. The former series occasioned showers over our northern districts, but the latter exercised no appreciable effect upon the weather of our Islands.

*Anticyclones.*—Only one was observed, but this was of a most persistent character, lasting as it did from the 5th until the close of the month. The system underwent great modifications both in size and form. During the earlier part of the time its central portion lay over our more southern districts, but from the 19th to the 25th the highest readings were found as a rule over the northern parts of the kingdom, while at the close of the month the nucleus of the system lay to the westward of Ireland.

*Winds.*—At the extreme northern stations the largest proportion of wind was from some Westerly quarter, while in the west and south the Easterly was the predominant current. In the more central districts, however, represented by stations such as Ardrossan, Shields, and Holyhead, great variability was shown, while in London, where the wind was chiefly from points between North and East, there was a somewhat large admixture of breezes from the Westward. In force the wind was usually light or moderate, the only gale observed being a very slight one which occurred on our extreme western and northern coasts during the passage of depression No. XXI.

*Temperature.*—The mean (sea level) temperature of the month varied from between 63° and 64° over the southern parts of central Ireland and the south of Devonshire, and from between 61° and 63° over central Scotland and the greater part of central and southern



England to  $51^{\circ}$  or less in the Shetland Islands. The summer type of distribution was therefore fairly well marked, the only exceptions being the presence of a cool patch over the County Sligo,—a feature which has been observed in previous summer months. In the eastern and south-eastern portions of England the values agreed somewhat closely with the average for the 20 years 1861–80, but in all other parts of the kingdom there was a decided excess of warmth. Over the English midland counties the excess did not amount to more than two degrees, but in the inland parts of Ireland and Scotland it ranged between three and five degrees. The highest values were recorded on somewhat irregular dates. Over England they occurred pretty generally on the 15th, but in Scotland they were recorded mostly on the 18th, while in Ireland they were observed at varying times between the 15th and 27th. At the inland stations the thermometer in the large majority of cases rose to between  $80^{\circ}$  and  $85^{\circ}$ ; at Kilkenny, however, the thermometer on the 26th is *reported* to have risen to  $92^{\circ}$ . The lowest values were also recorded on widely varying dates, but over Great Britain they appear to have occurred mainly on the 1st, when a light Easterly breeze was prevalent over the greater part of the country. At the more central stations the range was large, the amount being in excess of  $40^{\circ}$  in many places; at Braemar and Cambridge it was as much as  $49^{\circ}$ , while at Ochertyre, Llandovery, and Kilkenny it was no less than  $51^{\circ}$ .

*Vapour Tension.*—The distribution of vapour tension was fairly uniform, the values varying from 0·33 inch in the Shetlands and from between 0·35 inch and 0·38 inch over the eastern and central parts of Great Britain, to between 0·42 inch and 0·44 inch in the extreme south of Ireland. Relative Humidity was highest (about 90 per cent.) in the Shetlands and Hebrides, but high, 85 per cent. or a little more, in some of the south-western portions of England. The lowest per-centages (75 or less) were observed respectively in the east of Scotland and over the northern parts of our midland counties.

*Rainfall* was as a whole strikingly deficient. Over our midland and some parts of our southern counties, where heavy falls occurred between the 1st and 3rd, the aggregate amounted to an inch or more, but in most other parts of England it was considerably less than half that quantity, and in many instances less than a quarter. At Spurn Head the total amount was only 0·10 inch, and at Scilly 0·07 inch, while at Falmouth only 0·05 inch was collected. In Ireland and Scotland the weather was almost equally dry, amounts exceeding an inch being measured at a few of the western and northern stations only. The smallest aggregates observed in Ireland were 0·17 inch at Edgeworthstown, 0·20 inch at Kilkenny, and 0·25 at Dublin; in Scotland the smallest amounts were 0·28 inch at Leith 0·37 inch at Nairn, and 0·52 inch at Braemar. Over the United Kingdom generally, and more particularly in the localities just mentioned, the rainfall for the month amounted to but a very small fraction of the average for the 20 years 1866–85. The number of rainy days was also exceedingly small, excepting in the north of Scotland, where the weather during the latter half of the month was somewhat showery. Over the greater part of England as well as at the central Irish stations the number of days with rain did not exceed five, and at Alnwick Castle, Cirencester, Cullompton, Dungeness, Hurst Castle, Brookeborough, and Edgeworthstown there were only two days with an appreciable quantity.

*Bright Sunshine.*—The amount of bright sunshine was very large, especially over the more central and southern parts of the kingdom, where the per-centage of the possible quantity mostly exceeded 50. At Churchstoke, Cirencester, and Valencia the per-centage was 60, and at Jersey 62; while at Plymouth it was as high as 65, and at Falmouth 68. In London, however, the value was only 45.



# **SUMMARY OF THE METEOROLOGICAL OBSERVATIONS**

**MADE AT**

**TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS**

**DURING THE MONTH OF JUNE 1887.**



TABLE XI. -

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC  
Observations 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. 30°089	50°7	45°7	54°9	50°3	39	4th	62	18th
	Wick	30°135	55°6	46°3	62°6	54°5	40	4th, 6th, 10th, 14th, 20th, 21st.	77	30th
	Stornoway	30°101	55°6	47°9	61°3	54°6	39	1st	70	26th
1. SCOTLAND, E.	Nairn	30°150	56°9	48°5	67°0	57°8	37	3rd	82	18th
	Aberdeen	30°154	58°9	48°4	66°4	57°4	41	4th	80	18th
	Leith	30°181	58°2	49°5	66°8	58°2	39	1st	86	18th
2. ENGLAND, N.E.	Shields	30°189	56°2	49°7	63°1	56°4	42	1st	72	13th, 17th, 18th, 27th.
	York	30°206	58°4	49°5	71°4	60°5	39	1st	84	27th
	Spurn Head	30°195	56°5	51°0	62°2	56°6	45	2nd	74	15th
3. ENGLAND, E.	Yarmouth	30°188	58°1	51°3	63°8	57°6	44	11th	72	13th
	Cambridge	30°205	59°9	48°1	72°2	60°2	36	27th	85	15th
4. MIDLAND COUNTIES	Loughborough	30°215	59°5	49°5	73°1	61°3	39	1st	84	19th
	Oxford	30°216	57°5	50°3	69°4	59°9	43	21st	82	15th
5. ENGLAND, S.	London	30°206	59°2	51°2	72°0	61°6	43	27th	84	15th
	Dungeness	30°174	57°1	51°3	62°5	56°9	41	11th	74	15th
	Hurst Castle	30°200	58°5	51°2	66°1	58°7	45	11th	78	16th
6. SCOTLAND, W.	Ardrossan	30°183	57°6	49°8	65°2	57°5	44	3rd, 6th, 14th	81	24th
7. ENGLAND, N.W.	Hawes Junction*	28°067	55°2	47°0	65°2	56°1	36	1st	78	18th
	Barrow-in-Furness	30°202	57°5	53°3	65°2	59°3	44	1st	77	18th
	Liverpool	30°206	60°3	53°2	68°8	61°0	43	1st	81	18th
	Holyhead	30°205	58°7	51°9	63°0	57°5	48	1st, 4th	71	17th, 22nd, 23rd.
8. ENGLAND, S.W.	Pembroke	30°200	57°1	52°8	63°9	58°4	46	4th	77	16th, 23rd
	Prawle Point	30°205	59°4	54°4	65°0	59°7	50	5th	79	16th
9. IRELAND, N.	Malin Head	30°158	56°2	52°8	62°0	57°4	45	5th	75	17th
	Donaghadee	30°202	57°5	52°2	65°4	58°8	46	15th	77	24th
	Mullaghmore	30°176	59°9	53°3	67°7	60°5	48	10th	81	17th
	Belmullet	30°178	60°5	53°5	66°9	60°2	48	10th, 30th	82	18th
10. IRELAND, S.	Parsonstown	30°202	61°2	50°2	72°3	61°3	41	3rd, 4th	85	26th
	Valencia	30°182	62°8	53°4	68°4	60°9	48	10th, 15th	81	19th
	Roche's Point	30°195	60°8	53°5	66°7	60°1	48	3rd, 4th, 11th, 14th.	80	27th
CHANNEL ISLANDS	Scilly (St. Mary's)	30°180	60°6	54°0	64°7	59°4	45	25th	73	16th
	Jersey (Noirmont)	30°180	60°6	53°4	67°5	60°5	47	12th, 13th	80	15th

\* 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 1887.

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.		
in. 0.331	% 89	8.1	ins. 1.52	in. 0.40	7th	14	0	0	0	3	19	0	3	3	2	0	0	2	8	7	5	0	
.372	84	6.7	1.27	0.25	8th	15	0	0	0	9	17	1	6	2	0	4	6	2	1	9	0	0	
.399	90	6.6	1.51	0.25	7th	11	0	0	0	6	13	0	0	2	4	2	1	7	5	3	6	0	
.362	78	5.6	0.37	0.23	13th	6	0	0	1	8	8	0	3	2	3	0	1	2	11	2	6	0	
.353	72	5.0	0.66	0.26	13th	10	0	0	0	10	9	1	4	5	1	2	5	4	3	5	1	0	
.362	75	5.8	0.28	0.22	4th	5	0	0	0	9	8	0	2	4	5	1	0	1	12	2	3	0	
.360	79	7.7	0.24	0.13	3rd	3	0	0	0	4	17	1	8	5	2	0	2	7	5	1	0	0	
.372	76	3.9	0.16	0.05	1st, 3rd, 11th.	4	0	0	0	13	7	0	10	0	2	0	6	0	8	3	1	0	
.379	83	4.4	0.10	0.06	3rd	4	0	0	0	11	5	0	9	4	0	3	2	1	6	1	4	0	
.392	80	3.5	0.25	0.11	2nd	4	0	0	1	15	3	0	10	6	1	0	0	2	5	3	3	0	
.393	77	5.4	0.61	0.25	1st	4	0	0	1	12	12	0	14	4	1	0	1	8	2	0	0	0	
.380	74	6.6	1.22	0.56	3rd	4	0	0	0	4	12	0	3	6	5	0	0	2	7	4	3	0	
.380	80	5.8	1.75	1.00	2nd	3	0	0	0	9	12	0	4	11	2	0	0	6	4	2	1	0	
.373	74	5.8	1.18	0.59	3rd	3	1	0	0	12	13	0	6	6	4	1	1	3	8	1	0	0	
.387	82	5.9	0.56	0.32	2nd	2	0	0	0	5	9	0	2	10	7	0	0	0	9	0	2	0	
.417	85	4.5	0.71	0.70	2nd	2	0	0	0	13	3	0	1	10	5	0	0	6	3	2	3	0	
.371	78	6.2	0.78	0.16	7th	10	0	0	0	10	17	0	3	6	1	3	3	4	3	3	4	0	
.357	82	5.0	0.34	0.10	7th	5	0	0	0	15	13	0	6	6	3	4	5	2	2	0	2	0	
.377	80	4.5	0.51	0.40	3rd	6	0	0	1	13	8	0	1	12	1	0	2	6	3	5	0	0	
.356	68	4.8	1.41	0.94	3rd	5	0	0	0	14	9	0	2	1	6	6	1	4	7	3	0	0	
.395	79	3.9	1.06	0.79	3rd	4	0	0	0	13	5	0	2	4	3	0	5	5	0	4	7	0	
.407	86	5.5	0.21	0.07	2nd	4	0	0	0	7	7	0	1	4	4	6	5	3	3	3	1	0	
.386	76	4.3	0.51	0.35	2nd	7	0	0	0	16	8	1	0	10	8	1	2	4	5	0	0	0	
.391	87	10.0	1.28	0.42	13th	10	0	0	0	0	30	0	1	1	7	3	4	3	6	3	2	0	
.391	83	5.2	0.60	0.43	3rd	5	0	0	0	11	8	0	2	11	6	0	3	3	5	0	0	0	
.402	78	4.4	0.27	0.12	6th	6	0	0	0	14	6	1	2	4	7	1	5	3	3	3	2	0	
.406	78	4.9	0.91	0.35	6th	7	0	0	1	14	11	1	2	2	10	1	3	9	2	1	0	0	
.405	76	4.9	0.33	0.10	1st, 7th	4	0	0	0	12	11	0	0	3	0	2	1	6	0	0	18	0	
.435	76	4.8	1.36	0.41	5th	7	0	0	0	13	9	1	2	4	3	5	5	2	2	0	7	0	
.422	80	3.8	0.55	0.23	1st	5	0	0	0	17	6	0	6	0	6	5	4	3	2	2	2	0	
.432	82	5.4	0.07	0.03	3rd	4	0	0	1	9	10	0	2	5	9	4	2	4	2	1	1	0	
.393	75	5.0	0.94	0.46	2nd	5	0	0	1	13	10	0	1	11	6	2	1	2	3	3	1	0	

barometric observations at this station are not corrected 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 1887.

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 -	*	*	*	*	*	*	*	*	*	*	?	?
LAIRG -	—	—	—	—	—	—	—	—	—	—	—	—
GLENCARRON -	47°8	65°8	56°8	40	2nd, 14th	81	15	4°19	1°16	8th	?	?
FORT AUGUSTUS -	47°9	65°7	56°8	38	14th	83	13	1°60	0°60	8th	—	—
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	217	41
BRAEMAR -	45°5	69°3	57°4	33	2nd	82	7	0°52	0°25	13th	223	42
OCHTERTYRE -	48°1	72°0	60°1	37	1st	88	6	1°30	0°61	18th	—	—
MARCHMONT -	47°2	66°3	56°8	36	1st	84	7	0°62	0°38	4th	208	40
ALNWICK CASTLE -	50°3	62°6	56°5	42	20th	72	2	0°24	0°20	4th	—	—
DURHAM -	48°7	68°6	58°7	39	21st	85	4	0°25	0°20	3rd	179	35
SCARBOROUGH -	50°3	64°5	57°4	44	1st	76	4	0°18	0°06	3rd	†223	44
YORK -	*	*	*	*	*	*	*	*	*	*	205	41
HILLINGTON -	47°9	70°1	59°0	37	27th	83	3	0°20	0°18	2nd	255	51
GILDESTON -	49°0	67°8	58°4	41	11th, 21st	82	3	0°16	0°12	1st	263	53
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	256	52
ROTHAMSTED -	48°7	69°6	59°2	38	27th	82	5	0°67	0°36	2nd	—	—
INGATESTONE -	49°1	69°4	59°3	42	21st	83	3	0°57	0°40	2nd	252	51
BAWTRY -	48°5	71°9	60°2	39	20th	81	3	0°22	0°11	3rd	†219	44
LEICESTER -	49°9	72°5	61°2	41	1st	84	4	1°44	0°66	2nd	200	40
CHEADLE -	49°3	69°1	59°2	41	1st, 21st	79	4	1°31	0°68	3rd	—	—
CHURCHSTOKE -	46°9	70°9	58°9	38	1st	82	5	1°73	1°17	2nd	300	60
HEREFORD -	49°2	74°2	61°7	43	4th, 11th	86	3	0°96	0°78	2nd	—	—
GIRENCESTER -	48°4	69°9	59°2	42	11th, 27th	82	2	1°38	1°19	2nd	295	60
OXFORD -	*	*	*	*	*	*	*	*	*	*	256	52
LONDON -	*	*	*	*	*	*	*	*	*	*	220	45
STRATHFIELD TURGIS -	47°9	73°1	60°5	41	11th, 21st, 27th	85	3	1°32	0°95	2nd	—	—
HASTINGS -	51°6	65°3	58°5	46	11th, 21st	77	3	0°94	0°63	3rd	264	54
SOUTHAMPTON -	50°9	72°3	61°6	45	4th, 21st	84	3	0°98	0°83	2nd	280	57
STOWELL -	49°0	69°2	59°1	43	4th, 13th	81	4	1°01	0°97	2nd	263	54
LAUDALE -	50°6	65°3	58°0	45	2nd	80	14	3°24	0°65	11th	—	—
GLASGOW -	48°3	67°2	57°8	41	21st	83	8	0°81	0°16	13th	199	38
GLENLEE -	46°8	69°6	58°2	35	1st, 21st	83	8	0°74	0°27	3rd	—	—
DOUGLAS -	50°0	66°3	58°2	40	21st	81	4	0°60	0°42	3rd	279	55
NEWTON REIGNY -	47°0	68°8	57°9	34	1st, 21st	80	8	0°27	0°12	3rd	265	52
STONKHURST -	49°9	68°2	59°1	41	1st	79	4	0°50	0°30	3rd	272	54
BLACKPOOL -	49°1	66°5	57°8	36	1st	79	4	0°59	0°41	3rd	266	53
MANCHESTER -	50°6	69°7	60°2	41	1st	80	5	1°14	0°63	3rd	—	—
LLANDUDNO -	52°9	66°7	59°8	45	1st	80	6	0°96	0°61	3rd	250	50
LLANDOVERY -	48°1	75°6	61°9	38	10th	89	6	0°36	0°15	2nd	—	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	289	59
ARLINGTON -	49°3	69°4	59°4	42	10th, 14th	82	4	0°24	0°18	7th	—	—
CULLOMPTON -	48°5	73°2	60°9	42	5th, 11th	83	2	0°11	0°08	2nd	290	59
FALMOUTH -	53°3	66°8	60°1	45	9th	75	3	0°05	0°04	6th	329	68
PLYMOUTH -	54°2	73°2	63°7	46	9th	85	4	0°40	0°20	2nd	315	65
JERSEY -	*	*	*	*	*	*	*	*	*	*	298	62
LONDONDERBY -	51°9	75°8	63°9	46	30th	85	6	°79	0°26	3rd	—	—
MARKREE CASTLE -	49°2	69°7	59°5	40	22nd	83	6	0°41	0°15	6th	253	50
BROOKEBOROUGH -	49°8	71°4	60°6	44	22nd	85	2	0°43	0°34	6th	—	—
ARMAGH -	50°5	70°7	60°6	43	21st	83	5	0°69	0°45	3rd	254	50
EDGEWORTHSTOWN -	50°5	71°3	60°9	40	10th	84	2	0°17	0°11	6th	—	—
DUBLIN -	54°5	70°1	62°3	47	10th	78	5	0°25	0°09	3rd	288	58
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	263	53
KILKENNY CASTLE -	50°0	76°4	63°2	41	4th	92	4	0°20	0°07	7th	—	—
WATERFORD -	49°7	71°1	60°4	40	4th	87	3	0°48	0°24	7th	—	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	295	60
KILLARNEY -	49°5	72°2	60°9	40	22nd	84	8	0°77	0°17	3rd	—	—
FOYNES -	52°7	72°1	62°4	43	2nd	85	5	0°36	0°15	1st	—	—

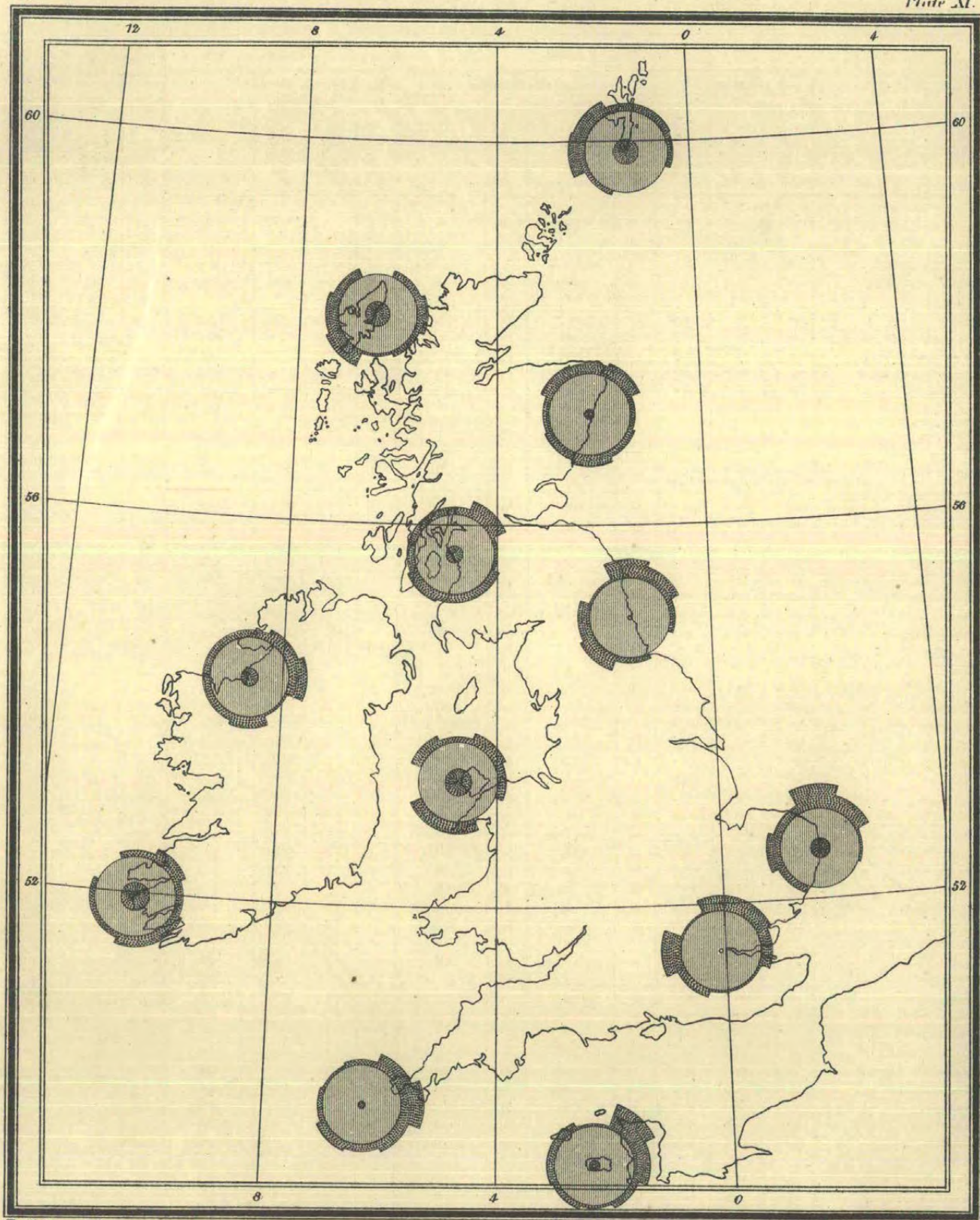
\* For information see Table XI.

† The bright sunshine values given for Bawtry are recorded at Worksop; those for Scarborough are recorded at Oswaldkirk.



# MONTHLY WIND CHART FOR JUNE 1887.

Plate XI.

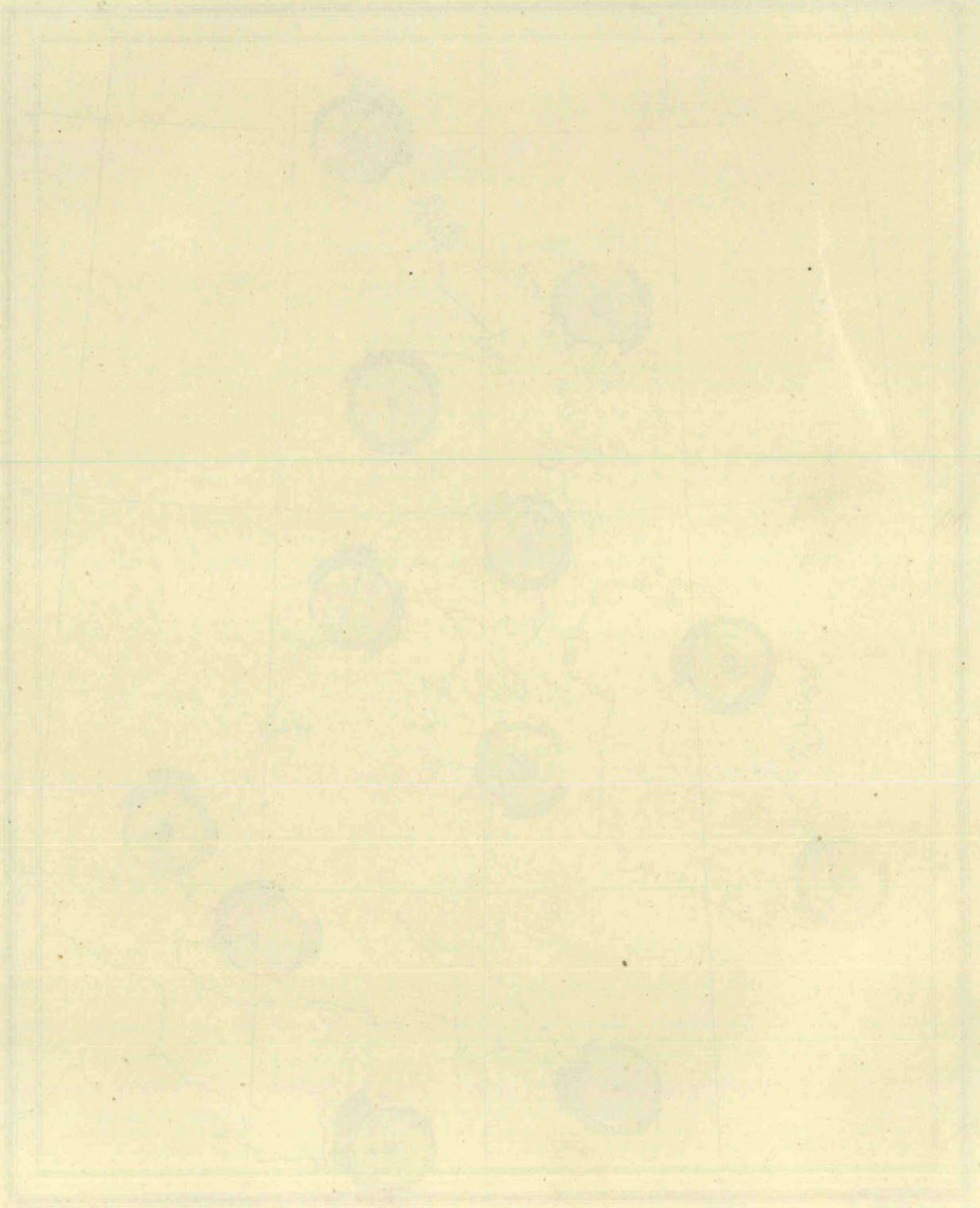


To face p. 62.

1052, 4-90



MONTHLY WIND CHART FOR JUNE 1885

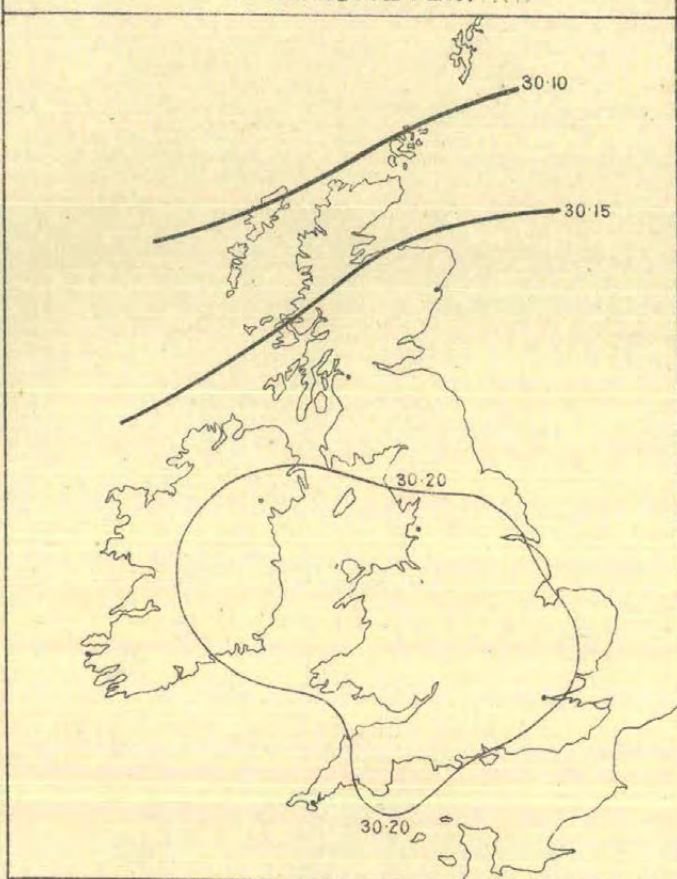




# MONTHLY WEATHER CHART JUNE 1887.

Plate XII.

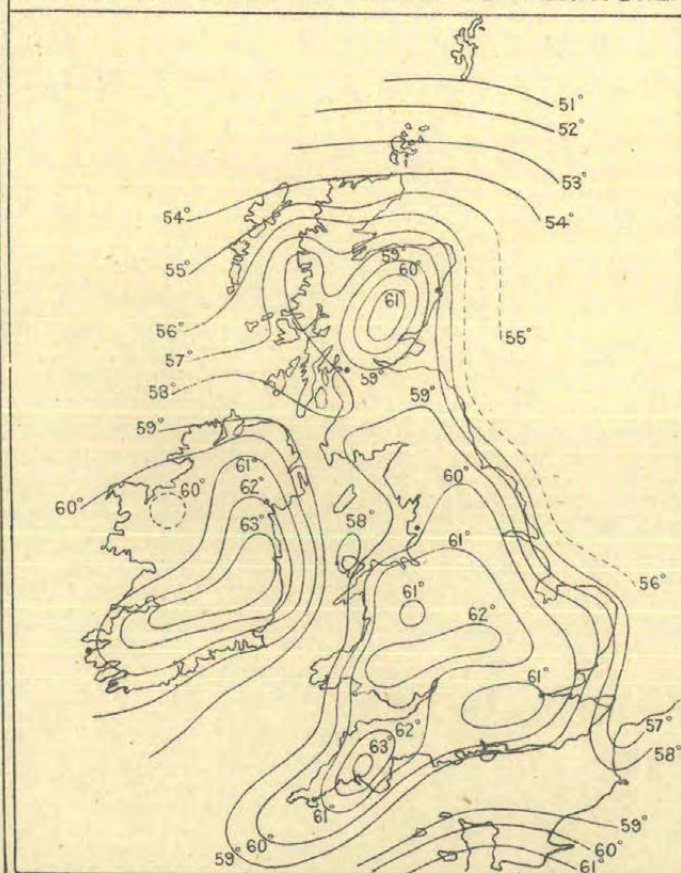
## 1. BAROMETER.



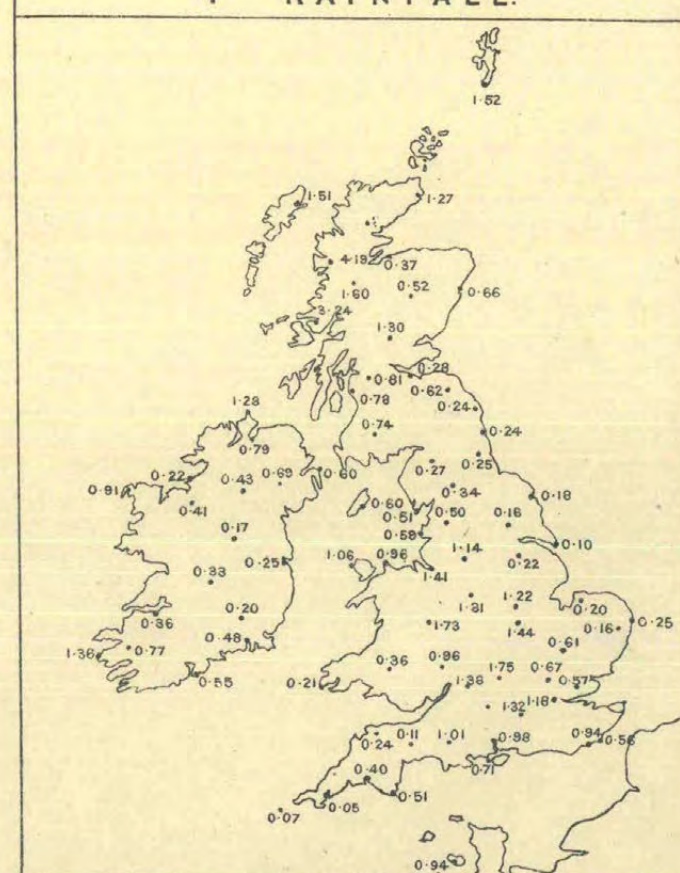
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE.



## 4 RAINFALL.









OFFICIAL COPY.

# MONTHLY WEATHER REPORT.

JULY 1887.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of July was mostly fine, warm, and dry over England, but less settled in Ireland and Scotland, where conditions were frequently influenced by depressions travelling north-eastwards outside our western and northern coasts. Pressure was a little below the average in the north, but above it in the south; temperature was considerably in excess of the normal over the central parts of Great Britain, but a trifle below it in the extreme north; the wind was chiefly South-westerly or Westerly in the west and north, but variable or North-easterly in the south; rainfall was considerably less than the average in all but our most northern and north-western districts; and the amount of bright sunshine was again large, especially in the east and south of England.

July 1-3.—The anticyclone which was in existence during the greater portion of June continued to prevail until the 3rd of the month, but the system underwent a gradual reduction in height, and moved southwards, owing to the appearance of some large depressions in the far north. The wind was light or moderate from the westward in all the more northern parts of the United Kingdom, but variable in the south. Fine warm weather was prevalent on all but our extreme northern and north-western coasts, the daily maxima being above 85° in many parts of England and France. At Cambridge, Bawtry, and Southampton the thermometer on the 3rd rose to 89°.

July 4-5.—Some small depressions, secondaries to the larger system in the far north, now travelled south-eastward across the United Kingdom, and the anticyclone receded to the south-westward. The wind therefore shifted to the North-westward or Northward in nearly all parts of the United Kingdom, and temperature fell quickly, the maximum readings over England on the 5th being nearly 20 degrees lower than those of the 3rd or 4th. The weather became showery in all but our south-western districts, and slight thunderstorms occurred in many places.

July 6-14.—During this period the highest pressures were found over Spain, France or Germany, while a series of large cyclonic disturbances travelled north-eastwards from the Atlantic, past our extreme north-western and northern coasts, to the west of Norway. The prevailing winds were therefore South-westerly, and on the 10th, when a secondary depression appeared over Scotland, they blew freshly or strongly over Ireland, England, and France. In the eastern, central, and southern parts of our Islands the weather was for the most part unaffected by the depressions in the west and north, and temperature again rose to a high level, maxima exceeding 80° being registered in many places on the 7th and 8th, and again on the 12th and 13th. During the latter part of the 13th, however, some small shallow disturbances advanced over our eastern districts, and thunderstorms (which had previously been felt on more than one occasion in Ireland and Scotland) became general over the greater part of England.



July 15-21.—A new anticyclone now appeared to the south-westward of our Islands, and extended slowly along our western coasts. The wind therefore veered to the Northward, and the weather showed a decided improvement in all but the south-eastern parts of the kingdom, where heavy thunderstorms were produced by an exceedingly small and shallow depression which formed in that neighbourhood between the 15th and 16th. During a severe storm which prevailed at Ingatestone on the latter date 1·80 ins. of rain fell in the space of about two hours. After the 17th the anticyclone in the west spread eastward over nearly the whole of western Europe, and fine weather became general, with light Westerly winds in the far north, and North-easterly or Easterly breezes in the south. Temperature, which was at first rather low, again rose to a high level, maxima exceeding  $80^{\circ}$  being recorded in many parts of England on the 20th and 21st.

July 22-29.—The anticyclone now moved slowly southwards and gradually dispersed, while a new series of depressions approached our extreme north-western and northern coasts from the Atlantic. The wind therefore shifted, first to the Westward and afterwards to the South-westward, and on the 26th and 27th, when a rather deep disturbance skirted the Irish and Scotch coasts, the South-westerly breeze increased considerably, and blew a gale in the west of Ireland. A slight Southerly gale was also experienced in the same locality on the 28th. The weather of the period was mostly changeable and showery, but very little rain fell in the more eastern parts of the kingdom. Temperature was scarcely as high as it had been during the prevalence of the anticyclonic conditions, but maximum readings exceeding  $75^{\circ}$  were of common occurrence over England. On the 22nd the thermometer rose to  $80^{\circ}$  at Cambridge and to  $81^{\circ}$  at Hillington.

July 30-31.—The series of depressions which had been passing along our extreme northern coasts now came to an end, and a new anticyclone began to spread over our Islands from the south-westward. Westerly winds, veering to North-west, set in generally, with improving weather in the west and north. Over France and the south-east of England, however, where local irregularities in pressure were observed for a time, the weather became very unsettled, and smart thunderstorms occurred in places. At the close of the month the anticyclone continued to extend eastwards, and fine warm weather was again becoming general.



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—JULY 1887.

NATURE OF CHARACTERISTICS OBSERVED.		No. XXII. July 17-18.
Form	- - - - -	Elliptical.
Size	- - - - -	Moderate.
Depth	- - - - -	Moderate.
Where first Observed	- - - - -	Over North Germany.
Direction of Motion	- - - - -	North-westerly at first, then westerly.
Rate of Motion	- - - - -	Slow.
Regions passed over by Steepest Gradients		The south of Norway, and the eastern parts of the North Sea.
Termination	- - - - -	Filled up over the extreme south of Norway.
Time under Observation	- - - - -	About 36 hours.
Accompanying Winds	- - - - -	Strong from the North-westward on the eastern shores of the North Sea, and from the Northward on the east coasts of Great Britain.
" Weather	- - - - -	Rainy in Germany, Denmark, and Scandinavia; showery in the east of Great Britain. Thunderstorms experienced at many of the German stations and also in the south-east of England.
" Rainfall	- - - - -	Slight in our Islands, but heavy in Germany; the largest amounts being 2.0 ins. at Cassel, 1.8 ins. at Hanover, and 1.6 ins. at Kiel.
REMARKS	- - - - -	{ During the progress of the main depression some small secondary disturbances were developed over Great Britain. The latter produced showers in many places, and thunderstorms in the south-east of England.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—JULY 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XVI. July 1-3.	No. XVII. July 6-7.	No. XVIII. July 15-23.
Form - - - - -	Apparently elliptical - - - -	Irregular and varying - - - -	Uncertain; central portion lay outside our area of observation.
Size - - - - -	Large - - - - -	Small - - - - -	Large.
Height - - - - -	Small - - - - -	Very small - - - - -	Uncertain, for reason given above.
Where first observed - -	Over the Atlantic at the close of June	To the south-westward of the United Kingdom.	To the south-westward of the United Kingdom.
Direction of Motion - -	Very slight; apparently in a westerly direction.	Easterly - - - - -	At first north-easterly, then southerly.
Rate of Motion - - - -	Slow - - - - -	Slow - - - - -	Very slow.
Regions passed over - -	The British Islands, France, the Netherlands, and the North Sea.	England, Ireland, the Bay of Biscay, and France.	Nearly the whole of western Europe.
Termination - - - - -	The system split into two portions, one of which passed away again over the Atlantic, while the other drifted eastwards to Germany.	Travelled eastwards to central Europe, where it gradually dispersed.	The system appears to have broken into two portions, one of which travelled eastward to Austria, while the other moved southward to Spain.
Accompanying Wind - - -	Light from South-west and West in the north, but North-easterly, changing to variable, in the south.	Variable, changing to South-westerly or Southerly over England; Easterly, varying to South-east, over France.	Chiefly moderate from the Northward, but subsequently backing to West and South-west.
„ Weather - - - - -	Dull in the extreme west and north; fine and very warm elsewhere.	Fine and dry; very warm in France, but less so over England.	Fine generally, but heavy thunderstorms experienced in the south-east of England at commencement of time.
REMARKS - - - - -	This system was identical with that noticed during the greater part of June. Its dispersal was brought about partly by a large depression which appeared in the far north, and partly by some secondary disturbances which travelled south-eastwards across the United Kingdom.		The thunderstorms noticed in the south-east of England were occasioned by a small and exceedingly shallow depression which formed on the borders of the anticyclone.



## SECTION III.

REMARKS FOR JULY 1887.

*(Tables XIII. and XIV. and Plates XIII. and XIV.)*

*Pressure.*—The mean pressure of the air at 8 a.m. varied from 30·05 inches and upwards over the Channel and south of England to 29·80 inches in the Shetlands. The general distribution of pressure was of a normal character; but as the barometer in the far north was a few hundredths of an inch below its average value, while that in the extreme south was nearly a tenth of an inch above, the mean gradient was somewhat steeper than is ordinarily the case in July. The highest readings occurred as a rule on the 17th, when the barometer ranged from 30·2 inches, or a little above on the eastern and south-eastern coasts of Great Britain to about 30·4 inches in the west of Ireland. Over England and Ireland the mercury was equally high on the 19th and 20th, but in the north of Scotland it had then fallen to about 30·1 inches. The lowest readings were observed during the passage of a depression which skirted our western coasts on the evening of the 26th, the barometer ranging from about 29·1 inches in the north-west of Ireland to about 29·7 inches over the English Channel. The extreme range of pressure was slight, especially on our south-eastern coasts, where it did not amount to more than three quarters of an inch.

*Movements of Depressions.*—No depression of any importance came directly over the United Kingdom, the centres of disturbance being usually at a considerable distance from our western or northern coasts. Between the 16th and 18th a well-defined system (No. XXII.\*), which was originally formed over Germany, advanced in a north-westerly direction to the south of Norway. This disturbance was however not of sufficient depth to produce any material effect upon the weather of our Islands.

*Anticyclones.*—These were three in number, the first being virtually the same as that observed during so large a portion of June. The most important system was that which prevailed from the 15th to the 23rd (Section II., No. XVIII.), but owing to changes in the position of its central area, and to consequent variations in the winds the temperature and weather observed during its prevalence underwent considerable fluctuations.

*Winds.*—In all the more western and northern parts of the kingdom the prevailing winds were chiefly South-westerly and Westerly, but in the south-east of England there was a somewhat large proportion of breezes from the North-westward, and in the Channel Islands the North-easterly current was largely represented. No gales were experienced on the east and south-east coasts of Great Britain, and very few in the English, Irish, or St. George's Channels. In the west of Ireland, however, there were more, Valencia reporting 6, and Mullaghmore as many as 9.

*Temperature.*—The mean (sea level) temperature of the month ranged from 65° to 66° or more over our midland and south-eastern counties, from 65° or more over the Channel Islands, West Cornwall, and some parts of the south-east of Ireland, and from 62° or more in the south-east of Scotland to a little below 53° in the Shetlands. The general distribution did not differ very materially from the normal, but the values were in excess of the average for the 20 years 1861–80 in all localities excepting the extreme north of Scotland, where a slight deficit was shown. Over the central parts of England and Scotland and in the Channel Islands, the excess amounted to nearly three degrees, while in the south-east of Ireland it was slightly above that amount. The highest readings were recorded on somewhat irregular dates. Over the eastern half of England they occurred as a rule either

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



on the 3rd, in the north and west of Scotland and the west of England on the 8th, and in the east of Scotland on the 1st, while in Ireland the absolute maxima were registered for the most part either on the 3rd or 7th. The lowest readings also were observed at varying times. Over Great Britain the coldest days were either the 6th, the 18th, or the 19th, the first-mentioned date being the most common at stations situated on or near the coasts, while the two last were the coldest in the more central districts. In Ireland the absolute minima occurred at most irregular times. The range was large, especially at the inland stations; at Hillington and Bawtry it amounted to as much as  $50^{\circ}$ .

*Vapour Tension* ranged from 0·34 in. in the Shetlands, to between 0·44 in. and 0·46 in. over the central and southern parts of Ireland, to 0·48 in. over the east and south-east coasts of England, and to 0·50 in. in the Scilly Islands. *Relative Humidity* was as low as 66 per cent. at Cambridge, and was below 75 per cent. at many of the inland English stations as well as in the south-east of Scotland. At Malin Head and Barrow in Furness, however, the per-centage was as high as 91, while at Stornoway and Pembroke it was 92.

*Rainfall* varied from less than an inch at many of the English stations to 3 inches or more over some parts of South Wales, the north of Ireland and the extreme north of Scotland, to about 6 inches at Laudale and Glenlee, and to 7·4 inches at Glencarron. In some parts of our eastern counties (at Geldeston and Ingatestone, for example) the aggregate was largely swollen by heavy local falls which accompanied the thunderstorms on the 15th and 16th. Compared with the average for the 20 years 1866–85, the values show a marked deficiency in all but the extreme northern and north-western parts of the kingdom, where there was a slight excess. In some portions of the eastern and southern districts of England the aggregate fall amounted to very little more than one fourth of the average. The number of rainy days exhibited a similar variation, ranging from between 6 and 10 over the eastern and central parts of the country to 20 and more in the western and northern parts of Ireland and Scotland. At Dungeness there were only 6 days with rain, while at Laudale and Malin Head there were 26 and at Glencarron 27.

*Bright Sunshine.*—The amount of bright sunshine was again very large, but with the exception of those registered at a few of our eastern and southern stations, the values were somewhat lower than in June. In the east and south of England the per-centage of the possible amount of duration was mostly above 50; at Southampton and Jersey it was as much as 60, at Hastings 61, and at Ingatestone 62. In Ireland and Scotland, however, there was less than 40 per cent., the lowest per-centages of all being 27 at Stornoway and Markree and 30 at Armagh.



**SUMMARY OF THE METEOROLOGICAL OBSERVATIONS**

MADE AT

**TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS**

**DURING THE MONTH OF JULY 1887.**



TABLE XIII. -

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.							
			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° 80' 1	52° 4	47° 7	57° 0	52° 4	39	7th	64	1st
	Wick -	29° 84' 5	57° 3	48° 8	63° 5	56° 2	38	7th	75	1st
	Stornoway -	29° 81' 7	55° 9	49° 6	61° 6	55° 6	39	6th, 18th	70	8th
1. SCOTLAND, E.	Nairn -	29° 86' 4	58° 2	51° 4	67° 4	59° 4	40	6th, 18th	78	1st
	Aberdeen -	29° 89' 1	59° 7	50° 9	67° 1	59° 0	39	6th	76	1st, 9th
	Leith -	29° 92' 2	61° 2	53° 6	70° 9	62° 3	41	6th	82	8th
2. ENGLAND, N.E.	Shields -	29° 96' 0	61° 8	53° 7	68° 5	61° 1	42	6th	79	2nd, 3rd
	York -	30° 00' 5	62° 5	53° 3	74° 4	63° 9	40	6th	85	3rd
	Spurn Head -	30° 01' 1	62° 1	56° 6	69° 2	62° 9	50	6th, 18th	80	12th
3. ENGLAND, E.	Yarmouth -	30° 03' 4	63° 9	56° 5	70° 4	63° 5	46	6th, 19th	79	24th
	Cambridge -	30° 04' 4	65° 7	53° 2	78° 7	66° 0	41	19th	89	3rd
4. MIDLAND COUNTIES	Loughborough -	30° 04' 1	64° 0	53° 7	76° 6	65° 2	42	6th, 18th, 19th	86	3rd
	Oxford -	30° 05' 9	62° 8	54° 4	74° 8	64° 6	44	18th	85	3rd
5. ENGLAND, S.	London -	30° 06' 4	64° 9	55° 4	77° 1	66° 3	46	19th	88	4th
	Dungeness -	30° 05' 6	61° 8	55° 9	67° 9	61° 9	44	19th	77	3rd
	Hurst Castle -	30° 08' 0	63° 1	54° 6	70° 8	62° 7	46	18th, 19th	76	3rd, 4th, 9th, 16th.
6. SCOTLAND, W.	Ardrossan -	29° 93' 4	59° 1	53° 3	64° 5	58° 9	48	6th	73	8th
7. ENGLAND, N.W.	Hawes Junction* -	28° 76' 9	57° 0	49° 2	64° 5	56° 9	36	6th	78	8th
	Barrow-in-Furness -	29° 99' 2	59° 7	56° 3	65° 8	61° 1	48	6th	79	8th
	Liverpool -	30° 01' 3	63° 0	56° 6	69° 8	63° 2	49	6th	83	8th
	Holyhead -	30° 01' 6	61° 0	55° 0	66° 1	60° 6	51	26th	79	8th
8. ENGLAND, S.W.	Pembroke -	30° 04' 5	60° 3	56° 0	64° 3	60° 2	53	5th, 17th, 31st	72	21st
	Prawle Point -	30° 08' 3	63° 2	54° 6	68° 9	61° 8	49	18th, 31st	82	4th
9. IRELAND, W.	Malin Head -	29° 90' 1	58° 6	54° 8	64° 0	59° 4	47	6th	75	8th
	Donaghadee -	29° 97' 3	60° 3	54° 2	67° 5	60° 9	49	1st, 6th	80	3rd
	Mullaghmore -	29° 94' 7	60° 2	55° 3	65° 5	60° 4	50	29th, 31st	72	3rd, 7th
	Belmullet -	29° 95' 5	60° 3	56° 3	63° 9	60° 1	49	16th	71	8th
10. IRELAND, S.	Parsonstown -	30° 00' 0	61° 3	53° 3	69° 6	61° 5	45	16th	77	1st
	Valencia -	30° 01' 4	62° 8	55° 8	67° 1	61° 5	49	16th	71	1st, 2nd, 6th
	Roche's Point -	30° 02' 2	62° 0	56° 4	68° 2	62° 3	49	30th	76	19th
CHANNEL ISLANDS	Scilly (St. Mary's) -	30° 06' 6	64° 3	58° 7	68° 8	63° 8	54	31st	72	6th, 8th, 24th
	Jersey (Noirmont) -	30° 08' 0	64° 3	57° 1	71° 2	64° 2	48	19th	81	3rd

\* 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 1887.

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.							WIND.								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	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.
in.	%.		ins.	ins.																	
0.343	87	8.4	2.84	0.52	23rd	24	0	0	0	2	20	0	5	0	1	2	2	5	9	2	5
.382	81	7.0	3.40	0.84	8th	17	0	0	2	4	13	0	3	0	0	1	7	6	3	9	2
.409	92	8.4	4.40	0.65	12th	22	0	0	0	1	17	2	1	1	0	1	1	15	5	0	7
.377	78	5.8	2.05	0.42	4th	20	0	0	0	7	9	0	2	1	0	1	2	5	11	2	7
.380	75	5.9	1.94	0.46	10th	17	0	0	1	6	9	0	4	1	0	2	5	10	5	4	0
.386	72	6.3	2.18	0.47	27th	18	0	0	4	5	6	0	1	1	1	0	2	5	15	5	1
.429	78	6.0	0.73	0.26	4th	9	0	0	2	7	6	0	2	4	0	1	5	13	3	3	0
.430	77	3.9	1.10	0.47	26th	10	0	0	0	16	4	0	5	0	0	0	6	2	13	5	0
.464	83	3.0	0.57	0.20	4th	7	0	0	1	15	1	0	7	0	1	2	2	7	6	6	0
.450	76	3.1	1.26	0.55	31st	10	0	0	2	15	0	0	3	3	1	1	4	7	6	6	0
.418	66	3.3	0.60	0.33	16th	8	0	0	3	17	5	0	6	1	1	1	4	9	4	5	0
.440	74	6.0	0.75	0.26	24th	8	0	0	1	6	9	1	1	0	2	2	2	6	12	4	2
.434	76	4.7	0.69	0.26	24th	7	0	0	1	14	7	0	2	5	0	2	3	9	2	2	6
.428	71	4.0	1.12	0.42	15th	9	0	0	2	14	4	0	1	4	1	1	5	7	7	4	1
.478	87	5.4	1.00	0.83	16th	6	0	0	1	7	7	0	6	3	5	0	1	6	8	1	1
.484	83	4.7	1.09	0.62	17th	8	0	0	1	8	1	1	2	4	4	2	1	10	6	1	1
.421	84	7.0	2.51	0.50	8th	19	0	0	0	5	15	2	0	0	1	1	7	9	4	6	3
.394	85	6.5	3.97	1.18	26th	19	0	0	4	10	17	0	6	1	0	5	9	7	2	1	0
.460	91	5.5	1.13	0.45	9th	10	0	0	0	3	9	2	1	4	1	4	1	8	3	9	0
.403	70	5.6	1.12	0.31	26th	14	0	0	0	6	7	1	1	0	1	3	2	7	12	5	0
.448	84	5.1	1.99	0.44	26th	14	0	0	1	9	3	0	3	0	0	1	6	10	5	3	3
.480	92	5.7	2.31	0.83	26th	12	0	0	0	4	7	2	4	4	2	4	2	9	3	3	0
.456	79	5.2	1.10	0.56	24th	10	0	0	0	12	10	1	4	3	3	0	5	6	5	3	2
.445	91	9.5	3.64	0.63	26th	26	0	0	1	1	29	0	3	1	0	0	7	5	10	5	0
.434	83	5.9	2.55	0.48	9th	21	0	0	0	7	8	1	3	4	0	0	5	10	6	3	0
.423	82	7.5	4.17	0.88	26th	20	0	0	1	1	7	9	1	0	0	3	5	9	5	7	1
.416	80	8.0	3.39	0.43	14th	24	0	0	0	3	20	3	2	0	0	0	5	10	9	5	0
.436	81	7.1	2.87	0.58	9th	14	0	0	0	1	11	0	0	0	0	4	3	11	2	1	10
.455	80	8.2	2.99	0.54	9th	20	0	0	1	1	18	6	3	1	1	2	6	7	4	5	2
.462	83	4.7	1.94	0.65	12th	11	0	0	0	10	5	0	7	1	0	1	5	7	6	1	3
.501	83	5.7	1.40	0.45	26th	12	0	0	0	7	8	0	6	5	0	0	4	9	4	2	1
.454	74	4.5	0.42	0.15	29th	7	0	0	0	14	9	0	3	8	3	0	1	9	4	3	0

barometric observations at this station are not corrected 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 1887.

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 -	*	*	*	*	*	*	*	*	*	*	*	145	27
LAIRG -	48'3	64'4	56'4	33	6th	77	8th	17	1'95	0'41	10th	—	—
GLENCARRON -	49'4	62'7	56'1	39	6th, 18th	76	8th	27	7'36	0'83	7th	—	—
FORT AUGUSTUS -	49'6	65'4	57'5	36	18th	78	8th	23	4'35	0'60	9th	—	—
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	205	39
BRAEMAR -	49'1	65'4	57'3	36	6th, 31st	76	1st	20	1'70	0'22	4th	171	33
OGHTERTYRE -	50'7	71'4	61'1	39	5th	82	1st	16	2'39	0'76	26th	—	—
MARCHMONT -	50'7	68'5	59'6	38	6th, 18th	80	1st	17	2'21	0'50	4th	182	35
ALNWICK CASTLE -	53'3	66'5	59'9	43	5th	75	1st, 2nd	13	2'57	0'83	4th	—	—
DURHAM -	52'1	73'4	62'8	38	6th	84	21st	12	0'82	0'28	5th	216	42
SCARBOROUGH -	54'7	71'3	63'0	45	6th	84	1st	16	0'96	0'45	26th	†221	44
YORK -	*	*	*	*	*	*	*	*	*	*	*	209	41
HILLINGTON -	52'2	77'4	64'8	37	19th	87	3rd, 8th	13	1'36	0'76	31st	281	56
GELDESTON -	53'6	74'7	64'2	41	19th	86	3rd, 13th	12	2'04	0'55	15th	288	58
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	290	59
ROTHAMSTED -	52'1	75'9	64'0	41	19th	86	4th	11	0'71	0'20	26th	—	—
INGATESTONE -	53'0	74'8	63'9	43	19th	86	4th	10	2'69	1'80	16th	306	62
BAWTRY -	52'6	75'6	64'1	39	5th	89	3rd	7	1'83	1'11	16th	†228	46
LEICESTER -	54'5	76'7	65'6	43	18th	88	3rd	9	0'77	0'25	4th	188	38
CHEADLE -	52'9	71'4	62'2	43	18th	81	3rd, 8th	13	1'87	0'53	26th	—	—
CHURCHSTOKE -	50'1	72'2	61'2	41	6th, 18th	83	3rd	11	1'67	0'61	26th	245	49
HEREFORD -	52'3	76'6	64'5	41	18th	88	3rd	9	0'88	0'30	26th	—	—
CIRENCESTER -	52'2	73'9	63'1	42	18th	84	3rd	9	0'95	0'23	26th	261	53
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	266	54
LONDON -	*	*	*	*	*	*	*	*	*	*	*	256	52
STRATHFIELD TURGIS -	51'1	78'4	64'8	40	18th	88	3rd, 4th	9	0'80	0'22	24th	—	—
HASTINGS -	55'9	69'8	62'9	49	18th, 19th	80	3rd	8	0'42	0'12	17th	299	61
SOUTHAMPTON -	55'0	76'3	65'7	47	18th, 19th	89	4th	8	0'80	0'49	26th	294	60
STOWELL -	52'9	72'4	62'7	43	18th	81	3rd	11	0'93	0'28	14th	228	47
LAUDALE -	52'4	64'4	58'4	42	17th	74	8th	26	5'84	0'95	26th	—	—
GLASGOW -	51'2	66'6	58'9	40	6th	78	8th	22	2'86	0'48	23rd	146	28
GLENLEE -	52'0	67'9	60'0	34	6th	80	8th	21	6'16	1'15	26th	—	—
DOUGLAS -	52'5	66'6	59'6	43	6th	75	1st	11	2'46	0'87	9th	247	49
NEWTON REIGNY -	50'8	68'4	59'6	35	6th	81	8th	15	2'01	0'40	9th	218	43
STONYHURST -	52'6	69'0	60'8	41	5th	80	8th	13	2'26	0'57	26th	247	49
BLACKPOOL -	55'2	67'5	61'4	46	18th	83	8th	15	1'82	0'67	26th	223	44
MANCHESTER -	53'2	71'1	62'2	43	18th	82	3rd, 8th	12	1'50	0'63	26th	—	—
LLANDUDNO -	56'0	68'4	62'2	46	6th	84	8th	10	1'18	0'28	24th	205	41
LLANDOVERY -	50'0	74'0	62'0	38	17th	86	3rd	16	3'26	1'04	26th	—	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	*	257	52
ARLINGTON -	52'4	69'9	61'2	44	6th, 31st	79	8th	14	2'43	0'60	26th	—	—
CULLOMPTON -	51'9	74'0	63'0	43	31st	84	2nd	10	1'42	0'38	26th	245	50
FALMOUTH -	56'7	69'9	63'3	51	19th	76	8th	12	1'73	0'54	26th	281	58
PLYMOUTH -	58'0	72'7	65'4	51	31st	81	4th	9	1'39	0'46	26th	251	52
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	290	60
LONDONDERRY -	53'7	65'8	61'3	46	6th	80	8th	24	3'30	0'60	26th	—	—
MARKREE CASTLE -	51'9	66'5	59'2	39	15th	75	3rd	23	3'48	0'94	26th	136	27
BROOKEBOROUGH -	52'5	67'1	59'8	43	15th, 16th	78	1st	14	3'42	0'61	3rd, 26th	—	—
ARMAGH -	49'1	68'4	60'8	45	6th	78	1st	20	3'21	0'57	13th	149	30
EDGEWORTHSTOWN -	51'8	69'0	60'4	45	16th, 23rd, 25th	78	1st, 19th	17	3'06	0'50	9th	—	—
DUBLIN -	50'6	70'8	63'7	50	18th	77	3rd, 7th	13	1'19	0'53	31st	191	38
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	164	33
KILKENNY CASTLE -	53'6	74'9	64'3	45	23rd, 25th	84	6th, 11th, 19th, 21st, 3rd	13	1'98	0'34	12th	—	—
WATERFORD -	53'6	72'2	62'9	43	18th	81	3rd	12	2'40	0'82	12th	—	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	194	39
KILLARNEY -	54'2	68'6	61'4	43	16th	75	6th	20	2'77	0'57	30th	—	—
FOYNES -	55'5	68'9	62'2	48	31st	77	7th	20	1'93	0'46	9th	—	—

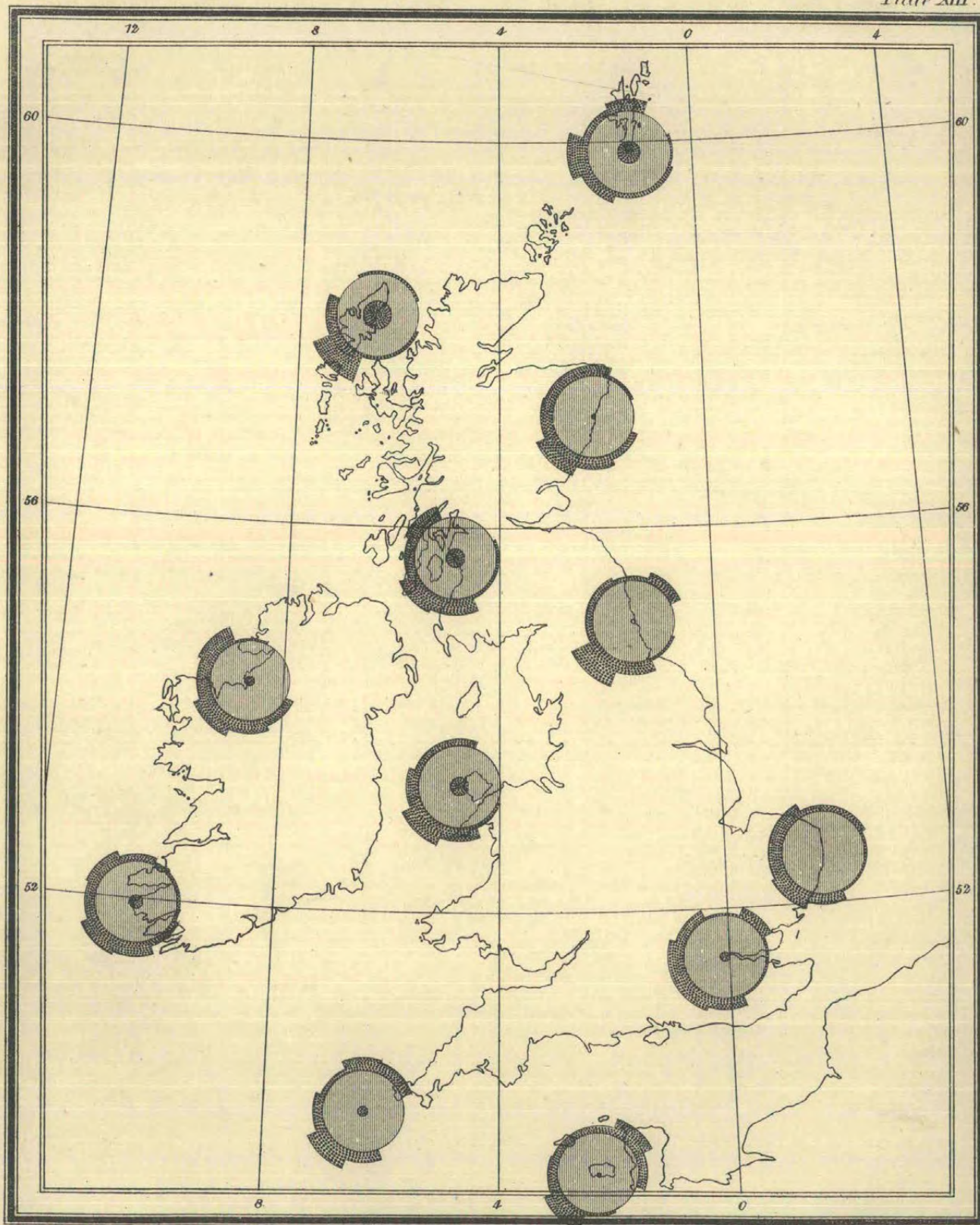
\* For information see Table XIII.

† The bright sunshine values given for Scarborough are recorded at Oswaldkirk, and those for Bawtry at Worksop.



# MONTHLY WIND CHART FOR JULY 1887.

Plate XIII.



To face p. 72.

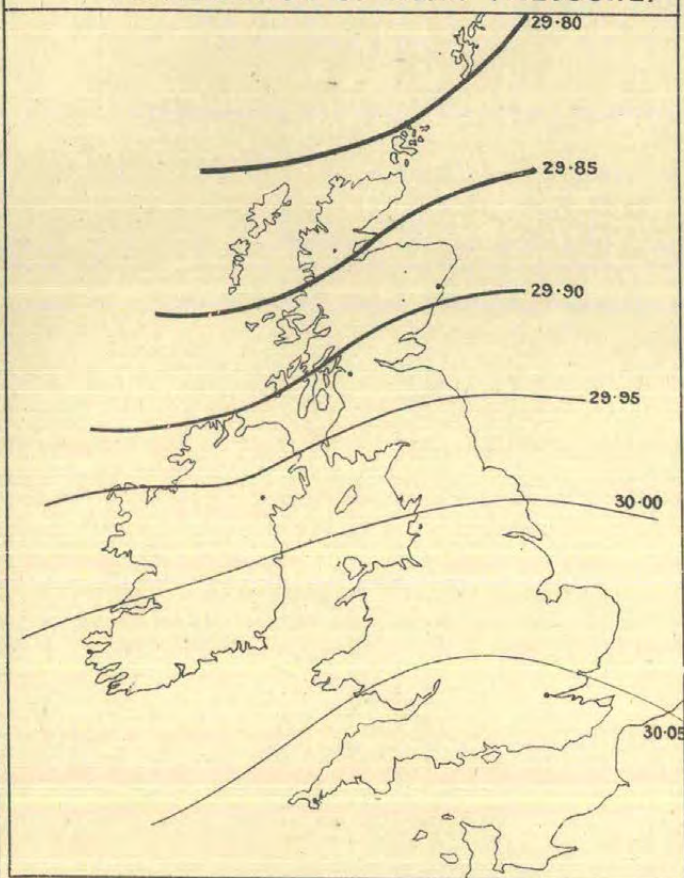
Judd & Co. Ltd. Lith. 73 & 75, Farringdon Rd. & Doctors' Commons. 1/25.5.90.







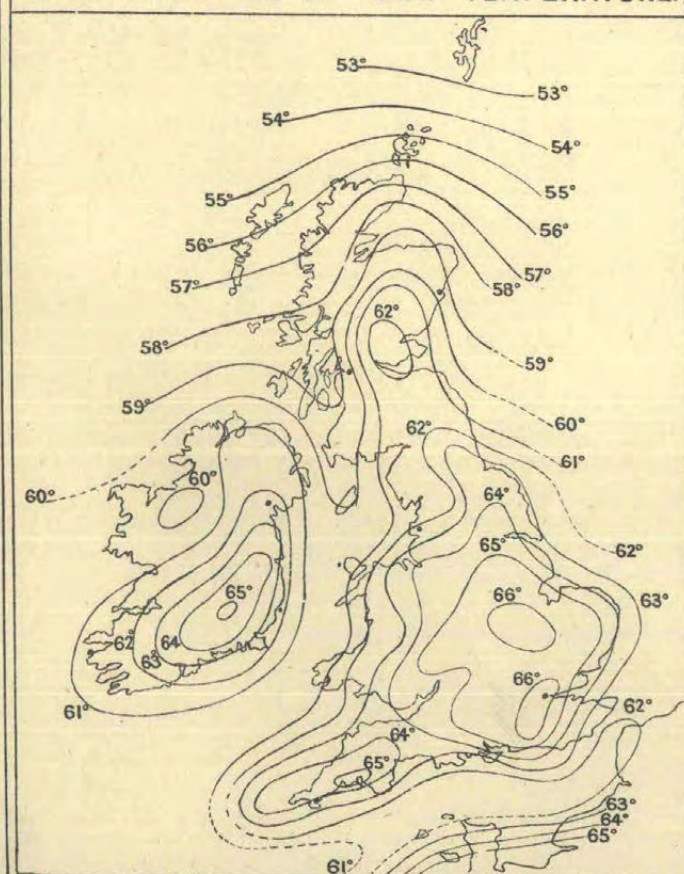
1. DISTRIBUTION OF MEAN PRESSURE.



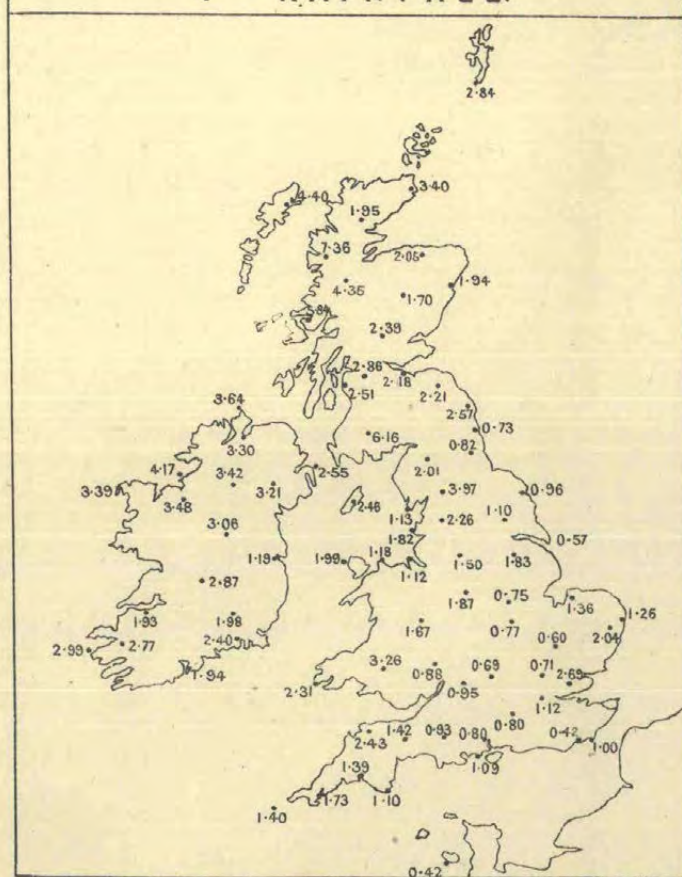
2. MOVEMENTS OF DEPRESSIONS.



3. DISTRIBUTION OF MEAN TEMPERATURE.



4. RAINFALL.









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MONTHLY WEATHER REPORT

AUGUST 1887.

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SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE fine dry weather which characterised the summer of 1887 continued until the middle of August, when a decided change took place, the remainder of the season being cold, showery, and thundery. The mean pressure for the month was in excess of the average; temperature was at about its normal height, excepting in the north of Scotland, where there was a slight deficiency; the winds were variable; and rainfall was for the most part less than the average, notable exceptions being shown, however, in localities visited by the heavy thunderstorms of the 16th and 17th. The amount of bright sunshine was again large, especially over the eastern, central, and southern parts of England, where the per-centage of the possible duration exceeded 50.

August 1-4.—During the first four days of the month a large anticyclone moved steadily to the eastward, across western Europe. On the 1st and 2nd, when the central portion of the system lay off our south-west coasts, light breezes from the North-westward prevailed generally, but as the highest pressure moved away, the wind shifted to South-east and South. The weather was fine in nearly all places, and the change of wind was accompanied by a gradual rise in temperature.

August 5-9.—The weather of this period was affected to a large extent by the passage of depression No. XXIII.\* As the system approached from the Atlantic, freshening Southerly winds and showery weather were experienced in all our more western and northern districts, while in the rear of the disturbance the wind shifted to West or North-west, and blew strongly on many parts of our northern coasts. In the eastern and southern parts of the kingdom the weather was not materially affected, and the steady rise of temperature which took place over England resulted in some very high readings, the maxima of the 6th being as high as 89° at Cambridge, 88° at Strathfield Turgiss, and 87° in London and at Hillington.

August 10-14.—During the 8th and 9th a large anticyclone appeared over the south-west of our Islands, and for three days from the 10th the central portion of this system lay off our extreme western coasts. A large depression now moved south-eastwards across Scandinavia, and in its rear several small secondary disturbances travelled in a similar direction across the United Kingdom, occasioning showery weather in most places. The shift of wind to the Northward, which occurred on the 10th, was followed by a decided reduction in temperature, and at the close of the period the daily maxima were below 70° generally, and below 60° at most of the northern stations.

August 15-19.—The distribution of pressure now became very complex. On the 15th a small and shallow depression advanced north-eastwards across the Bay of Biscay and France

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



its centre ultimately passing away to the Netherlands. The system was not of sufficient importance for its details to be tabulated in Section II., but its progress was attended by thunderstorms, and heavy rain at some of the French stations as well as in the extreme south-east of England. In the meantime a new and large disturbance (No. XXIV.)\* began to show itself off the west of Ireland, and on the 17th, when this moved steadily eastwards across England, thunderstorms and heavy rain were experienced very generally. The storm which visited London on the evening of the 17th was of exceptional severity, and was accompanied by exceedingly heavy rain; at Brixton Hill the fall amounted to 2.02 ins., at Camden Town to 1.42 ins., and at Clapham to 0.97 in. In the front of the system the winds were light and variable, but in its rear a decided North-westerly current set in, with cool weather and an occasional renewal of thunderstorms in many parts of England. On the night of the 19th another small depression advanced across the Bay of Biscay in a similar direction to that of the 15th, and occasioned rain and lightning at some of the southern stations. This disturbance was, however, very shallow, and dispersed quickly on reaching the north of France.

August 20-23.—During the 20th the barometer rose generally, and on the 21st and 22nd the central portion of a large anticyclone moved eastwards over France and our southern districts. The weather therefore underwent a marked improvement, and temperature showed a decided inclination to rise, the maximum readings of the 22nd and 23rd being above 75° at some of the English stations. The winds, which were at first light and variable, ultimately shifted to the South-eastward or Southward, and on the 22nd they blew strongly in the west of Ireland.

August 24-28.—During this period the highest pressures were found over central and northern Europe, while a series of cyclonic disturbances travelled along the west coasts of our Islands in the direction shown by the arrow A in Chart 2, Plate XVI. Southerly winds were therefore experienced very generally, and in Ireland and the west of Scotland they were frequently strong in force. Over England and the east of Scotland the weather was not materially affected by the western depressions, and temperature therefore continued to rise, the maximum readings of the thermometer on the 25th being above 80° in many of the central, southern, and eastern districts. After this date, however, shallow secondary disturbances began to appear more directly over the United Kingdom, and the showery weather, which had previously been confined to our western stations, became general, with some decrease in temperature over England.

August 29-31.—On the 27th and 28th the high-pressure system over northern and central Europe gradually dispersed, while a new anticyclone appeared over Spain and the Bay of Biscay. The weather now became increasingly unsettled, with fresh to strong South-westerly winds, showers, and local thunderstorms in most districts. On the 31st, when the centre of a large depression (No. XXV.)\* passed across Scotland, the wind rose to the force of a moderate gale on several parts of our western and southern coasts, and thunder occurred at many of the English and French stations.

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



## SECTION II.

## TABLE OF CYCLONIC SYSTEMS.—AUGUST 1887.

NATURE OF CHARACTERISTICS OBSERVED.		No. XXIII. August 7-8.	No. XXIV. August 16-18.	No. XXV. August 31.
Form	- - -	Elliptical - - -	Irregular and varying - - -	Varying, but more or less circular.
Size	- - -	Moderate - - -	Moderate - - -	Very large.
Depth	- - -	Shallow - - -	Very shallow - - -	Moderate.
Where first Observed	-	To the north-westward of Ireland	Off the west of Ireland	To the westward of Ireland.
Direction of Motion	-	East-north-easterly at first, then easterly.	Easterly - - -	East-north-easterly.
Rate of Motion	- -	Moderate - - -	Slow - - -	Moderate.
Regions passed over by Steepest Gradients.	by	Scotland, Norway, and the adjacent portions of the North Sea.	The west coasts of our Islands and France.	Ireland, England, the north of France, and the southern parts of the North Sea.
Termination	- -	Uncertain; the system probably dispersed over Ireland.	Dispersed on reaching Germany	Apparently dispersed over the south of Norway.
Time under Observation	-	About 40 hours - - -	Two days - - -	About 24 hours.
Accompanying Winds	-	Fresh to strong from the Westward and North-westward over the northern parts of our Islands and the south of Norway.	Light and variable in front of system, but fresh to strong from the Northward and North-westward in its rear.	Variable in Scotland; strong from the South-westward and Westward over Ireland, England, and the north of France.
" Weather	-	Squally and rainy - - -	Changeable and showery, with thunderstorms in many parts of England and France; that of 17th unusually severe in London.	Squally and showery, with thunder in many places.
" Rainfall	-	General in Ireland, Scotland, and Norway, and heavy in many places.	General; very heavy locally, especially in the southern suburbs of London.	General over western Europe; heavy in many parts of Ireland and England.
REMARKS	- -	<p>This depression was subsidiary to a much larger disturbance which advanced towards the north-west coast of Norway from the westward. During its passage across Scandinavia, the secondary system gradually became very shallow.</p>		<p>The steepest gradients were found on the borders of this system, not in the immediate neighbourhood of its centre.</p>



## SECTION II.

TABLE OF ANTICYCLONIC SYSTEMS.—AUGUST 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XIX. August 1-5.	No. XX. August 7-11.	No. XXI. August 21-23.
Form - - - - -	Irregular and varying - - - -	Uncertain; a large portion of the system lay outside our area of observations.	Irregular and varying.
Size - - - - -	Large - - - - -	Large - - - - -	Large.
Height - - - - -	Small - - - - -	Doubtful, but probably small - -	Very small.
Where first Observed - - -	To the south-westward of our Islands	To the south-westward of our Islands	Off the west of Ireland.
Direction of Motion - - -	North-easterly at first, then easterly, and finally south-easterly.	Easterly at first, then westerly, and finally northerly.	Easterly.
Rate of Motion - - - - -	Slow at first, then very slow - - -	Slow at first, then very slow - - -	Slow.
Regions passed over - - -	Nearly the whole of western Europe -	The United Kingdom, France, and the Bay of Biscay.	Ireland, England, France, Germany, and the north of Spain.
Termination - - - - -	Passed south-eastwards across Germany, and finally disappeared over Austria.	Dispersed off our western and southern coasts.	Gradually dispersed over Germany.
Accompanying Winds - - -	Westerly and North-westerly, falling light and variable, and afterwards changing to Southerly and South-easterly.	Westerly at first, then Northerly; the latter wind strong in force at some of our northern stations.	Northerly, shifting to the Southward, and freshening in the west.
Weather - - - - -	Fine generally, with high temperature over England and France.	Fine generally, but rather showery on our northern coasts. Temperature high over England at first, but falling later.	Fine and warm over England and France, but showery in Ireland and Scotland.
REMARKS - - - - -	During the first two days of the period, when a large depression lay over Scandinavia, showers were experienced on many parts of our northern and eastern coasts.	The influence of this system was not felt for long in the northern and eastern parts of the United Kingdom, the weather in these localities being more often affected by large depressions travelling south-eastwards across Scandinavia.	As this system passed away a series of depressions began to travel northwards along our western coasts, their tracks being shown approximately by the dotted line A in Chart 2, Plate XVI.



## SECTION III.

REMARKS FOR AUGUST 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from a little above 30·00 inches in a small area extending from Normandy to the southern part of our Midland counties, and from 29·95 inches or more over Ireland and England generally, to a little below 29·84 inches in the Shetland Islands. Over the southern half of the kingdom the mean gradient was therefore less steep than usual, but in the more northern districts there was, in this respect, no material departure from the normal. The values were everywhere in excess of the average for the 20 years 1861–80, the difference being very slight in the extreme northern and southern parts of the country, but greater in the more central districts. In Ireland and the north of England the excess varied between 0·03 in. and 0·05 in. The highest readings were observed over the United Kingdom generally on the 3rd, when the barometer ranged between 30·3 inches and 30·4 inches, but in the south-west of our Islands readings of equal value were recorded on the 1st and 2nd also, and again on the 8th. The lowest readings were registered on the morning of the 31st during the passage of depression No. XXV., when the barometer ranged from 29·2 inches or less over Scotland and the extreme north of Ireland to between 29·5 inches and 29·6 inches in the extreme south of England.

*Movements of Depressions.*—The tracks of the more important systems lay, as a rule, to the westward or northward of our Islands, the direction of their motion being North-easterly, as shown approximately by the generalised arrows A and B in Chart 2, Plate XVI. On the 31st, however, the centre of a well-marked disturbance passed north-eastwards directly across Scotland. The system No. XXIV. which travelled eastwards across England on the 17th was of interest, not so much on account of its depth (for it was at all times shallow), but on account of the very severe thunderstorms which occurred during its progress.

*Anticyclones.*—Two well-developed anticyclones passed eastwards across western Europe, the first being observed between the 1st and 5th of the month, and the second between the 21st and 23rd. Between the 7th and 11th the central portion of a large system lay to the westward or south-westward of our Islands, and anticyclonic conditions prevailed in all but the more northern and eastern parts of the kingdom.

*Winds.*—These varied greatly from time to time and in different localities. In the more northern districts there was a decided tendency for the prevalence of Westerly and North-westerly currents, although notable exceptions are to be found in the Shetlands, where the Northerly wind predominated, and in the Hebrides and west of Scotland where there was a large admixture of Easterly breezes. In the southern parts of the country the wind blew from nearly all points of the compass. Gales were rare, one or two only being experienced at the majority of the coast stations; at Valencia, however, there were three, and at Mullaghmore four.

*Temperature.*—The mean (sea-level) temperature of the month varied from 64° and upwards in the Channel Islands, 63° or more in some parts of the English southern counties, and 60° or more over the south of Ireland, to 52° or less in the Shetlands. The general distribution was of a fairly normal character, and the actual values did not differ materially from the averages for the 20 years 1861–80, the greatest divergence being shown in the extreme north of Scotland, where there was a deficit of from one to three degrees. In some parts of the English Midland counties also there was a deficiency amounting to about a degree, but over England and Ireland generally the values showed a remarkable agreement with the normal. The highest readings were observed on the 4th or 5th over



central Scotland, and on the 6th or 8th over the greater part of England and Ireland. In the north-west of England, however, the 24th was the warmest day, while on the coasts of Scotland the absolute maxima occurred at various times between the 23rd and 28th. The lowest readings were registered, as a rule, on irregular dates between the 11th and 15th, when a cool Northerly wind prevailed over the United Kingdom. Over the northern parts of Ireland and England the minima were at this time unusually low for the season, sharp ground frost being experienced in many places. The extreme range for the month was very large, especially at some of the inland stations. At Hillington and Bawtry it amounted to 47°, at Cambridge, Hereford, Loughborough, and in London to 48°, at Llandovery to 50°, and at Strathfield Turgiss to 53°.

*Vapour Tension* was greatest, 0·49 in., in the Scilly Islands, but high, 0·42 in. and more, on our south-west coasts generally and also in the east of England. The lowest values were 0·34 in. at Sumburgh Head and Hawes Junction and 0·36 in. at Aberdeen and Liverpool. *Relative Humidity* varied from 72 per cent. in London and at Jersey and 73 per cent. at Liverpool, to 90 per cent. at Malin Head, 91 per cent. at Sumburgh Head and Stornoway, and 92 per cent. at Pembroke.

*Rainfall* amounted to less than an inch and a half at many of the English stations, the smallest aggregates being 0·89 in. at Spurn Head, 0·91 in. at Barrow in Furness, and 0·95 in. at Rothamsted. In some parts of the country, however, where heavy rains accompanied the severe thunderstorms of the 16th and 17th, the total fall was much greater; at Cheadle and Churchstoke, for instance, the amount was 2·5 inches, and at Llandovery 2·6 inches, while London and Southampton had as much as 2·9 inches. In Scotland the amounts varied from 1·3 ins. at Nairn, and 1·6 ins. at Leith, to 4·7 ins. at Glasgow, and 5·3 ins. at Glencarron, while in Ireland they varied from 1·5 ins. at Donaghadee and Dublin, to 4·6 ins. at Killarney and Valencia, and 7·0 ins. at Belmullet. Taking the United Kingdom as a whole, the rainfall for the month was less than the average for the 20 years 1866–85, but in those portions of England which were affected by the thunderstorms already noticed, the aggregates showed in some cases a slight excess over the mean. The number of rainy days was small over England, varying between 7 and 12. On our north-western and northern coasts, however, it was much larger, Sumburgh Head, Wick, Lairg, Laudale, and Mullaghmore reporting 23 days with rain, and Stornoway 24.

*Bright Sunshine.*—The unusual prevalence of bright sunshine noticed during the two preceding months continued throughout the greater part of August. Over all the more eastern, central, and southern portions of England the per-centage of the possible amount of duration exceeded 50, the largest values of all being 68 at Jersey, 67 at Falmouth, 60 at Pembroke and Plymouth, and 59 at Cullompton. In Ireland and Scotland, however, the amount was much smaller, Braemar, Markree Castle, and Armagh recording only 32 per cent. of the possible quantity, and Stornoway only 24 per cent.



SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF AUGUST 1887.



TABLE XV.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at the 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.							
			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° 833	50° 9	46° 6	55° 5	51° 1	41	13th	63	28th
	Wick	29° 869	54° 9	47° 5	60° 6	54° 1	40	1st, 13th	71	5th
	Stornoway	29° 879	54° 5	47° 7	59° 6	53° 7	39	13th	70	26th
1. SCOTLAND, E.	Nairn	29° 887	55° 9	49° 7	65° 2	57° 5	43	17th	81	26th
	Aberdeen	29° 896	57° 1	49° 4	63° 5	56° 5	42	3rd	73	23rd
	Leith	29° 915	58° 2	50° 4	67° 3	58° 9	42	22nd	77	28th
2. ENGLAND, N.E.	Shields	29° 926	57° 0	50° 8	63° 8	57° 3	41	11th, 14th	75	6th
	York	29° 964	56° 8	49° 4	70° 1	59° 8	37	14th	82	6th
	Spurn Head	29° 963	59° 0	54° 3	65° 0	59° 7	46	14th	72	26th
3. ENGLAND, E.	Yarmouth	29° 976	60° 5	54° 2	65° 9	60° 1	45	15th	81	8th
	Cambridge	29° 994	60° 5	50° 3	74° 2	62° 3	41	15th	89	6th
4. MIDLAND COUNTIES	Loughborough	29° 992	57° 9	49° 6	72° 5	61° 1	38	15th	86	6th
	Oxford	30° 004	58° 0	50° 9	71° 2	61° 1	40	15th	84	6th
5. ENGLAND, S.	London	30° 001	60° 7	51° 1	73° 6	62° 4	39	15th	87	6th
	Dungeness	29° 978	61° 5	54° 5	68° 3	61° 4	44	23rd	80	6th
	Hurst Castle	30° 009	62° 5	53° 2	70° 6	61° 9	46	15th, 21st	78	6th, 9th
6. SCOTLAND, W.	Ardrossan	29° 927	57° 9	50° 3	63° 5	56° 9	42	21st	70	5th, 27th
7. ENGLAND, N.W.	Hawes Junction*	28° 729	54° 1	46° 4	62° 6	54° 5	34	14th	73	4th, 5th, 6th, 24th
	Barrow-in-Furness	29° 953	57° 4	53° 8	65° 1	59° 5	43	14th	75	24th
	Liverpool	29° 972	59° 0	53° 5	57° 6	60° 6	46	14th	80	5th
	Holyhead	29° 974	60° 1	54° 5	65° 2	59° 9	49	3rd, 16th	73	5th, 24th
8. ENGLAND, S.W.	Pembroke	29° 991	58° 8	54° 3	63° 5	58° 9	48	14th	68	5th
	Prawle Point	29° 975	62° 1	53° 6	68° 7	61° 2	47	14th	82	9th
9. IRELAND, N.	Malin Head	29° 898	56° 9	54° 0	62° 5	58° 3	49	3rd, 13th, 14th	70	4th, 24th, 27th
	Donaghadee	29° 952	57° 7	53° 4	63° 8	58° 6	48	14th, 15th, 17th	75	8th
	Mullaghmore	29° 929	58° 2	50° 6	64° 5	57° 6	44	14th	71	5th
	Belmullet	29° 937	58° 5	53° 7	63° 2	58° 5	42	14th	69	4th, 24th, 28th
10. IRELAND, S.	Parsonstown	29° 978	57° 6	50° 7	67° 6	59° 2	35	14th	75	5th
	Valencia	29° 974	60° 6	54° 5	65° 1	59° 8	44	14th	69	8th
	Roche's Point	29° 984	60° 3	54° 6	67° 1	60° 9	48	14th, 15th	78	8th
CHANNEL ISLANDS	Scilly (St. Mary's)	29° 987	62° 6	57° 6	66° 5	62° 1	53	17th, 20th	71	6th
	Jersey (Noirmont)	30° 003	64° 7	56° 2	71° 0	63° 6	49	11th	83	6th

\* 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 1887.

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.							WIND.								
			Total Fall in the Month.		Date.	No. of Days of							No. of Observations of								
			ins.	in.		Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
0.339	91	8.9	2.51	0.65	7th	23	0	0	0	1	23	1	8	2	2	3	1	0	2	4	9
*366	86	7.4	1.79	0.25	26th	23	0	0	1	4	17	1	4	0	2	2	6	2	1	12	2
*385	91	8.6	3.06	0.42	22nd	24	0	0	0	1	23	0	2	1	7	2	1	8	3	2	5
*374	84	6.5	1.29	0.20	29th	19	0	0	2	5	8	1	2	0	1	1	0	1	9	3	14
*363	78	4.8	1.88	0.41	6th	18	0	0	0	11	7	2	6	0	0	3	6	4	3	9	0
*367	76	5.1	1.60	0.41	6th	11	0	0	1	10	5	0	1	1	2	3	3	3	7	9	2
*372	80	6.9	2.29	0.83	18th	12	0	0	2	3	8	1	4	1	0	1	3	8	10	2	2
*367	79	4.1	1.41	0.41	17th	10	0	0	0	17	7	0	5	1	1	5	5	1	9	4	0
*433	87	3.9	0.89	0.16	18th	10	0	0	1	10	1	1	3	2	0	5	4	5	5	6	1
*422	80	4.3	2.27	0.48	13th, 30th	11	0	0	2	12	3	0	3	2	1	5	3	4	5	7	1
*417	80	5.4	1.26	0.47	12th	11	0	0	3	9	8	0	4	4	4	1	4	6	5	3	0
*386	81	6.5	1.16	0.28	26th	11	0	0	4	4	11	0	1	1	4	3	2	1	7	7	5
*370	77	5.2	1.52	0.67	17th	7	0	2	3	14	10	0	3	4	1	0	2	4	4	6	7
*379	72	5.1	2.87	0.97	17th	12	0	0	2	10	7	1	3	2	7	0	3	4	5	3	4
*439	80	6.0	1.67	0.54	16th	8	0	0	1	6	9	1	5	3	5	1	4	4	2	4	3
*423	76	4.4	1.91	1.03	30th	8	0	0	2	13	4	1	2	11	5	0	1	4	5	3	0
*376	79	7.0	2.89	1.06	6th	12	0	0	0	5	15	1	1	1	4	3	6	4	4	6	2
*343	81	6.1	3.39	0.81	29th	14	0	0	2	10	16	0	5	1	1	7	7	4	3	3	0
*420	89	6.1	0.91	0.28	26th	13	0	0	1	3	8	0	5	3	5	4	2	4	2	6	0
*362	73	5.6	1.93	0.52	30th	13	0	0	2	5	8	2	1	1	4	9	1	4	7	3	1
*405	78	4.7	1.30	0.53	12th	12	0	0	0	12	2	0	3	3	0	1	7	5	3	4	5
*455	92	5.0	1.65	0.49	30th	11	0	0	0	7	4	1	6	6	3	4	4	2	3	3	0
*423	76	4.4	1.19	0.53	30th	8	0	0	1	13	5	1	5	4	6	2	2	3	5	4	0
*418	90	8.4	3.41	0.91	31st	20	0	0	1	2	20	0	8	1	0	1	12	2	4	3	0
*403	84	6.1	1.51	0.33	30th	15	0	0	0	8	10	0	3	4	1	0	7	6	6	4	0
*385	79	6.1	3.12	0.71	6th	23	0	0	0	6	5	4	3	2	2	7	5	6	2	4	0
*400	82	6.7	7.00	1.23	5th	22	0	0	0	6	15	0	4	2	2	3	9	5	4	2	0
*384	81	6.7	2.43	0.62	26th	15	0	0	0	7	13	0	0	0	0	4	7	2	1	5	12
*415	79	7.6	4.62	1.55	25th	21	0	0	0	3	17	3	6	3	1	7	5	2	3	2	2
*416	80	3.4	2.79	0.46	26th, 30th	13	0	0	0	13	1	0	10	0	0	2	7	4	2	4	2
*494	87	5.8	2.84	0.78	16th	12	0	0	3	7	7	2	6	3	4	3	5	1	4	4	1
*439	72	3.5	1.94	0.54	15th	9	0	0	2	15	4	1	4	2	5	5	2	4	3	6	2

barometric observations 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 1887.

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	*	*	*	*	*	*	*	*	*	*	*	113	24
LAIRG	47'1	62'4	54'8	38	13th, 22nd	74	4th, 5th	23	2'73	0'41	30th	*	*
GLENCARRON	48'4	61'5	55'0	40	13th	73	26th	22	5'28	1'54	7th	—	—
FORT AUGUSTUS	48'6	63'6	56'1	39	22nd	74	4th	18	2'23	1'0'47	30th, 31st	—	—
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	153	33
BRAEMAR	45'3	62'9	54'1	36	3rd, 17th	74	4th	21	2'13	0'65	16th	148	32
OCHTERTYRE	47'4	67'8	57'6	38	14th, 21st	76	4th, 5th	14	4'09	0'98	6th	—	—
MARCHMONT	48'1	65'8	57'0	40	22nd	77	4th, 5th, 25th	14	2'62	0'83	17th	163	35
ALNWICK CASTLE	49'5	62'5	56'0	41	21st	69	6th, 23rd	11	2'00	0'87	17th	—	—
DURHAM	48'3	68'8	58'6	38	14th	78	5th	12	1'50	0'36	12th	175	38
SCARBOROUGH	51'4	65'7	58'6	40	14th	75	9th, 26th	11	1'25	0'29	30th	†177	39
YORK	*	*	*	*	*	*	*	*	*	*	*	194	43
HILLINGTON	49'6	71'6	60'6	40	15th	87	6th	9	1'36	0'36	13th	234	52
GELDESTON	49'7	70'4	60'1	39	22nd	82	6th, 8th, 26th	14	1'36	0'40	30th	232	52
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	215	48
ROTHAMSTED	48'9	71'6	60'3	38	15th	84	8th	9	0'95	0'47	30th	—	—
INGATESTONE	50'9	70'8	60'9	39	15th	83	6th, 8th	9	2'03	0'62	30th	225	50
BAWTRY	48'3	70'0	59'2	37	21st	84	6th	10	2'29	0'73	30th	†176	39
LEICESTER	50'1	73'1	61'6	40	15th	86	6th	10	1'55	0'32	18th	199	44
CHEADLE	49'0	67'9	58'5	38	14th	80	6th	11	2'48	1'13	30th	—	—
CHURCHSTOKE	46'5	68'5	57'5	36	15th	80	6th	11	2'49	0'67	30th	219	49
HEREFORD	48'3	73'4	60'9	38	3rd, 15th	86	6th	11	1'79	0'48	16th	—	—
CIRENCESTER	47'9	70'9	59'4	38	15th	84	6th	9	1'60	0'49	26th	253	57
OXFORD	*	*	*	*	*	*	*	*	*	*	*	244	55
LONDON	*	*	*	*	*	*	*	*	*	*	*	214	48
STRATHFIELD TURGIS	48'4	74'8	61'6	35	15th	88	6th	12	1'86	0'91	30th	—	—
HASTINGS	55'4	69'1	62'3	48	19th	82	9th	9	2'21	0'60	29th	239	54
SOUTHAMPTON	52'4	73'9	63'2	45	15th	86	8th, 9th	10	2'90	1'27	30th	255	57
STOWELL	50'2	70'5	60'4	41	21st	83	6th	11	2'05	0'62	26th	250	58
LAUDALE	51'2	63'3	57'3	40	21st	70	5th	23	4'41	0'65	26th	—	—
GLASGOW	47'9	64'4	56'2	39	15th	73	5th	11	4'72	2'22	31st	150	33
GLENLEE	46'2	63'7	55'0	34	21st	73	5th	16	3'64	0'67	30th	—	—
DOUGLAS	50'0	64'6	57'3	41	1st, 16th	72	8th	12	1'04	0'28	28th	205	45
NEWTON BEIGNY	45'9	65'7	55'8	33	14th	76	4th, 5th	15	2'69	0'68	30th	175	38
STONYHURST	50'3	66'0	58'2	38	13th	79	6th	11	2'20	0'63	30th	192	42
BLACKPOOL	53'0	66'0	59'5	42	14th	76	5th, 24th	12	2'21	0'68	27th	182	40
MANCHESTER	50'2	67'5	58'9	37	14th	81	6th	12	1'36	0'37	30th	—	—
LLANDUDNO	53'3	66'5	59'9	45	14th, 15th	77	24th	12	1'78	0'42	17th	199	44
LLANDOVERY	45'7	72'6	59'2	33	11th	83	24th	10	2'61	0'94	30th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	267	60
ARLINGTON	49'6	69'2	59'4	42	21st	82	6th	10	2'02	0'54	30th, 31st	—	—
CULLOMPTON	48'2	71'7	60'0	38	21st	83	6th	7	1'29	0'32	17th	263	59
FALMOUTH	54'5	67'0	60'8	49	15th	73	8th	9	1'65	0'48	28th	296	67
PLYMOUTH	54'8	72'3	63'6	48	15th, 21st	81	7th, 8th	8	1'30	0'74	30th	264	60
JERSEY	*	*	*	*	*	*	*	*	*	*	*	300	68
LONDONDERRY	50'9	—	—	42	21st	—	—	21	4'19	0'71	6th	—	—
MARKREE CASTLE	48'7	65'1	56'9	33	14th	73	8th	22	3'54	0'81	5th	146	32
BROOKBOROUGH	48'2	65'0	56'6	35	14th	73	3rd, 5th, 24th	12	3'60	0'68	6th	—	—
ARMAGH	49'7	65'6	57'7	39	14th	74	5th, 8th	16	3'25	0'96	28th	147	32
EDGEWORTHSTOWN	48'4	66'5	57'5	37	14th	76	8th	16	2'48	0'63	26th	—	—
DUBLIN	53'1	67'4	60'3	42	14th	79	8th	16	1'52	0'35	17th	198	44
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	171	38
KILKENNY CASTLE	49'6	69'7	59'7	39	14th	80	8th	12	2'40	0'93	27th	—	—
WATERFORD	50'1	70'0	60'1	38	16th	83	8th	12	2'68	0'50	26th	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	166	37
KILLARNEY	51'0	66'7	58'9	36	14th	76	8th	19	4'64	1'07	25th	—	—
FOYNES	53'1	67'2	60'2	40	13th	76	5th	17	3'05	0'82	16th	—	—

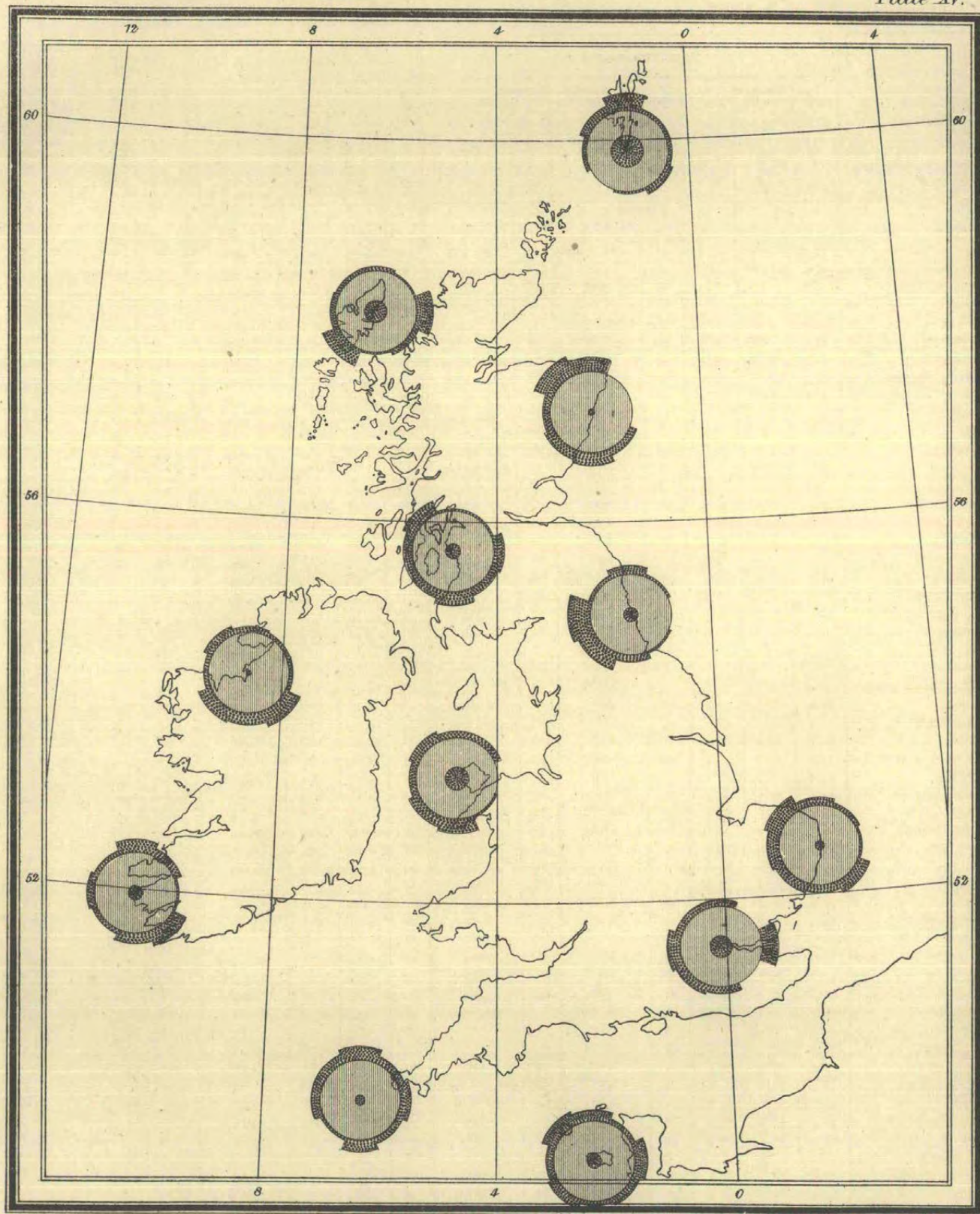
\* For information see Table XV.

† The bright sunshine values given for Scarborough are recorded at Oswaldkirk, and those for Bawtry at Worksop.



# MONTHLY WIND CHART FOR AUGUST 1887.

Plate XV.

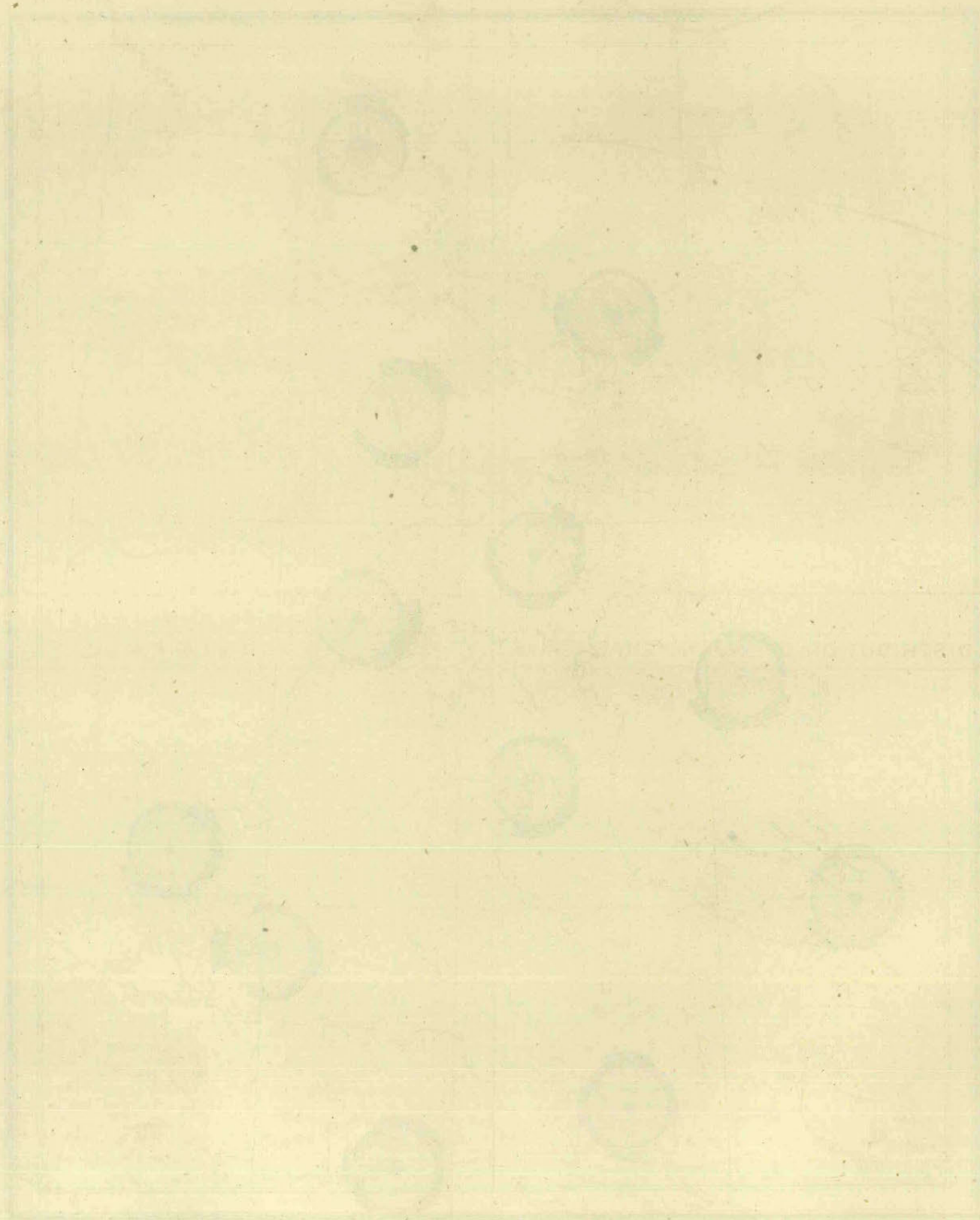


To face p. 82.

Judd & Co. Lith. 73 & 75, Farringdon Rd & Doctore Commons. 1177. 5. 90



MONTHLY WIND CHART FOR AUGUST 1887



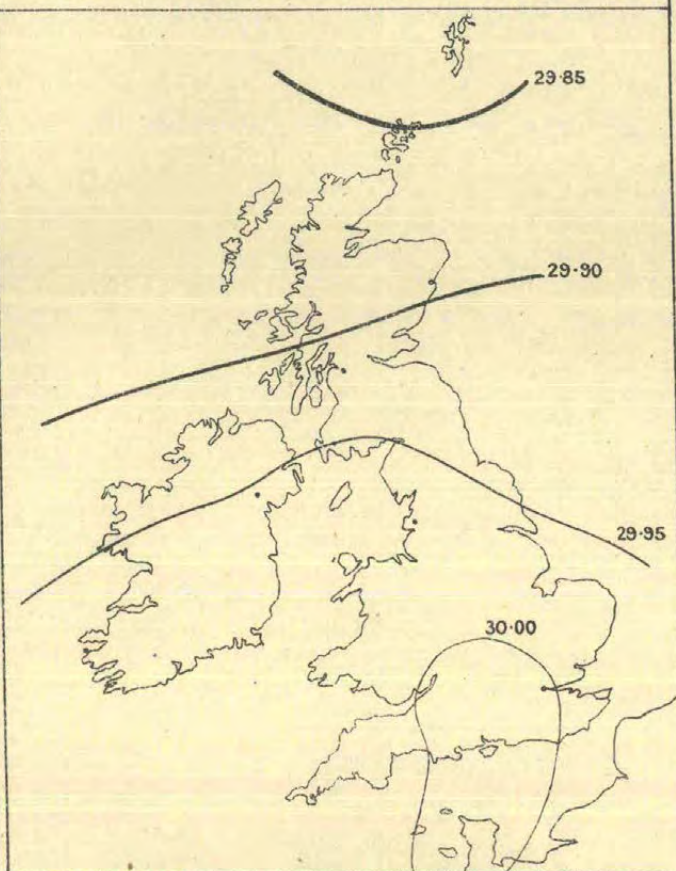


# MONTHLY WEATHER CHART. AUGUST 1887.

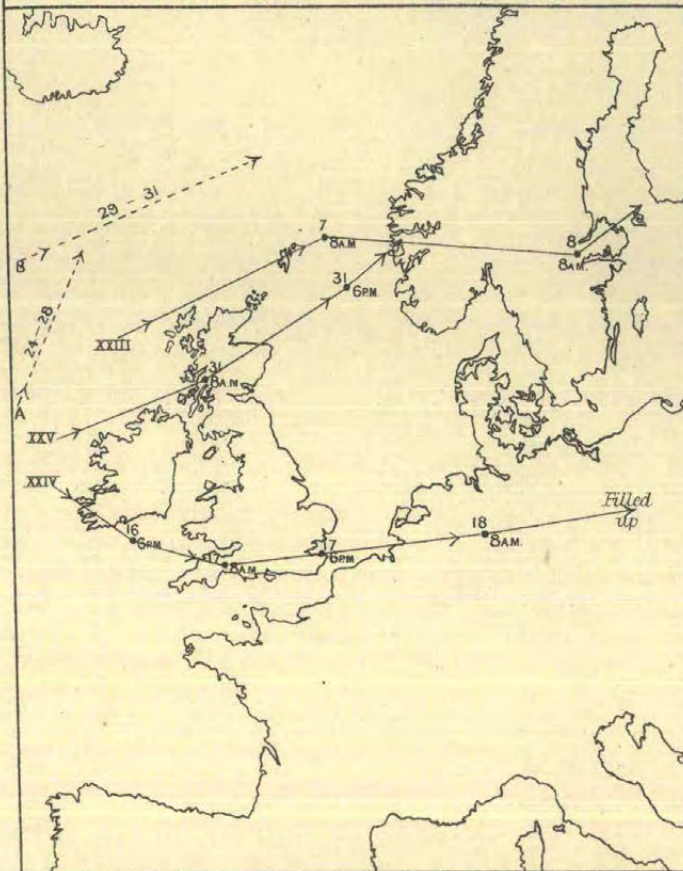
Monthly Summary

Plate XVI.

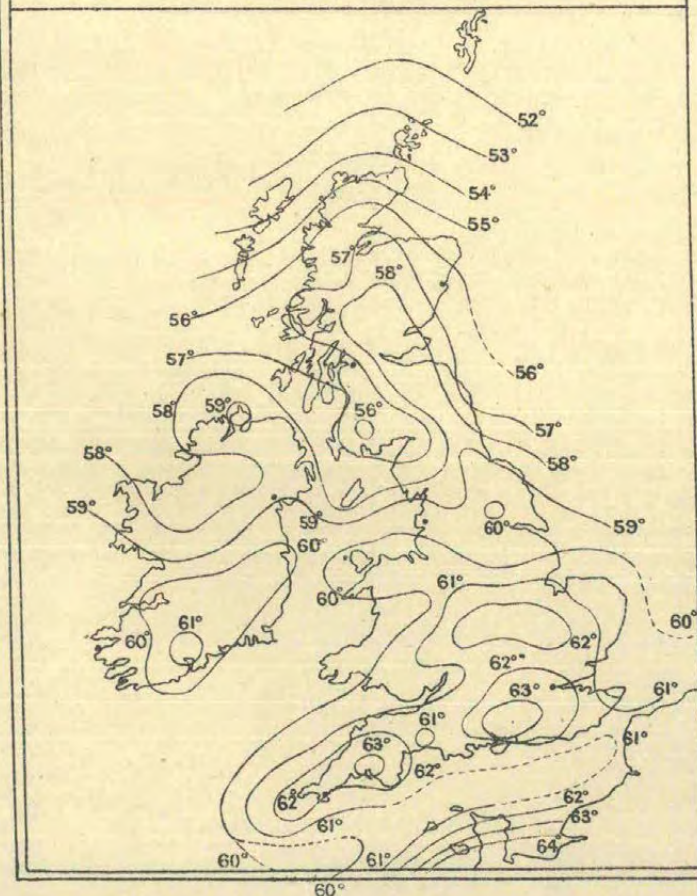
## 1. DISTRIBUTION OF MEAN PRESSURE.



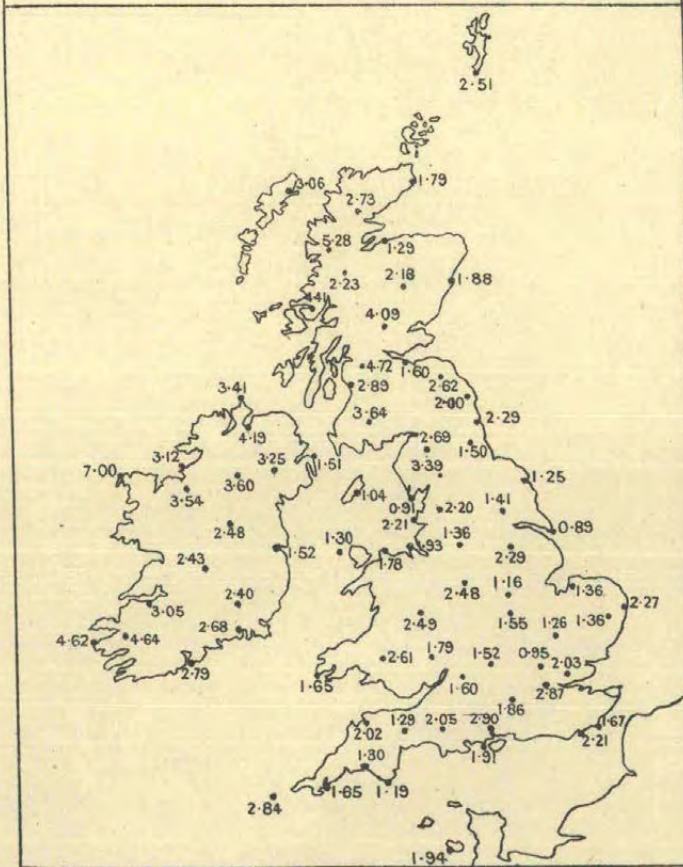
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE.



## 4. RAINFALL.



To follow Wind Chart for August.







# MONTHLY WEATHER REPORT.

SEPTEMBER 1887.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of September was mostly showery and unsettled, with thunderstorms in many places both at the commencement and the close of the month. Pressure was a little above the average in the western parts of the kingdom, but a little below it in the east; temperature was low in all districts, excepting the south-east of Scotland; the wind was variable in direction, and mostly light or moderate in force, the only gale of any importance being a rather severe one from the westward which prevailed over the Channel on the 2nd. Rainfall was less than the average generally, but considerably more in the east of Scotland, the north of England, and some parts of our north-eastern counties; bright sunshine was fairly abundant in the western districts, but rather deficient in the east.

September 1-6.—Barometrical pressure was at this time highest over southern and central Europe. Several cyclonic systems travelled eastwards and north-eastwards across the United Kingdom, the most important being :—(1.) A deep disturbance (minimum readings 28·9 inches and less), No. XXVI.,\* which crossed Ireland and England between the 1st and 2nd, and subsequently moved away to the northward of Scotland; (2.) a well-defined, though shallower, disturbance (No. XXVII.\*) which appeared over the north of Ireland on the 5th, and which afterwards dispersed over the west of Scotland. The progress of the former system was attended by strong South-westerly to Westerly gales on our western and southern coasts, and by very heavy rain in Ireland and Scotland. On the 3rd and 4th some shallow systems passed across our western and northern districts and the weather of the entire period was therefore unsettled and rainy, with somewhat low temperatures for the time of year.

September 7 and 8.—A well-defined, though somewhat small, anticyclone now advanced eastwards from the Atlantic to France and Germany, and fair weather set in over the southern parts of the United Kingdom. In the north, however, clouds, showers, and Westerly winds were experienced, owing to the passage of some large depressions across Scandinavia.

September 9-12.—The anticyclone of the previous two days now dispersed over Germany, but a new system had appeared over Spain and the Bay of Biscay, and the general distribution of pressure became very similar to that observed during the first few days of the month. The centres of the advancing depressions, however, passed, as a rule, by the northern parts of our Islands, and the prevailing winds were therefore Westerly. Very changeable showery weather continued to prevail over the northern parts of our area, and at times, when shallow secondary disturbances advanced eastwards over the kingdom, these unsettled conditions became general.

September 13-16.—Barometrical pressure was at this time high, both over northern Europe and to the westward of the British Islands, while shallow depressions were observed

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



over the North Sea, Norway, and the British Islands. On the 13th and 14th two well-defined systems were developed off the south of Norway, the centre of one (No. XXVIII.)\* ultimately travelling in a west-south-westerly direction to the north of England, where it dispersed, while the other (No. XXIX.)\* moved in a west-north-westerly direction to the north of Scotland and passed away to the westward of the Hebrides. On the 15th, when both systems lay over the United Kingdom, variable winds and cloudy rainy weather were experienced generally.

September 17-24.—With the disappearance of the two last-mentioned disturbances the barometer rose generally, and on the 17th an anticyclone began to spread over our Islands from the north-westward. The high-pressure system soon embraced the greater part of western Europe, and for a few days light winds and fair dry weather were experienced generally. A good deal of cloud or fog was, however, reported locally, and temperature was therefore somewhat low, especially at night time, when ground frosts were experienced in many parts of the United Kingdom.

September 25-30.—The anticyclone now moved southwards, while low-pressure systems began to appear off our northern coasts. The motion of these disturbances was at first easterly, but on the 27th a large depression (No. XXX.)\* began to advance southwards, and in the course of the ensuing 48 hours its centre travelled directly across the eastern parts of Scotland and the central parts of England to France, where it ultimately dispersed. In the front of the system varying Westerly breezes were experienced with mild weather, but in its rear the wind shifted to the north-eastward, and temperature fell rapidly; sharp ground frosts occurred at night. Thunderstorms were reported in nearly all districts, and, owing to the formation of shallow secondary disturbances in the rear of the main system, no material improvement in the weather took place until quite the close of the month, when there were indications of the approach of another anticyclone from the westward and north-westward.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—SEPTEMBER 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXVI. September 1-3.	No. XXVII. September 5.	No. XXVIII. September 12-15.
Form - - -	Varying, but mostly circular - -	Nearly circular - - -	Varying, but mostly circular. 1
Size - - -	Large - - -	Large - - -	Large.
Depth - - -	Deep - - -	Moderate - - -	Shallow.
Where first Observed -	Off the south-west of Ireland - -	Off the west of Ireland - -	Off the south of Norway.
Direction of Motion - -	East-north-easterly at first, then north-north-easterly.	East-north-easterly - - -	Varying at first, then west-south-westerly.
Rate of Motion - -	Moderate - - -	Slow - - -	Very slow.
Regions passed over by Steepest Gradients.	Ireland, England, the North Sea, and the north of France.	The west and south of our Islands and the north-west of France.	The North Sea and adjacent coasts.
Termination - -	Travelled away to the northward of our Islands, and apparently dispersed.	Dispersed on reaching the west of Scotland.	Dispersed on reaching the north of England.
Time under Observation -	Two days - - -	24 hours - - -	Three days.
Accompanying Winds -	Strong to a gale from the Southward, veering to West or North-west over Ireland, England, and the north of France later, and blowing a whole gale in the Channel. Light from varying directions in Scotland.	Strong to a moderate gale from South-west and West on our extreme western and southern coasts; light from the Eastward in the north.	Fresh from the North-westward or Northward in the north and east of our Islands, and from the Eastward in Scandinavia.
Weather -	Squally and rainy; thunderstorms in Scotland on 2nd.	Dull and rainy, especially in the north of Ireland; showery elsewhere.	Showery. Thunderstorms in Holland and the north-east of France.
Rainfall	General, and very heavy in Ireland and Scotland.	Heavy in the northern parts of Ireland and England.	Slight generally, but heavy in the east of Scotland and the north-east of England.
REMARKS - -	This disturbance was followed very closely by two shallow secondary systems which travelled north-eastward across Ireland and Scotland on the 3rd-4th. Their influence upon the weather was not very great.	The dispersal of this system was very brisk. On the evening of the 5th, when the system lay over the north of Ireland, it appeared to have lost none of its original intensity, but at 8 a.m. next day it had almost entirely filled up.	This system was gradually developed over the North Sea on the 12th. Its movement in a westerly direction seems to have been brought about by the formation of a large anti-cyclone over northern Europe.



## SECTION II.

TABLE OF CYCLONIC SYSTEMS—SEPTEMBER, 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXIX. September 14-15.	No. XXX. September 26-30
Form - - - - -	Nearly circular at first, but afterwards varying.	Circular at first, but afterwards varying greatly.
Size - - - - -	Moderate - - - - -	Large
Depth - - - - -	Shallow - - - - -	Shallow.
Where first Observed - - - - -	Over the extreme south of Norway - - - - -	To the northward of our islands.
Direction of Motion - - - - -	West-north-westerly - - - - -	Varying, but mostly southerly.
Rate of Motion - - - - -	Moderate - - - - -	Slow.
Regions passed over by Steepest Gradients	The southern parts of Scandinavia - - - - -	The greater part of Western Europe, but gradients never steep anywhere.
Termination - - - - -	Travelled away to the north-westward of Scotland	Dispersed over Central France.
Time under Observation - - - - -	24 hours - - - - -	5 days.
Accompanying Winds - - - - -	Strong from the Eastward or South-eastward in the south of Scandinavia; light and variable over the northern parts of the United Kingdom.	Westerly over our islands at first, but afterwards shifting to the Eastward and North-eastward. Wind from both quarters was fresh to strong in places.
" Weather - - - - -	Dull and rainy. Aurora seen in the Shetlands on the night of the 14th.	Showery, with thunderstorms in nearly all districts.
" Rainfall - - - - -	Heavy in Denmark and the south of Norway; general over the northern parts of the United Kingdom.	General, and locally rather heavy.
REMARKS - - - - -	This disturbance appeared very closely in the rear of No. XXVII., and was formed in the same neighbourhood. On the morning of the 15th the two systems lay in a large "hollow" covering the greater part of the United Kingdom.	In the rear of this system numerous small secondary disturbances appeared over our islands, so that the improvement in the weather which should have taken place was greatly retarded. The most clearly defined of these systems appeared over the east of England on the afternoon of the 29th and subsequently travelled south-eastward to western Germany, where it apparently dispersed.



## - SECTION II.

TABLE OF ANTICYCLONIC SYSTEMS—SEPTEMBER, 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXII. September 7-9.	No. XXIII. September 17-25.
Form . . . . .	Irregular and varying . . . . .	Varying, but mostly elliptical.
Size . . . . .	Small . . . . .	Large.
Height . . . . .	Small ; highest readings 30'3 ins. to 30'4 ins. .	Moderate ; highest readings 30'6 ins. and upwards.
Where first observed . . . . .	To the south-westward of our islands . . . . .	To the north-westward of our islands.
Direction of Motion . . . . .	Easterly . . . . .	South-easterly and easterly at first, then southerly.
Rate of Motion . . . . .	Slow . . . . .	Very slow.
Regions passed over . . . . .	The British Islands, France, Germany, and Denmark.	The whole of Western Europe.
Termination . . . . .	Passed away to Germany where it quickly dispersed.	Passed southwards to the Bay of Biscay and France, where it gradually dispersed.
Accompanying Wind . . . . .	North-westerly to South-westerly on our northern coasts ; variable or North-easterly in the south. South-westerly breezes finally becoming general.	Northerly at first, then Westerly in the north and Easterly in the south ; Westerly and South-westerly breezes finally becoming general.
,, Weather . . . . .	Fine in the central portion of the system but changeable and showery at places situated on its margin.	Fair generally but a good deal of cloud and fog reported at times ; temperature rather low for time of year.
REMARKS . . . . .	As this system passed away a new one appeared over our extreme south-west coasts and the Bay of Biscay. The latter was, however, of very little height and soon dispersed on reaching the west of France.	



## SECTION III.

## REMARKS FOR SEPTEMBER 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from between 29·95 inches and 29·98 inches on the southern coasts of Ireland and England to about 29·75 inches in the Shetland Islands. Over Ireland and the west of Scotland the values were from 0·03 in. to 0·07 in. above the average for the 20 years 1861–80, but in the east of England there was a deficiency amounting to 0·02 in. or 0·03 in., so that while the mean gradient was of the usual steepness, the distribution of pressure was favourable for North-westerly instead of for South-westerly or Westerly breezes. The highest readings were observed either on the 18th, 19th, or 24th, during the prevalence of anticyclone No. XXIII.; at some of the Irish stations the barometer rose to above 30·6 inches, while in other parts of the kingdom it rose to between that value and 30·5 inches. The lowest readings were observed as a rule either on the 1st or 2nd, during the passage of depression No. XXVI., but in the east of England the mercury fell somewhat lower on the 28th, when depression No. XXX. moved southwards over the country. In the former case the minimum readings were below 29·0 inches over the south of Ireland, Wales, and the central parts of England, but in the latter case the barometer did not fall much below 29·3 inches. The extreme range for the month was somewhat large, especially in the regions traversed by the centre of depression No. XXVI., where it amounted to about 1·6 inches or 1·7 inches.

*Movements of Depressions.*—The depressions which appeared over Western Europe were somewhat numerous, and a glance at Map 2, Plate XVIII., will at once show that their centres moved in all kinds of directions, some proceeding from the westward, some from the eastward, and others from the northward. The systems were in most cases of little depth, the only important exception being that of the 1st–3rd (No. XXVI.), which was of more than ordinary intensity for the time of year. The depression (No. XXX.) of the 26th–29th was noticeable not only on account of its irregular southerly motion, but for the length of time the system lay within our area of observation.

*Anticyclones.*—Two such systems were observed. The first (No. XXII.) was small and of very brief duration, but the second (No. XXIII.), embraced nearly the whole of Western Europe, and continued to influence the weather of our islands for eight or nine days.

*Winds.*—These varied a good deal in direction. At the majority of our stations the most prevalent winds were the Westerly and North-westerly, but over Ireland and the Irish and English Channels the Easterly and North-easterly currents were largely represented. Winds from the South-eastward were exceedingly rare; at Ardrossan, Scilly, Yarmouth, and in London there were none at all. Gales were experienced on most parts of our coasts; at many of our western stations they occurred on three or four days; at Mullaghmore, however, the wind is reported to have risen to force 7 or upwards on 12 occasions.

*Temperature.*—The mean (sea level) temperature of the month varied from a little below 60° in the Channel Islands and a little above 54° in the inland parts of the south-east of Scotland to very little above 51° in some parts of Central Ireland, and to very little above 49° in the Shetland Islands. In Scotland therefore the summer distribution still held, but over England it had entirely disappeared, while in Ireland the winter type had already begun to show itself. The mean values were below the average for the 20 years 1861–80 in all localities excepting the south-east of Scotland, where temperature was at about its normal height. On our extreme northern and southern coasts the deficiency of heat did not amount to more than 1° or 2°, but in the southern parts of England it was as much as 3°, while at



some of the central Irish stations it reached or slightly exceeded  $4^{\circ}$ . The highest readings were observed over Great Britain, as a rule between the 1st and 3rd of the month, but in some parts of Scotland a second maximum was recorded on the 23rd and 24th. In Ireland the highest temperature occurred on very irregular dates. The lowest readings were recorded pretty generally on the 28th and 29th, during the prevalence of the cold North-easterly winds which sprang up in the rear of depression No. XXX.; frost occurred at many of the northern and inland stations, the lowest readings of all being  $28^{\circ}$  at Braemar and Llandovery, and  $29^{\circ}$  at Wick, Lairg, and Hereford. The extreme range was generally moderate, but large at some of the English stations; at Hillington it amounted to  $39^{\circ}$ , at Hereford to  $40^{\circ}$ , at Kilkenny  $41^{\circ}$ , and at Llandovery to  $43^{\circ}$ .

*Vapour Tension* ranged from 0.32 inch or less over the central parts of the three kingdoms to a little above 0.36 inch in the Hebrides, and to a little above 0.41 inch in the Scilly Islands.

*Relative Humidity* was as high as 96 per cent. at Stornoway, and 90 per cent at Wick and Donaghadee. At Jersey, however, the value was only 76, and at Liverpool and Valencia 80.

*Rainfall* varied from between an inch and a half and 2 inches at some of the inland stations in England and Ireland to 5.3 inches at Markree, 5.6 inches at Glencarron, 6.9 inches at Arlington, and 7.1 inches at Hawes Junction. Over the United Kingdom generally, the amounts were less than the average for the 20 years 1866-85, but in some localities there was a decided excess, this being more especially the case in the east of Scotland, the north of England, and some portions of our south-western counties. The number of rainy days was somewhat large, especially in the more northern and eastern districts; at Lairg, Yarmouth, Geldeston, and Hawes Junction there were 22, at Wick 23, and at Sumburgh Head 24. At Hereford and Kilkenny, however, the number of days with rain was only 14, at Armagh and Roches Point 13, at Pembroke 12, at Waterford 11.

*Bright Sunshine*.—The amount of bright sunshine was fairly large at some of our western and south-western stations, the per-centage of the possible amount of duration being 44 at Valencia, 43 at Plymouth and Jersey, and 42 at Douglas (Isle of Man). In the northern and eastern parts of the kingdom, however, the weather was less sunny, the per-centage value being as low as 19 at Stornoway, 21 at Scarborough, and 22 at York and Leicester.



TABLE XVII.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at the 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.							
			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°753	49°8	43°7	53°9	48°8	34	24th	60	1st
	Wick -	29°813	50°2	43°0	55°9	49°9	29	28th	63	1st
	Stornoway -	29°834	51°1	45°2	55°3	50°3	36	28th	61	1st
1. SCOTLAND, E.	Nairn -	29°833	50°5	46°3	57°2	51°8	32	28th	68	1st
	Aberdeen -	29°825	51°2	45°3	58°5	51°9	30	28th	67	3rd
	Leith -	29°841	52°1	47°1	60°5	53°8	36	28th	69	1st
2. ENGLAND, N.E.	Shields -	29°847	51°9	46°6	58°1	52°4	35	28th	67	1st
	York -	29°880	50°4	45°0	59°8	52°4	32	28th	67	3rd
	Spurn Head -	29°873	53°3	49°1	58°7	53°9	43	29th	67	3rd
3. ENGLAND, E.	Yarmouth -	29°898	54°1	49°1	59°7	54°4	41	29th	67	3rd, 4th, 6th
	Cambridge -	29°929	52°1	45°4	62°7	54°1	32	29th	70	3rd
4. MIDLAND COUNTIES	Loughborough -	29°921	50°2	45°0	61°6	53°3	31	28th, 29th	68	3rd
	Oxford -	29°944	50°9	46°4	60°8	53°6	34	28th, 29th	67	4th, 6th
5. ENGLAND, S.	London -	29°948	52°5	48°0	62°1	55°1	35	29th	69	6th
	Dungeness -	29°927	54°7	49°7	62°0	55°9	37	29th	66	1st, 3rd, 4th, 6th, 11th, 20th
	Hurst Castle -	29°955	54°9	48°7	61°7	55°2	38	25th	66	
6. SCOTLAND, W.	Ardrossan -	29°854	52°9	47°1	59°2	53°2	39	28th	63	1st, 23rd
7. ENGLAND, N.W.	Hawes Junction* -	28°640	47°4	43°0	54°3	48°7	30	28th	59	1st, 5th
	Barrow-in-Furness -	29°871	52°7	49°1	58°7	53°9	41	28th	63	1st, 3rd
	Liverpool -	29°892	52°9	49°5	58°8	54°2	43	13th, 28th, 29th.	65	3rd
	Holyhead -	29°899	54°7	50°8	59°3	55°1	44	29th	63	3rd, 16th
8. ENGLAND, S.W.	Pembroke -	29°931	54°3	51°0	58°7	54°9	42	29th	62	2nd, 3rd, 6th, 8th, 7th, 20th
	Prawle Point -	29°969	55°6	49°7	60°9	55°3	38	29th	66	
9. IRELAND, N.	Malin Head -	29°865	52°9	50°0	56°4	53°2	43	19th	61	1st, 24th
	Donaghadee -	29°883	52°4	48°1	59°2	53°7	38	28th	65	3rd
	Mullaghmore -	29°908	53°2	49°2	59°1	54°2	42	19th, 27th	64	3rd
	Belmullet -	29°933	53°6	50°1	58°5	54°3	43	28th, 29th	63	23rd
10. IRELAND, S.	Parsonstown -	29°939	50°1	44°5	59°6	52°1	36	29th	66	3rd
	Valencia -	29°971	55°9	50°3	62°0	56°2	43	20th, 21st	67	19th
	Roche's Point -	29°949	54°4	49°3	60°4	54°9	43	28th	63	2nd, 3rd, 6th, 11th, 25th.
CHANNEL ISLANDS	Scilly (St. Mary's) -	29°957	57°0	53°4	60°3	56°9	45	29th	65	4th, 5th, 9th
	Jersey (Noirmont) -	29°975	58°6	53°6	63°7	58°7	43	25th, 29th	69	3rd, 6th

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



September /  
26/11/09

TABLE-XVII.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of SEPTEMBER 1887.

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

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

STATION.	ELEVATION 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 observations at this station are not corrected 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 1887.

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	*	*	*	*	*	*	*	*	*	*	*	73	19
LAIRG	43°1	55°7	49°4	29	28th	64	1st	22	3°39	0°80	10th	—	—
GLENCARRON	43°8	54°9	49°4	32	28th	62	23rd	21	5°59	1°06	10th	—	—
FORT AUGUSTUS	44°3	56°8	50°6	34	21st	62	1st, 3rd, 24th	18	3°76	0°84	4th	—	—
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	103	27
BRAEMAR	41°8	56°5	49°2	28	28th	65	2nd, 24th	20	3°01	0°76	1st	98	26
OCHEERTYRE	43°9	62°0	53°0	33	27th	68	1st, 8th, 20th, 22nd.	18	3°42	0°83	4th	—	—
MARCHMONT	44°8	57°5	51°2	31	28th	65	1st, 3rd	20	4°36	0°80	1st, 5th	95	25
ALNWICK CASTLE	46°4	56°6	51°5	32	27th	65	1st	21	4°05	0°95	12th	—	—
DURHAM	44°4	59°0	51°7	30	28th	67	1st, 4th, 6th	17	4°51	0°97	6th	95	25
SCARBOROUGH	46°7	57°8	52°3	40	8th, 25th, 28th	66	3rd	20	3°22	0°85	6th	77	21
YORK	*	*	*	*	*	*	*	*	*	*	*	284	22
HILLINGTON	45°5	60°3	52°9	30	29th	69	3rd	19	2°41	0°36	14th	85	23
GELDESTON	47°3	61°2	54°3	31	29th	68	4th, 6th	22	1°92	0°32	13th	94	25
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	103	28
ROTHAMSTED	46°0	60°2	53°1	32	29th	67	6th, 9th	17	2°99	0°63	1st	—	—
INGATESTONE	46°7	60°7	53°7	34	29th	68	5th	18	2°05	0°32	16th	113	30
BAWTRY	43°9	60°1	52°0	30	28th	67	3rd	17	1°52	0°25	14th	796	26
LEICESTER	46°1	61°5	53°8	32	28th, 29th	69	3rd, 9th	16	2°59	0°38	4th	83	22
CHEADLE	44°5	58°2	51°4	33	28th	65	4th	17	3°22	0°66	3rd	—	—
CHURCHSTOKE	43°6	59°0	51°3	30	29th	66	5th	18	2°95	0°63	3rd	119	32
HEREFORD	44°9	62°5	53°7	29	29th	69	3rd, 6th	14	1°44	0°27	3rd	—	—
CRENCESSTER	45°4	60°5	53°0	32	29th	67	6th	15	2°69	0°58	1st	119	32
OXFORD	*	*	*	*	*	*	*	*	*	*	*	126	34
LONDON	*	*	*	*	*	*	*	*	*	*	*	95	25
STRATHFIELD TURGISSE	44°9	62°6	53°8	33	28th, 29th, 30th	68	5th, 6th	19	1°98	0°48	1st	—	—
HASTINGS	49°6	61°2	55°4	41	28th	66	6th	15	2°91	0°53	26th	135	36
SOUTHAMPTON	47°8	63°7	55°8	36	28th, 29th	70	20th	16	2°86	0°88	1st	147	39
STOWELL	46°2	59°8	53°0	34	25th	65	3rd, 5th, 6th	20	2°44	0°68	1st	136	36
LAUDALE	46°2	57°9	52°1	37	28th	63	1st, 3rd	16	4°14	1°30	8th	—	—
GLASGOW	43°7	58°3	51°0	37	28th	64	1st	18	3°73	0°60	5th	87	23
GLENLEE	42°9	58°7	50°8	32	28th	65	20th	18	5°70	1°10	3rd	—	—
DOUGLAS	46°6	59°1	52°9	35	28th	65	20th	17	3°22	0°55	29th	156	42
NEWTON REIGNY	43°1	57°7	50°4	32	28th	64	1st, 20th	19	3°86	0°78	5th	112	30
STONYHURST	46°1	57°7	51°9	32	27th	62	3rd, 6th	18	5°66	0°94	4th	114	30
BLACKPOOL	49°0	58°8	53°9	38	28th	65	3rd	18	3°81	0°85	14th	122	33
MANCHESTER	46°2	58°1	52°2	35	28th	64	3rd	18	4°50	0°94	6th	—	—
LLANDUDNO	49°3	58°8	54°1	39	29th	65	3rd	18	2°27	0°48	28th	88	24
LLANDOVERY	43°1	61°5	52°3	28	28th	71	20th	18	3°76	0°55	1st	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	150	40
ARLINGTON	45°9	58°8	52°4	35	28th, 29th	63	3rd, 6th, 8th, 22nd, 25th.	18	6°89	1°23	1st	—	—
CULLOMPTON	45°8	61°8	53°8	30	29th	66	3rd, 4th, 5th, 6th.	19	2°87	0°79	1st	134	36
FALMOUTH	50°2	59°8	55°0	39	29th	65	5th	16	4°09	1°36	16th	151	40
PLYMOUTH	50°6	62°3	56°5	37	29th	68	20th	15	3°51	1°36	16th	160	43
JERSEY	*	*	*	*	*	*	*	*	*	*	*	160	43
LONDONDERRY	46°1	60°4	53°3	41	23rd	67	19th, 24th	18	4°26	1°02	1st	—	—
MARKREE CASTLE	42°4	58°9	50°7	32	19th	64	3rd, 17th	18	5°34	1°80	1st	97	26
BROOKEBOROUGH	41°8	58°6	50°2	33	19th	65	3rd	16	4°05	1°14	1st	—	—
ARMAGH	44°2	59°3	51°8	35	29th	66	3rd	13	2°84	1°12	1st	95	25
EDGEWORTHSTOWN	43°9	58°8	51°4	35	19th	64	9th	15	3°09	1°12	1st	—	—
DUBLIN	48°2	59°8	54°0	38	29th	67	9th	16	1°51	0°48	1st	136	36
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	115	31
KILKENNY CASTLE	45°6	64°3	55°0	33	28th	74	11th	14	1°89	0°57	6th	—	—
WATERFORD	45°4	62°5	54°0	37	8th, 28th	66	4th, 5th, 9th, 11th.	11	1°72	0°46	1st	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	165	44
KILLARNEY	44°7	60°9	52°8	35	29th	66	16th, 21st	16	4°41	1°29	1st	—	—
FOYNES	47°8	59°8	53°8	40	28th	66	18th	15	4°19	1°99	1st	—	—

\* For information see Table XVII.

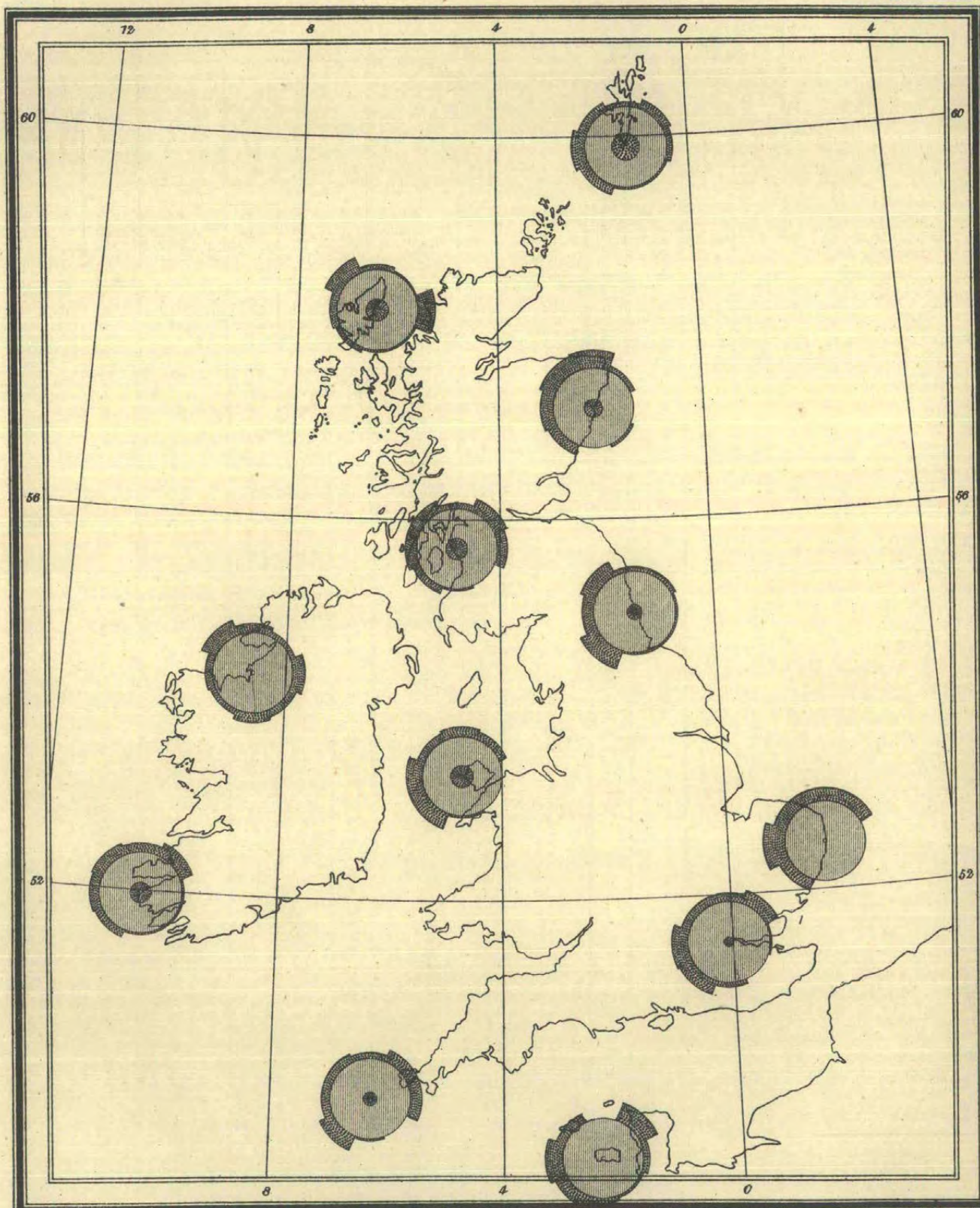
† The bright sunshine values given for Scarborough are recorded at Oswaldkirk, and those for Bawtry at Worksop.

‡ Some of the values have been estimated at this station owing to the wrong cards being used.



# MONTHLY WIND CHART FOR SEPTEMBER 1887.

Plate XVII.



To face p. XCII.

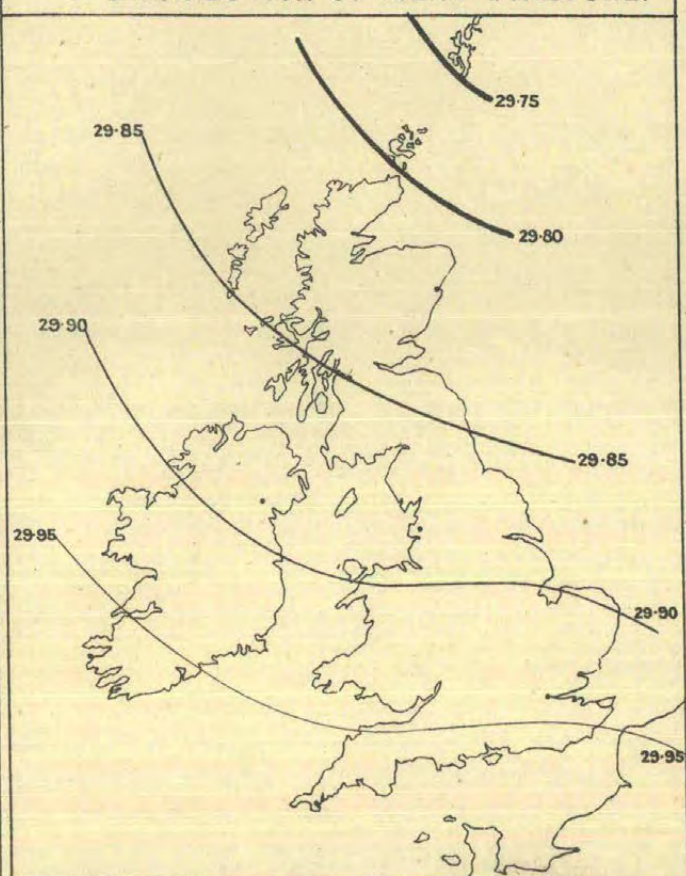
Judd & Co. Ltd. Lith. 73 & 75, Farringdon Rd & Doctors Commons. 1245. 6. 90







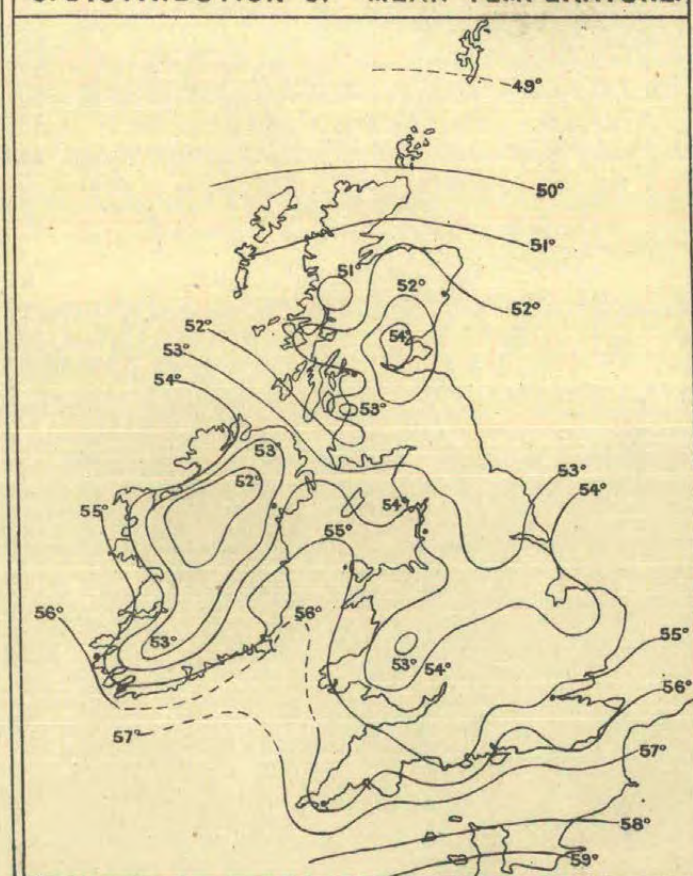
## 1. DISTRIBUTION OF MEAN PRESSURE.



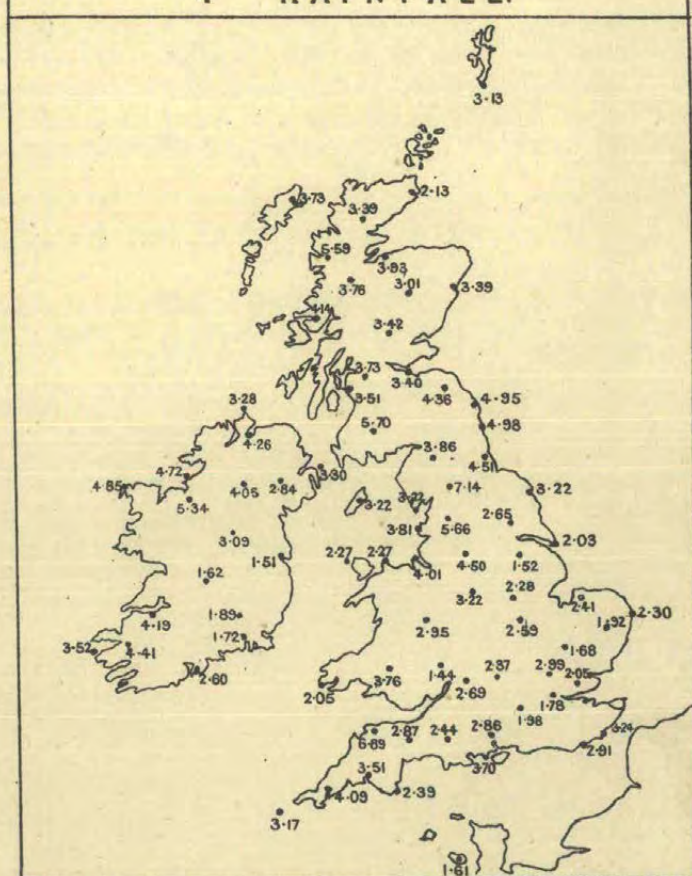
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE.



## 4 RAINFALL.









# MONTHLY WEATHER REPORT.

OCTOBER 1887.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE month of October was characterised by a fairly regular alternation of fine and dry with showery and unsettled weather. Barometrical pressure was above the average in all parts of the kingdom, more especially in the south-western districts; temperature was considerably below the normal in England and Ireland, and slightly below it in Scotland; frost occurred frequently, and was at times very sharp at the inland stations. The prevailing winds were North-westerly in the northern and eastern districts, but variable in the west; rainfall was everywhere deficient. Bright sunshine was, upon the whole, fairly prevalent for the time of year, excepting at one or two of our northern and north-western stations, where the amount was decidedly small. Falls of sleet or hail and thunderstorms were experienced in many parts of our Islands about the middle of the month.

October 1-6.—The large anticyclone which was appearing off our western coasts at the close of September extended eastwards at the beginning of the period, and finally embraced nearly the whole of western Europe. Light or moderate breezes from the Northward and North-westward were at first experienced generally, but as the central portion of the high-pressure system drifted over us these gave way to calms or variable airs. At the close of the period, when the anticyclone began to move southwards and disperse, the wind became Westerly at the northern stations and blew hard on the Norwegian coast, while in other regions it varied greatly, owing to local disturbances. The weather was mostly dry, but a large amount of cloud prevailed in many districts, and temperature was therefore lower than is usually the case with anticyclonic conditions in early autumn. Between the 4th and 6th the daily maxima were below 60° in all districts, excepting the east of Scotland.

October 7-9.—The distribution of pressure during this interval was very variable, readings being highest in the north and north-west on the 8th and 9th, while a low-pressure system (No. XXXI.\*) showed itself over the Iberian peninsula and the south-west of France. The wind consequently became Northerly to Easterly, and at our northern stations temperature fell.

October 10-15.—During this period barometrical pressure was mostly highest to the westward or south-westward, and lowest to the eastward of our Islands, so that the prevailing winds were from some Northerly point. Three depressions appeared over western Europe, and although one of these was shallow and of no great size, the other two were of considerable importance. The first (No. XXXI.\*), which was observed between the 9th and 13th, advanced as a somewhat shallow system from Spain to France, and occasioned heavy falls of rain at several of our southern and eastern stations. On reaching Denmark the depression increased rapidly in depth, and on the 10th and 11th moderate to fresh gales were experienced over the North Sea and on many of the more exposed parts of our own coasts. Later on the disturbance began to fill up, but it was not until the 13th that its final dispersal took place over the Kattegat. The second depression of importance (No. XXXIII.\*)

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



travelled in a due southerly direction across Scandinavia and Denmark between the 13th and 15th, and occasioned a renewal of strong Northerly winds and gales in many parts of western Europe. The weather of the entire period was squally, unsettled, and showery, with falls of snow and sleet in nearly all parts of the United Kingdom, and occasional thunderstorms. Temperature everywhere was low for the time of year, especially on the 12th, 13th, and 14th, when sharp frosts were experienced in many places.

October 16-21.—The high-pressure system which had previously existed to the westward of our Islands now moved slowly south-eastwards, and a considerable improvement in the weather was reported. The strong Northerly winds hitherto noticed gradually subsided—they first backed to the south-westward and then veered to the north-westward again. On the 19th and 20th, when a large depression travelled eastwards across the north of Scandinavia, strong breezes or moderate gales from the latter quarters were experienced in all the more western and northern parts of the United Kingdom. The weather of the period was mostly fine and dry, but a good deal of fog prevailed at times over England, while showers were occasionally reported in the extreme north and north-west of the kingdom. The day temperatures at this time were considerably higher than those observed during the spell of cool Northerly winds, but the nights were exceedingly cold, sharp frosts being experienced in most places during the nights of the 21st-22nd.

October 22-23.—As the anticyclone travelled away to the south-eastward, the depressions in the far north spread further southwards, and varying Westerly winds were experienced in all parts of the United Kingdom. In force, however, they were light or moderate, and although cold showers were general over the northern districts, the weather in other localities remained fair and dry. On the 23rd, however, solar and lunar halos were seen at many of the English stations.

October 24-25.—A new high-pressure system now appeared off our extreme western coasts, and on the 24th a strong Northerly current of wind was again general over our Islands and their neighbourhood, with squalls of snow or hail at several of our more northern and eastern stations. On the following day, however, the anticyclone moved steadily across our Islands in an east-south-easterly direction, and the wind consequently subsided and backed to the westward and south-westward.

October 26-31.—During this period barometrical pressure was highest over central or southern Europe, and lowest in large cyclonic disturbances which moved along, to the northward of our Islands, in the direction shown by the arrow marked "A" in Map 2, Plate XX. The prevailing winds were therefore South-westerly, and the weather changeable and showery. The most important feature at this time, and indeed of the entire month, was the passage across our southern districts of the well-marked secondary depression No. XXXIV.\* On the evening of the 29th, when the centre of this disturbance lay near the mouth of the Channel, the system was of no great depth, but in the course of the ensuing night, when it travelled in an east-north-easterly direction across the south of England, a considerable increase took place in its intensity, and severe gales with heavy rain were experienced at some of the Channel stations. The disturbance ultimately travelled away to Sweden, where it quickly dispersed. The weather of this period was rather cold for the time of year, the extreme minima for the month being observed in many localities on the morning of the 26th, when sharp frost prevailed over all the inland districts.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—OCTOBER 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXXI. October 9-13.	No. XXXII. October 12-13.	No. XXXIII. October 13-15.	No. XXXIV. October 29-31.
Form - - - -	Usually elliptical - -	Circular - - - -	Circular - - - -	Nearly circular.
Size - - - -	Large - - - -	Small at first, then moderate	Large - - - -	Moderate.
Depth - - - -	Shallow at first, but afterwards moderate.	Shallow - - - -	Moderate - - - -	Varying; very shallow at first, afterwards moderate, and then shallow again.
Where first Observed -	Over the north of Spain -	Over North Wales - -	Over the north of Scandinavia	Near the mouth of the English Channel.
Direction of Motion -	North-easterly at first, then irregular.	South-easterly - - - -	Southerly - - - -	East-north-easterly at first, then north-easterly, and finally northerly.
Rate of Motion - -	Moderate at first, then slow; finally very slow.	Slow - - - -	Rapid at first, but afterwards very slow.	Moderate.
Regions passed over by Steepest Gradients.	The North Sea and all the adjacent coasts.	The west coasts of our Islands and France.	The North Sea, Denmark, and the south of Scandinavia.	The Channel, the north of France, the Netherlands, and Denmark.
Termination - -	Filled up over the south of Sweden.	Dispersed over central France	Filled up over North Germany	Filled up over Sweden.
Time under Observation	Five days - - - -	About 24 hours - - - -	About 36 hours - - - -	Two days.
Accompanying Winds -	At first light from the North-eastward; afterwards strong from the Northward and North-westward over our Islands and France, with gales in exposed places. Fresh to strong Easterly gale experienced in the south of Scandinavia.	Strong from the Northward in the western parts of our Islands and France, and a gale at the mouth of the Channel and over the Bay of Biscay.	Strong from the North-westward and Northward in nearly all parts of western Europe, with gales in exposed places. North-easterly and Easterly gales experienced in the south of Scandinavia.	Strong to whole gales from the South-westward and Westward experienced over the Channel, the Netherlands, and France. Light and varying breezes to the northward of the depression.
Weather-	Squally and showery, with snow or sleet and thunderstorms in many parts of the United Kingdom.	Squally and showery. Solar halos seen in the south-east of England on the morning of the 12th, and lightning at Holyhead.	Squally and showery, with hail in many places, and snow in the north of our Islands. Thunderstorms reported in the east of England.	Squally and rainy.
Rainfall -	General. Heavy at some of our eastern stations, as well as in Denmark and the south of Norway.	Rather heavy in the south-west of our Islands and the west of France.	General. Heavy in the eastern parts of Great Britain, and also in Denmark and Germany.	Heavy over England and the north of France, the largest amount in 24 hours being 1.6 inches at Scilly.
REMARKS - - - -	The leading features of interest in the history of this depression were, firstly, the steady rate at which it advanced across France and the Netherlands; secondly, the rapidity with which it afterwards increased in depth; and thirdly, the excessive slowness of its movements over Denmark. The growth of the disturbance was attended by copious falls of rain.	This system was apparently formed over the Irish Sea on the night of the 11th. The 6 p.m. observations for that day, however, gave scarcely any indication of its presence.	During its passage across Scandinavia the disturbance increased considerably in depth, but on reaching Denmark it rapidly became shallower, its ultimate dispersal being quite as sudden as its growth.	This disturbance first appeared as a very shallow system near the mouth of the Channel on the evening of the 29th. During the ensuing night it rapidly became deeper, and by 8 a.m. on the 30th, when its centre lay near Yarmouth, the minimum pressures were at least 0.5 inch lower than they were at the time the depression was first observed. On reaching Denmark and Sweden the system became shallower, and ultimately filled up entirely.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—OCTOBER 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXIV. October 1-6.	No. XXV. October 15-22.	No. XXVI. October 24-26.
Form - - - - -	Varying, but mostly circular - -	Varying from circular to elliptical -	Varying from circular to elliptical.
Size - - - - -	Large - - - - -	Large - - - - -	Large.
Height - - - - -	Small; maximum readings 30·5 ins. and upwards.	Small; maximum readings 30·6 ins. and upwards on 17th and 18th.	Small; maximum readings 30·6 ins. to 30·7 ins.
Where first observed - -	Off the west of Ireland - - -	Off the west of Ireland - - -	To the westward of our Islands.
Direction of Motion - -	Easterly at first, but afterwards southerly.	Easterly and south-easterly - -	East-south-easterly.
Rate of Motion - - - -	Very slow - - - - -	Very slow - - - - -	Moderate.
Regions passed over - -	The British Islands, the North Sea, the Netherlands, France, and western Germany.	The British Islands and the whole of central and south-western Europe.	Nearly the whole of western Europe.
Termination - - - - -	Gradually dispersed over the Bay of Biscay and France.	Travelled away to the Mediterranean.	Travelled across Germany and Austria to the south of Russia.
Accompanying Wind - -	Chiefly North-westerly or Northerly, but North-easterly in the south of our Islands.	Westerly (North-west to South-west) over the greater part of our Islands. Variable on the Continent.	Northerly, falling light and variable, and finally shifting to the South-westward.
„ Weather - - - - -	Dry generally, but cloudy and cool -	Fair generally, but with a good deal of fog over England.	Fine in the interior of the system, but showery and unsettled around its borders.
REMARKS - - - - -	The dispersal of this system seems to have been quite spontaneous, the barometer giving way not only on its borders but in the very interior of the anticyclone.	The original system appears to have been reinforced on the 20th by a new one, which also advanced from the westward. Between the 16th and 19th some large cyclonic disturbances travelled eastwards across the north of Scandinavia.	The movements of this anticyclone were accelerated by a series of large and deep depressions which began to skirt the extreme western and northern coasts of our Islands on the night of the 25th.



## SECTION III.

## REMARKS FOR OCTOBER 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from a little above 29·85 ins. in the Shetlands to between 30·15 ins. and 30·19 ins. over all the southern parts of Ireland, with a portion of South Wales and the whole of Devon and Cornwall. The general distribution was therefore of an abnormal character, the gradient (which was considerably steeper than usual) being favourable for winds from the North-westward instead of breezes from the Westward and South-westward. The actual values were everywhere in excess of the average for the 20 years 1861–80, the departure from the normal being greatest (0·30 in. to 0·35 in.) in the south of Ireland, and least (0·15 in. to 0·20 in.) on the north and east coasts of Great Britain. The highest readings were observed early on the 25th during the passage of anticyclone No. XXVI., when the barometer rose to 30·5 ins. or more in the north and east of Great Britain, to 30·6 ins. or more in the western parts of the United Kingdom and to 30·7 ins. at Parsonstown. The lowest readings were recorded very generally on the 30th. Over the southern parts of the kingdom, where the barometric fall was produced by the passage of depression No. XXXIV. (Map 2, Plate XX.), the actual minima occurred early in the morning; while in the northern parts of the kingdom, where the fall was due to the passage of a shallower and less important system, the lowest readings were observed later in the day. In London the actual minimum was as low as 28·86 ins. and at Yarmouth 28·89 ins. The extreme range for the month was somewhat large, varying in most places from an inch and a half to an inch and three quarters.

*Movements of Depressions.*—The two most important depressions were those of the 9th–13th and the 29th–31st, each of which travelled in a north-easterly direction, the former over the south of England and the latter across France. On the 12th and 13th a somewhat shallow system travelled south-eastward from North Wales to central France, while between the 13th and 15th a more important depression travelled southwards across Scandinavia and Denmark. At the close of the month some large disturbances were moving to the northward of our Islands in the direction shown by the generalized arrow “A.” in Map 2, Plate XX.

*Anticyclones.*—Three such systems were observed. The first and second, which drifted across our Islands respectively at the beginning and middle of the period, were of some persistence, but the third only lasted three days. In each case the system advanced from the Atlantic and travelled eastward and south-eastward across our Islands and the neighbouring countries.

*Winds.*—In the northern and eastern parts of Great Britain the most prevalent winds were those from some North-westerly point (from North round by West to South-west). In the extreme west and south-west of the kingdom, however, greater variability was shown and at Scilly and Jersey there was a large proportion of breezes from the North-eastward and Eastward. The conditions represented by the wind-roses in Plate XIX. were in fact just such as might have been expected from an examination of the mean distribution of pressure shown in Map 1, Plate XX. Gales were somewhat frequent on our extreme south-western, western, and northern coasts; at Scilly there were 6, at Stornoway 8, and at Mullaghmore 9. In the English Channel, however, they were very rare, Jersey, Hurst Castle, and Dungeness reporting only one gale, due to the passage of depression No. XXXIV.

*Temperature.*—The mean (sea level) temperature of the month varied from a little below 44° in the Shetland Islands, a little below 45° over the inland parts of the south-west of



Scotland, the northern and north-eastern counties of England, and some portions of South Wales, and a little below  $46^{\circ}$  over central Ireland, to rather below  $50^{\circ}$  at Valencia and to about  $51^{\circ}$  at Scilly and Jersey. The distribution of temperature was therefore of a somewhat more wintry type than is usual in October, and the mean values were below the average for the 20 years 1861–80 in all parts of the kingdom. In Scotland the deficiency did not amount to more than  $1^{\circ}$  or  $2^{\circ}$ , but over Ireland, Wales, and the north and west of England it varied from  $3^{\circ}$  to  $4^{\circ}$ , while in our midland, eastern, and south-eastern counties it was as much as  $5^{\circ}$  and  $6^{\circ}$ . The highest values were recorded at somewhat irregular times. Over the country generally the extreme maxima were observed as a rule between the 1st and 4th, but in the south of England they occurred on the 8th, while in some parts of our midland and eastern counties the weather on the 28th was as mild as at the beginning of the month. The extreme minima, which were in many instances exceedingly low for the time of year, occurred mostly on the 26th, but in some parts of Scotland, the north of Ireland, and the north-west of England the 12th was the coldest day. Over the inland parts of England and Ireland the thermometer on one or other of these dates sank below  $25^{\circ}$ , the lowest readings of all being  $20^{\circ}$  at Hereford and Strathfield Turgiss, and  $21^{\circ}$  at Cirencester and Cullompton. The extreme range was large, especially in the districts just mentioned; at Southampton it amounted to  $40^{\circ}$ , at Hereford to  $41^{\circ}$ , and at Strathfield Turgiss to  $42^{\circ}$ , while at Llandovery it was as much as  $44^{\circ}$ .

*Vapour Tension* ranged from 0·24 in. or less over central Ireland and the north-eastern and central parts of Great Britain to 0·30 in. or more in the south-west of England. *Relative Humidity* varied from 77 per cent. at Jersey, 79 per cent. at Mullaghmore and Holyhead, and 80 per cent. at Shields and Valencia, to 93 per cent. at Pembroke, 94 per cent. at Stornoway, and 95 per cent. at Hawes Junction.

*Rainfall*.—The aggregate amount was less than an inch and a half in the south-east of England, the east of Ireland, and some parts of the south of Scotland. At Valencia, however, it was as much as 4·7 ins., at Falmouth 5·3 ins., and at Laudale 6·1 ins., while at Glencarron the amount was 8·4 ins. Compared with the average for the 20 years 1866 to 1885, the values show a deficit in all parts of the kingdom. In some portions of the south-east of England and the east of Ireland the aggregate fall was less than half the normal, while at Ardrossan it was less than one third. The number of rainy days varied from 5 at Southampton, 6 at Kilkenny, 7 at Waterford, and 8 at Hurst Castle, Edgeworthstown, and Roche's Point, to 28 at Sumburgh Head and Glencarron. Over the eastern, central, and southern parts of England the heaviest fall in 24 hours occurred on the 29th, and in Ireland either on the 26th or 31st, but in the north and north-east of Great Britain it was registered on very irregular dates.

*Bright Sunshine*.—The amount of bright sunshine varied from only 11 per cent. of the possible amount of duration at Llandudno, 18 per cent. at Armagh, and 19 per cent. at Stornoway, to 37 per cent. at Southampton and Jersey, 39 per cent. at Hastings, and 41 per cent. at Falmouth. In London the per-centage value was 25.



**SUMMARY OF THE METEOROLOGICAL OBSERVATIONS**

**MADE AT**

**TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS**

**DURING THE MONTH OF OCTOBER 1887.**



TABLE XIX. -

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.							
			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° 808	43° 3	38° 8	47° 3	43° 1	28	25th	55	5th
	Wick - - -	29° 948	44° 5	38° 9	48° 9	43° 9	30	12th	58	18th
	Stornoway - - -	29° 995	44° 4	39° 2	49° 1	44° 2	29	25th	57	6th
1. SCOTLAND, E.	Nairn - - -	30° 000	44° 0	40° 1	50° 2	45° 2	32	12th	59	3rd, 27th
	Aberdeen - - -	29° 981	42° 8	38° 5	51° 1	44° 8	30	22nd, 26th	62	6th
	Leith - - -	30° 063	44° 4	39° 6	54° 0	46° 8	30	12th, 22nd	64	2nd, 3rd, 5th
2. ENGLAND, N.E.	Shields - - -	30° 022	44° 2	38° 8	51° 0	44° 9	29	26th	60	3rd
	York - - -	30° 061	42° 4	37° 3	51° 1	44° 2	27	22nd	59	2nd, 7th
	Spurn Head - -	30° 023	45° 5	42° 0	50° 0	46° 0	33	12th, 25th	56	7th
3. ENGLAND, E.	Yarmouth - - -	30° 046	45° 3	40° 0	50° 4	45° 7	30	13th	56	1st, 3rd, 7th
	Cambridge - - -	30° 080	43° 1	37° 3	53° 1	45° 2	24	26th	60	7th, 28th
4. MIDLAND COUNTIES	Loughborough -	30° 097	41° 3	36° 9	52° 7	44° 8	23	22nd, 26th	61	4th
	Oxford - - -	30° 123	41° 4	37° 4	52° 2	44° 8	26	26th, 27th	60	8th, 28th
5. ENGLAND, S.	London - - -	30° 103	42° 4	38° 2	52° 8	45° 5	26	26th	63	8th
	Dungeness - - -	30° 056	43° 7	39° 4	53° 3	46° 4	27	13th, 26th	61	8th
	Hurst Castle -	30° 131	45° 2	39° 6	54° 1	46° 0	27	26th	63	8th
6. SCOTLAND, W.	Ardrossan - - -	30° 058	45° 8	39° 7	52° 1	45° 9	29	15th	60	3rd
7. ENGLAND, N.W.	Hawes Junction* -	28° 815	39° 4	35° 1	45° 8	40° 5	23	12th, 26th	58	4th
	Barrow-in-Furness -	30° 072	45° 0	41° 5	51° 0	46° 3	32	12th, 25th	59	4th
	Liverpool - - -	30° 097	45° 3	42° 4	51° 0	46° 7	32	26th	58	2nd, 3rd, 4th
	Holyhead - - -	30° 115	48° 6	45° 7	52° 7	49° 2	35	13th	60	8th
8. ENGLAND, S.W.	Pembroke - - -	30° 140	48° 6	45° 2	52° 5	48° 9	37	12th	58	1st
	Prawle Point - -	30° 156	47° 8	41° 0	55° 3	48° 2	29	25th	61	2nd, 7th, 18th
9. IRELAND, N.	Malin Head - - -	30° 082	47° 4	44° 4	50° 1	47° 3	36	12th	58	6th
	Donaghadee - - -	30° 100	46° 3	42° 9	52° 0	47° 5	33	12th	58	1st, 3rd, 7th
	Mullaghmore - -	30° 131	47° 6	43° 8	51° 7	47° 8	35	26th	57	3rd
	Belmullet - - -	30° 157	48° 0	45° 3	52° 2	48° 8	39	8th	61	2nd
10. IRELAND, S.	Parsonstown - -	30° 178	42° 2	37° 9	51° 8	44° 9	24	25th, 26th	59	7th
	Valencia - - -	30° 192	49° 5	44° 4	54° 8	49° 6	31	25th	61	1st
	Roche's Point - -	30° 168	47° 7	43° 8	54° 2	49° 0	34	25th	62	1st
CHANNEL ISLANDS	Scilly (St. Mary's) -	30° 151	51° 2	47° 5	54° 4	51° 0	41	26th	59	3rd
	Jersey (Noirmont) -	30° 145	49° 8	44° 7	55° 0	49° 9	33	26th	61	18th

\* 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 1887.

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.
in. 0.246	% 88	8.7	ins. 2.65	in. 0.40	26th	28	2	1	1	0	21	1	13	0	0	0	1	4	4	6	3
*253	86	8.2	2.38	0.35	31st	20	3	2	0	0	15	0	9	2	0	1	0	2	8	9	0
*275	94	8.7	5.35	0.67	9th	27	4	2	1	0	23	8	5	5	2	0	1	8	5	3	2
*248	86	5.8	2.83	0.99	9th	15	2	0	0	6	8	0	3	1	0	1	0	13	8	1	4
*230	84	5.5	2.73	0.55	9th	16	6	2	0	10	10	5	6	2	0	0	0	6	8	9	0
*236	81	5.5	1.15	0.45	7th	11	1	0	0	8	6	0	2	1	0	0	0	3	18	7	0
*234	80	7.2	2.07	0.68	14th	14	1	2	0	5	14	1	5	1	0	0	1	8	9	6	1
*233	86	7.2	2.16	0.70	8th	15	0	0	0	7	18	0	9	1	0	0	3	3	7	7	1
*277	91	5.1	2.93	0.67	24th	19	4	2	0	8	3	5	5	2	1	0	0	5	6	12	0
*268	89	6.1	3.06	0.59	29th	22	2	2	0	4	7	4	6	1	0	0	0	6	9	9	0
*246	88	6.7	1.54	0.60	29th	13	0	1	0	8	16	0	12	0	0	0	2	5	5	5	2
*228	88	7.3	1.53	0.95	29th	11	0	0	0	4	16	1	2	1	2	1	0	3	11	10	1
*227	88	6.8	1.76	0.85	29th	9	1	1	0	7	15	0	4	4	0	0	2	2	9	7	3
*229	85	6.9	1.32	0.55	29th	10	2	2	0	8	17	2	4	4	0	1	2	3	10	5	2
*254	83	7.7	1.32	0.47	29th	12	1	0	0	1	12	1	10	5	0	0	0	3	5	8	0
*262	87	5.1	1.43	0.97	29th	8	0	0	0	5	0	1	11	8	1	0	0	1	2	8	0
*265	86	4.8	1.43	0.28	7th	9	0	1	0	13	8	4	4	2	4	0	1	5	6	6	3
*230	95	8.1	2.74	0.49	8th	16	1	1	0	4	22	0	4	4	3	1	5	6	2	6	0
*243	82	6.0	3.23	0.91	27th	11	0	0	0	3	9	2	7	9	1	0	3	4	1	6	0
*244	81	7.3	2.26	0.37	9th	16	0	1	1	5	16	1	5	4	1	2	3	6	7	3	0
*271	79	7.0	2.83	0.56	27th	14	1	3	1	3	11	2	11	4	0	0	2	4	6	4	0
*320	93	5.9	2.45	0.47	29th	14	0	4	1	3	8	3	6	9	2	1	2	3	6	2	0
*267	81	6.4	2.14	0.50	29th	10	1	1	0	4	11	1	10	7	0	1	0	2	4	7	0
*275	84	8.1	2.32	0.30	28th	20	0	7	0	1	20	1	9	1	1	0	1	7	5	7	0
*261	84	6.2	1.51	0.36	31st	11	0	0	0	6	10	4	2	12	0	0	0	6	9	2	0
*261	79	7.7	3.50	1.26	31st	17	1	3	0	2	11	9	6	3	1	2	7	7	0	4	1
*267	80	8.3	3.81	1.30	31st	18	0	2	1	2	18	4	7	4	1	2	4	7	3	3	0
*233	87	6.4	2.52	1.15	26th	9	0	0	0	9	16	0	1	1	0	0	2	2	1	3	21
*284	80	7.5	4.74	2.32	26th	12	0	1	0	4	17	2	5	7	1	3	3	2	4	3	3
*271	82	5.9	2.67	1.15	31st	8	0	0	0	9	11	1	12	5	2	0	1	4	2	5	0
*312	83	8.4	3.78	1.59	29th	14	0	2	1	0	15	6	4	7	4	1	2	1	3	4	5
*275	77	6.1	3.38	0.79	30th	16	0	3	2	4	9	1	3	11	3	2	0	1	3	7	1

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 1887.

STATIONS.	AIR TEMPERATURE.						RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.			No. of Rainy Days.	Total Falls in the Month.	Maximum Falls in One Day.	Date.	No. of Hours recorded.	Percentage possible Duration.
	Maxima.	Minima.	Min. and Max. combined.	Minimum.	Date.	Maximum.						
STORNOWAY	*	*	*	*	*	*	*	*	*	*	59	19
LAIRG	36.5	48.8	42.7	25	12th	57	20	2.73	0.65	7th	—	—
GLENCARRON	38.0	47.6	42.8	25	12th	55	28	8.43	1.46	22nd	—	—
FORT AUGUSTUS	38.5	50.2	44.4	27	12th	61	20	2.98	0.62	28th	—	—
ABERDEEN	*	*	*	*	*	*	*	*	*	*	105	33
BRAEMAR	34.0	47.7	40.9	26	16th, 17th, 22nd.	59	16	2.28	0.56	12th	74	24
OCHTERTYRE	36.4	54.1	45.3	28	11th	66	11	1.18	0.27	31st	—	—
MARCHMONT	38.1	49.7	43.9	27	22nd	60	14	1.85	0.61	8th	107	34
ALNWICK CASTLE	38.8	49.0	43.9	30	21st, 25th	58	16	2.36	0.73	12th	—	—
DURHAM	38.0	50.6	44.3	26	26th	60	14	2.29	0.57	9th	95	30
SCARBOROUGH	40.9	49.7	45.3	29	26th	58	18	3.16	0.65	9th	†102	32
YORK	*	*	*	*	*	*	*	*	*	*	92	29
HILLINGTON	38.2	51.1	44.7	26	26th	57	17	3.80	0.93	29th	87	27
GELDESTON	39.5	52.1	45.8	29	13th	59	17	2.75	0.61	29th	95	29
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	106	33
ROTHAMSTED	36.9	51.5	44.2	22	26th	61	13	1.57	0.75	29th	—	—
INGATESTONE	38.6	51.5	45.1	27	26th	59	9	1.47	0.70	29th	97	30
BAWTRY	36.8	51.0	43.9	26	22nd, 26th	58	13	1.75	0.61	8th	†91	28
LEICESTER	38.3	52.3	45.3	24	22nd	60	14	1.94	0.94	29th	81	25
CHEADLE	37.3	49.7	43.5	26	26th	59	11	2.16	0.60	29th	—	—
CHURCHSTOKE	36.5	50.9	43.7	24	26th	59	14	2.25	0.47	29th	96	30
HEREFORD	36.7	53.5	45.1	20	26th	61	11	2.17	0.91	29th	—	—
CIRENCESTER	36.1	52.1	44.1	21	26th	59	11	2.49	1.33	29th	115	35
OXFORD	*	*	*	*	*	*	*	*	*	*	116	36
LONDON	*	*	*	*	*	*	*	*	*	*	81	25
STRATHFIELD TURGISS	36.1	54.1	45.1	20	26th	62	12	1.49	0.74	29th	—	—
HASTINGS	41.5	52.9	47.2	30	12th	61	13	1.64	0.53	29th	126	39
SOUTHAMPTON	39.4	55.1	47.3	25	26th	65	5	1.33	0.83	29th	122	37
STOWELL	37.6	51.6	44.6	24	26th	57	12	2.52	1.11	29th	105	32
LAUDALE	40.6	50.8	45.7	31	12th	58	22	6.13	1.28	31st	—	—
GLASGOW	36.4	51.6	44.0	27	12th	60	11	1.71	0.30	28th	71	22
GLENLEE	35.9	51.0	43.5	24	16th	63	12	2.50	1.04	26th	—	—
DOUGLAS	40.4	52.3	46.4	29	25th	60	14	2.77	0.57	26th	113	35
NEWTON REIGNY	37.2	49.4	43.3	23	12th	59	11	2.17	0.56	30th	86	27
STONYHURST	38.3	49.1	43.7	28	26th	57	12	2.11	0.52	30th	104	32
BLACKPOOL	40.2	50.4	45.3	30	11th	58	14	3.35	0.93	9th	95	30
MANCHESTER	38.6	50.2	44.4	27	12th, 26th	58	15	2.28	0.46	8th	—	—
LLANDUDNO	43.4	52.1	47.8	32	26th	59	14	2.55	0.84	9th	34	11
LLANDOVERY	34.1	54.0	44.1	20	25th	64	16	2.91	0.82	29th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	89	27
ARLINGTON	38.9	51.7	45.3	26	26th	57	16	4.51	1.45	29th	—	—
CULLOMPTON	37.0	53.4	45.2	21	26th	59	13	4.16	1.80	29th	100	31
FALMOUTH	43.4	53.1	48.3	34	26th	58	12	5.34	2.30	29th	134	41
PLYMOUTH	42.0	53.9	48.0	32	26th	61	11	4.22	1.54	29th	114	35
JERSEY	*	*	*	*	*	*	*	*	*	*	123	37
LONDONDERRY	41.4	51.2	46.3	32	26th	59	22	3.33	0.59	31st	—	—
MARKREE CASTLE	39.5	51.7	45.6	26	9th	58	17	2.47	0.86	31st	72	22
BROOKBOROUGH	38.1	50.6	44.4	27	9th, 26th	58	12	2.56	0.90	31st	—	—
ARMAGH	39.9	51.1	45.5	30	10th	59	11	1.59	0.41	31st	59	18
EDGEWORTHSTOWN	39.1	50.8	45.0	30	25th	56	8	1.78	0.68	31st	—	—
DUBLIN	42.7	51.9	47.3	33	11th	60	11	1.40	0.63	31st	92	29
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	96	30
KILKENNY CASTLE	38.7	56.0	47.4	24	25th	60	6	1.92	1.05	31st	—	—
WATERFORD	39.1	54.4	46.8	27	25th	63	7	1.74	0.74	31st	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	92	28
KILLARNEY	39.9	53.6	46.8	22	25th	60	10	3.88	1.50	31st	—	—
FOYNES	42.4	53.0	47.7	28	24th	60	10	2.19	0.61	26th	—	—

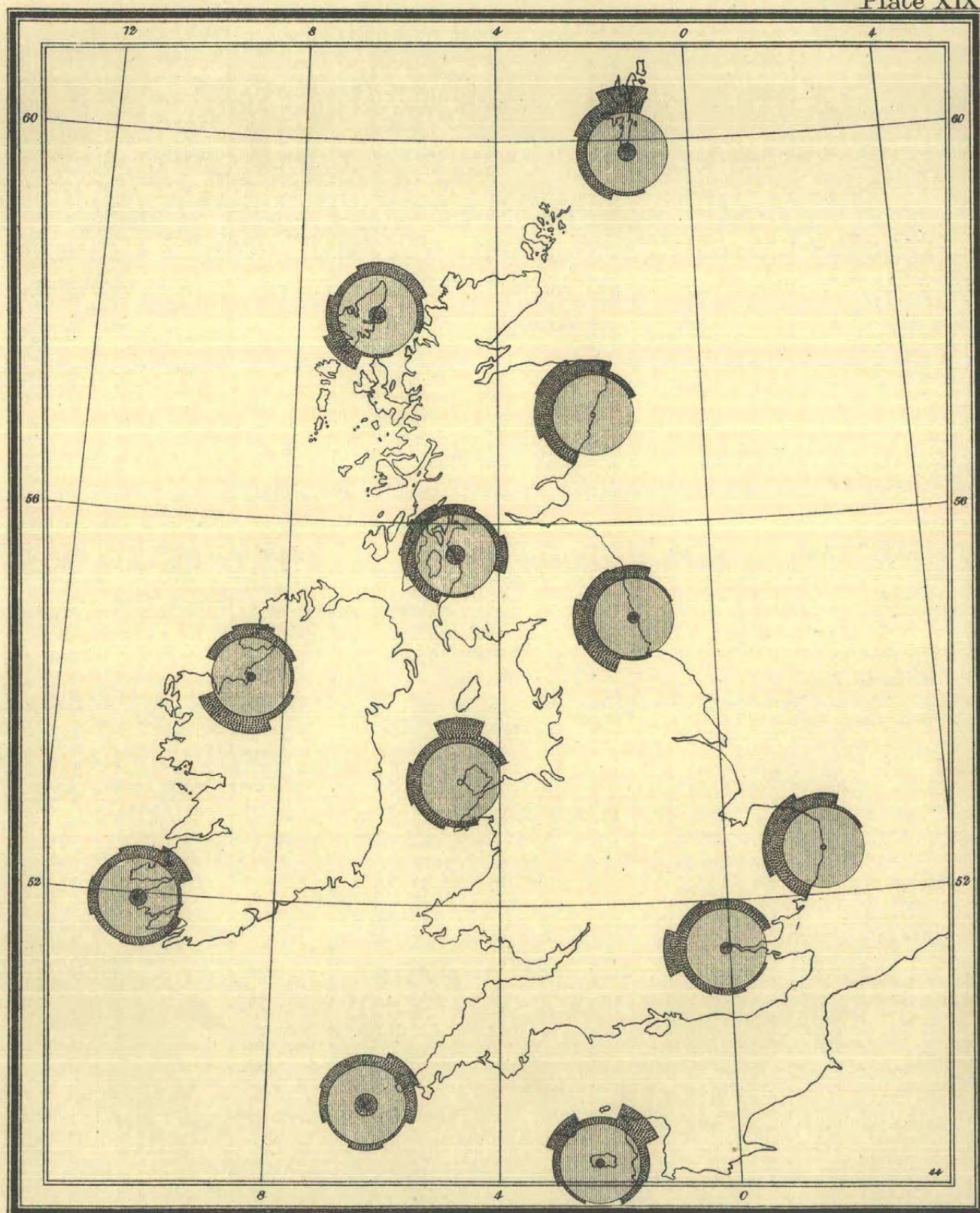
\* For information, see Table XIX.

† The bright sunshine values given for Bawtry are recorded at Worksop, those for Scarborough at Oswaldkirk.



# MONTHLY WIND CHART FOR OCTOBER 1887.

Plate XIX.



To face p. cii.

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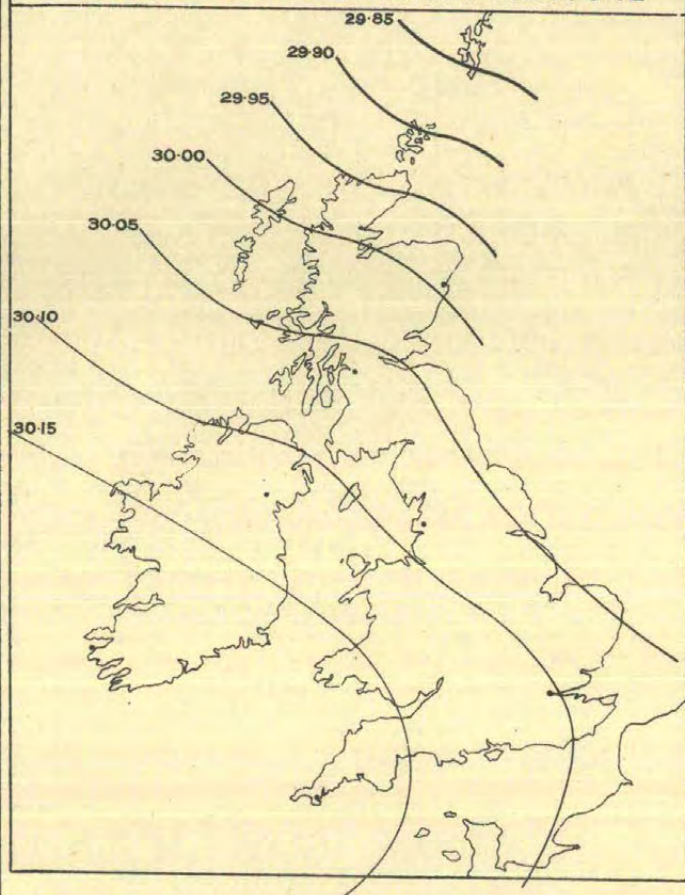


# MONTHLY WEATHER CHART, OCTOBER, 1887.

### Monthly Summary.

*Plate XX.*

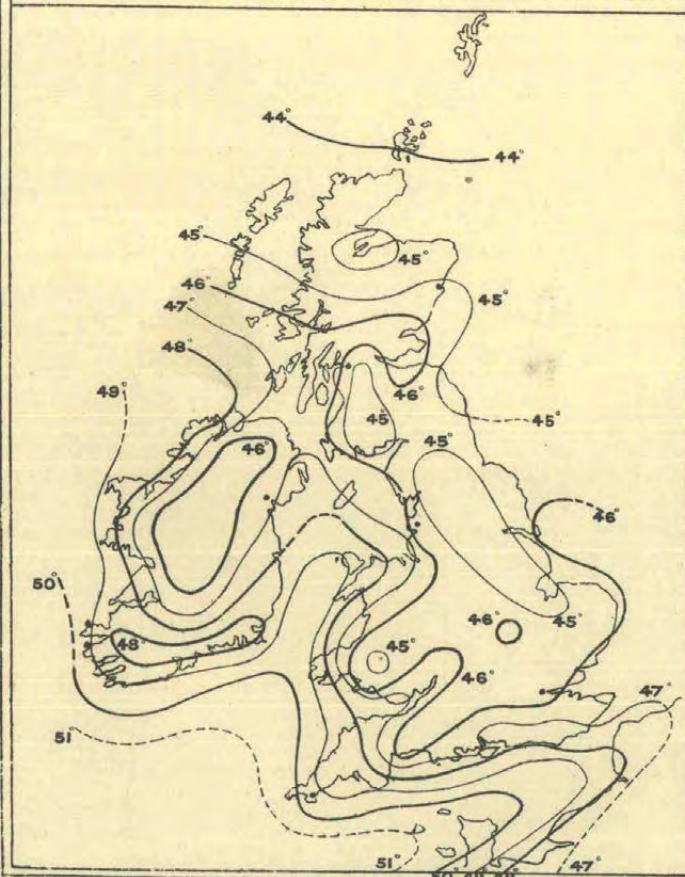
## I. DISTRIBUTION OF MEAN PRESSURE



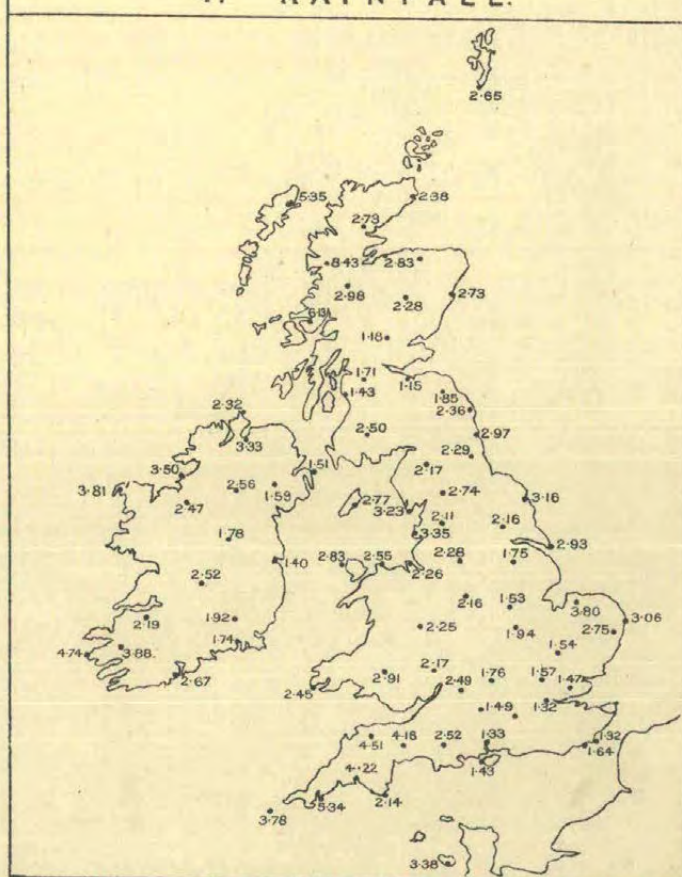
## 2. MOVEMENTS OF DEPRESSIONS.



### 3. DISTRIBUTION OF MEAN TEMPERATURE.



#### 4. RAINFALL.



*To follow Wind Chart for October.*







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MONTHLY WEATHER REPORT,  
NOVEMBER 1887.

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SECTION I.

GENERAL SUMMARY FOR THE MONTH.

THE weather of this month was exceedingly changeable and unsettled, with frequent falls of rain and snow over the more northern parts of the kingdom, and occasional thick fogs in the south. Pressure was below the average, especially in the southern districts, and temperature was low for the time of year. The number of rainy days was somewhat large, but the total amount of rainfall was less than the normal in nearly all places, the only district with any decided excess being the south of England. Bright sunshine was very deficient in Scotland and also in some parts of central England, but on our south-west coasts the proportion of sunny weather was rather above the average.

November 1-4.—Barometric pressure was at this time highest over Spain, and less high over northern Europe, while a series of large and deep cyclonic disturbances travelled northwards and north-eastwards outside or immediately over our extreme western coasts. The winds were therefore Southerly, and the weather everywhere squally, rainy, and unsettled. The most important depressions were those observed respectively on the 1st and on the night of the 2nd. In the former case (No. XXXV.\*) the centre of the primary disturbance was situated some distance to the westward of our Islands, but a deep secondary system appeared over the St. George's Channel, and moved northwards, its progress being attended by strong to "whole" gales from the South-eastward in all parts of the kingdom, with heavy rain in the west. In the latter case the depression, which was of a primary order and of considerable depth, advanced with great rapidity from the south-westward and travelled along far outside our extreme western and north-western coasts. Its passage was accompanied by a renewal of strong gales from the South-eastward or Southward, with thunder and lightning in the south of England. A rapid and general fall of the barometer took place during the progress of these two depressions, and resulted in some very low readings, the mercury being below 29·0 ins. in all parts of the United Kingdom on the 3rd, and below 28·5 ins. in the north-western districts. During the afternoon and morning of the 3rd a shallow secondary disturbance travelled north-eastwards across England, and occasioned heavy rain in many places, with thunder and lightning at night.

November 6-10.—The type of weather prevailing during these few days was exceedingly complex. On the morning of the 5th a new depression (No. XXXVI.\*) appeared over our extreme western coasts, and later in the day was joined by another disturbance formed over the St. George's Channel. Fresh gales from the South-westward or Westward, and heavy rain consequently set in on all our western and southern coasts. On the 6th the two disturbances, which had by this time united, travelled south-eastwards across our south-west coasts, the wind over our Islands shifting to the Eastward and North-eastward, with a decided fall of temperature. The subsequent history of this system was very peculiar, for on reaching the north of France it recurved, and on the night of the 8th its centre travelled away in a westerly direction over the Atlantic. Over England, however, the weather was kept in a very unsettled condition, owing to the advance from North Germany of another shallow disturbance which moved slowly along our southern coasts, and which occasioned rain and fog over all our eastern, midland, and southern counties.

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



November 11-17.—During this period two anticyclonic systems travelled across our Islands. The first appeared over Scotland on the 11th, and afterwards moved slowly southwards, light varying winds and cloudy, misty weather being experienced in nearly all parts of the kingdom, with frost over central Scotland and the north of Ireland. On the 13th, however, the high-pressure system was attacked by two depressions, one off our north-east coasts, and the other over Spain and the Bay of Biscay, the result being that the anticyclones after reaching Ireland rapidly dispersed. The disturbances over Spain (No. XXXVIII.\*) eventually travelled north-eastwards across France to central Europe, a movement which was accompanied by a considerable freshening of the North-easterly wind in the east and south of England, with cold showers in many places. The second anticyclone, which made its appearance over our extreme northern districts on the 14th, travelled first of all in a southerly direction, and afterwards passed away eastwards to Germany and eastern Europe. During its brief stay in our neighbourhood some very low temperatures were registered over Great Britain, the sheltered thermometer falling to 20° or less in many places. At Rothamsted the minimum was as low as 17°, and at Llandoverly 16°. In London the thermometer on the 16th did not rise above 29° all day.

November 18-21.—As the last-mentioned anticyclone travelled away the weather over our Islands came under the influence of two low-pressure systems, one lying to the northward of the United Kingdom and the other over Spain. For a brief interval the two systems neutralised each other, and no important change in the atmospherical conditions was observed, but on the 17th the Spanish depression moved north-eastwards, to the south coast of England, occasioning rain and snow in the south-eastern districts. Towards night the system dispersed, but on the evening of the 18th a very complex system, having three minima, was shown over our Islands and the Irish Sea. The first of these minima ultimately travelled southwards from Ireland to the west of France, its passage being attended by heavy rain at several of our western stations, and thunder and lightning in the south-west of England, while the two remaining systems gradually dispersed. Scarcely had they disappeared, however, before a new depression (No. XXXIX.\*) advanced over Ireland, occasioning strong South-easterly winds and heavy rain on our western coasts; on the night of the 21st it moved south-eastwards across the south-west of England, and by the following day, when it had travelled away towards Spain, Easterly and North-easterly winds had become general over the United Kingdom.

November 22-23.—A long band of high readings now moved slowly southwards across the United Kingdom, its passage being marked by variable airs or calms, and by dense fogs in many places. The system was, however, not sufficiently well defined to be classed as an anticyclone in the table relating to such areas in Section II.

November 24-30.—As the high-pressure band just mentioned passed southwards a series of large depressions began to move along our extreme northern coasts, and for the remainder of the month a strong Westerly current was experienced over the kingdom, with unsettled, showery weather and a high temperature. The centres of the northern disturbances were at first too far away for their effects to be felt with any great severity on our coasts, although gales from the South-westward were frequent in Scandinavia. On the 26th and 27th, however, when the depressions came somewhat nearer, strong gales from South-west and West were experienced on our western and extreme northern coasts. By the 28th the depression series in the north had apparently come to an end, but in the course of the following night a small shallow depression (No. XXIX.\*) advanced north-eastwards along the English Channel, producing heavy rains in the south of England, with strong winds and gales from varying directions on our south-east coasts. At the close of the month this system was travelling away across the Baltic, and an anticyclone was spreading from the south-westward over the Bay of Biscay and our extreme south-west coasts.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—NOVEMBER 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXXV. November 1.	No. XXXVI. November 5-9.
Form - - - - -	Nearly circular - - - - -	Varying; elliptical at first, but afterwards circular.
Size - - - - -	Large - - - - -	Large.
Depth - - - - -	Deep - - - - -	Moderate.
Where first Observed - - - - -	Near the mouth of St. George's Channel - - -	Off the west of Ireland.
Direction of Motion - - - - -	Northerly at first, then north-westerly - - -	South-easterly at first, afterwards northerly, and finally westerly.
Rate of Motion - - - - -	Moderate - - - - -	Slow.
Regions passed over by Steepest Gradients	The west and south of our Islands and the west of France.	The British Islands and France.
Termination - - - - -	Travelled away to the westward of Scotland - -	Travelled away to the south-westward of our Islands.
Time under Observation - - - - -	Ten hours - - - - -	Nearly five days.
Accompanying Winds - - - - -	Strong to whole gales from the southward in nearly all parts of the United Kingdom and also in the west of France.	Varying Southerly at first, then strong Easterly or North-easterly, with fresh or strong gales at several of our northern stations.
„ Weather - - - - -	Squally and rainy; lightning seen in the west on night of 1st.	Cloudy and showery in all districts excepting the south-east of England.
„ Rainfall - - - - -	General over our Islands and France, and very heavy at some of the western stations.	General and heavy in many places.
REMARKS - - - - -	<p>The system appears to have reached the St. George's Channel from the south-westward. Although well defined and deep, it was only secondary to a much larger disturbance lying out in the Atlantic.</p> <p>This depression first appeared off the west of Ireland on the evening of the 5th. It then moved slowly in a south-easterly direction, its centre reaching the north-west of France by the morning of the 7th. Later in the day it travelled north-eastwards, but on reaching the neighbourhood of the Channel Islands it began to retrace its steps, and finally passed away in a westerly direction over the Atlantic. The movements of the system were therefore unusual, but as an instance of a recurring depression it was far less remarkable than the very peculiar disturbance of April 20-24, 1872 (see Quarterly Weather Report for 1872).</p>	



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—NOVEMBER 1879.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXXVII. November 9-11.	No. XXXVIII. November 13-15.
Form - - - - -	Circular - - - - -	Nearly circular - - - - -
Size - - - - -	Moderate - - - - -	Large - - - - -
Depth - - - - -	Shallow - - - - -	Shallow - - - - -
Where first Observed - - - - -	Over Belgium, the north-west of Germany, and the north-east of France.	Off the north-west of Spain - - - - -
Direction of Motion - - - - -	At first north-westerly, then south-westerly, and finally south-easterly.	East-north-easterly - - - - -
Rate of Motion - - - - -	Slow - - - - -	Moderate - - - - -
Regions passed over by Steepest Gradients	England, but gradients not steep anywhere -	France, the Netherlands, and the south-east of England.
Termination - - - - -	Filled up over central France - - - - -	Travelled away over Germany - - - - -
Time under Observation - - - - -	Three days - - - - -	Three days - - - - -
Accompanying Winds - - - - -	Moderate or fresh from the North-eastward over the greater part of the United Kingdom; light Easterly or South-easterly in the Netherlands; North-westerly in the west of France.	Fresh to strong from the Eastward and North-eastward in the south of our Islands; strong from the Northward and North-westward in France.
„ Weather - - - - -	Dull and rainy in the east and south-east of England; showery in France; foggy across Germany and the Netherlands.	Dull and rainy - - - - -
„ Rainfall - - - - -	General over England, France, and Germany; heavy at several of our southern and south-eastern stations.	General over France, Germany, and the south of our Islands,—amounts large in many places.
REMARKS - - - - -	<p>The disturbance appears to have been formed over Belgium on the night of the 8th. During the 9th and 10th it continued to develop, but on the night of the 10th it began to fill up, while on the following day it entirely dispersed over France.</p> <p>On the morning of the 13th, when the depression lay off the north-west of Spain, the system was apparently shallow, but in the course of its passage across the southern part of the Bay of Biscay and the west of France it grew deeper. On reaching Germany, however, the disturbance seems to have become shallow again.</p>	



SECTION II.—*continued.*

## TABLE OF CYCLONIC SYSTEMS.—NOVEMBER 1887.

No. XXXIX. November 21-22.	No. XL. November 26.	No. XLI. November 29.
Irregular; mostly elliptical - - - -	Nearly circular - - - -	Circular.
Moderate - - - -	Large - - - -	Small.
Shallow - - - -	Deep - - - -	Shallow.
Off the west of Ireland - - - -	Off the north of Scotland - - - -	Near the mouth of the English Channel.
Southerly - - - -	East-north-easterly - - - -	East-north-easterly.
Slow - - - -	Moderate - - - -	Moderate.
The west coasts of our Islands and France, but gradients not steep anywhere.	The United Kingdom, the North Sea, Denmark, and the Baltic.	The south-east of England, the Netherlands, and the north-east of France.
Travelled away to Spain - - - -	Travelled away to northern Russia - - - -	Travelled away to the Baltic and central Russia.
About 36 hours - - - -	About 24 hours - - - -	About 36 hours.
Strong South-easterly on the west coasts of the United Kingdom and France, afterwards backing to the Eastward.	Gales and strong winds from the South-westward over our Islands, the North Sea, and the south of Scandinavia.	Mostly light or moderate in force, but strong Easterly wind experienced at Yarmouth on the morning of the 29th, and a fresh South-westerly gale in the Straits of Dover.
Dull and rainy; thunder at Valencia on night of 20th.	Cloudy, squally, and showery - - - -	Dull and rainy.
General over our Islands and France, and heavy at some of our south-western stations.	General over north-western Europe, but amount nowhere very large.	General in the neighbourhood of the depression; amounts heavy at some of our southern stations.
This depression was at first very complex, and on the morning of the 21st there were apparently two barometric minima, one over the north-west of Ireland and the other to the southward of that country. As the disturbance moved southwards it became less irregular in form.	This depression, which was apparently subsidiary to a larger disturbance in the far north, was itself followed by another secondary system which appeared off the north of Ireland on the morning of the 27th. The secondary was at first deep and well defined, but in crossing Scotland it rapidly lost energy, and on reaching the North Sea entirely dispersed.	The disturbance increased somewhat in depth as it moved along the English Channel, but its disappearance from the neighbourhood of our Islands was accompanied by a gradual diminution of intensity. The disturbance was at no time of any great importance.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—NOVEMBER 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXVII. November 7-12.	No. XXVIII. November 14-16.
Form - - - - -	Varying, but mostly elliptical - - -	Elliptical.
Size - - - - -	Large - - - - -	Small.
Height - - - - -	Very small - - - - -	Small.
Where first Observed - - - -	Over the north of Scandinavia and the neighbouring parts of the Atlantic.	To the northward of our Islands.
Direction of Motion - - - -	South-westerly - - - - -	Southerly at first, then easterly.
Rate of Motion - - - - -	Very slow - - - - -	Slow.
Regions passed over - - - -	Scandinavia, the North Sea, the British Islands, and the north of France.	Nearly the whole of western and central Europe.
Termination - - - - -	Dispersed on the 12th and 13th - - -	Travelled away to Germany, Austria, and the south of Russia.
Accompanying Wind - - - -	Easterly and North-easterly during early part of time, but afterwards shifting to the Westward in all the more northern districts.	North-easterly at first, but afterwards shifting to the Westward and South-westward.
" Weather - - - - -	Generally fine in Scandinavia and also in France. Dull in our Islands. Rainy in the east and south-east of England between the 8th and 10th, when conditions were affected by depression No. XXXVII.	Fair generally, but a good deal of fog reported over the inland parts of England on the 16th as the central portion of the system passed over.
REMARKS - - - - -	The dispersal of this system (which was very rapid) seems to have been brought about partly by some depressions which travelled south-eastwards across Scandinavia and the North Sea, and partly by the advance from Spain of depression No. XXXVIII.	This system appears to have been forced southwards by some very large and deep cyclonic disturbances which advanced eastwards across the north of Scandinavia. The centre of these depressions was too far north for their tracks to be shown in Map 2, Plate XXII.



## SECTION III.

REMARKS FOR NOVEMBER 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from 29·70 ins. and upwards in a small area lying over the central and south-eastern parts of England, and from 29·65 ins. and upwards over Ireland and England generally to a little below 29·60 ins. in the north-west of Scotland. In comparison with the average for the 20 years 1861–80 the values show a deficit varying from between 0·20 in. and 0·25 in. over Ireland and England to rather less than 0·15 in. in the north of Scotland. Notwithstanding this deficiency, the mean distribution of pressure was less cyclonic in type than usual, especially over the southern parts of the kingdom; and the gradients in the north, which were excessively slight, were favourable for winds from a South-westerly or Southerly rather than from a Westerly point. The highest readings were observed at the northern stations on the 11th, when anticyclone No. XXVII. was drifting across Scotland from the north-eastward. In the southern parts of the kingdom, however, the barometer was highest on the 15th or 16th during the passage of anticyclone No. XXVIII. The lowest readings occurred very generally on the 3rd when a deep depression travelled in a north-north-easterly direction outside our western coasts; in the north of Ireland the barometer fell as low as 28·3 ins., and in other parts of the kingdom to considerably below 29·0 ins. The extreme range for the month was large (nearly 2 ins.) in the north-west and north, but elsewhere it did not amount to more than an inch and a half.

*Movements of Depressions.*—The depressions observed during the month were somewhat numerous, and a glance at Map 2, Plate XXI. shows that their movements presented great diversity. In the majority of cases the tracks extended from some south-westerly to some northerly or north-easterly point, but two important exceptions were observed. In the first of these cases (No. XXXVI.) the centre, after travelling south-eastwards across Ireland to the north-west of France, recurved and passed away in a westerly direction to the Atlantic. In the second instance (No. XXXVII.) the disturbance advanced first of all to the Channel from the south-eastward and afterwards travelled in a south-westerly direction to Normandy, and finally in a south-easterly direction to central France, where it quickly dispersed.

*Anticyclones.*—Two only were observed. The first, which was large, travelled slowly from Scandinavia across the northern parts of our Islands to our more central districts, where it rapidly dispersed. The second system also advanced from the northward, but in this case the area, on reaching the central parts of the kingdom, travelled away in an easterly direction to the Netherlands, Germany, and eventually to Austria and Russia.

*Winds.*—These varied greatly in direction. The quarters from which winds were most rare were the Northerly to North-westerly and the Southerly to South-easterly, but in the majority of cases all other points were represented to an almost equal extent. On our south-west coasts, however, there were very few winds from the South-westward. Gales were somewhat frequent, especially on our extreme western and north-western coasts; at Stornoway, Donaghadee and Mullaghmore the wind reached the force of a gale on 8 days, while at Ardrossan there were 9 such instances. The Southerly gales which prevailed over our Islands between the 1st and 3rd of the month were very severe in the west and north.

*Temperature.*—The mean sea level temperature for the month varied from 47°·5 in the Scilly Islands, 46°·6 in Jersey, and 45°·7 at Valencia to rather below 41° over nearly all the inland parts of England and Scotland, and to less than 40° in four small areas situated respectively over South Wales, Central Ireland, and the extreme northern and southern parts of inland Scotland. The winter type of distribution was therefore fairly well marked, but over the central districts of England and Scotland the weather, as compared with that in surrounding regions, was somewhat less cold than is frequently the case in November.



A comparison, however, between the actual values and the average for the 20 years 1861-80 shows that there was a deficiency of warmth in all districts. On the east and south-east coasts of England the deficit amounted to less than a degree, and in the eastern and central parts of Scotland to less than half a degree, but in the western districts the mean temperature was from one and a half to two degrees below the normal. The lowest readings were observed over Great Britain between the 15th and 17th, when anticyclone No. XXVIII. was passing across the country; at the inland stations the frost experienced at this time was of considerable severity, Llandovery reporting a minimum of  $16^{\circ}$ , Rothamsted one of  $17^{\circ}$ , and Braemar, Hereford, Cirencester, Loughborough, Oxford, and Glenlee a reading of  $19^{\circ}$ . Over Ireland the lowest readings occurred on the 24th, when the thermometer at the inland stations fell to between  $19^{\circ}$  and  $26^{\circ}$ . The highest temperatures were recorded on somewhat irregular dates; over the greater part of the kingdom they occurred some time between the 2nd and 6th, but at many of our western and northern stations the weather was quite as mild, or even milder, on the 26th. The extreme range was large at all the inland stations, and especially so over England; at Strathfield Turgiss it amounted to  $36^{\circ}$ , and at Loughborough, Rothamsted, and Llandovery to  $37^{\circ}$ .

*Tension of Vapour.*—This ranged from a little below 0.22 in. over the east of Scotland and all the more northern and central parts of England, to rather below 0.26 in. in our extreme north-west coasts, and to a little above that point at some of the Channel stations. *Relative Humidity* varied from 81 per cent. at Valencia, and 82 at Scilly and Jersey, to 95 at Stornoway, to 96 at Hawes Junction, and to 97 at Hurst Castle.

*Rainfall* amounted to less than 2 inches over central England, and also at one or two stations in the east of Ireland, but was considerably greater in all the more western and southern parts of the three countries. At Hastings the total fall was as much as five and a quarter inches, and at Bellmullet nearly 6 inches, while at Glencarron it amounted to nearly seven inches and a half. The values were less than the average in all districts, excepting the south of England, where there was a somewhat decided excess, owing to one or two heavy falls which occurred during the early part of the month. The number of rainy days was somewhat large; at Fort Augustus, Hurst Castle, Bellmullet, and Scilly there were as many as 24, while at Hastings there were 25.

*Bright Sunshine* was very deficient in Scotland, and also at the inland stations in the south of England; at Glencarron the per-centage of the possible amount was only 9, while at Glasgow it was as low as 2. Elsewhere the proportion of sunshine did not differ greatly from the normal, the largest per-centages of all being 36 at Falmouth, 35 at Plymouth, and 30 at Douglas and Jersey.



# SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF NOVEMBER 1887.



TABLE XXI.

Giving a SUMMARY of the METEOROLOGICAL OBSERVATIONS made at TELEGRAPHIC  
Observations 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°606	40°9	37°1	44°4	40°8	27	14th	49	4th, 26th
	Wick	29°616	41°0	35°0	45°3	40°2	24	15th, 20th,	52	9th
	Stornoway	29°579	42°1	36°0	46°1	41°1	29	15th	51	25th
1. SCOTLAND, E.	Nairn	29°611	40°2	34°8	45°2	40°0	23	16th	53	25th, 26th
	Aberdeen	29°625	39°5	35°4	45°0	40°2	27	16th	55	26th
	Leith	29°639	40°9	37°2	45°0	41°1	29	29th, 30th	53	26th
2. ENGLAND, N.E.	Shields	29°651	41°2	37°1	45°8	41°5	27	16th	53	26th, 27th
	York	29°681	38°7	35°4	45°0	40°2	24	18th	53	5th, 6th, 26th
	Spurn Head	29°676	42°6	49°0	45°7	42°4	32	17th, 19th, 20th	51	4th
3. ENGLAND, E.	Yarmouth	29°689	41°8	37°6	45°1	41°4	27	17th	52	4th
	Cambridge	29°707	38°8	33°8	45°9	39°9	21	17th	56	6th
4. MIDLAND COUNTIES	Loughborough	29°701	38°2	35°3	46°3	40°8	19	16th	56	6th
	Oxford	29°712	38°2	35°4	45°0	40°2	19	17th, 18th	54	4th, 5th
5. ENGLAND, S.	London	29°704	40°3	37°2	46°6	41°9	23	16th, 17th	56	4th
	Dungeness	29°680	43°5	39°6	48°1	43°9	28	21st	54	4th, 5th
	Hurst Castle	29°693	42°5	38°5	47°4	43°0	28	16th, 17th	54	2nd, 4th, 5th, 6th.
6. SCOTLAND, W.	Ardrossan	29°638	41°7	37°1	46°1	41°6	27	15th	51	5th, 30th
7. ENGLAND, N.W.	Hawes Junction*	28°421	36°3	32°8	40°7	36°8	21	16th	49	6th
	Barrow-in-Furness	29°656	41°2	38°1	45°8	42°0	30	16th	52	8th
	Liverpool	29°673	39°8	37°4	45°1	41°3	29	16th, 17th, 21st	53	26th
	Holyhead	29°656	43°1	40°7	47°5	44°1	34	16th, 24th, 25th	52	1st, 2nd, 26th
8. ENGLAND, S.W.	Pembroke	29°648	43°8	40°4	47°6	44°0	33	16th, 17th	53	2nd
	Prawle Point	29°680	43°8	38°0	48°9	43°5	32	25th	53	1st, 2nd, 3rd, 4th, 5th, 9th.
9. IRELAND, N.	Malin Head	29°603	43°0	39°4	46°4	42°9	33	26th	52	25th
	Donaghadee	29°648	41°6	37°3	46°7	42°0	29	16th, 24th	52	5th, 8th, 25th, 26th.
	Mullaghmore	29°629	42°4	39°2	47°5	43°4	32	24th	53	2nd, 13th
	Behmullet	29°649	43°6	40°5	47°5	44°0	32	15th	51	7th, 8th, 25th, 26th.
10. IRELAND, S.	Parsonstown	29°670	37°4	33°3	46°2	39°8	21	24th	54	26th
	Valencia	29°694	45°2	41°3	50°1	45°7	33	24th	54	5th
	Roche's Point	29°668	42°4	39°0	48°5	43°8	31	24th	53	1st, 3rd, 5th, 9th, 26th.
CHANNEL ISLANDS	Scilly (St. Mary's)	29°662	47°7	44°0	50°3	47°2	39	16th	54	2nd, 26th
	Jersey (Noirmont)	29°698	45°7	42°0	49°4	45°7	31	17th	57	9th

\* 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 1887.

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.							WIND.								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	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.	Calm.
in.	%		ins.	in.																	
0.232	91	9.0	3.12	0.48	15th	22	1	0	0	1	22	3	5	5	1	5	0	2	3	1	8
.242	94	8.5	2.27	0.36	20th	21	3	0	0	0	18	4	1	5	1	4	3	3	3	10	0
.255	95	8.4	3.58	0.48	15th, 25th	22	1	0	0	1	21	8	1	4	8	3	3	4	3	3	1
.215	87	7.6	1.75	0.22	27th	17	1	0	0	3	13	0	0	0	6	1	0	11	4	0	8
.213	88	7.0	2.54	0.60	7th	22	2	1	0	5	14	3	2	4	1	0	3	6	8	6	0
.224	88	6.7	2.67	0.79	7th	18	1	0	0	4	10	0	2	4	3	3	4	1	12	1	0
.217	85	8.0	2.59	0.47	14th	18	2	0	0	1	16	4	0	6	2	1	4	6	5	2	4
.212	90	7.1	1.82	0.37	5th	20	0	0	0	7	17	0	6	3	3	1	6	4	3	2	2
.243	89	5.0	1.98	0.31	5th	19	0	0	0	5	3	4	4	5	3	1	4	6	3	3	1
.237	90	6.8	2.23	0.51	3rd	22	0	2	0	2	7	5	1	5	8	0	3	4	6	2	1
.211	90	7.1	1.80	0.40	3rd	16	1	0	1	7	17	0	12	0	1	0	7	6	2	0	2
.210	92	7.9	1.56	0.42	5th	16	0	0	1	3	20	3	2	6	3	3	1	5	4	3	3
.206	90	7.5	2.02	0.38	9th	17	2	0	0	7	19	2	6	10	1	0	4	6	2	0	1
.225	91	7.9	3.85	0.63	3rd	19	2	1	0	5	20	5	3	5	5	2	3	5	3	0	4
.248	87	7.8	3.81	0.70	9th	23	0	0	0	1	12	2	3	1	4	7	3	3	7	2	0
.263	97	5.9	3.83	0.59	3rd	24	0	1	0	6	5	5	6	7	4	1	0	5	5	2	0
.230	88	7.0	2.45	0.42	26th	17	1	0	0	5	14	9	1	10	5	2	3	5	2	2	0
.206	96	8.8	5.08	1.46	26th	20	3	1	0	3	24	2	3	2	6	7	2	6	1	2	1
.219	85	6.4	2.87	0.64	26th, 29th	17	1	0	0	1	10	3	5	11	1	2	4	6	0	1	0
.207	85	6.6	1.22	0.21	2nd, 5th	16	0	0	0	7	12	2	0	7	4	6	5	4	2	2	0
.235	84	6.8	3.09	0.72	3rd	17	0	1	0	1	7	2	1	5	5	5	2	5	5	1	1
.254	89	6.3	4.06	0.62	21st	20	0	0	0	3	8	4	0	11	5	1	2	3	6	2	0
.246	86	6.3	3.17	0.47	13th	19	0	1	0	3	9	5	3	7	5	1	4	4	3	3	0
.257	93	7.2	2.41	0.52	27th	22	0	1	0	3	14	0	1	6	2	1	6	8	3	3	0
.231	89	5.6	1.95	0.48	2nd	16	0	0	0	8	7	8	0	7	5	1	1	6	10	0	0
.235	87	7.0	3.21	0.65	5th	18	0	2	0	2	6	8	0	4	6	2	5	10	1	2	0
.244	86	7.4	5.97	0.72	14th	24	0	1	0	2	14	6	2	3	7	4	1	5	3	5	0
.204	91	6.3	2.10	0.47	5th	16	0	0	0	7	13	0	3	3	1	1	2	4	0	0	16
.243	81	6.9	4.82	0.83	20th	20	0	2	1	2	11	5	4	8	1	1	2	2	6	4	2
.225	83	4.6	3.83	0.85	21st	15	0	0	0	12	5	5	7	8	1	0	1	1	10	2	0
.271	82	8.5	3.57	0.41	5th	24	0	2	2	0	16	5	3	5	8	0	2	2	6	4	0
.251	82	6.3	5.43	0.71	13th	23	1	2	1	6	11	4	4	6	5	2	1	6	3	2	1

barometric observations 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 1887.

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	.	.	.	.	.	.	.	.	.	.	.	36	16
LAIRG	32'8	43'0	37'9	22	15th, 23rd	50	26th	18	2'17	0'44	26th	—	—
GLENCARRON	33'9	43'3	38'6	22	15th	50	3rd, 26th	23	7'44	2'18	25th	21	9
FORT AUGUSTUS	35'9	45'1	40'5	20	15th	52	26th	24	3'30	0'80	25th	—	—
ABERDEEN	.	.	.	.	.	.	.	.	.	.	.	38	16
BRAEMAR	31'0	41'9	36'5	19	25th	51	26th	20	5'19	1'80	1st	33	14
OCHTERTYRE	33'4	46'0	39'7	25	14th	54	5th	18	3'61	0'89	6th	—	—
MARCHMONT	34'6	42'7	38'7	23	16th	51	5th	23	4'35	0'91	6th	32	13
ALNWICK CASTLE	36'8	43'7	40'3	26	15th	52	26th	20	3'41	0'40	14th	—	—
DURHAM	34'6	43'8	39'2	22	16th	53	26th	18	2'98	0'63	6th	40	16
SCARBOROUGH	36'6	44'3	40'5	27	16th	52	26th, 27th	20	2'63	0'39	2nd	†34	14
YORK	.	.	.	.	.	.	.	.	.	.	.	30	13
HILLINGTON	34'8	45'0	39'9	22	17th	52	4th, 5th, 6th	21	2'00	0'41	5th	69	27
GELDESTON	35'5	46'3	40'9	23	17th	56	6th	23	2'18	0'37	3rd	62	24
CAMBRIDGE	.	.	.	.	.	.	.	.	.	.	.	68	26
ROTHAMSTED	34'0	44'8	39'4	17	17th	54	4th	21	3'27	0'63	3rd	—	—
INGATESTONE	36'5	45'3	40'9	21	17th	55	4th	17	3'68	0'67	3rd	53	21
BAWTRY	34'9	45'8	40'4	23	15th, 17th	55	6th	17	1'54	0'29	3rd	†54	21
LEICESTER	35'5	45'5	40'5	23	16th	56	6th	20	1'73	0'32	5th	53	21
CHEADLE	34'6	43'7	39'2	25	17th	51	5th, 6th	17	1'33	0'30	5th	—	—
CHURCHSTOKE	33'4	44'2	38'8	20	16th	54	5th	17	3'00	0'62	1st	62	24
HEREFORD	34'5	45'9	40'2	19	17th	54	2nd, 5th, 6th	18	2'78	0'52	3rd	—	—
CIRENCESTER	33'7	44'2	39'0	19	16th, 17th	51	4th, 5th	18	2'54	0'44	19th	60	23
OXFORD	.	.	.	.	.	.	.	.	.	.	.	51	20
LONDON	.	.	.	.	.	.	.	.	.	.	.	32	12
STRATHFIELD TURGIS	34'1	45'4	39'8	19	16th, 17th	55	4th	20	3'80	0'64	19th	—	—
HASTINGS	38'9	47'5	43'2	30	16th	54	2nd, 4th, 5th	25	5'25	0'83	28th	62	24
SOUTHAMPTON	37'0	47'1	42'1	26	16th	56	4th, 5th	19	4'13	0'83	7th	60	23
STOWELL	35'3	45'4	40'4	23	16th	52	1st, 2nd	23	3'19	0'62	7th	44	17
LAUDALE	36'6	45'8	41'2	27	15th	53	26th, 30th	21	6'18	1'08	25th	—	—
GLASGOW	34'7	44'4	39'6	26	15th	51	26th	17	3'02	0'70	26th	4	2
GLENLEE	32'9	44'1	38'5	19	24th	51	5th	20	4'91	0'99	1st	—	—
DOUGLAS	37'5	46'8	42'2	25	16th	53	6th	16	3'77	0'63	28th	76	30
NEWTON BERNY	32'9	43'0	38'0	22	21st, 24th	51	6th, 26th, 27th	17	3'07	0'84	26th	30	12
STONYHURST	35'2	43'3	39'3	25	16th	50	26th, 27th	14	2'37	0'80	26th	43	17
BLACKPOOL	37'0	44'8	40'9	28	16th	50	2nd, 6th, 8th, 9th.	18	2'67	0'46	3rd	54	22
MANCHESTER	36'0	44'3	40'2	25	16th	53	26th	20	1'59	0'30	26th	—	—
LLANDUDNO	38'2	46'5	42'4	29	24th	54	26th	16	2'28	0'36	2nd	44	17
LLANDOVERY	32'1	45'7	38'9	16	16th	53	7th	21	4'95	0'70	3rd	—	—
PEMBROKE	.	.	.	.	.	.	.	.	.	.	.	84	33
ARLINGTON	36'3	45'5	40'9	25	16th	52	2nd	22	5'83	0'88	3rd	—	—
CULLOMPTON	35'4	46'4	40'9	23	16th, 17th	52	1st, 2nd, 4th, 26th.	21	2'82	0'50	5th	55	21
FALMOUTH	40'5	48'1	44'3	33	16th, 24th	54	3rd	18	3'62	0'57	5th	95	36
PLYMOUTH	39'6	48'0	43'8	32	16th	55	2nd	19	4'29	1'41	21st	92	35
JERSEY	.	.	.	.	.	.	.	.	.	.	.	80	30
LONDONDERRY	36'5	45'1	40'8	29	15th, 23rd	51	8th, 26th	18	2'91	0'66	6th	—	—
MARKREE CASTLE	34'1	45'8	40'0	24	15th, 20th, 24th	52	2nd	22	4'34	1'28	5th	53	21
BROOKBOROUGH	33'0	44'8	38'9	21	16th	51	2nd, 4th	13	3'04	0'73	5th	—	—
ARMAGH	34'6	45'3	40'0	26	15th	54	4th	15	2'46	0'60	5th	50	20
EDGEWORTHSTOWN	33'3	44'6	39'0	21	24th	51	2nd, 26th	19	3'30	1'05	5th	—	—
DUBLIN	38'4	46'7	42'6	28	24th	55	26th	18	3'01	0'87	5th	72	28
PARSONSTOWN	.	.	.	.	.	.	.	.	.	.	.	67	26
KILKENNY CASTLE	33'4	45'5	39'5	19	24th	53	26th	12	1'89	0'34	2nd	—	—
WATERFORD	35'7	47'7	41'7	23	16th	53	1st, 4th	17	2'79	0'55	5th	—	—
VALENCIA	.	.	.	.	.	.	.	.	.	.	.	72	23
KILLARNEY	34'8	48'2	41'5	22	24th	53	1st, 2nd, 26th	20	4'50	0'71	2nd	—	—
FOYNES	36'7	47'2	42'0	24	23rd	54	26th	22	3'10	0'47	26th	—	—

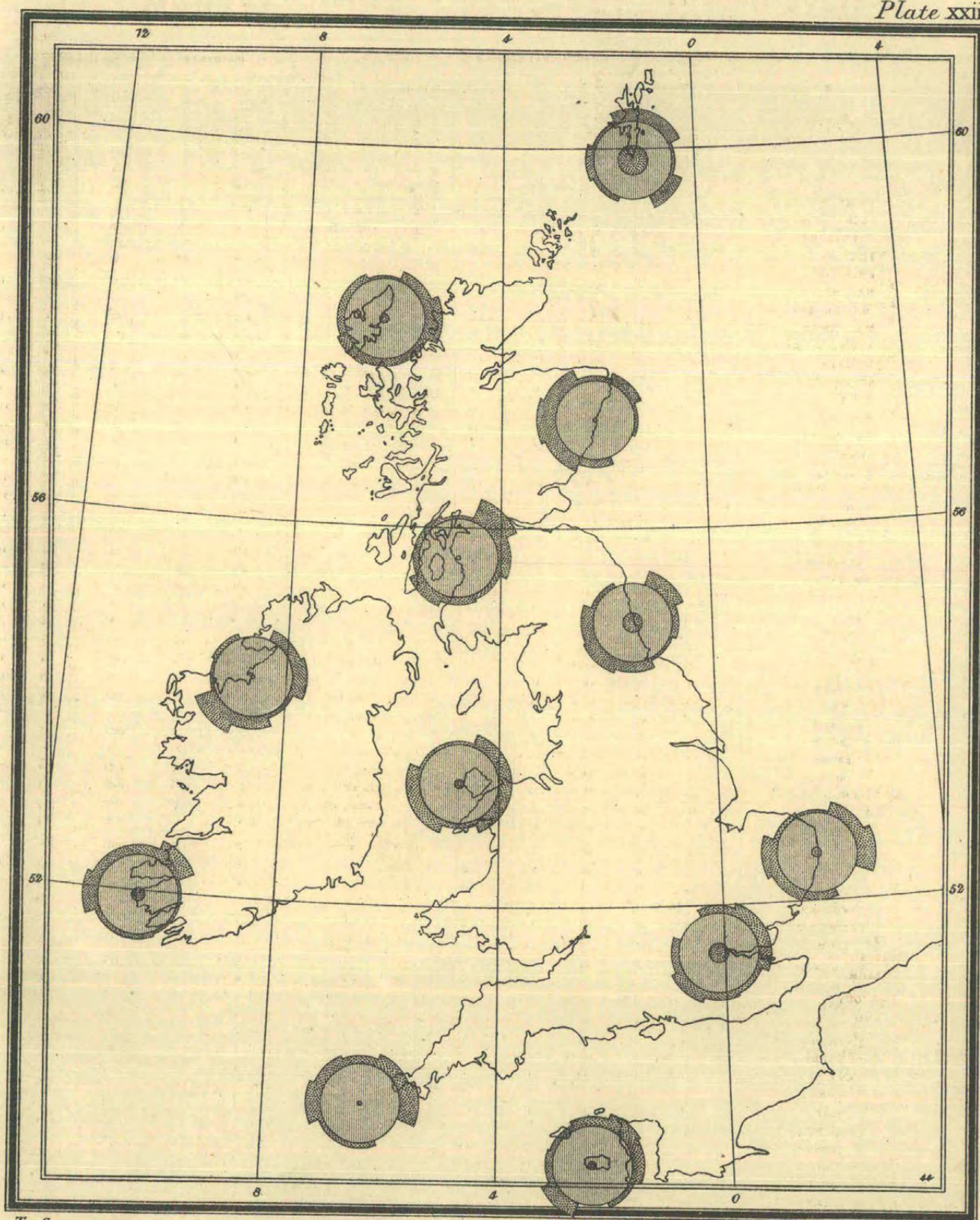
\* For information see Table XXI.

† The bright sunshine values given for Bawtry are recorded at Worksop and those for Scarborough at Oswaldkirk.



# MONTHLY WIND CHART FOR NOVEMBER, 1887.

Plate xxii



To face p. cxiv.

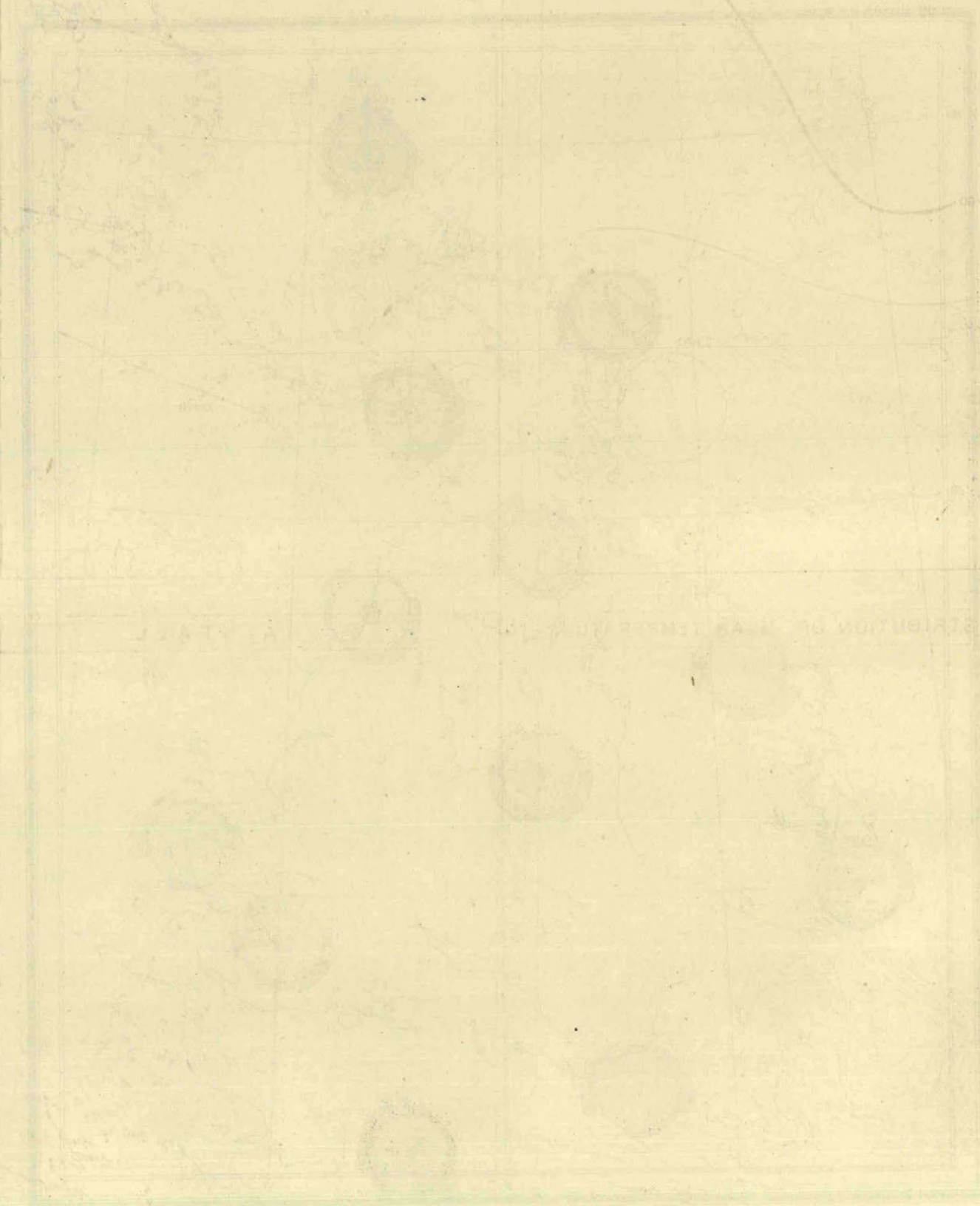
Judd & Co. Ltd. Lith. 73 & 75, Farringdon Rd & Doctors Commons. 1684. 10. 90



2. MOVEMENTS OF DEPRESSIONS.

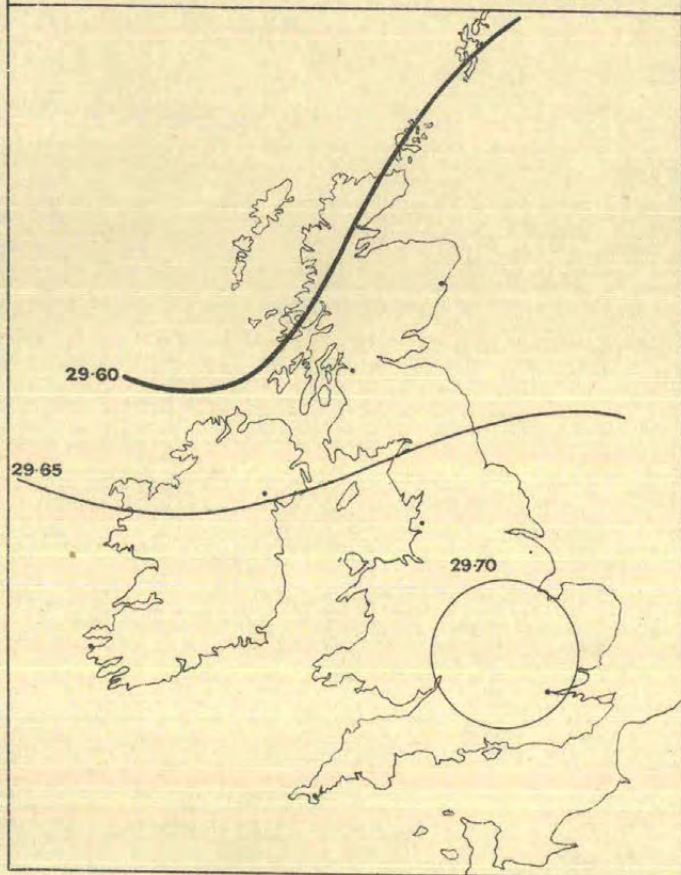
1. DISTRIBUTION OF MEAN PRESSURE

MONTHLY WEATHER CHART FOR NOVEMBER 1887



3. DISTRIBUTION OF MEAN TEMPERATURE





#### 4 RAINFALL.

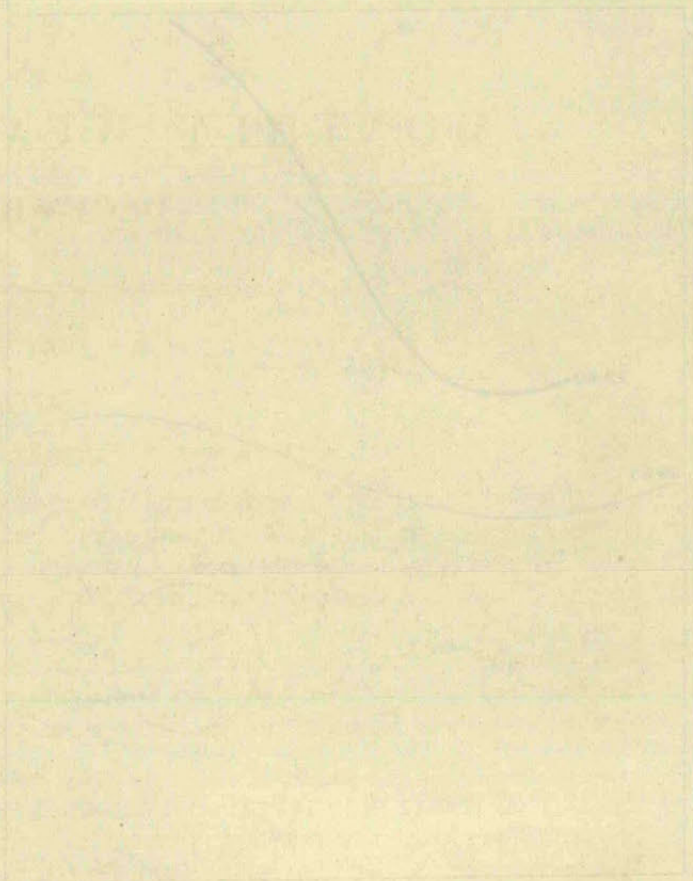
Map of Great Britain and Ireland showing annual rainfall in inches at various stations. The map includes numerous numerical data points across the country, with a small inset map of the Channel Islands in the top right corner.

Key rainfall values (in inches) shown on the map include:

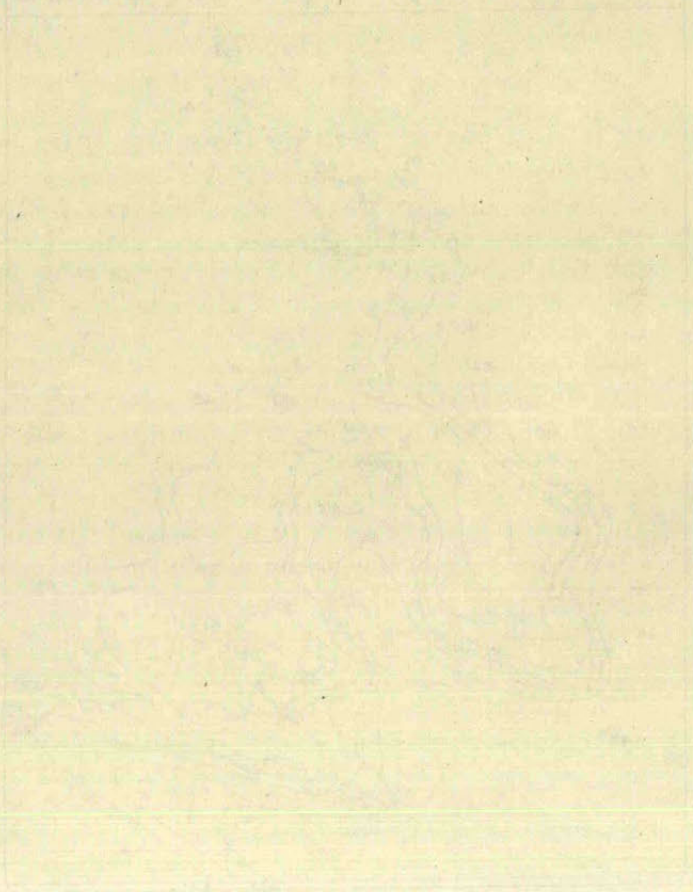
- 3.12 (Channel Islands)
- 3.58, 2.27, 2.17, 7.44, 1.75, 3.30, 5.19, 2.54, 3.61, 3.02, 2.67, 4.35, 3.41, 2.59, 2.41, 2.91, 3.21, 3.04, 2.46, 1.95, 3.07, 2.98, 5.97, 4.34, 3.77, 2.87, 2.37, 1.82, 2.63, 1.98, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1.82, 1.54, 1.56, 2.00, 2.23, 1.80, 2.18, 1.73, 3.27, 3.68, 3.80, 3.85, 2.02, 2.54, 4.95, 2.78, 3.00, 1.38, 1.59, 2.67, 2.22, 3.01, 3.09, 2.28, 2.40, 1.89, 3.10, 2.79, 3.83, 4.82, 4.50, 4.06, 5.83, 2.82, 3.19, 4.13, 3.81, 5.25, 3.61, 3.63, 3.17, 3.62, 4.29, 3.57, 5.43, 1



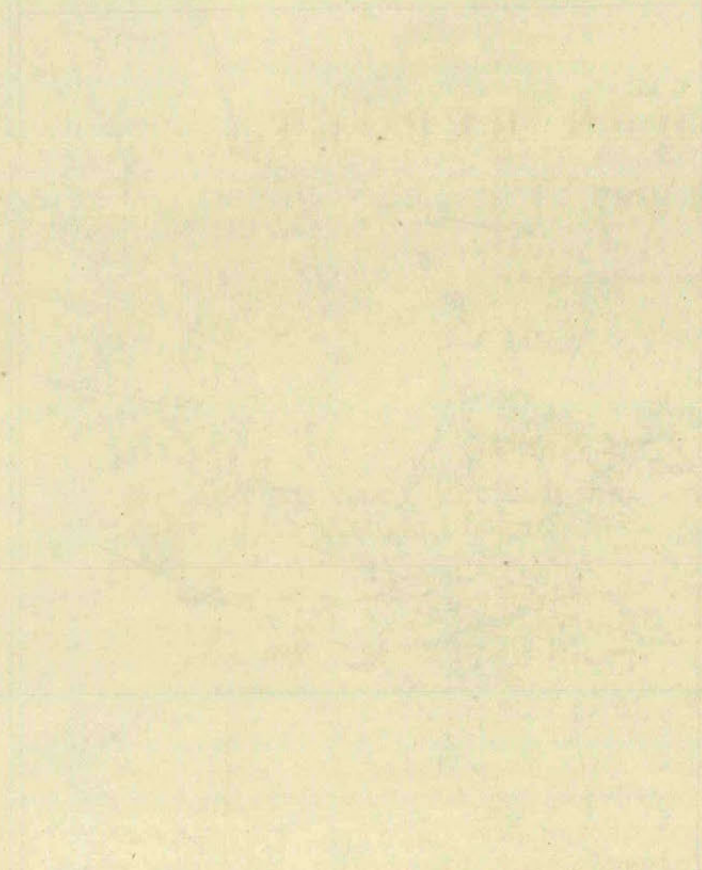
DISTRIBUTION OF MEAN PRESSURE



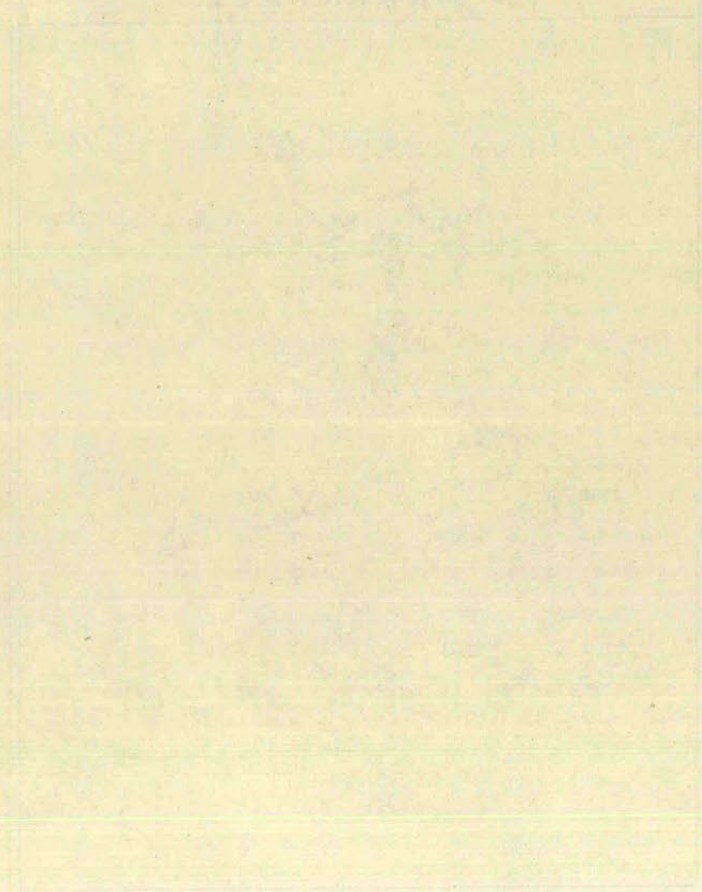
DISTRIBUTION OF MEAN TEMPERATURE



MOVEMENTS OF DEPRESSION



RAINFALL





# MONTHLY WEATHER REPORT.

DECEMBER 1887.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of December was changeable and unsettled until about the 20th, with frequent gales in the western and northern parts of the United Kingdom, and occasional gales in the south and east. Towards the close of the period, however, the atmosphere became much less disturbed, and dry, frosty weather set in generally. The mean pressure of the month was below the average excepting in the south-west of Ireland, and temperature also showed a deficit as compared with the normal, especially in Scotland. The amount of rainfall was everywhere less than the average, and bright sunshine was very deficient, more particularly over London and the western and central parts of Scotland.

December 1-5.—During this interval barometric pressure was highest over France and the Bay of Biscay, lowest to the northward of our Islands and over Scandinavia, the gradients being steeper over the northern parts of the area than in the south. The wind was therefore Westerly over the British Islands and North Sea, and occasionally blew hard at the northern stations, as some depressions (Nos. XLII. and XLIII.\*) moved eastwards from the Atlantic over Scandinavia. The weather was mild generally—showery in the north, fair in the south, and at times foggy; frost occurred daily over France, and sharper frost over South Germany.

December 6-11.—The distribution of pressure now became more complex, owing to the appearance of a second high-pressure area over Northern Europe, and the movements of the depressions which appeared over our northern districts underwent considerable modification. In the case of No. XLIV.\* the centre, after reaching our extreme northern coasts from the south-westward, developed a "V"-shaped secondary, which passed directly over the kingdom while the primary dispersed. This was followed quickly by the appearance of No. XLV.,\* which, after reaching the west of Scotland, travelled quickly to the eastward, and reached the Baltic by the 10th. The progress of these systems was attended by South-westerly to Westerly gales over Ireland, England, and France, and eventually over Central Europe and the Baltic, and in their rear a smart gale from the north-westward sprang up suddenly over the Shetlands and Caithness, with a high sea and heavy snow squalls. Temperature during this period was, upon the whole, above the average, maximum readings, varying between 50° and 55°, being recorded on more than one occasion in nearly all districts. Towards the end of the time, however, when pressure became more uniform, the weather grew much colder, a sharp frost being experienced in nearly all parts of Great Britain on the night of the 10th. In Scotland, where the maximum readings of the previous day were mostly below 35°, the frost was very intense, the sheltered thermometer falling to 17° at Fort Augustus, 16° at Braemar, and 11° at Lairg.

December 12-17.—During the night of the 11th the anticyclone over Spain gave way, while the barometer rose considerably over Scandinavia and Northern Russia. Depressions of considerable size and depth now began to appear, first off our western coasts and moving in

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



the direction shown by the generalised arrow "A" in Map 2, Plate XXIV.; and gales from the Southward or South-westward were experienced in many parts of Western Europe, with heavy rain at some of our western stations, and lightning in places. On the night of the 14th two well-marked secondary disturbances advanced over our Islands from the westward, and on the following day these travelled on to the North Sea, their ultimate effect being to reduce the northern high-pressure system, and to restore a Westerly type of weather. A large depression (No. XLVI.\*) then appeared in the north, and on the 17th, when it began to move eastwards and a brisk recovery of pressure took place in its rear, strong gales from the Westward and North-westward were experienced over the northern parts of the United Kingdom, with snow in Scotland.

December 18-25.—The type of pressure-distribution now became chiefly northerly, the only interruption occurring on the 22nd, when with the appearance of a large depression in the far north, a "ridge" spread temporarily over us from the Atlantic. The principal feature in the week was the gradual movement of a shallow depression (No. XLVII.\*) in a southerly direction over Denmark and North Germany. The disturbance was not in itself of sufficient importance to exercise much influence on our weather, but its progress was accompanied by numerous small secondary systems, which travelled south-eastwards across the United Kingdom, and occasioned frequent showers of hail and snow. The weather at this time was, in fact, everywhere cold and inclement, with sharp frosts in nearly all parts of Great Britain. On the night of the 20th the sheltered thermometer fell as low as 9° at Braemar, 17° at Lairg, and 18° at Fort Augustus.

December 26-31.—A complete change now took place. During the 24th and 25th an anticyclone was gradually formed over the northern parts of Scandinavia, and on the 26th this extended in a south-westerly direction, and ultimately became united with the high-pressure system hitherto prevailing to the westward of our Islands. Anticyclonic conditions therefore set in over the whole of Western Europe, with light variable breezes and cold weather. The sky was at first moderately clear over our Islands, but as the anticyclone increased in height the weather became dull and gloomy, and thick fogs occurred in many parts of England. In the north and east of Great Britain, where slight irregularities in pressure were observed, there were occasional showers of snow or sleet, and on the 27th a heavy snowstorm was experienced in the extreme south-east of England. Temperature was considerably below the average, the daily maxima over our Islands being frequently below 40°, and sharp frosts prevailed at night. On the Continent the weather at this time was exceedingly severe, especially between the 27th and 29th, when the thermometer fell to between 5° and 10° Fahr. over Germany, and to — 30° or — 40° Fahr. over Northern Russia. Over Southern Europe the readings were of course much higher, but conditions were exceedingly wintry and unsettled everywhere, with heavy gales and snowstorms over Spain and the northern shores of the Mediterranean. At the close of the month the large anticyclone was moving away to the eastward, and the barometer was falling in all the more western countries, with Southerly winds and increasing temperatures in the west and north of our Islands.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—DECEMBER 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XLII. December 1-2.	No. XLIII. December 3.
Form - - - - -	Circular - - - - -	Circular.
Size - - - - -	Very large - - - - -	Moderate.
Depth - - - - -	Very deep - - - - -	Moderate.
Where first Observed - - - - -	At a considerable distance to the northward of our Islands.	Off the west coast of Norway.
Direction of Motion - - - - -	Easterly - - - - -	East-north-easterly.
Rate of Motion - - - - -	Moderate - - - - -	Moderate.
Regions passed over by Steepest Gradients	Scandinavia, the North Sea, and the northern parts of the United Kingdom.	The northern parts of Scandinavia.
Termination - - - - -	Travelled away across Northern Russia to the Arctic Ocean.	Travelled away across Lapland to the Arctic Ocean.
Time under Observation - - - - -	Two days - - - - -	One day.
Accompanying Winds - - - - -	Strong gales from South-west and West experienced over Scandinavia and the extreme north of our Islands.	Strong to a gale from South-west and West over Scotland, Norway, and the north of Denmark.
" Weather - - - - -	Considerable falls of rain and snow in Scandinavia and Northern Russia; showers in the north of our Islands; thunderstorm at Christiansund.	Squally and rainy; snow falling over the northern parts of Scandinavia and Russia.
" Rainfall - - - - -	Heavy in the north of Scandinavia and in some parts of Russia; slight elsewhere.	General, but not heavy.
REMARKS - - - - -	A large anticyclone lay over France and the south of our Islands, and the effects of the depression were therefore confined to the extreme northern districts. In the Shetlands a whole gale from the North-west was experienced on the afternoon of the 1st.	This depression came from a rather more southerly point than its predecessor, and the gales were therefore felt in nearly all parts of Scotland. In its rear numerous secondary systems advanced over our Islands and the North Sea, and unsettled, rainy weather spread southwards over the entire kingdom.



SECTION II.—*continued*

TABLE OF CYCLONIC SYSTEMS—DECEMBER, 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XLIV. December 6-7.	No. XLV. December 8-10.
Form - - - - -	Nearly circular - - - - -	Nearly circular at first, but afterwards becoming irregular in form.
Size - - - - -	Very large - - - - -	Very large - - - - -
Depth - - - - -	Deep - - - - -	Deep - - - - -
Where first observed - - - - -	Off the north-west of Scotland - - - - -	Off the north-west of Ireland - - - - -
Direction of Motion - - - - -	North-easterly - - - - -	East-north-easterly - - - - -
Rate of Motion - - - - -	Slow - - - - -	Moderate - - - - -
Regions passed over by Steepest Gradients	The United Kingdom, the North Sea, and Scandinavia.	England, Ireland, France, the Netherlands, Denmark, and Germany.
Termination - - - - -	Filled up off the west of Norway - - - - -	Travelled away across the Baltic and Northern Russia to the Arctic Ocean.
Time under Observation - - - - -	Two days - - - - -	About 40 hours - - - - -
Accompanying Winds - - - - -	Strong to a gale from between South and West over our Islands, and from the South-eastward in Norway.	Strong to a gale from South-west and West over Ireland, England, France, Central Europe, and the Baltic.
" Weather - - - - -	Squally and rainy, with thunder and lightning in many parts of the United Kingdom. Snow falling at some of our northern stations, and hail in the west.	Squally and rainy; snow experienced in many localities.
" Rainfall - - - - -	General; heavy in the western parts of our Islands.	General and heavy, especially in France - - -
REMARKS - - - - -	The main depression in the north was accompanied by a long V-shaped secondary disturbance which passed eastwards across our Islands and France. The further progress of the entire system was arrested by an anticyclone which appeared over Russia on the 6th.	This depression was preceded by a small system which appeared over the west of Ireland on the morning of the 8th, but which subsequently became merged in the larger disturbance. In the rear of the latter numerous secondary systems travelled eastwards across the United Kingdom.



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS—DECEMBER, 1887.

No. XLVI. December 15-17.	No. XLVII. December 18-21.	No. XLVIII. December 22-23.
Apparently circular, but system too far away for shape to be accurately determined.	Varying; mostly circular - - - -	Circular.
Very large - - - - -	Moderate - - - - -	Very large.
Deep - - - - -	Shallow - - - - -	Moderate.
To the north-westward of our Islands - -	Over the Skager Rack - - - -	Off the north-west of Norway.
East-north-easterly - - - - -	Varying, but chiefly southerly - - -	Easterly at first, then south-easterly.
Slow - - - - -	Very slow - - - - -	Moderate.
Gradients were equally steep over nearly the whole of North-western Europe.	Gradients not steep in neighbourhood of depression, but apparently rather steep over the Atlantic.	Scandinavia, the Baltic, and the eastern parts of the North Sea.
Filled up (apparently) off the west of Norway -	Filled up over North Germany - - -	Travelled away across the Baltic to Russia.
About 60 hours - - - - -	Three days - - - - -	Two days.
Strong to a gale in all parts of North-western Europe; from South-west to West in our Islands and France, but from the South-eastward in Norway.	A cyclonic circulation of moderate strength prevailed generally, but on the west coasts of Ireland and Scotland the Northerly wind blew with the force of a gale.	Strong to a gale from the Westward over Scandinavia and the Baltic. Moderate from West and North-west in our Islands.
Squally and showery; thunderstorms in north-west of Ireland on the 16th.	Changeable, with snow and hail showers in many places.	Changeable, with snow showers in many places.
General; amounts large at some of our western and northern stations.	General, but slight excepting in North Germany, where much snow fell on the 20th and 21st.	General, but amounts not large.
On the night of the 17th, when the main depression was filling up off the west of Norway, a well-marked secondary disturbance was developed over the Skager Rack. The details connected with the latter system are given in the next column.	On the night of the 18th another shallow depression was formed over Holland. This either filled up during the 19th, or, which is more probable, became merged in the larger system which was at that time lying over Denmark. The changes in pressure were at this time very irregular.	During the progress of this system some secondary disturbances travelled south-eastwards across our Islands and the North Sea. The latter were, however, very shallow, and occasioned nothing more than showery weather, with snow in the north and east of Great Britain.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS. DECEMBER 1887.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXIX. December 1-3.	No. XXX. December 22.	No. XXXI. December 27-31.
Form - - - - -	Varying greatly; but mostly elliptical.	Elliptical - - - - -	Irregular and varying.
Size - - - - -	Small - - - - -	Small - - - - -	Large.
Height - - - - -	Small - - - - -	Small - - - - -	Small.
Where first observed - - -	Over the Bay of Biscay - - -	Off the west of Ireland - - -	Over Scandinavia.
Direction of Motion - - -	Easterly - - - - -	Easterly at first, then south-westerly -	South-westerly at first, but afterwards south-easterly.
Rate of Motion - - - - -	Slow - - - - -	Slow - - - - -	Very slow.
Regions passed over - - -	The Bay of Biscay, France, Germany, and the south of our Islands.	Ireland, England, the Bay of Biscay, and the north of France.	The whole of Western Europe.
Termination - - - - -	On reaching Central France and South Germany, the system appears to have gradually dispersed.	Passed away again over the Atlantic -	Travelled away to Germany and Austria.
Accompanying Wind - - -	Westerly to South-westerly in our Islands; North-easterly in the south of France.	South-westerly in Scotland; Northerly or North-easterly over the greater part of Ireland, England, and France.	Light and very variable.
„ Weather - - - - -	Fine at first, but cloudy and misty later. Sharp frosts experienced over France and Germany.	Fine generally, but with fog and mist in places. Sharp frosts in most districts.	Cloudy generally, with occasional showers of snow or sleet. Heavy fall of snow on south-east coast of England on 27th. Frost general, and in some places rather severe.
REMARKS - - - - -	<p>The dispersal of this system seems to have been to a large extent spontaneous, although it was undoubtedly hastened by the large depressions which were passing eastward across the northern parts of Scandinavia. The details relating to two of these disturbances are given in the table of cyclonic systems (Nos. XLII. and XLIII.).</p> <p>This system was attacked on two sides, in the first place by the large depression No. XLVIII., which travelled south-eastward across Scandinavia, and in the second place by a deep disturbance which spread northwards from the Gulf of Genoa. Under the combined influence of these two systems the anticyclone receded westwards over the Atlantic.</p> <p>Considerable variations took place in the form and size of the system, and in some cases the original area seems to have been reinforced by new systems which formed or advanced over our Islands. The weather was at the time very bad over central and southern Europe, with heavy snowstorms in Germany, Austria, and Spain.</p>		



## SECTION III.

## REMARKS FOR DECEMBER 1887.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from 29·94 ins. at Jersey, and from 29·90 ins. and upwards over the English Channel generally and the extreme south-west of Ireland to a little below 29·53 ins. in the Shetland Islands. Over the eastern parts of Great Britain the distribution was of a fairly normal character, but in the west and extreme north the gradient was favourable for North-westerly rather than for Westerly and South-westerly winds. The values were below the average for the 20 years 1861–80 in all localities excepting the south-west of Ireland, where the barometer was at its normal height. Along our eastern coasts the deficit amounted to about 0·12 in., while in the Shetlands it was as much as 0·17 in., but in the western parts of Great Britain it was less than 0·10 in. The highest readings were observed over the country generally on the 29th and 30th, during the prevalence of the anticyclonic system No. XXXI., the barometer varying between 30·20 ins. and 30·35 ins. In the southern parts of Ireland and England, however, some higher values were registered on the 1st and 2nd, during the passage of anticyclone No. XXIX.; at the Channel stations pressure at this time rose to upwards of 30·5 ins. The lowest readings were observed, as a rule, either on the 13th or 14th, when some large depressions travelled northwards outside our western coasts, or on the 16th, when depression No. XLVI. skirted the north of Scotland. In the south of England, however, the barometer was lowest on the 15th, during the passage of a small secondary disturbance across the country. The extreme range for the month varied from an inch to an inch and a half, and was not large for the time of year.

*Movements of Depressions.*—The depressions observed during the month were somewhat numerous, and at times of considerable depth. Their tracks lay, however, mostly to the north-westward or northward of the United Kingdom, the only system of any consequence which appeared directly over our Islands being that of the 8th–9th (No. XLV.), the centre of which travelled eastwards across the south of Scotland.

*Anticyclones.*—These were only three in number and of no great intensity. In two instances the system came over from the Atlantic, and in the second case it passed away again to the same region. The third and most persistent anticyclone appears to have spread over us from the Scandinavian peninsula.

*Winds.*—These were chiefly from the Westward or North-westward, but at our extreme northern stations there was a somewhat large proportion of winds from the Northward, while at Valencia and Scilly North-easterly breezes were fairly well represented. Of winds from the Eastward and South-eastward there were very few indeed in any locality. Gales were somewhat frequent, the number varying from 5 to 6 on our eastern and southern coasts to 8 at Wick, Stornoway, and Belmullet, 9 at Mullaghmore, and 10 at Jersey.

*Temperature.*—The mean (sea level) temperature for the month was a little below 35° over the inland parts of Sutherlandshire, rather below 36° over Central Scotland and some parts of Norfolk, below 37° over South Wales, and below 38° in Central Ireland. On the west coasts of Ireland and Wales, however, it exceeded 40°, and at Jersey it amounted to 44°, while in the Scilly Islands it was slightly above 45°. The winter type of distribution was therefore strongly marked, and the mean values were everywhere below the average for the 20 years 1861–80. Over the southern parts of the kingdom the deficit did



not amount to more than two or three degrees, and in the northern parts of Ireland and England it was even less than that, but over Central and Northern Scotland the values were from four to five degrees below the normal. The highest readings were observed over the northern parts of the kingdom between the 1st and 3rd, but in other districts they occurred mainly on the 8th or 9th; the actual maxima were in most cases below  $55^{\circ}$ , and at some stations in the north-west of England the thermometer did not reach  $50^{\circ}$ . The lowest readings were registered on varying dates. In the northern parts of Ireland and Scotland the weather was coldest between the 10th and 12th, and in the west of Scotland on the 22nd, while in other districts the lowest temperature occurred at various times between the 26th and 31st, during the prevalence of the large anticyclone No. XXXI. Sharp frost was experienced in all places, the lowest readings of all being  $9^{\circ}$  at Braemar,  $11^{\circ}$  at Lairg,  $13^{\circ}$  at Newton Reigny, and  $15^{\circ}$  at Hillington. The extreme range was large, especially in Scotland; at Braemar it amounted to  $41^{\circ}$  and at Lairg to  $42^{\circ}$ . Over England and Ireland the greatest range was  $38^{\circ}$  at Llandovery,  $37^{\circ}$  at Hillington, and Newton Reigny, and  $36^{\circ}$  at Cullompton.

*Tension of Vapour.*—This ranged from a little below 0.20 in. over the east of Scotland and the greater part of England, and from about the same value over Central Ireland to 0.26 in. at Pembroke and 0.28 in. in the Scilly Islands. *Relative Humidity* was mostly below 90 per cent. and was as low as 80 at Jersey, 83 at Valencia, and 84 at Liverpool. At Wick and Hurst Castle, however, the per-centage value was as high as 94, while at Stornoway it reached 97.

*Rainfall* amounted to less than an inch and a half over the eastern and central parts of England as well as at Leith and Dublin. In the western and northern parts of the three countries, however, the amounts were much heavier, the largest of all being 9.4 ins. at Glencarron, 9.1 ins. at Laudale, 7.1 ins. at Glenlee, 6.4 ins. at Hawes Junction, 6.1 ins. at Belmullet, and 5.6 ins. at Killarney. Compared with the average for the 20 years 1866–85, the values showed a deficit in nearly all parts of the United Kingdom, and at some of the central stations in England the aggregate fall was little more than half the normal. The number of rainy days in these localities was also somewhat small, but in the western and northern parts of the kingdom precipitation was much more frequent, the number of days with rain being as large as 30 at Sumburgh Head, 28 at Stornoway and Glencarron, and 27 at Malin Head and Belmullet.

*Bright Sunshine.*—This varied greatly in different localities. In London the per-centage of the possible duration was only 9 and at Braemar only 8, while at Glencarron and Glasgow it was as low as 4. At most other stations the per-centage was either a little above or a little below 20, but at Jersey it amounted to 27, at Plymouth to 28, and at Falmouth to 30. At Aberdeen the sun shone nearly three times as long as at Braemar.



SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS,

DURING THE MONTH OF DECEMBER 1887.



TABLE XIII. -

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.							
			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°525	37°6	33°3	40°9	37°1	27	9th, 10th	51	3rd
	Wick -	29°595	36°2	30°0	40°7	35°4	21	10th	54	2nd, 3rd
	Stornoway -	29°635	38°1	32°4	42°2	37°3	24	11th	51	2nd, 3rd
1. SCOTLAND, E.	Nairn -	29°618	37°0	32°5	40°9	36°7	23	10th	55	3rd
	Aberdeen -	29°640	36°3	31°5	40°9	36°2	22	22nd, 23rd	54	1st, 3rd
	Leith -	29°685	37°5	33°2	42°5	37°9	27	12th, 22nd, 23rd.	53	1st
2. ENGLAND, N.E.	Shields -	29°720	37°6	32°9	42°0	37°5	25	22nd, 23rd	54	2nd
	York -	29°781	36°1	31°0	41°8	36°4	22	12th	52	8th
	Spurn Head -	29°762	37°8	33°8	41°5	37°7	27	12th, 13th	50	16th
3. ENGLAND, E.	Yarmouth -	29°802	36°2	31°6	40°6	36°1	24	12th, 13th	50	8th, 16th
	Cambridge -	29°845	35°6	30°4	42°4	36°4	20	27th, 28th	55	8th
4. MIDLAND COUNTIES	Loughborough -	29°825	36°4	31°8	42°9	37°4	19	20th	53	2nd, 8th
	Oxford -	29°871	36°5	32°5	42°2	37°4	22	29th	53	8th
5. ENGLAND, S.	London -	29°869	37°3	33°4	43°3	38°4	26	27th, 28th	54	8th
	Dungeness -	29°851	37°8	33°0	42°7	37°9	20	30th	51	9th, 16th
	Hurst Castle -	29°885	40°0	33°9	44°9	39°4	23	28th	51	9th, 13th
6. SCOTLAND, W.	Ardrossan -	29°713	39°1	34°6	44°2	39°4	23	22nd	53	13th
7. ENGLAND, N.W.	Hawes Junction* -	28°504	33°3	28°3	37°4	32°9	17	27th	46	13th, 15th, 16th, 8th
	Barrow-in-Furness -	29°769	39°0	34°9	42°8	38°9	27	23rd	49	
	Liverpool -	29°794	38°5	34°8	43°3	39°1	27	12th	54	3rd
	Holyhead -	29°796	41°9	38°1	45°3	41°7	29	30th	52	8th
8. ENGLAND, S.W.	Pembroke -	29°849	42°9	39°5	45°9	42°7	29	27th	52	8th
	Prawle Point -	29°904	41°2	35°6	46°1	40°9	25	28th	52	8th, 10th, 16th.
9. IRELAND, N.	Malin Head -	29°711	40°5	36°9	44°4	40°7	31	17th	51	3rd
	Donaghadee -	29°760	39°4	34°6	43°9	39°3	26	12th, 13th	51	1st, 8th, 12th
	Mullaghmore -	29°774	41°1	36°7	45°3	41°0	30	28th	53	12th
	Belmullet -	29°811	41°6	38°6	45°0	41°8	29	28th	51	8th
10. IRELAND, S.	Parsonstown -	29°840	37°4	32°8	42°8	37°8	21	22nd, 23rd, 28th, 30th	53	8th
	Valencia -	29°901	42°8	38°1	47°6	42°9	28		54	8th, 12th
	Roche's Point -	29°872	42°1	37°5	45°9	41°7	30	22nd, 23rd, 28th.	53	8th
CHANNEL ISLANDS	Scilly (St. Mary's) -	29°895	45°7	41°7	48°1	44°9	33	28th	53	2nd, 8th
	Jersey (Noirmont) -	29°944	43°5	39°6	46°5	43°1	29	28th	54	8th, 9th

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



TABLE XIII.

REPORTING STATIONS in the BRITISH ISLANDS during the Month of DECEMBER 1887.

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.							WIND.								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	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.
in.	%.	8'6	ins.	ins.	8th	30	10	1	1	1	20	4	8	1	0	2	2	1	4	5	8
0'209	93	8'6	3'97	0'32	8th	30	10	1	1	1	20	4	8	1	0	2	2	1	4	5	8
'201	94	7'6	3'81	0'55	8th	25	5	0	0	1	14	8	5	0	0	0	3	3	3	16	1
'223	97	8'1	5'16	0'80	13th	28	9	2	0	2	18	8	7	1	2	0	3	4	8	3	3
'187	85	7'3	2'00	0'31	18th	24	6	0	0	5	14	0	2	0	0	0	2	8	7	1	11
'185	86	6'0	3'20	0'46	8th	21	5	0	0	8	9	6	4	0	0	0	3	5	10	8	1
'199	89	6'4	1'00	0'22	3rd	13	6	0	0	6	10	0	3	0	0	0	3	2	19	3	1
'199	89	8'0	2'80	0'49	20th	20	6	2	0	0	12	5	1	3	0	0	4	8	10	5	0
'187	86	5'8	1'16	0'23	12th	20	0	0	0	9	9	0	9	1	1	0	6	2	9	2	1
'194	85	4'9	1'13	0'12	21st	19	6	0	0	4	4	6	4	2	1	0	4	10	5	4	1
'191	89	5'9	1'58	0'29	19th	21	6	0	0	3	7	1	4	2	1	0	2	6	9	7	0
'190	91	6'4	1'14	0'22	12th	18	6	0	0	10	17	0	12	0	0	0	5	8	2	4	0
'193	90	7'7	1'28	0'19	12th, 18th	15	8	0	0	3	19	2	2	0	1	0	4	6	9	8	1
'191	89	6'7	1'46	0'28	12th	14	7	1	0	10	18	0	4	4	1	0	6	7	5	4	0
'192	87	7'4	1'64	0'33	14th	15	4	3	0	8	21	5	3	3	1	1	4	4	9	6	0
'206	91	7'0	1'84	0'33	8th	12	4	0	0	3	9	5	6	2	0	2	0	4	7	10	0
'230	94	6'1	2'10	0'43	12th	16	2	3	0	6	7	5	5	6	1	0	2	5	8	4	0
'213	89	6'6	2'73	0'54	8th	20	3	1	0	8	16	6	3	5	2	0	4	2	4	6	5
?	?	8'9	6'44	0'86	15th	26	15	2	0	3	27	2	3	2	2	2	8	9	3	1	1
'209	88	8'4	2'73	0'42	15th	20	2	1	0	0	18	4	4	7	2	5	1	4	4	4	0
'196	84	7'4	1'95	0'26	6th, 14th	20	3	4	0	6	17	5	4	0	1	6	3	5	9	3	0
'238	90	7'8	3'77	0'95	14th	23	1	3	1	2	14	6	4	3	0	2	4	7	6	3	2
'256	93	6'1	3'00	0'42	12th	21	1	3	0	5	7	6	2	5	4	0	3	4	8	5	0
'229	89	7'2	2'78	0'55	8th	15	3	3	0	4	15	5	6	2	3	0	3	5	9	3	0
'228	91	7'8	3'54	0'44	8th	27	2	8	0	2	19	3	6	3	0	0	5	7	2	8	0
'216	90	5'1	2'11	0'28	8th	21	1	0	0	10	6	4	1	2	1	2	2	7	8	8	0
'226	88	7'0	4'70	0'53	15th	25	5	10	1	1	5	9	4	2	3	2	0	8	3	8	1
'229	88	8'3	6'14	0'73	12th	27	2	3	1	4	24	8	6	2	2	2	2	3	7	7	0
'200	90	7'5	2'52	0'41	5th	17	3	0	0	3	16	0	1	0	0	1	3	4	3	2	17
'228	83	7'4	5'08	0'84	7th	23	0	2	0	3	13	6	4	5	0	3	0	4	6	7	2
'232	86	4'9	3'54	0'80	12th	15	3	0	0	12	8	7	7	1	2	2	1	1	11	6	0
'277	89	8'2	3'12	0'50	7th	24	0	4	0	1	18	7	4	3	4	0	2	5	6	7	0
0'229	80	6'6	3'92	0'50	17th	20	3	6	1	5	15	10	7	1	4	1	2	5	4	7	0

barometric observations at this station are not corrected 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 1887.

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.	Percentages of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY	*	*	*	*	*	*	*	*	*	*	*	34	17
LAIBG	28.4	37.9	33.2	11	11th	53	3rd	22	4.26	0.60	17th	—	—
GLENCARRON	29.9	39.4	34.7	21	11th	50	1st, 13th	28	9.36	1.40	16th	7	4
FORT AUGUSTUS	29.2	40.5	34.9	17	11th	51	1st, 2nd, 3rd	22	3.66	0.66	5th	—	—
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	47	23
BRAEMAR	27.2	39.0	33.1	9	22nd	50	3rd	17	2.35	0.38	21st	17	8
OCHTERTYRE	28.9	43.1	36.0	20	11th, 16th, 21st	55	1st, 2nd	16	2.56	0.39	6th	—	—
MARCHMONT	30.7	39.5	35.1	22	22nd, 23rd	50	1st	21	2.36	0.30	15th	20	10
ALNWICK CASTLE	32.7	40.1	36.4	24	21st	51	1st	22	4.11	1.04	20th	—	—
DURHAM	31.7	40.5	36.1	25	11th, 12th, 22nd	51	1st	21	2.29	0.70	20th	49	23
SCARBOROUGH	32.2	41.5	36.9	23	12th	50	1st	21	2.14	0.33	20th	†38	16
YORK	*	*	*	*	*	*	*	*	*	*	*	33	15
HILLINGTON	31.0	40.6	35.8	15	27th	52	9th	22	1.31	0.18	12th	51	22
GELDESTON	31.4	41.6	36.5	23	12th	54	9th	21	1.27	0.13	4th, 14th, 16th	52	22
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	42	18
ROTHAMSTED	31.6	42.0	36.8	22	29th	53	1st, 9th	21	1.54	0.30	8th	—	—
INGATESTONE	32.7	41.4	37.1	23	28th	54	8th	16	1.21	0.44	14th	48	21
BAWTRY	31.3	42.7	37.0	22	12th	52	3rd, 8th	15	0.95	0.23	6th	†48	21
LEICESTER	32.4	41.2	36.8	23	20th	54	9th	18	1.38	0.24	12th	25	11
CHEADLE	30.2	39.9	35.1	22	20th	51	9th	21	2.13	0.34	12th	—	—
CHURCHSTOKE	31.1	42.1	36.6	22	27th	53	8th	15	2.76	0.75	14th	41	18
HEREFORD	31.2	43.8	37.5	23	29th, 30th	55	3rd	18	1.88	0.27	14th	—	—
CIRENCESTER	30.9	42.4	36.7	21	23rd, 27th	52	8th	16	1.67	0.32	12th	47	20
OXFORD	*	*	*	*	*	*	*	*	*	*	*	46	20
LONDON	*	*	*	*	*	*	*	*	*	*	*	22	9
STRATHFIELD TURGIS	32.4	42.8	37.6	20	28th, 29th	54	8th	14	1.47	0.32	8th	—	—
HASTINGS	34.3	42.8	38.6	22	28th	52	8th	21	2.36	0.46	8th	44	18
SOUTHAMPTON	34.1	44.1	39.1	24	28th	54	9th	16	2.04	0.37	14th	55	23
STOWELL	32.5	43.0	37.8	22	28th	54	8th	20	2.81	0.54	12th	39	16
LAUDALE	32.3	42.4	37.4	23	22nd	53	1st, 2nd	21	9.05	1.64	10th	—	—
GLASGOW	30.2	42.6	36.4	20	22nd	52	1st	19	5.73	0.70	8th	8	4
GLENNIE	30.9	41.4	36.2	16	22nd	50	1st, 3rd	21	7.13	1.04	12th	—	—
DOUGLAS	34.9	44.0	39.5	24	22nd	52	8th	18	3.40	0.99	12th	49	22
NEWTON REIGNY	29.8	39.7	34.8	13	27th	50	3rd	22	3.65	0.70	6th	22	10
STONYHURST	31.7	40.4	36.1	24	12th, 22nd, 27th, 29th.	50	13th	19	3.06	0.60	8th	40	18
BLACKPOOL	35.3	42.2	38.8	26	26th	49	3rd, 13th	20	2.46	0.36	13th	42	19
MANCHESTER	32.2	40.7	36.5	25	27th	51	3rd	21	3.31	0.45	6th	—	—
LLANDUDNO	36.7	44.9	40.8	26	29th	55	13th	19	2.92	0.42	13th	23	10
LLANDOVERY	29.0	43.6	36.3	15	27th	53	8th	22	4.62	0.76	14th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	50	21
ARLINGTON	33.7	43.6	38.7	22	28th, 30th	51	8th, 13th	25	5.06	1.04	8th	—	—
CULLOMPTON	32.3	44.5	38.4	18	28th	54	1st, 8th	18	3.34	0.66	7th	54	23
FALMOUTH	37.4	46.1	41.8	27	27th, 28th	54	8th, 9th	19	4.22	0.73	7th	72	30
PLYMOUTH	36.3	45.8	41.1	24	28th	55	8th	18	4.33	1.04	12th	67	28
JERSEY	*	*	*	*	*	*	*	*	*	*	*	66	27
LONDONDERY	34.2	43.0	38.6	25	12th	52	3rd	23	4.17	0.53	6th	—	—
MARKREE CASTLE	33.3	43.9	38.6	21	28th	51	1st, 3rd	24	4.67	0.49	17th	28	13
BROCKBOROUGH	31.8	42.3	37.1	21	12th	51	1st	17	3.00	0.56	15th	—	—
ARMAGH	33.2	43.2	38.2	22	12th	51	3rd, 12th	15	2.28	0.32	6th	33	15
EDGEWORTHSTOWN	31.6	41.7	36.7	21	12th	51	8th, 12th	14	2.61	0.47	12th	—	—
DUBLIN	35.5	44.3	39.9	25	22nd	55	3rd	19	1.22	0.24	15th	54	24
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	43	19
KILKENNY CASTLE	32.6	43.2	37.9	21	22nd	54	8th	14	2.33	0.37	12th	—	—
WATERFORD	34.3	44.3	39.3	24	22nd	55	8th	18	2.58	0.54	12th	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	43	18
KILLARNEY	34.4	46.1	40.3	18	28th	58	8th	18	5.58	0.99	12th	—	—
FOYNES	35.8	44.8	40.3	23	27th	54	8th	20	3.76	0.45	5th	—	—

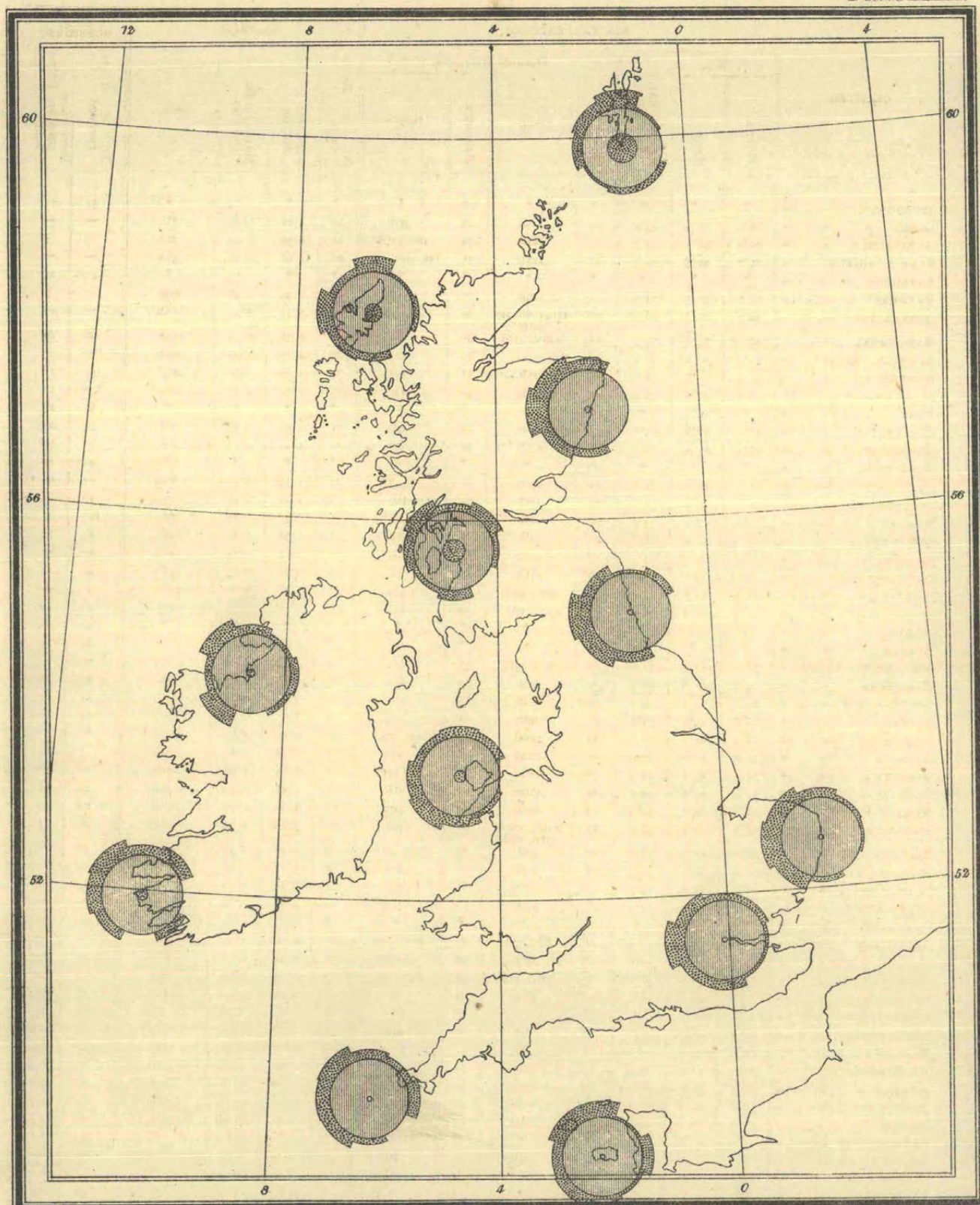
\* For information, see Table XXIII.

† The bright sunshine values given for Bawtry are recorded at Worksop, those for Scarborough at Oswaldkirk.



# MONTHLY WIND CHART FOR DECEMBER 1887.

Plate XXIII.

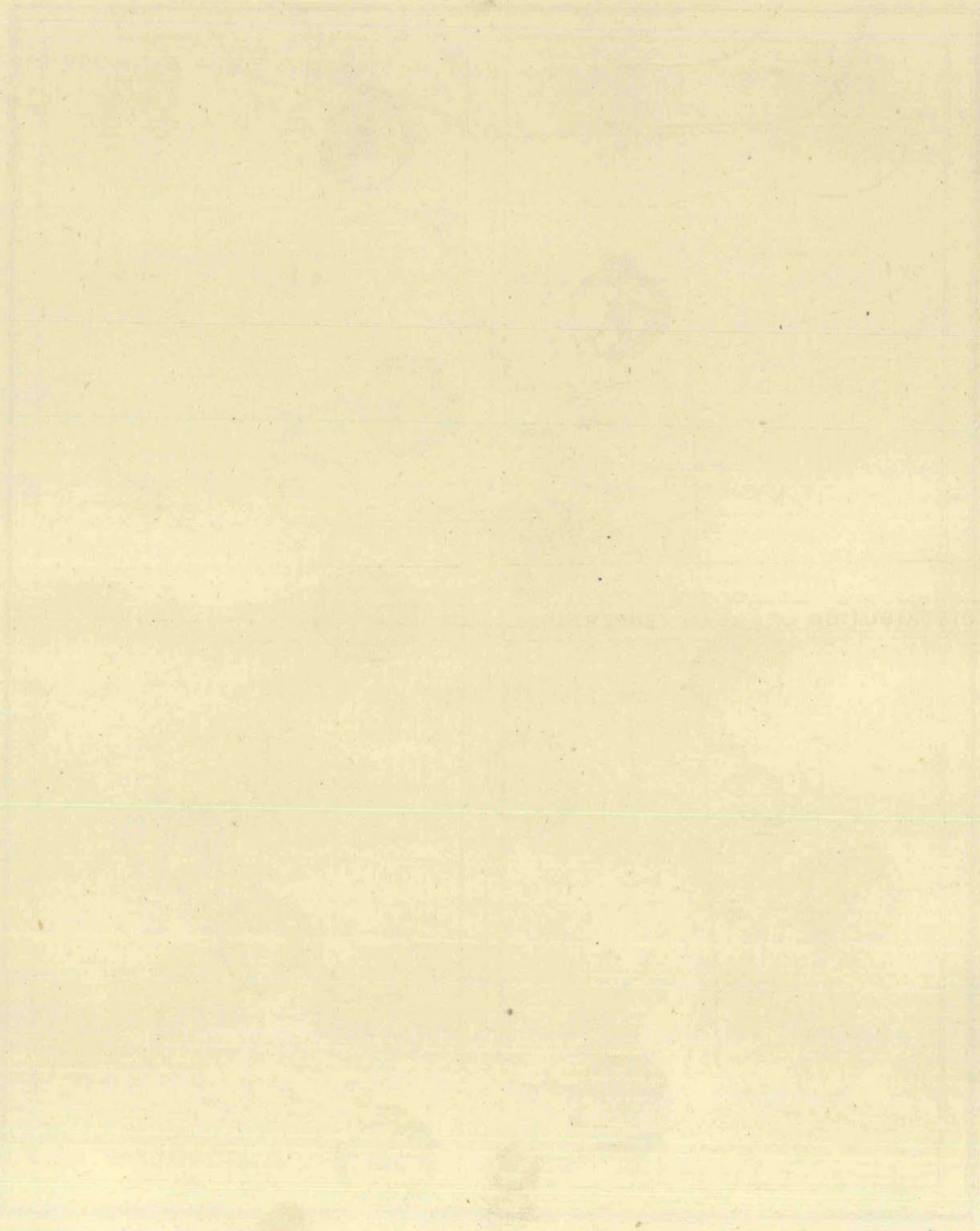


To face p. 126.

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MONTHLY WIND CHART FOR DECEMBER 1900



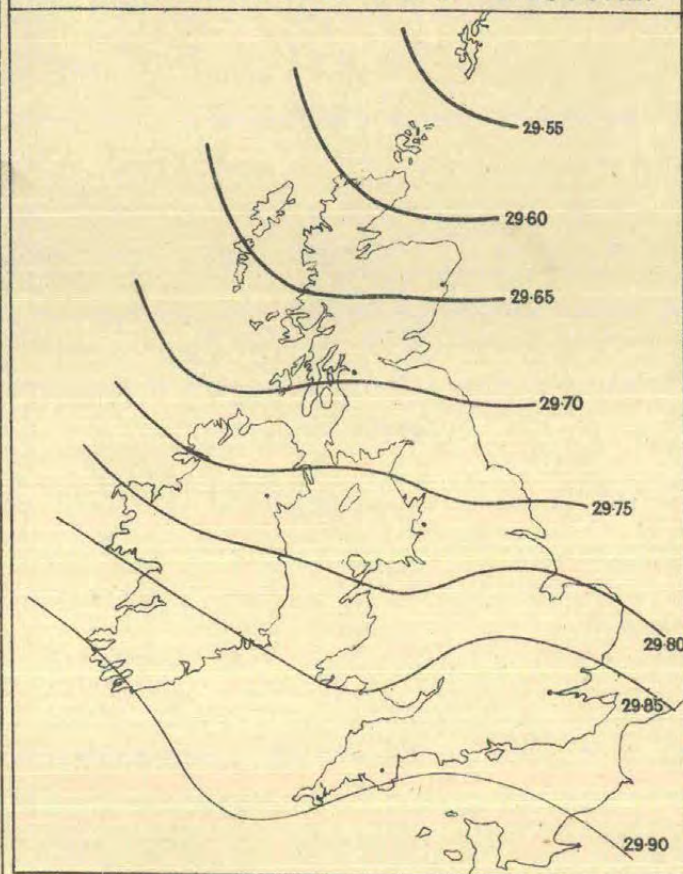


# MONTHLY WEATHER CHART, DECEMBER, 1887.

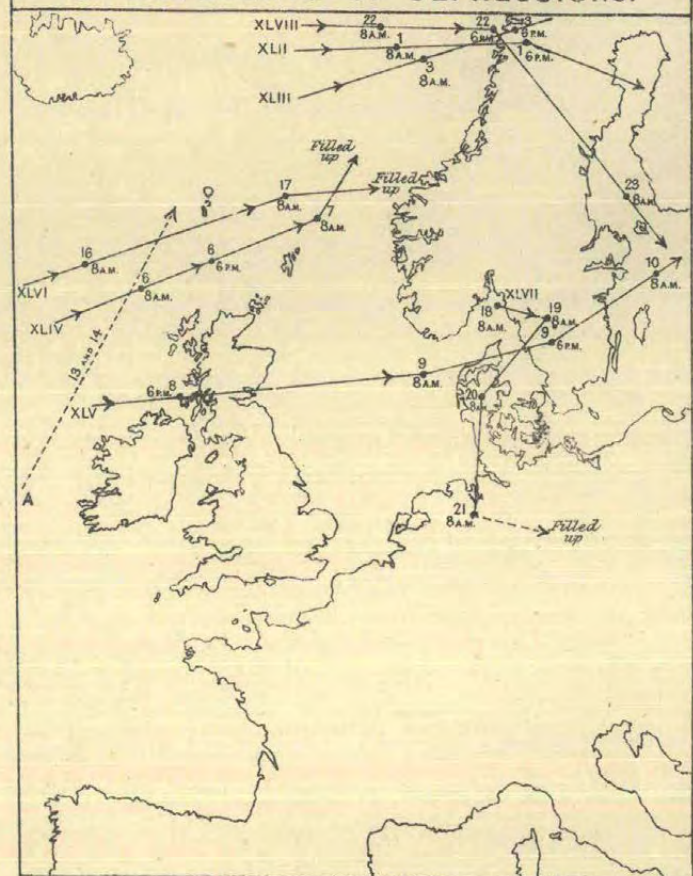
Monthly Summary

Plate XXIV.

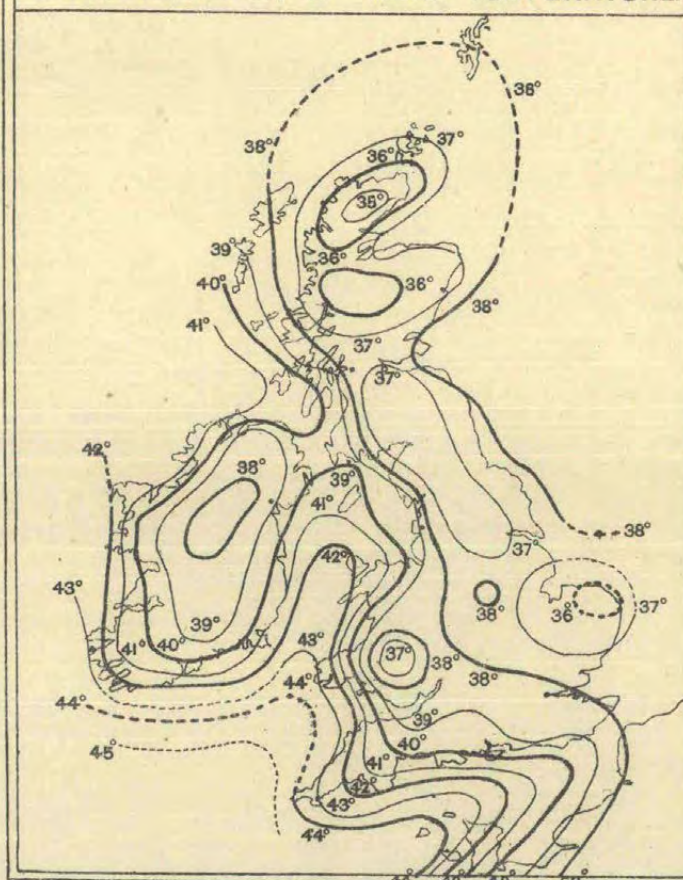
## 1. DISTRIBUTION OF MEAN PRESSURE.



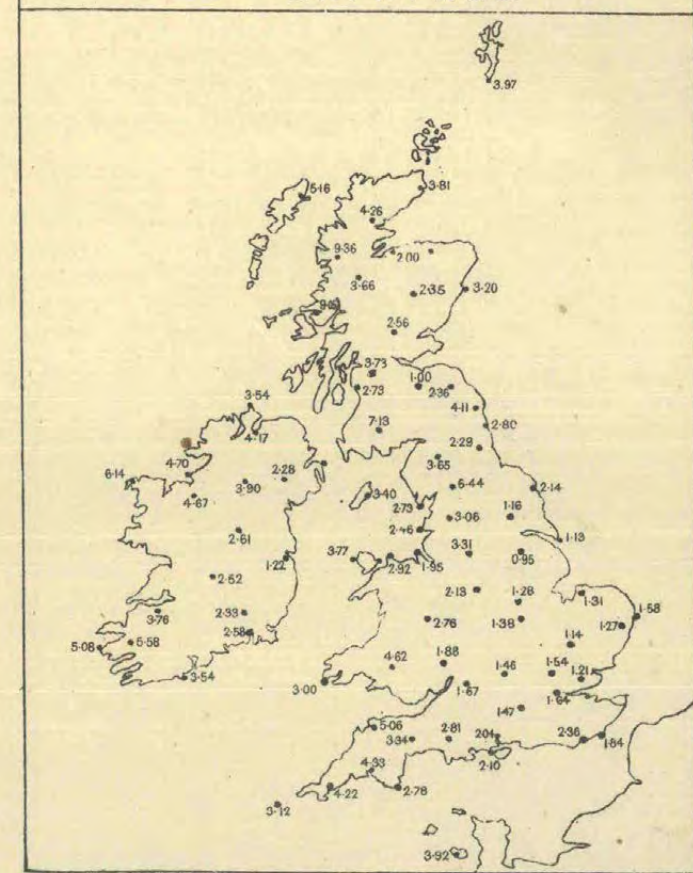
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE.



## 4. RAINFALL.



To follow Wind Chart for December.



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