

Official No. 68.

THE  
MONTHLY WEATHER REPORT

OF THE  
METEOROLOGICAL OFFICE

For the Year 1886.

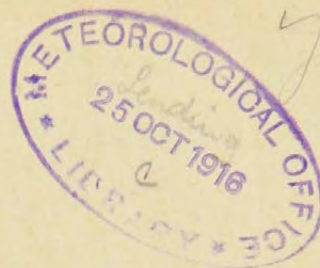
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1887.





# ERRATA.

## MONTHLY WEATHER REPORT 1885.

Page 10.	Rainfall for January.	Churchstoke, total fall, for	Ins.	Ins.
" "	" "	Strathfield } Turgiss, }	2'60	read 2'65.
" 22.	" " February.	Scarborough,	" "	2'87 " 2'98.
" "	" " "	Cheadle,	" "	1'84 " 1'54.
" 46.	" " April.	Killarney,	" "	2'65 " 2'55.
" 58.	" " May.	Scarborough,	" "	3'60 " 3'92.
" "	" " "	Marlborough,	" "	1'91 " 1'93.
" 80.	" " July.	Armagh,	" "	? 2'95 " 3'05.
" 92.	" " August.	Scarborough,	" "	1'80 " 1'91.
" "	" " "	Strathfield } Turgiss, }	" "	1'27 " 2'27.
" "	" " "	Cirencester,	" "	1'20 " 1'17.
" 142.	" " December.	Hereford,	" "	1'77 " 2'14.
			" "	0'74 " 0'85.

## MONTHLY WEATHER REPORT 1886.

Page 14.	Rainfall for January.	Llandudno, total fall, for	Ins.	Ins.
" 26.	" " February.	Scarborough,	" "	3'56 read 3'57.
" "	" " "	Cheadle,	" "	1'04 " 1'03.
" "	" " "	Manchester,	" "	0'85 " 0'88.
" "	" " "	Killarney,	" "	0'89 " 0'92.
" 38.	" " March.	Durham,	" "	4'32 " 4'38.
" "	" " "	Llandudno,	" "	2'43 " 2'45.
" 62.	" " May.	Killarney,	" "	2'50 " 2'55.
" "	" " "	Strathfield } Turgiss, }	" "	4'18 " 4'29.
" "	Temperature for May.	" date of Max. for 7th and 8th read	" "	4'30 " 4'40.
" 72.	Rainfall for June.	Blackpool, total fall, for	" "	6th 7th and 9th.
" 84.	" " July.	Bawtry,	" "	1'16 " 1'61.
" "	" " "	Douglas,	" "	2'47 " 2'57.
" 128.	" " November.	Waterford,	" "	4'48 " 4'50.
			Days.	Ins.
			17 & 3'00	read 16 & 2'95.



# MONTHLY WEATHER REPORT.

JANUARY 1886.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of January was of a most unsettled character. Pressure was below its normal value, and its changes were frequent and sudden. Depressions were numerous and their movements as erratic as those observed in October 1885. The winds varied greatly, both in force and direction, and temperature was low for the time of year, especially in Ireland. Frost occurred frequently, but was not very continuous, the chief feature being the suddenness with which it appeared and disappeared as the North-westerly and South-westerly currents of wind prevailed alternately. Precipitation (consisting largely of snow and hail) was in excess, except on some parts of our west and south-west coasts, and the number of rainy days was large everywhere. Although much gloomy weather and fog prevailed locally in London, the percentage of bright sunshine registered over England generally was largely in excess of the ordinary amount for January, while in Scotland and Ireland there was a slight deficit.

January 1-4.—The distribution of pressure during this period was cyclonic over our Islands, and anticyclonic in France; the gradients were somewhat steep, and were favourable for South-westerly and Westerly winds. The winds reported were therefore strong and squally, the weather showery and changeable, but the air was mild. Under the influence of the depressions Nos. I.\* and II.,\* the wind occasionally increased to a gale at the north-western and northern stations, and showers of rain fell in most places. This was by far the warmest part of the month, but towards its close the rainfall increased, showers of sleet and snow began to take the place of those of rain previously experienced, and the thermometer fell decidedly.

January 5-14.—The distribution of pressure now changed materially, the type of gradient became very variable, but was favourable for winds from a more Northerly quarter than those hitherto experienced. Cyclonic and anticyclonic conditions prevailed alternately, depressions began to move from the north-westward, and to pass over various parts of our area. Two well-marked systems (Nos. II.\* and III.\*) on arriving off our northern coasts, moved south-eastwards, one over Scandinavia, and the other over the North Sea, while a smaller system (No. IIA.\*) came in from the westward over the south of Ireland, and caused Easterly and North-easterly winds, with a great deal of snow over the southern and south-western parts of the kingdom. On reaching north Devonshire the centre moved abruptly to the southward, and at the mouth of the Channel it took a still further turn, and passing south-westwards disappeared from our area. Frost was prevalent at times, and a great deal of sleet, hail, and snow fell at intervals. On the morning of the 8th the thermometer fell to between 6° and 11° over the eastern and south Midland counties, and a hard frost occurred very generally. After January 10 large depressions again moved north-eastwards outside our extreme northern coasts, and as they advanced towards us the wind drew into South-west and the temperature rose; each system, however, was accompanied by a

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



long subsidiary hollow, which stretched southwards over the United Kingdom and the North Sea, and as it passed eastwards the wind veered quickly from the Southward to the Northward, and the weather changed from a mild southerly to a cold northerly type. (See cyclonic systems Nos. IV. and V.\*) On one occasion a well-marked subsidiary depression (No. VA.\*) was developed in the "hollow" over the North Sea, and travelling south-eastwards, broke up over Holland on the 14th.

January 15-17.—Conditions now became much quieter for a day or two. Pressure remained highest over France and lowest to the northward of the United Kingdom, and the gradients were steep, so that rather strong South-westerly winds and showery weather prevailed very generally. At first the air was somewhat mild, and the showers consisted of rain, but during the 15th the thermometer began to fall decidedly in the west, and hail and sleet were mingled with the rain. It is worthy of note that this decided change occurred without any material alteration in the direction of the wind, and the cold soon spread all over our Islands. On the evening of the 16th a new depression (No. VI.\*) appeared off the west of Scotland, and moving north-eastwards, reached the west of Norway by 8 a.m. on the 17th, where it subsequently dispersed. At 6 p.m. on the 17th barometric readings varied from nearly 29.9 inches over the southern parts of France, to about 28.8 inches off our northern coasts; over northern Europe readings were higher. A remarkable change then took place, as will be seen in the next paragraph, and the distribution of pressure became very complex.

January 18-27.—On the 18th a large irregular "hollow" was developed over Great Britain and the North Sea, so that rather strong squally winds from between North and North-west prevailed on our western coasts, with showers of snow and hail, while cold Southerly winds were blowing on the eastern shores of the North Sea, and variable light breezes over England and Scotland. In this hollow two small minima (Nos. VII. and VIII.\*) appeared, while a third showed itself for a time near the mouth of the Elbe. The barometer then rose decidedly over northern Europe and in the extreme west and north of our Islands, and the hollow referred to above was thus formed into a large irregular area of low pressure which lay over the United Kingdom on the morning of the 19th; this will be seen on referring to the charts in the Daily and the Weekly Weather Reports for that date. Strong Northerly gales were felt in the far west, and variable winds elsewhere, while squalls of snow occurred in many places, and the weather was very dull, cold, and raw. The whole of this large area now moved southwards; some of the local minima disappeared, by filling up, while others showed themselves over France and the Bay of Biscay, and gradients for Easterly winds spread steadily over the country. The weather then became still colder everywhere, and showers of sleet and snow continued to fall in many places. At 8 a.m. on the 21st pressure varied from about 30 inches over the north of Sweden and 29.8 inches at Stornoway to about 29.3 inches over France and the Channel. A new depression (No. IX.\*) had advanced westwards, from Germany to our south-eastern coasts, while a second, very shallow, one lay near Rochefort. The latter moved away to the southwards, while the former travelled south-westwards to the neighbourhood of Fécamp, and filled up. This left a very shallow and irregularly-formed low-pressure area over France, while the barometer rose steadily over the northern parts of our area. Early on the 23rd, however, another small cyclonic system (No. X.\*) arrived off our south-eastern coasts from Germany, whence it moved slowly to the westward, and, reaching Devonshire by the evening of the 24th, dispersed. At 8 a.m. on the 25th (pressure being still highest in the north) the general low-pressure system lay over the Bay of Biscay. It was an ill-defined shallow area, and underwent very little change till the evening of the 26th, when a small, but clearly well-marked minimum (No. XI.\*) approached Brittany from the south-westward, and moving north-eastwards, reached Jersey, and produced very heavy snow over the south-west and west of England, with slighter falls elsewhere, after which it broke up

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



suddenly. The irregularly-formed low-pressure area then began to move slowly to the northward, up our western coasts, undergoing many modifications of form as it did so, while other shallow local minima appeared from time to time within its bounds. As it advanced the wind shifted very temporarily to South-west over our southern and eastern counties on the 26th, but remained strong from East in the north. On the 27th the low-pressure system had broken up, and (pressure being still high over northern Europe) a new set of conditions set in.

January 28.—The distribution of pressure on this day was transitional. The barometer fell decidedly in the west, Southerly winds began to set in over Ireland, and the thermometer rose fast—first at our western and subsequently at our eastern stations.

January 29–31.—Pressure now increased in the south-west, while it gave way a little over northern Europe, and the gradients over the United Kingdom changed to those favourable for South-westerly winds. Two large depressions appeared in our neighbourhood, one of which (No. XII.\*) passed along to the north-eastwards, outside our extreme northern coasts, but developed a large hollow over our Islands and the North Sea, very similar to, but shorter than, those noticed under similar circumstances earlier in the month.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—JANUARY 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. I. December 31-January 1.	No. II. January 3-6.	No. IIA. January 6.
Form . . . . .	Oval . . . . .	Uncertain; apparently nearly circular	Oval . . . . .
Size . . . . .	Very large . . . . .	Large . . . . .	Moderate . . . . .
Depth . . . . .	Deep . . . . .	Deep . . . . .	Moderate . . . . .
Where first Observed . . . . .	To the northward of our Islands . . . . .	Off the north-west of Scotland . . . . .	Off the west of Ireland . . . . .
Direction of Motion . . . . .	North-easterly and easterly . . . . .	North-easterly till evening of 4th, then south-easterly and afterwards easterly.	East-south-easterly till 8 a.m., then southerly till 2 p.m., then south-westerly.
Rate of Motion . . . . .	Slow . . . . .	Slow . . . . .	Moderate to slow . . . . .
Regions passed over by Steepest Gradients.	Northern parts of the United Kingdom and the North Sea.	British Islands and North Sea . . . . .	Western and south-western parts of our Islands, and north-west of France.
Termination . . . . .	Travelled eastwards over Lapland and northern Russia.	Travelled away over Russia . . . . .	Passed out to the sea again and dispersed.
Time under Observation . . . . .	About 36 hours . . . . .	Four days . . . . .	One day . . . . .
Accompanying Winds . . . . .	Westerly; strong to a gale in the north, moderate in south.	South-west to North-west and North; varying considerably at times.	Westerly gales on our south-western coasts. North-easterly winds in the north-west and north-east. Winds subsequently becoming North-easterly generally.
Weather . . . . .	Mild and showery . . . . .	Squally, showery, changeable; temperature falling considerably as wind veered.	Very cold; much snow over our southern and north-eastern counties.
Rainfall . . . . .	Very slight, except in north and north-west; none in east.	General; very slight in north-east, considerable in west. Turned to snow as wind veered Northwards. (See IIA.)	Irregularly distributed. (Probably that in the south and south-west only, was due to this system.) Heavy snow in London.
REMARKS . . . . .	<p>This depression passed over while pressure was highest over the Bay of Biscay and France, lowest to the northward of the Shetlands. There was a small, shallow subsidiary system lying a little to the eastward of Sumburgh Head early on the 1st, and this, too, passed away to the eastward.</p> <p>This depression advanced when pressure was highest over France, and was accompanied by numerous small shallow subsidiaries, which caused heavy local showers. Lightning occurred in the north.</p> <p>This depression first appeared as a deep subsidiary to No. II., but the suddenness with which it recurved on reaching our south-western coasts, and went out to the Atlantic again, is remarkable. As it did so, a "trough" was formed over the Channel, and a new minimum appeared over Belgium for a few hours in the afternoon, when it dispersed.</p> <p>The break up of this series of small systems was complete, and at 8 a.m. on the 7th an anticyclone lay exactly where this depression had been on the 6th.</p>		



## SECTION II.

TABLE OF CYCLONIC SYSTEMS—JANUARY 1866.

No. III. January 7-9.	No. IV. January 10-11.	No. V. January 12-14.	No. VI. January 16-17.
Varying; nearly circular about its centre at first.	Uncertain; apparently nearly circular	Apparently nearly circular	Uncertain; apparently nearly circular about its centre.
Large	Apparently large	Large	Moderate.
Very deep to moderate	Moderate	Moderate	Moderate.
Near the Farø Isles	Off the north-west of Scotland	Off the north of Scotland	Off the west of Scotland.
Easterly till 8 a.m. 8th, then south-south-east and south-east.	North-easterly	North-easterly	North-easterly.
Variable; slow at first, then moderate	Slow	Slow	Slow.
Scotland and the North Sea	Scandinavia and our Islands	British Isles, North Sea, and Scandinavia.	North of our Islands and the North Sea, with Norway.
Dispersed over north Germany during the 9th.	Travelled away over northern Europe	Passed away to the north-eastward	Dispersed off the west of Norway.
About 60 hours	About 36 hours	About 60 hours	About 36 hours.
South-westerly to North-westerly and Northerly gales over our northern and north-eastern districts; South-easterly gales in Norway and Denmark. Strong Northerly breezes subsequently on all our coasts.	Southerly to Westerly gales in Norway; Northerly gales and strong winds in our Islands.	South-westerly in the north, followed by cold Northerly gales and strong winds all over our Islands.	South-westerly to Westerly gales; strong in the west, moderate to fresh in the south.
Very cold; rain, followed by snow, especially in Caithness.	Showery to dry; with great changes of temperature.	Squally and showery; cold rain, followed by hail and sleet.	Showery, squally, with thunder and lightning in many places. Cold for a South-westerly wind.
Slight as a rule; none at our southern stations.	General as the depression advanced; slighter (and chiefly snow) after.	General; heaviest in north-west	General; heavy locally.
When this system first advanced, pressure was highest in a "crest" which lay from west to east over Ireland and England. On its reaching our northern coasts a long "hollow" was formed over the North Sea. (See Maps in Daily and Weekly Weather Reports.) The gradients over Scotland were exceptionally steep, and the appearance of the sky was very threatening. As the system advanced to the south-eastward, however, it filled up rapidly, and finally dispersed over north Germany.	This system passed by at so great a distance from our coast that its characteristics would not have been tabulated but for the development of an unusually elongated "hollow" on its southern side. This hollow extended over the whole of Great Britain and the North Sea on the 11th, and in its rear the strong Northerly winds, gales, and snow mentioned above spread over the country, with very cold weather.	This system also, like No. IV., would have been hardly worth tabulating had it not been for the very decided hollow which was developed on its southern side (over the North Sea) as it moved eastwards, restoring the cold Northerly current of wind which had been temporarily interrupted as the centre advanced from the Atlantic. In this hollow a well-marked, but shallow, subsidiary depression (Track No. VA., Map 2, Plate II.) was formed, which moved south-eastwards to Holland and dispersed.	This system advanced while pressure was highest over France, and lowest to the northward of our Islands, the gradients being rather steep. It was followed by a complex series of disturbances, the movements of one of which (No. VII.) were very peculiar.



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—JANUARY 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. VII. January 18-19.	No. VIII. January 18-20.	No. IX. January 20-21.
Form . . . .	Oval . . . . .	Oval . . . . .	Nearly circular . . . . .
Size . . . . .	Small . . . . .	Moderate . . . . .	Moderate . . . . .
Depth . . . . .	Very shallow to shallow; finally dispersed.	Shallow . . . . .	Shallow . . . . .
Where first Observed . .	Was formed over the North Sea about 100 miles east-north-east of the mouth of the Tyne.	To the north-westward of the Hebrides.	Over north Germany . . . .
Direction of Motion . .	Very variable; first north-north-easterly, then north-westerly, and then south-westerly.	South-south-easterly and southerly till 6 p.m. 19th, then irregular.	West-north-westerly till 6 p.m. 20th, then south-westerly.
Rate of Motion . . . .	Very slow . . . . .	Moderate to slow . . . . .	Very slow . . . . .
Regions passed over by Steepest Gradients.	The northern parts of our Islands .	Ireland and neighbouring parts of Atlantic.	The North Sea and England . .
Termination . . . .	Dispersed over Scotland during night of 19th.	Travelled away south-westwards over the Bay of Biscay.	Dispersed over the Channel near Fécamp during night of 21st.
Time under Observation .	About 48 hours . . . . .	About 36 hours . . . . .	About 30 hours . . . . .
Accompanying Winds . .	Variable; chiefly North-westerly to North-easterly in our Islands.	Gales and strong Northerly breezes in Ireland; variable breezes over England.	North-easterly to Easterly in our Islands.
„ Weather . . . .	Very cold, with hail and snow squalls in many places.	Very squally in west, with much hail, rain, and snow; fair and cold over Great Britain.	Cold, with rain, hail, and snow in several places. Hard frost in its rear.
„ Rainfall . . . .	Consisted mainly of snow and hail, not large in amount.	Confined to Ireland and shores of Irish Sea.	Heaviest at our eastern and southern stations.
REMARKS . . . . .	<p>This system was formed in a large and irregularly-formed "hollow" which covered Great Britain and the North Sea on the 18th, at which time pressure was high and rising over northern Europe.</p> <p>Into this hollow a new system (No. VIII.) advanced quickly down our western coasts during the night of the 18th-19th, and in it two other small systems were developed later on, one near the mouth of the Elbe and the other over the Bay of Biscay.</p> <p>This system advanced during the night of the 18th into the general "hollow" referred to in the account of No. VII. In its rear the barometer rose generally, and the whole collection of minima moved southwards (see maps in the Daily and Weekly Reports for about this date).</p> <p>This system, though shallow, is of importance on account of its westerly motion. It was formed while pressure was becoming high over the northern parts of our area, and while low pressures prevailed over the Bay of Biscay, France, and North Germany. (See also next system.)</p>		



- SECTION II.—*continued.*

## TABLE OF CYCLONIC SYSTEMS, JANUARY 1886.

No. X. January 22-24.	No. XI. January 24-26.	No. XII. January 28-29.
Nearly circular - - - - -	Irregular, but nearly circular about centre -	Uncertain; apparently oval.
Moderate - - - - -	Small - - - - -	Apparently very large.
Shallow - - - - -	Shallow - - - - -	Apparently moderate.
Over North Germany - - - - -	Off Brest - - - - -	A long way to the westward of Ireland.
Westerly - - - - -	North-easterly - - - - -	Apparently north-easterly.
Moderate to very slow - - - - -	Slow - - - - -	Slow.
North Sea and British Isles - - - - -	British Isles - - - - -	Western parts of our Islands.
Dispersed over Dorsetshire on 24th - - - - -	Dispersed near Jersey - - - - -	Travelled away to the northward.
About 36 hours - - - - -	About 60 hours - - - - -	Two days.
North-easterly; moderate to strong - - - - -	Easterly and North-easterly in our Islands; strong in north; South-westerly in France.	Southerly; strong to a gale in west; afterwards South-westerly, Westerly, and even North-westerly on our south-western coasts.
Cold, with rain, sleet, and snow, except in far west.	Cold rain, snow, and hail - - - - -	Squally and showery; warmer than of late.
Heaviest on our north-eastern coasts - - - - -	Heaviest in south-west - - - - -	Heaviest in west; none in east till the subsidiary hollow came over.
This system advanced while pressure was highest over the northern, and lowest over the more southern parts of our area, but, like its predecessor, it broke up before reaching the Atlantic. It caused a continuance of very raw, unpleasant weather and cold winds in our Islands.	This system advanced when pressure was highest over northern Europe, and lowest to south-westward of our Islands, a second (but slighter) high-pressure area prevailing over southern and south-eastern Europe. Its breaking up over the mouth of the Channel was remarkable, especially as a larger, but less clearly-defined system ("hollow") was formed simultaneously over our western districts.	This system advanced while a large anticyclone lay over northern Europe, and a subsidiary anticyclone over France. It was the first large depression experienced for some time, and, like Nos. IV. and V., developed an elongated subsidiary "hollow" over our Islands, which caused North-westerly gales for a time over many parts of England.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS, JANUARY 1886.

NATURE OF CHARACTERISTICS OBSERVED,	No. I. January 7.	No. II. January 26.	NOTES.
Form - - - - -	Elongated and irregular - - -	Oval.	
Size - - - - -	Small - - - - -	Small.	
Height - - - - -	Small. Max. readings slightly above 30'1 ins.	Very small. Max. readings only a little above 29'7 ins.	
Where first Observed - - -	Over Ireland and England - - -	Over France.	
Direction of Motion - - -	South-easterly and southerly - -	None.	There appears to have been a very large anticyclonic area over the Atlantic to the westward and south-westward of Ireland between the 8th and 14th, and also from the 18th to the 20th, and another over Scandinavia and northern Europe between the 18th and 31st, but neither of them advanced to within our area, and their chief characteristics are therefore not tabulated.
Rate of Motion - - - - -	Moderate - - - - -	None.	
Regions passed over - - -	Ireland, England, France, and Spain.	France.	
Termination - - - - -	Disappeared to the southward of our area.	Dispersed without any apparent motion.	
Accompanying Wind - - -	South-westerly and Westerly on its northern side, Easterly on its southern side.	Very light anticyclonic breezes over France.	
Weather - - - - -	Fine, but very cold, especially at inland stations.	Fair and cold.	
REMARKS - - - - -	<p>This system was formed over England and Ireland immediately in the rear of the subsidiary cyclonic system No. II.A. (page 4), and was followed rapidly by the advance of the depression No. III. with its deep subsidiary hollow.</p> <p>This system lasted for a <i>very</i> brief time. It was not traceable till 8 a.m. on the 26th, and disappeared again on the same day.</p>		



## SECTION III.

## REMARKS FOR JANUARY 1886.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from 29·75 inches at Valencia and 29·71 inches at Scilly to 29·54 inches at Leith, and to 29·42 inches at Sumburgh Head. Thus the gradients were, as a whole, favourable for Westerly (South-west to North-west) winds, but as the pressure over the Irish Sea, St. George's Channel, and Wales were lower than those over England and Ireland, it happened that those at the English stations were in favour of winds from the Southward of West, and those in Ireland from the Northward of West. These peculiarities are fully supported by the wind-roses on Plate I. Compared with the Chart for December 1885, that for January shows a decrease of mean pressure amounting to 0·33 in. at Sumburgh Head to nearly 0·4 in. over the north of Scotland to more than half an inch over Ireland and England; but when compared with the averages for the corresponding month in the 20 years 1861–80, the deficit shown varies from only a few hundredths of an inch at Valencia and about 0·10 in. in the north-west of Ireland to 0·25 in. on our north-eastern coasts, and to 0·30 in. over our south-eastern counties. The gradients this year were, therefore, less steep, and are favourable for winds from a more northerly direction than the normal gradients for January. The lowest values recorded were registered in the Shetlands on the 8th, while the depression No. III. was passing over, but in Scotland generally on the 16th or 17th, during the progress of depression No. VI. At the English stations, however, the lowest were registered on the 19th. The highest readings occurred at the western and southern stations on the 11th or 12th in the high-pressure area which appeared in the rear of depression No. IV., but at the northern stations on the 27th, just before the large anticyclone over northern Europe gave way. The range was small everywhere, though the oscillations were frequent.

*Movements of Depressions.*—These were very varied. A considerable number of the larger systems skirted our western and northern coasts in the usual manner, passing in a north-easterly direction, as shown by the majority of the arrows drawn on Map 2. Others moved from north-west to south-east, especially Nos. II., III., and V., one from north and two from the eastward, while the movements of Nos. IIA., VII., and VIII. were very variable. The movements of all the local minima during the prevalence of the large, irregular low-pressure area observed between the 18th and 27th are very singular. Many of the depressions observed were developed, and others broke up, within our area of observation, and one at least (No. VII.) was both formed and dispersed over or in the immediate neighbourhood of Scotland and the neighbouring parts of the North Sea.

*Anticyclones.*—Although large anticyclonic systems were on several occasions found near our Islands, exerting a great influence over our weather, there were very few which came sufficiently within our area for their characteristics to be tabulated in Section II.

*Winds.*—The winds reported were very variable both in force and direction. Those experienced at our western stations were chiefly North-westerly, those over Scotland Westerly, and those over England South-westerly. There was, however, a large percentage of North-easterly and Northerly winds recorded generally, especially in the west and north, and at the most northern stations, while at Yarmouth and Jersey winds from South-east were distinctly represented. The most decided currents, however, were those from South-west and North-west or North, the alternations of which produced sudden changes of weather, so that although sharp frosts occurred frequently over England, the formation of firm ice on large pieces of water was very gradual indeed.



*Temperature.*—The mean (sea-level) temperature of the air varied from nearly  $44^{\circ}$  at Scilly and from  $42^{\circ}$  at Jersey and in the extreme south of Ireland, to about  $36^{\circ}$  over the midland parts of England and Ireland, to a little below  $35^{\circ}$  over the north of England, and to lower than  $34^{\circ}$  over central Scotland. The values show a decrease from the temperature of December 1885, amounting to between  $2^{\circ}$  and  $3^{\circ}$  over England, to between  $3^{\circ}$  and  $4^{\circ}$  over Ireland, and to between  $5^{\circ}$  and  $6^{\circ}$  over the greater part of Scotland. When compared with the average values for the same month in the 20 years 1861–80, the values for that month show a deficit of  $2^{\circ}$  or  $3^{\circ}$  over Great Britain, and rather more than  $4^{\circ}$  over the greater part of Ireland. The winter type of distribution (viz., warm coast and cold inland stations) was remarkably well developed, and the band of relatively high temperature along the valleys of the Clyde and Forth was well defined. The highest readings were registered very generally between the 1st and 3rd, when a cyclonic distribution of pressure with south-westerly and westerly gradients was prevalent. The lowest readings occurred in some places about the 7th or 8th, when a temporary anticyclone lay over us, but in other places the lowest values were recorded between the 19th and 23rd, while low pressures prevailed in the south and (relatively) high pressures were established over the northern parts of our area. It was during this time that the sheltered thermometer fell to  $7^{\circ}$  at Newton Reigny,  $8^{\circ}$  at Wick,  $12^{\circ}$  at Nairn, Leith, and Hawes Junction, and  $16^{\circ}$  at York, while it was the earlier interval of cold which gave readings as low as  $6^{\circ}$  at Rothamsted,  $10^{\circ}$  at Cirencester, and  $11^{\circ}$  at Strathfield Turgiss. The range was large in some localities, amounting to  $47^{\circ}$  at Rothamsted, and to more than  $40^{\circ}$  at several other stations.

*Vapour Tension*, as shown by the dry and wet-bulb thermometers, varied from between 0.16 in. or 0.18 in. over the east of Scotland and the northern and midland parts of England to 0.22 in. or 0.23 in. at our extreme south-western stations, but the *Relative Humidity* was lowest in the south-west, and off the east of Scotland, while it was highest off the west of Scotland and over the northern and eastern counties of England.

*Rainfall* varied from 10.2 inches at Hawes Junction, and upwards of 7 inches at Laudale, Stonyhurst, and Arlington, and from between 5 and 6 inches at several other of the western stations, to only 1.8 inch at Spurn Head. In most regions, however, the fall was considerably in excess of the average for January, the exceptional regions being the south of Ireland and the south-west of England. The number of days with rainfall was in excess everywhere. The fall consisted very largely of sleet, snow, and hail, the showers of which were almost of daily occurrence in some parts of the country.

*Bright Sunshine.*—The amount recorded over England of this element during the month was in many places as large as 25 to 28 per cent. of the possible duration, while in Ireland and Scotland it varied from 15 to 22 per cent. The values for the English and Scotch Stations are decidedly in excess of the means for the corresponding month in the eight years 1878–85 (the only period for which averages are at present available), but for the south of Ireland they are slightly in defect. The largest aggregate numbers of hours recorded were 72 at Hastings, 69 at Jersey, and 68 at Falmouth and Hillington, while the smallest were 23 at Stornoway, 26 in London, 27 at Markree, 29 at Llandudno, and 30 at Glasgow. The value (17) for York is not reliable, the instrument being out of adjustment.



# SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS,

DURING THE MONTH OF JANUARY 1886.



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.							
			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° 421	36° 1	31° 7	39° 6	35° 7	25	5th, 12th	45	3rd, 12th
	Wick	29° 478	35° 4	30° 3	38° 7	34° 5	8	19th	50	1st
	Stornoway	29° 491	36° 6	31° 9	40° 6	36° 3	20	18th	51	1st
1. SCOTLAND, E.	Nairn	29° 509	34° 3	29° 3	38° 6	34° 0	12	19th	53	1st
	Aberdeen	29° 517	35° 0	30° 4	39° 4	34° 9	15	7th	57	1st
	Leith	29° 542	35° 5	30° 9	39° 9	35° 4	12	19th	52	1st, 3rd
2. ENGLAND, N.E.	Shields	29° 565	35° 6	31° 2	40° 1	35° 7	19	8th	53	1st
	York	29° 603	34° 0	29° 8	40° 0	34° 9	16	19th, 20th	53	3rd
	Spurn Head	29° 577	36° 2	32° 9	39° 5	36° 2	26	8th	49	3rd
3. ENGLAND, E.	Yarmouth	29° 616	35° 4	31° 7	39° 1	35° 4	23	8th	50	1st
	Cambridge	29° 645	34° 3	29° 6	40° 2	34° 9	22	8th	53	2nd
4. MIDLAND COUNTIES	Loughborough	29° 630	34° 8	31° 7	40° 5	36° 1	24	19th, 20th	51	2nd, 3rd
	Oxford	29° 663	35° 0	31° 2	40° 6	35° 9	14	8th	52	3rd
5. ENGLAND, S.	London	29° 664	35° 5	31° 4	41° 7	36° 6	18	8th	53	2nd
	Dungeness	29° 667	36° 8	32° 5	42° 8	37° 7	14	8th	49	2nd, 3rd, 4th
	Hurst Castle	29° 674	38° 5	33° 8	44° 4	39° 1	26	8th	49	2nd
6. SCOTLAND, W.	Ardrossan	29° 568	36° 5	32° 5	40° 2	36° 4	22	7th	50	1st
7. ENGLAND, N.W.	Hawes Junction*	*28° 332	30° 7	25° 7	35° 9	30° 8	12	20th	50	25th, 31st
	Barrow-in-Furness	29° 593	36° 3	33° 2	40° 0	36° 6	25	20th	47	1st, 3rd
	Liverpool (Bidston)	29° 609	36° 4	33° 6	40° 7	37° 2	25	20th	53	3rd
	Holyhead	29° 626	38° 9	35° 7	42° 4	39° 1	22	25th	50	1st
8. ENGLAND, S.W.	Pembroke	29° 659	40° 1	36° 5	43° 5	40° 0	27	21st, 23rd	49	1st, 2nd, 3rd, 12th
	Prawle Point	29° 704	38° 5	33° 3	44° 4	38° 9	25	8th, 21st, 23rd	50	2nd, 3rd, 4th
9. IRELAND, N.	Malin Head	29° 588	38° 4	34° 6	43° 2	38° 9	26	8th	50	1st, 2nd, 3rd
	Donaghadee	29° 605	37° 4	33° 6	41° 4	37° 5	22	7th	52	3rd
	Mullaghmore	29° 634	39° 3	35° 9	42° 5	39° 2	28	23rd	52	3rd
	Belmullet	29° 664	40° 1	35° 8	43° 5	39° 7	28	7th, 18th, 21st	51	3rd
10. IRELAND, S.	Parsonstown	29° 694	35° 2	30° 1	40° 8	35° 5	18	7th, 24th	52	3rd
	Valencia	29° 750	41° 9	37° 2	46° 4	41° 8	27	7th, 26th	54	3rd
	Roche's Point	29° 703	39° 3	35° 4	45° 1	40° 3	28	7th	53	1st, 2nd, 12th
CHANNEL ISLANDS	Scilly (St. Mary's)	29° 714	44° 3	39° 9	46° 8	43° 4	34	23rd, 24th	52	2nd
	Jersey (Noirmont)	29° 729	40° 6	37° 3	44° 6	41° 0	27	21st	50	2nd, 3rd, 4th

\* 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 1886.

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. °185	% 86	8.8	ins. 4.44	ins. 0.64	1st	31	12	1	0	1	22	4	4	5	2	5	3	3	5	3	1
*186	90	7.0	4.03	0.70	8th	28	12	2	0	5	15	7	2	4	2	3	4	6	4	6	0
*206	96	7.9	6.25	0.64	16th	27	11	11	0	2	17	12	3	2	7	1	3	5	8	2	0
*170	85	6.2	2.70	0.30	4th, 24th	26	15	0	0	6	9	2	0	2	5	1	1	11	6	2	3
*166	81	7.1	2.33	0.32	23rd	20	9	3	0	4	14	4	1	2	3	2	3	7	8	4	1
*187	90	5.5	2.85	0.43	23rd	22	13	0	1	8	7	0	1	2	2	4	1	3	11	7	0
*192	92	7.4	2.39	0.40	10th	16	9	5	0	6	17	3	2	3	5	0	3	12	4	1	1
*178	90	6.6	3.05	0.50	25th	21	9	0	0	8	16	0	7	1	4	2	3	1	9	4	0
*202	94	6.3	1.77	0.20	10th	23	14	1	1	7	13	7	2	2	4	2	4	7	7	3	0
*188	91	6.4	2.63	0.34	13th, 20th	26	9	3	1	6	10	0	2	3	2	2	3	6	9	2	2
*182	92	6.3	2.42	0.26	10th	22	10	1	0	11	17	0	6	0	1	0	3	11	0	4	6
*178	88	7.5	2.80	0.27	25th	22	13	4	0	3	17	4	2	3	2	6	1	6	7	4	0
*184	90	6.8	4.02	0.64	30th	25	11	2	0	10	19	0	1	3	2	3	3	8	4	6	1
*184	88	7.0	3.52	0.36	16th	22	14	1	0	8	19	6	2	2	3	0	5	8	4	3	4
*211	98	6.5	4.05	0.60	5th	22	5	0	0	5	11	2	4	1	1	0	6	4	9	6	0
*214	92	5.8	3.87	0.43	12th	25	6	0	0	9	9	8	2	2	1	2	2	5	13	5	0
*202	93	7.1	3.32	0.54	10th	25	10	2	0	6	15	10	3	6	4	1	1	6	4	4	2
*154	89	8.1	10.19	1.59	3rd	23	14	1	1	4	22	5	7	4	2	3	1	4	5	3	2
*188	88	7.3	3.54	0.65	27th	22	4	1	0	1	13	3	5	7	1	3	2	4	4	5	0
*185	86	7.6	3.61	0.49	18th	26	10	5	0	4	17	4	3	3	3	4	3	3	8	4	0
*210	89	7.4	3.01	0.63	12th	25	5	4	0	3	15	9	4	5	1	1	5	7	6	2	0
*219	89	7.4	3.86	0.58	19th	25	6	2	0	2	13	11	5	4	2	1	2	2	9	6	0
*214	92	6.8	5.63	0.87	4th	25	8	4	1	6	16	7	7	2	0	0	1	6	7	8	0
*206	89	8.5	3.58	0.70	12th	26	8	8	1	2	23	5	3	6	2	1	4	5	5	5	0
*206	92	5.1	3.58	0.59	12th	23	9	0	0	10	7	8	4	1	6	2	2	4	7	5	0
*215	90	7.6	5.25	0.54	17th	24	11	3	2	1	9	15	3	3	6	1	2	6	7	3	0
*204	82	8.0	6.01	0.54	16th	28	3	4	0	1	17	11	5	1	7	1	1	3	9	4	0
*183	88	7.6	4.07	0.74	17th	22	11	0	0	3	17	0	1	2	0	2	0	4	7	3	12
*224	85	6.7	5.17	0.69	28th	23	1	9	0	3	9	8	8	4	2	2	0	2	7	6	0
*215	90	5.7	2.84	0.50	3rd	22	3	1	0	6	8	9	8	4	0	0	1	2	8	8	0
*235	80	7.9	3.39	0.56	30th	27	0	8	0	1	14	10	6	5	1	0	0	5	6	6	2
*225	89	8.2	4.56	0.52	24th	28	6	8	3	1	17	13	3	3	1	3	4	5	7	5	0

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 1886.

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	.	.	.	.	.	.	.	.	.	.	23	11
ABERDEEN	.	.	.	.	.	.	.	.	.	.	46	20
AINWICK CASTLE	30'4	38'5	34'5	17	19th	52	1st	21	3'40	0'55	25th	—
DURHAM	29'4	38'9	34'2	13	20th	52	1st	19	3'79	0'72	25th	51
SCARBOROUGH	32'3	39'4	35'9	22	19th	51	3rd	23	3'84	0'50	17th	—
YORK	.	.	.	.	.	.	.	.	.	.	27	27
HILLINGTON	30'4	39'5	35'0	21	19th	51	3rd	23	2'93	0'33	11th	68
GELDESTON	30'8	40'5	35'7	21	8th	51	2nd	23	2'10	0'32	20th	63
CAMBRIDGE	.	.	.	.	.	.	.	.	.	.	59	24
ROTHAMSTED	28'7	36'9	32'8	6	8th	53	2nd	25	3'12	0'31	30th	—
BAWTRY	29'2	40'5	34'9	14	19th	52	1st	19	3'03	0'36	11th	44
LEICESTER	31'7	39'7	35'7	24	7th	51	3rd	19	2'56	0'37	25th	40
CHEADLE	29'5	37'6	33'6	22	24th	50	3rd	27	4'02	0'50	3rd	—
CHURCHSTOKE	29'5	39'6	34'6	15	7th	52	3rd	24	4'69	0'82	25th	50
HEREFORD	30'3	41'7	36'0	13	8th	54	2nd	25	3'91	0'81	25th	—
CIRENCESTER	29'0	39'9	34'5	10	8th	51	3rd	22	4'21	0'88	5th	58
OXFORD	.	.	.	.	.	.	.	.	.	.	62	25
LONDON	.	.	.	.	.	.	.	.	.	.	26	10
STRATHFIELD TURGIS	29'9	41'2	35'6	11	8th	52	2nd	22	3'22	0'58	5th	—
HASTINGS	32'5	41'8	37'2	26	9th, 20th, 23rd	49	2nd, 4th	25	5'06	0'67	5th	72
SOUTHAMPTON	32'3	42'7	37'5	25	7th, 8th, 19th, 21st.	51	2nd, 4th	26	4'00	0'48	12th	61
STOWELL	31'4	41'7	36'6	22	8th	51	3rd	26	3'90	0'45	12th	—
LAUDALE	30'6	41'0	35'8	17	18th	53	1st	20	7'87	1'10	1st	—
GLASGOW	29'6	39'9	34'8	19	7th, 18th	51	1st	22	2'94	0'36	4th	30
DOUGLAS	34'0	41'5	37'8	21	7th	51	1st, 3rd	26	4'45	0'65	12th	43
NEWTON REIGNY	27'8	37'6	32'7	7	20th	50	1st	22	5'70	0'96	3rd	47
STONYHURST	30'3	40'0	35'2	16	19th	51	3rd	22	7'25	1'69	3rd	38
BLACKPOOL	31'4	39'9	35'7	15	20th	49	3rd	23	4'17	0'80	27th	35
MANCHESTER	31'3	38'8	35'1	20	19th, 20th	52	3rd	24	5'18	0'94	12th	—
LLANDUDNO	34'1	42'3	38'2	25	24th, 25th	53	3rd	22	3'56	0'69	3rd	29
LLANDOVERY	27'5	40'9	34'2	13	6th, 7th	51	2nd	26	6'10	0'88	3rd	—
PEMBROKE	.	.	.	.	.	.	.	.	.	.	59	24
ARLINGTON	31'4	41'0	36'2	21	27th	49	2nd, 3rd	26	7'61	1'16	25th	—
CULLOMPTON	30'8	42'7	36'8	14	21st	54	3rd	25	5'98	1'16	25th	45
FALMOUTH	35'9	44'4	40'2	26	21st	52	2nd, 4th	25	5'35	0'74	30th	68
PLYMOUTH	32'6	44'4	38'5	23	21st	53	2nd, 3rd	27	4'56	0'62	30th	56
JERSEY	.	.	.	.	.	.	.	.	.	.	69	26
LONDONERRY	31'8	43'0	37'4	22	23rd	55	1st	29	6'89	0'73	4th	—
MARKREE CASTLE	30'9	41'8	36'4	17	7th	52	3rd	24	4'78	0'36	5th	27
BROOKEBOROUGH	29'5	40'5	35'0	14	21st	51	1st, 3rd	20	5'09	0'68	25th	—
ARMAGH	30'5	40'4	35'5	20	7th, 20th, 21st, 23rd.	53	3rd	26	4'28	0'42	12th	33
EDGEWORTHSTOWN	31'1	39'8	35'5	17	7th	51	3rd	18	3'02	0'36	3rd	—
DUBLIN	33'6	42'2	37'9	25	7th	53	3rd	26	3'24	0'90	25th	46
PARSONSTOWN	.	.	.	.	.	.	.	.	.	.	39	16
KILKENNY CASTLE	30'9	41'1	36'0	16	7th	52	3rd	16	3'43	0'55	16th	—
WATERFORD	32'1	41'9	37'0	22	7th	52	1st	16	2'47	0'57	28th	—
VALENCIA	.	.	.	.	.	.	.	.	.	.	54	22
KILLARNEY	32'7	44'2	38'5	20	7th, 21st	53	2nd, 3rd	22	5'73	0'81	28th	—

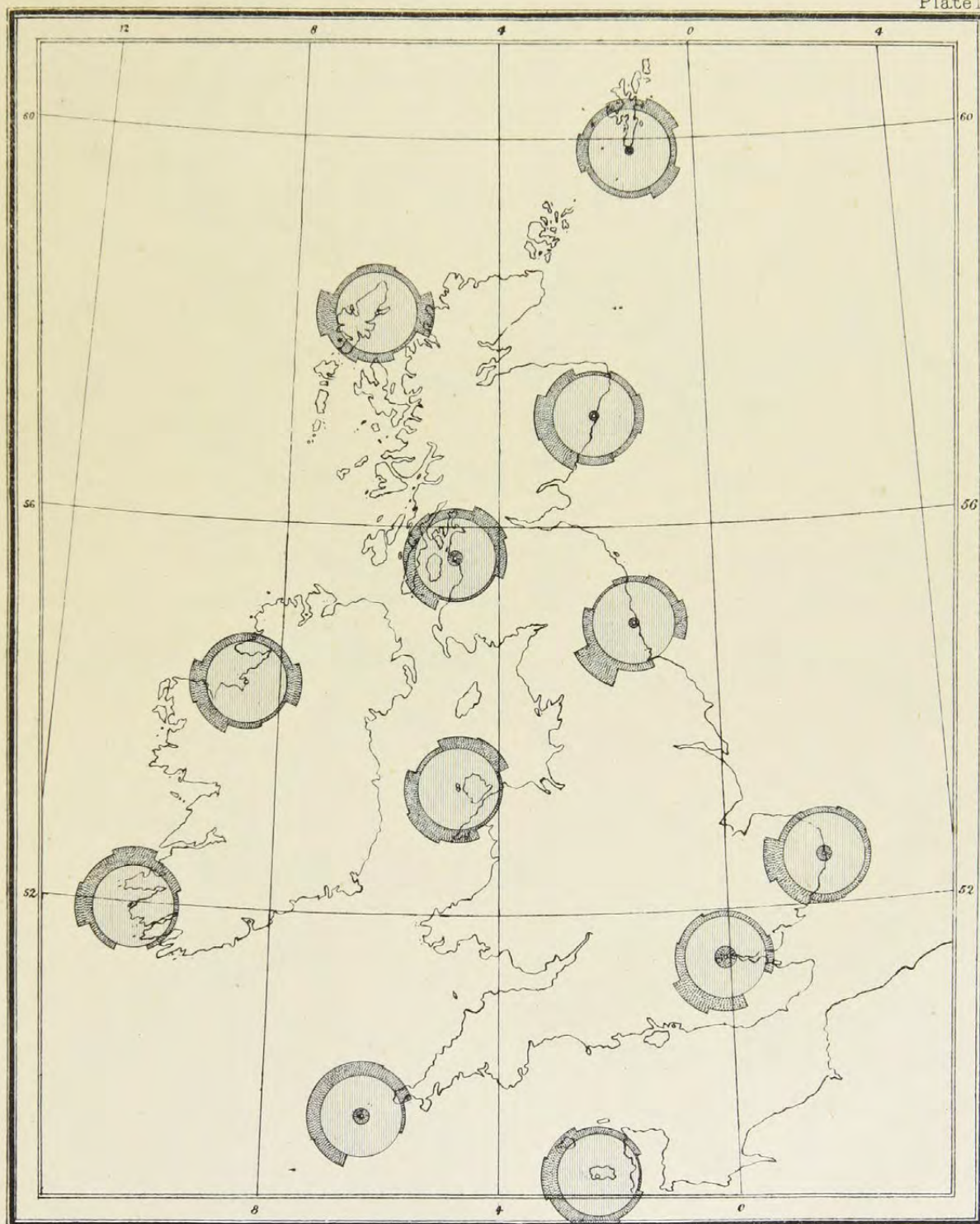
\* For information see Table I.

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



# MONTHLY WIND CHART FOR JANUARY, 1886.

Plate 1.



To face page 14.

DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 11752.

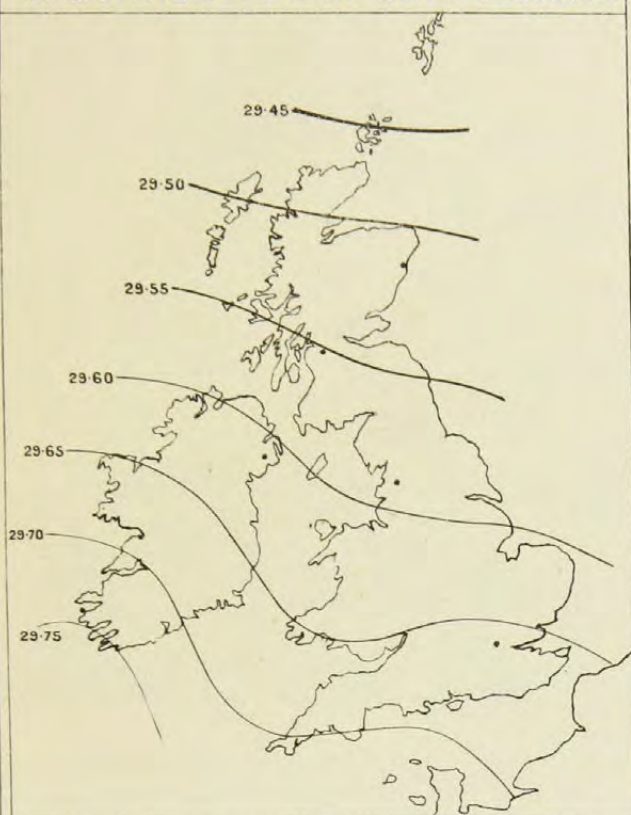


MONTHLY WIND DIRECTION FOR JANUARY 1898

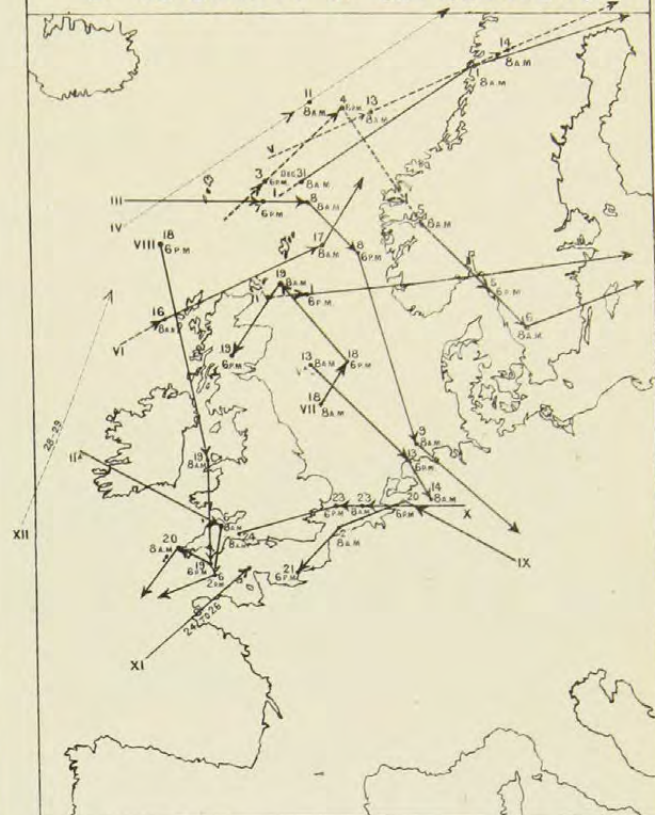




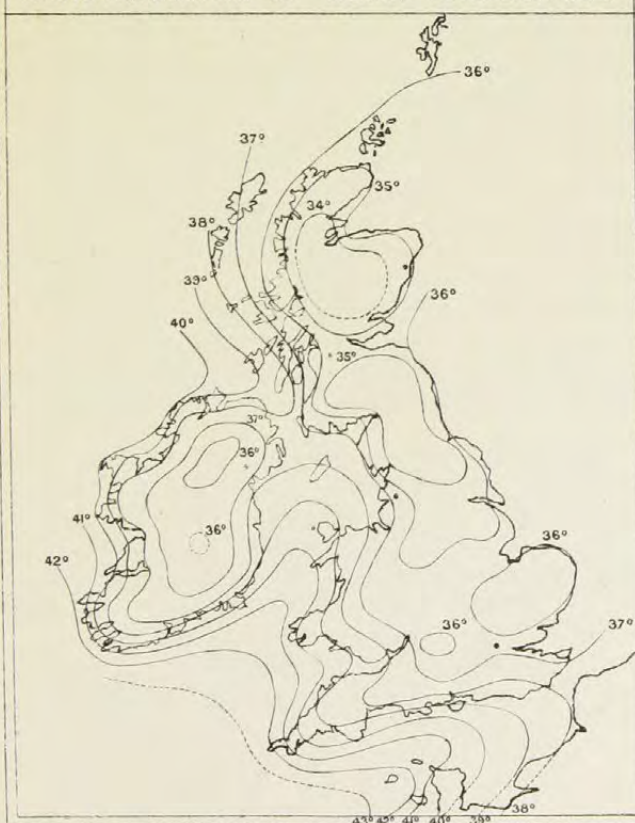
## 1. DISTRIBUTION OF MEAN PRESSURE



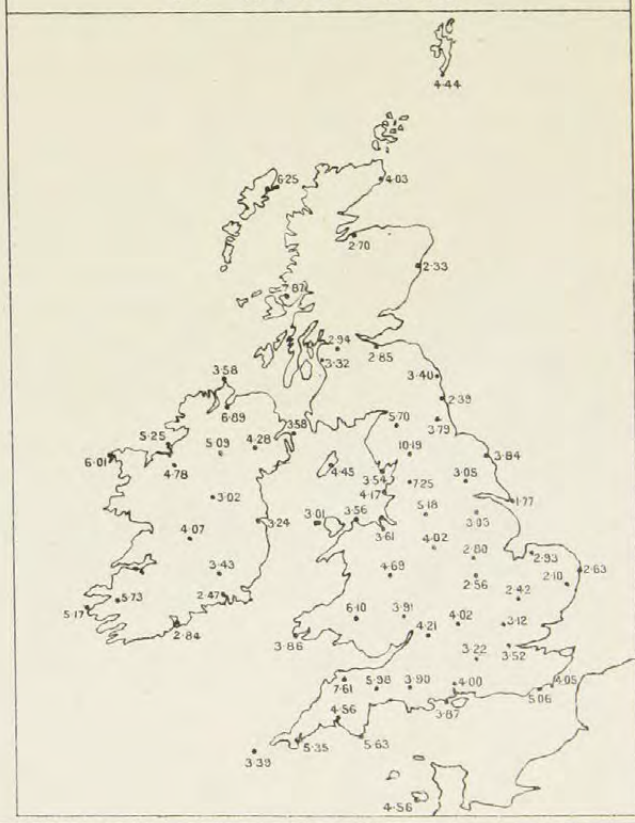
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL









# MONTHLY WEATHER REPORT.

FEBRUARY 1886.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of February was peculiarly dull, cold, and quiet. Pressure was largely in excess of its normal value, and its distribution was almost continuously anticyclonic after the 5th. Temperature was very low (as much as  $8^{\circ}$  below the average over our eastern counties), the winds were light—gales over England generally being absent, and very few in number, even at our own extreme western and northern stations, and the air was dry, but foggy. It was the coldest February recorded over England for very many years, and the cold seems to have been still more continuous and severe over the Continent. At the close of the month there were some indications of a change approaching from the westward.

February 1-3.—The dominant pressure systems over our Islands and their neighbourhood during this period were cyclonic, and the type of gradient chiefly north-westerly; the gradients, however, were slight or moderate, and the winds (except on some exposed parts of the coast) were not strong after the 1st. Two well-marked depressions appeared during this interval—one (No. XIII.\*) large and moderately deep. This reached the neighbourhood of the Shetlands on January 31st, and moving eastwards with a retarded rate of motion, arrived off the south of Norway early on the 1st of February. North-westerly gales and strong winds were experienced over the kingdom as the centre passed by our northern coasts, with cold showers, but these soon after gave way to more moderate breezes, drier weather, and clearer skies. The second, and less important disturbance soon followed, and taking a more southerly track passed across the north of Ireland, central England, and the eastern parts of France, producing a temporary revival of the strong North-westerly winds in the west, while variable airs and calms were felt in the east, together with a renewal of the cold showers in most places. In the rear of this disturbance the barometer rose, and a change of conditions ensued; the sky cleared as night came on, and temperature fell decidedly.

On the Continent the weather during this time was changeable, showery, and cold; and a large wide band of somewhat low pressure lying over France, Germany, and south-eastern Europe, having in it several shallow minima, separated the Atlantic anticyclone over and to the south-westward of Spain from a large similar system over central Russia.

February 4-5.—The weather of this period was cold, quiet, and transitional. The Atlantic anticyclone spread northwards up our western coasts, and began to advance eastwards across the United Kingdom and France, bringing with it very light breezes and calms, low temperatures (the night frosts being very sharp), dry weather, and in many places fog. The centre of the anticyclone reached Ireland on the evening of the 4th, and moving thence in an easterly and south-easterly direction, finally formed a well-

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



marked "ridge," to the continental system, which in the meantime spread westwards over Finland and Lapland to Scandinavia, as the depression No. XIII.\* passed away to the Mediterranean.

February 6-11.—Throughout this period the distribution of pressure was mainly anticyclonic, the form of the system being that of a ridge, stretching south-eastwards or westwards to our extreme west and south-west coasts from a large anticyclone which lay over Europe, and in which readings exceeded 30·8 inches. This large anticyclone lay at first over northern Europe, and the "ridge" covered the whole of the North Sea and the United Kingdom, so that while Easterly and North-easterly breezes prevailed at the southern stations, Southerly and South-westerly winds were felt in the north. It was at this time that the depression No. XVI.\* passed by our extreme north-western coasts, causing a South-westerly gale in the extreme north-west, and producing such variations of temperature that at 8 a.m. on the 7th and 8th the thermometer stood at 44° to 50° on our extreme western coasts, while sharp frost prevailed over England. The whole of the anticyclonic system then moved slowly to the south-eastward, and Southerly to South-easterly breezes spread all over the kingdom, being light in force in the east and south, with very cold foggy dry weather, but fresh to strong in the west and north-west, with comparatively mild weather and occasional showers.

All over the Continent the weather was very cold until after the 8th, the thermometer at 8 a.m. on the 7th being as low as -13° over the north-east of Russia generally, while the 8 a.m. line of frost embraced the whole of the Continent, excepting the shores of the Black Sea, the Mediterranean, Spain, and the British Isles. In the neighbourhood of Moscow the barometer stood at above 30·9 inches. As, however, the anticyclonic area moved southwards, and Westerly breezes spread over northern Europe, the cold became less severe in Russia, but grew sharper over Germany and France.

February 12-14.—Pressure now gave way for a time over the western and north-western parts of our Islands, and for a very brief interval mild Southerly breezes set in over England, as the depressions Nos. XVII. and XVIII.\* passed along our north-western coasts. The change, though brief, was so decided, that on the afternoon of the 13th the thermometer rose to between 45° and 50° even over the inland parts of England, and the air felt soft and spring-like. The improvement was, however, very transitory, for on the 14th temperature began to fall again, and by the 15th an anticyclonic ridge, stretching westwards from the large Continental anticyclone over Russia and the Baltic, was again established over the North Sea and the United Kingdom.

It is worth noting that although this Southerly current of wind was confined to quite the western parts of the Continent, the cold, even over Russia, was considerably modified during its continuance, though the thermometer still stood as low as 14° to 23° over Russia and Germany, and frost held in the east of France. Over central Algeria, however, the thermometer fell to 40° F.

February 15-28.—Throughout this period anticyclonic conditions prevailed without any important intermission over the British Islands, France, and the North Sea, a wide "ridge" lying over us day after day, having its origin in the large Continental anticyclone already referred to. Cold, gloomy, foggy weather was continuously prevalent, but as a rule the air was dry and the wind Easterly (North-east to South-east). The coldest days of all over England were the 25th and 26th, at which time the anticyclone occupied a high northerly position, and the winds over England were light, and North-easterly to Northerly in direction. At the close of the month pressure was beginning to give way decidedly on our south-western coasts, where the wind was rising from the South-eastward, with a heavy fall of cold rain, and a generally rough appearance of the sky.

The Continental reports showed that during this period pressure was continuously very high over Russia, the Gulf of Bothnia, and the northern parts of Scandinavia, and (relatively)

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



low over Spain and the adjacent parts of the Atlantic. This distribution of pressure accounts for the persistency of the Easterly wind throughout the interval, and for the steadiness with which temperature remained below its normal level in all parts of Europe, and especially so over Russia. In northern Russia the barometer stood at above 30·9 inches until the 23rd, after which the anticyclone centre moved north-westwards to Lapland, and the system became rather less high. On the 27th the central part lay over Scandinavia and the Baltic, and a large, well-formed, but not deep depression, was formed over the Mediterranean.



## SECTION II. - - - - -

TABLE OF CYCLONIC SYSTEMS.—FEBRUARY 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XIII. January 31-February 2.	No. XIV. February 3.	No. XV. February 5-6.
<b>Form</b> - - - -	About oval - - - -	Elongated. Major axis lying from north-west to south-east.	Somewhat oval - - - -
<b>Size</b> - - - -	Large - - - -	Moderate - - - -	Small - - - -
<b>Depth</b> - - - -	Moderate; but pressure at centre was as low as 28.5 inches.	Shallow - - - -	Shallow - - - -
<b>Where first Observed</b> - -	Off the north of Scotland - -	Over Wales and the north-west of England.	South of Ireland - - - -
<b>Direction of Motion</b> - -	East-south-easterly till morning of 1st, then northerly and easterly.	South-easterly - - - -	South-easterly and south-south-easterly.
<b>Rate of Motion</b> - - - -	Moderate to very slow - - - -	Moderate - - - -	Rapid - - - -
<b>Regions passed over by Steepest Gradients.</b>	British Isles, North Sea, and Denmark	The western and south-western parts of our Islands.	South-west of our Islands and Bay of Biscay.
<b>Termination</b> - - - -	Dispersed a little to the northward of Christiania.	Passed away out of our area towards Switzerland and Italy.	Passed away to the Mediterranean -
<b>Time under Observation</b> -	About three days - - - -	One day - - - -	One day - - - -
<b>Accompanying Winds</b> - -	South-west to North-west, strong; a gale in places.	Strong North-westerly to Northerly on its western side, light South-easterly to North-easterly in the east.	South-easterly and Southerly on its eastern side; North-westerly and Northerly on its western side.
" <b>Weather</b> - - - -	Showery and squally - - - -	Showery in west and south; cold generally.	Rainy in west, followed by snow; fair in east. Temperature unsteady, but low.
" <b>Rainfall</b> - - - -	Slight, but general. Hail and sleet in many places.	Slight, mingled with snow - -	Heavy at several south-western stations.
<b>REMARKS</b> - - - -	This depression arrived while pressure was highest over southern Europe. Though large its gradients were not very steep till its centre reached the south of Norway, when they became very steep over Denmark and Holstein.	This depression appeared to be subsidiary to the preceding disturbance, and to a very extensive hollow, which at 8 a.m. on the 3rd covered the whole of Scandinavia, the North Sea, the Baltic, and Germany, separating a high-pressure area over Russia from another lying over the Atlantic to the south-westward of the Bay of Biscay.	This disturbance was apparently formed in the southern extremity of a long narrow hollow, which at 6 p.m. on the 5th lay over Ireland and the Hebrides. In its rear the eastern end of an anticyclonic area (see No. III.) appeared for a time off our south-western coasts, but soon disappeared again.



SECTION II.—*continued.*

## TABLE OF CYCLONIC SYSTEMS.—FEBRUARY 1886.

No. XVI. February 7-8.	No. XVII. February 12.	No. XVIII. February 13-14.
Uncertain; apparently nearly circular - -	Uncertain; apparently circular - - -	Irregular.
Moderate - - - - -	Small - - - - -	Small.
Shallow - - - - -	Shallow - - - - -	Shallow.
Off the north-west of Scotland - - -	Off the north-west of Scotland - - -	Off the west of Ireland.
North-easterly - - - - -	North-easterly - - - - -	North-easterly.
Apparently rapid - - - - -	Apparently rapid - - - - -	Rapid to very slow.
Our north-western districts - - - -	Our north-western districts - - - -	Our western and north-western districts.
Passed north-eastwards outside the Norwegian coast.	Travelled away to the northward - - -	Passed slowly away to northward, or else filled up when lying to northward of Scotland.
About one day - - - - -	Less than one day - - - - -	Two days.
South-westerly, fresh to a gale, in north-west and north.	South-westerly; moderate to fresh in north-west -	Southerly and South-westerly; fresh to strong in west; light in east.
Mild and showery in the west and north-west; very cold in the anticyclonic ridge over England.	Slight rain in north-west; warmer weather generally than had previously been prevalent.	Showery; much milder than of late.
Slight; none over our eastern and southern counties.	Very slight and local.	General; heavy in Wales.
This depression advanced when a high anticyclone (maximum readings about 30·8 inches) lay over the Gulf of Bothnia and Finland, whence a ridge extended south-westwards across the North Sea, England, and the north of France.	This depression advanced when pressure was high over the Baltic, Germany, and France, and lowest off our north-western coasts. Its centre passed along at too great a distance from our coasts for its movement to be shown on Map 2 Plate IV. Though small it moved very quickly, and its effects on our winds and temperature were decided. It had an elongated subsidiary hollow which lay over our western and northern districts at 6 p.m. 12th, and passed northwards with the main system without affecting our weather much.	This system followed closely on No. XVII. and was very irregular in form. Its gradients were steepest on its eastern side, when its centre lay off the north of Scotland. Its subsidiary XVIIIa. was well marked.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS, FEBRUARY 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. III. February 4-6.	No. IV. February 10-12.	NOTES.
Form - - - - -	Varying - - - - -	Oval.	
Size - - - - -	Small - - - - -	Small.	
Height - - - - -	Slight. Maximum readings 30.2 ins. to 30.3 ins.	Slight. Maximum readings 30.5 ins. and upwards.	
Where first observed - - -	Off the west of Ireland - - -	Over our south-west coasts and the mouth of the Channel.	
Direction of Motion - - -	Easterly at first, then Southerly - - -	Southwards.	Two very small maxima appeared over Great Britain on the 22nd, one over Scotland and the other over Devon and Cornwall. They were too small and unimportant for their characteristics to be tabulated here, but their effect intensifying the cold locally was very decided.
Rate of Motion - - - - -	Moderate - - - - -	Slow.	
Regions passed over - - -	British Isles generally - - -	South-west of England, Bay of Biscay, and France.	
Termination - - - - -	Finally united with a large anticyclone over the Continent.	Dispersed over France.	
Accompanying Wind - - -	Light and variable - - -	Very light and varying.	
„ Weather - - - - -	Very cold, dry, and foggy - - -	Very cold, but dry and foggy.	
REMARKS - - - - -	This system finally formed a "ridge" to the Continental anticyclone mentioned above, and in that form lay over our Islands almost continuously till the end of the month.		This small system was formed in the western part of the "ridge" referred to in the preceding column.



## SECTION III.

## REMARKS FOR FEBRUARY 1886.

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

*Pressure.*—The mean pressure for the month at 8 a.m. varied from 30·14 inches at Oxford and Cambridge, to about 29·99 inches at Belmullet and Stornoway, showing an increase since January amounting to more than half an inch in the far north, to 0·3 in. at Valencia, and 0·4 in. to 0·5 in. over England. Compared with the average values for February, in the 20 years 1861–80, it appears that pressure this month was in excess by amounts varying from 0·17 in. over our south Midland counties and Ireland, to about 0·25 in. in the north-west of Scotland, and to 0·33 in. at Sumburgh Head. The gradients were, therefore, slighter, and favourable for winds from a more Southerly point than is usual for this period. Over the south-eastern and southern parts of England gradients for Easterly winds are shown, and the winds reported agree with these conditions. (See Plate III.) The highest readings were observed over Ireland and England on the 8th, at which time the anticyclone No. III. lay over north Germany, France, and the southern parts of our Islands. On this occasion the barometer rose to about 30·8 inches over our south-eastern counties. In Scotland, however, the highest readings were registered on the 23rd, when the large Continental anticyclone extended westwards from Norway, and the barometer rose to above 30·4 inches at the Scotch stations. The lowest readings were recorded very generally on the 1st, at which time the barometer was rising slowly from the very low level recorded with the cyclonic system No. XIII., and the readings at 8 a.m. varied from a little above 29·5 inches on the south-western coast of Ireland to 28·8 inches at Wick, and to 28·6 inches in the south of Norway. The range for the month was consequently rather large in the north, varying from about 1·8 inches over the northern parts of Scotland to 1·6 inches over our south-eastern counties, and to about 1·2 ins. over the south-western parts of our Islands.

*Movements of Depressions.*—The depressions observed were few in number, and, so far as depth is concerned, were, as a rule, comparatively unimportant. Two of them moved in a north-easterly direction outside our extreme north-western coasts, but the remainder travelled in a south-easterly direction, the centre of one (No. XIV.) passing right across the north of Ireland and midland parts of England, while another, after travelling across Kerry, moved in a rather more southerly direction across the mouth of the Channel to the Bay of Biscay. On the 16th pressure became low over the Bay of Biscay, but no definite depression appeared.

*Anticyclones.*—Although the distribution of pressure over our Islands during February was almost continuously anticyclonic, there was only one definite system of which the centre passed over the United Kingdom or its immediate neighbourhood. The prevalent form during the month was that of a ridge extending westwards over our Islands from a large anticyclone lying over Russia and northern Europe.

*Winds.*—These were mainly Easterly and North-easterly at our south-western, southern, and eastern stations, but over the more northern and north-western districts the prevalent winds were Southerly (South-east to South-west). They were, as a rule, moderate in force. There were no gales at all over the greater part of England, and very few at our western stations, excepting Mullaghmore, where the depression which passed outside our extreme north-western and northern coasts caused occasional gales from the South-westward and Southward.



*Temperature.*—The mean (sea-level) temperature of the air varied from a little above  $43^{\circ}$  at Valencia and Scilly, to about  $38^{\circ}$  over the northern parts of central Ireland, to somewhat below  $35^{\circ}$  over the inland parts of Scotland and the north of England, and to between  $33^{\circ}$  and  $34^{\circ}$  over our eastern counties. These values, when compared with those for January, show a slight increase at the Irish and Scotch stations, but a decrease over England, amounting to about  $3^{\circ}$  over the eastern counties and Fen districts. They are also very low for the time of year, being below the averages for the corresponding month during the 20 years 1861–80 by  $3^{\circ}$  over central Ireland, by about  $5^{\circ}$  over Scotland, and by  $8^{\circ}$  or  $9^{\circ}$  over the eastern counties of England, where the cold was sharpest. The winter type of distribution was very strongly marked, the thermometric gradient being especially steep over Wales, Cornwall, Devonshire, and Dorsetshire. The highest readings recorded during the month were registered in most places between the 12th and 15th (chiefly on the 13th), during the temporary period of Southerly winds which accompanied the spreading depression of that date. (See Section I.). On this occasion the thermometer rose to about  $50^{\circ}$  in many parts of England, and to  $54^{\circ}$  in the west of Ireland. The lowest readings occurred on very various dates; in the extreme north and north-west they were recorded either between the 3rd and 5th (when the anticyclone No. III. was advancing eastwards over the kingdom), or between the 25th and 27th (when the large Continental anticyclone lay over northern Europe and its North-easterly winds affected us). Over England, however, the sharpest cold seems to have been experienced about the 10th, when in the anticyclonic ridge then lying over the southern parts of the kingdom there appeared temporarily a small subsidiary system (No. IV.) over our south-western districts. In most places the minimum was not very low, but at Rothamsted it was reported to be as low as  $14^{\circ}$ , at Glasgow and Newton Reigny  $15^{\circ}$ , at Wick  $16^{\circ}$ , at Hawes  $18^{\circ}$ , and at Leith and Cambridge  $19^{\circ}$ . As, however, the maxima also were low generally, the range for the month was small, especially at Scilly, where it did not exceed  $16^{\circ}$ .

*Rainfall.*—The amounts reported varied from 5·6 inches at Valencia, and upwards of 4 inches at Roche's Point and Killarney, to less than half an inch over the greater part of our eastern and Midland counties. The fall was therefore very much below the average everywhere, and consisted largely of slight showers of dry snow. The number of days on which these falls occurred, however, were more numerous in the west and north than might have been anticipated, there having been more or less precipitation on 20 out of the 28 days at Aberdeen, on 22 at Sumburgh Head and Belmullet, and on 23 at Valencia. Over the central and south-eastern parts of England the number of "days with rain" varied from 7 to 10.

*Vapour Tension* was low, the mean values ranging from between 0·16 inch and 0·18 inch over the greater part of England and Scotland, to 0·19 inch over central Ireland, while it was 0·21 inch at Jersey, Malin Head, and Belmullet, 0·23 inch at Scilly, and 0·24 inch at Valencia. *Relative Humidity* was highest (88 to 93 per cent.) over the inland parts of England and Ireland, and lowest (83 per cent.) at Nairn.

*Bright Sunshine.*—The amount of bright sunshine recorded was, as a rule, much larger at the coast and insular stations than it was inland. Assuming that the total amount which could be possibly recorded at each station is represented by 100, then the values actually registered during February were 7 in London, 13 at Glasgow and Leicester, 16 to 20 over the inland parts of England and Ireland generally, 20 on our south coast, 23 at Durham, Valencia, Dublin, and Hillington, 26 at Jersey, 27 at Aberdeen, and 35 at Stornoway. The lowness of the values at our inland stations is accounted for by the great prevalence of fog during this month.



# SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS,

DURING THE MONTH OF FEBRUARY 1886.



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. 30°029	30°6	32°3	39°9	36°1	25	26th	46	9th
	Wick	30°043	35°1	30°7	40°1	35°4	16	25th	48	8th
	Stornoway	29°995	35°9	31°3	42°4	36°9	23	3rd	50	8th
1. SCOTLAND, E.	Nairn	30°034	33°6	29°0	41°3	35°2	18	5th, 6th	55	8th
	Aberdeen	30°071	34°0	30°2	40°0	35°1	23	6th	50	8th
	Leith	30°075	34°4	30°4	40°5	35°5	19	5th	50	8th, 13th
2. ENGLAND, N.E.	Shields	30°101	34°3	31°0	39°8	35°4	25	26th	46	8th, 9th, 10th, 12th, 13th.
	York	30°127	33°0	30°5	38°9	34°7	25	27th	48	12th
	Spurn Head	30°099	34°1	31°4	37°4	34°4	27	9th, 10th	42	15th
3. ENGLAND, E.	Yarmouth	30°120	33°2	30°4	35°8	33°1	24	10th	41	14th
	Cambridge	30°140	31°2	27°0	38°6	32°8	19	10th	46	13th
4. MIDLAND COUNTIES	Loughborough	30°132	32°0	29°6	39°4	34°5	23	15th	50	13th
	Oxford	30°139	32°0	30°2	38°1	34°2	23	10th	49	13th
5. ENGLAND, S.	London	30°129	33°0	30°5	38°4	34°5	22	9th, 10th	49	13th
	Dungeness	30°096	34°4	31°4	39°3	35°4	24	10th, 27th, 28th	50	15th
	Hurst Castle	30°115	34°8	31°4	41°6	36°5	23	10th	49	13th
6. SCOTLAND, W.	Ardrossan	30°073	35°8	32°7	40°8	36°8	25	4th	46	10th
7. ENGLAND, N.W.	Hawes Junction*	28°826	29°6	25°9	34°1	30°0	18	27th	41	13th
	Barrow-in-Furness	30°105	34°3	32°1	39°1	35°6	27	5th, 6th, 26th	46	13th
	Liverpool (Bidston)	30°109	33°9	32°1	39°9	36°0	27	24th	49	13th
	Holyhead	30°091	37°4	34°5	41°6	38°1	25	5th	46	13th, 21st
8. ENGLAND, S.W.	Pembroke	30°102	37°8	35°6	41°9	38°8	31	26th	46	5th, 9th, 11th, 13th.
	Prawle Point	30°107	37°0	33°5	42°3	37°9	29	5th, 6th, 10th	50	14th
9. IRELAND, N.	Malin Head	30°022	38°2	35°4	43°3	39°4	30	25th, 27th	51	8th
	Donaghadee	30°077	37°1	33°8	42°0	37°9	27	5th	48	8th, 12th
	Mullaghmore	30°024	39°1	35°6	44°3	40°0	28	4th	54	8th
	Belmullet	29°991	39°3	36°2	44°7	40°5	30	25th, 26th	50	7th
10. IRELAND, S.	Parsonstown	30°073	36°6	32°5	44°0	38°3	24	5th	54	8th
	Valencia	30°056	42°3	39°1	48°1	43°6	31	26th	54	13th
	Roche's Point	30°056	41°4	38°0	46°9	42°5	31	5th	51	21st, 27th
CHANNEL ISLANDS	Scilly (St. Mary's)	30°071	42°9	39°8	46°1	43°0	36	10th, 26th, 27th	52	12th
	Jersey (Noirmont)	30°088	38°4	36°1	41°4	38°8	28	9th	47	1st, 3rd

\* 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 1886.

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.								
			No. of Days of			Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.								North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	°/100	°/100	ins.	in.																	
0.186	86	6.9	2.09	0.55	13th	22	9	0	0	4	10	2	5	1	1	6	6	4	1	1	3
181	88	6.6	1.71	0.37	13th	17	7	3	0	2	10	1	1	0	2	3	12	3	0	7	0
196	93	5.8	2.60	0.68	13th	17	6	2	0	11	12	3	2	0	5	5	7	4	3	2	0
160	83	4.8	1.08	0.54	13th	10	6	0	0	8	5	0	0	0	3	4	4	11	2	0	4
170	86	6.3	1.98	0.27	13th	20	15	7	0	7	12	2	1	1	2	4	6	7	2	4	1
185	93	7.5	1.18	0.31	13th	12	10	1	0	2	13	0	3	1	1	6	1	4	8	3	1
180	90	7.6	1.20	0.24	25th	13	10	1	0	5	18	0	0	2	5	1	5	8	5	2	0
175	93	8.0	0.96	0.33	18th	16	5	0	0	3	19	0	7	3	7	2	7	0	2	0	0
181	91	6.3	0.69	0.26	1st	16	7	1	0	5	8	0	2	4	4	3	5	2	3	4	1
169	89	6.8	0.51	0.14	14th	14	9	4	0	3	11	0	3	4	8	2	3	1	2	4	1
155	89	7.8	0.31	0.10	14th	9	4	0	0	5	19	0	10	5	2	0	4	1	1	1	4
165	91	8.6	0.32	0.10	13th	10	10	2	0	1	19	0	2	5	5	5	2	1	3	3	2
160	88	7.5	0.71	0.18	2nd	9	4	0	0	6	18	0	3	10	1	2	4	1	2	0	5
169	90	8.8	0.54	0.21	2nd	9	4	2	0	1	21	0	1	6	7	1	3	1	2	2	5
193	97	78.1	0.68	0.26	3rd	7	2	0	0	2	16	0	5	7	8	2	0	3	1	1	1
186	92	6.4	0.52	0.15	14th	9	0	0	0	3	3	0	1	14	6	0	1	3	1	2	0
195	93	7.2	1.11	0.44	13th	12	5	0	0	5	15	1	0	11	5	0	6	2	1	2	1
156	95	7.4	1.61	0.62	13th	9	8	0	0	5	16	0	0	1	10	2	5	2	1	1	6
186	93	7.1	1.70	0.49	20th	13	3	0	0	5	16	0	0	13	4	6	2	0	0	3	0
169	86	6.9	1.06	0.21	13th	16	2	0	0	7	15	1	0	3	7	12	1	1	3	1	0
211	94	8.0	2.47	0.97	13th	15	1	0	0	2	17	1	0	3	6	3	8	2	3	2	1
205	91	7.5	2.81	0.75	13th	13	4	0	0	2	11	3	0	7	6	6	4	1	0	4	0
193	88	7.3	0.72	0.19	28th	12	0	0	0	4	13	2	4	10	6	1	1	1	1	4	0
210	92	7.9	2.10	0.34	6th	19	4	3	0	4	18	0	2	2	3	5	9	4	1	2	0
207	94	5.9	1.58	0.44	13th	19	3	0	0	6	9	1	2	0	5	4	4	8	5	0	0
209	88	6.6	2.57	0.52	12th	15	0	1	0	6	8	7	0	2	5	4	5	5	3	3	1
211	88	6.5	3.90	0.83	12th	22	1	1	0	6	11	4	0	2	5	6	6	4	4	1	0
196	91	7.9	1.88	0.53	5th	13	1	0	0	4	18	0	0	0	1	6	3	0	2	0	16
243	91	8.1	5.60	0.76	21st	23	0	0	0	2	18	2	1	5	5	6	3	1	2	2	3
220	88	7.4	4.40	1.05	28th	18	0	0	0	3	14	3	4	3	5	2	5	7	2	2	0
231	84	8.9	2.17	0.47	28th	19	0	0	0	0	19	4	2	3	9	4	4	2	2	2	0
208	90	8.4	1.31	0.37	28th	14	0	1	0	1	18	2	1	11	6	3	2	2	2	1	0

barometric readings 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 1886.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				No. of Rainy Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Duration.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STERNOWAY -	*	*	*	*	*	*	*	*	*	*	*	91	35
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	70	27
ALNWICK CASTLE -	30'6	38'3	34'5	20	19th	44	10th, 11th, 12th, 13th.	12	1'03	0'30	22nd	—	—
DURHAM -	28'8	39'2	34'0	20	20th	47	10th	15	0'90	0'17	22nd	61	23
SCARBOROUGH -	32'3	38'6	35'5	28	24th	46	15th	16	1'04	0'15	1st	—	—
YORK -	*	*	*	*	*	*	*	*	*	*	*	47	18
HILLINGTON -	28'7	37'9	33'3	22	7th	45	13th, 26th	16	0'50	0'13	14th	63	23
GELDESTON -	29'7	37'8	33'8	20	10th	46	13th	10	0'35	0'15	14th	52	19
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	48	18
ROTHAMSTED -	28'1	34'4	31'3	24	9th	44	2nd	12	0'57	0'19	2nd	—	—
BAWTREY -	29'6	39'4	34'5	23	15th, 27th	48	13th	12	0'56	0'22	19th	47	17
LEICESTER -	30'2	38'8	34'5	24	24th	49	13th	7	0'31	0'10	15th	35	13
CHEADLE -	29'3	37'2	33'3	24	7th, 24th	46	13th	12	0'85	0'15	13th	—	—
CHURCHSTOKE -	29'0	39'2	34'1	21	5th, 15th	48	12th	13	1'23	0'35	28th	56	21
HEREFORD -	29'3	40'7	35'0	22	15th	52	12th	10	1'15	0'43	28th	—	—
CIRENCESTER -	28'9	37'3	33'1	21	10th	46	13th	7	0'81	0'22	28th	54	20
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	45	16
LONDON -	*	*	*	*	*	*	*	*	*	*	*	18	7
STRATHFIELD TURGISS -	28'7	38'4	33'6	18	10th	50	13th	7	0'60	0'27	3rd	—	—
HASTINGS -	31'6	38'0	34'8	25	9th	46	2nd	11	0'53	0'15	3rd	55	20
SOUTHAMPTON -	31'3	41'3	36'3	23	10th	50	13th	7	0'69	0'24	28th	55	20
STOWELL -	29'6	38'4	34'0	22	10th	47	12th, 13th	12	0'68	0'18	13th	—	—
LAUDALE -	32'2	41'2	36'7	20	4th	50	8th, 9th	14	3'95	1'07	12th	—	—
GLASGOW -	31'4	38'7	35'1	15	5th	50	8th	15	1'75	0'46	13th	33	13
DOUGLAS -	34'3	41'5	37'9	25	5th	47	13th.	14	2'21	0'47	22nd	44	16
NEWTON REIGNY -	27'8	37'9	32'9	15	4th, 5th	46	13th	9	1'09	0'32	13th	49	18
STONYHURST -	30'6	39'0	34'8	24	5th, 24th, 26th	48	13th	13	1'21	0'28	20th	49	18
BLACKPOOL -	31'0	39'0	35'0	23	5th, 26th	48	13th	13	1'18	0'33	20th	44	16
MANCHESTER -	31'5	38'6	35'1	25	24th, 26th	47	12th, 13th	14	0'89	0'19	13th	—	—
LLANDUDNO -	33'4	42'1	37'8	25	26th	50	12th	11	1'71	0'85	13th	55	20
LLANDOVERY -	28'8	41'5	35'2	20	4th	51	13th	14	1'69	0'56	13th	—	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	*	46	17
ARLINGTON -	29'8	40'1	35'0	24	5th, 10th	47	13th	12	1'18	0'25	11th	—	—
CULLOMPTON -	29'6	40'8	35'2	23	10th	49	10th	13	1'32	0'44	28th	50	18
FALMOUTH -	36'8	43'3	40'1	31	26th	49	12th, 13th	17	2'48	0'95	28th	43	16
PLYMOUTH -	32'6	43'1	37'9	25	5th	48	12th, 13th	12	1'29	0'66	28th	50	18
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	72	26
LONDONDERRY -	33'3	44'4	38'9	26	4th	55	10th	14	2'60	0'37	21st	—	—
MARKREE CASTLE -	30'9	43'2	37'1	21	25th	51	8th	19	2'74	0'56	6th	56	21
BROOKBOROUGH -	31'9	43'0	37'5	23	4th	51	10th	11	2'79	0'61	13th	—	—
ARMAGH -	33'2	42'6	37'9	26	4th	52	10th	16	1'95	0'42	13th	47	18
EDGEWORTHSTOWN -	31'8	42'4	37'1	24	5th, 25th	51	8th, 12th	12	3'01	0'82	6th	—	—
DUBLIN -	35'4	43'9	39'7	27	5th	53	8th	15	1'98	0'52	28th	63	23
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	49	18
KILKENNY CASTLE -	33'9	43'8	38'9	24	5th	53	12th	16	3'02	0'62	22nd	—	—
WATERFORD -	35'8	43'8	39'8	22	5th	50	10th, 11th	18	3'72	0'78	22nd	—	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	63	23
KILLARNEY -	35'9	46'5	41'2	25	15th	56	8th	19	4'32	0'59	26th	—	—

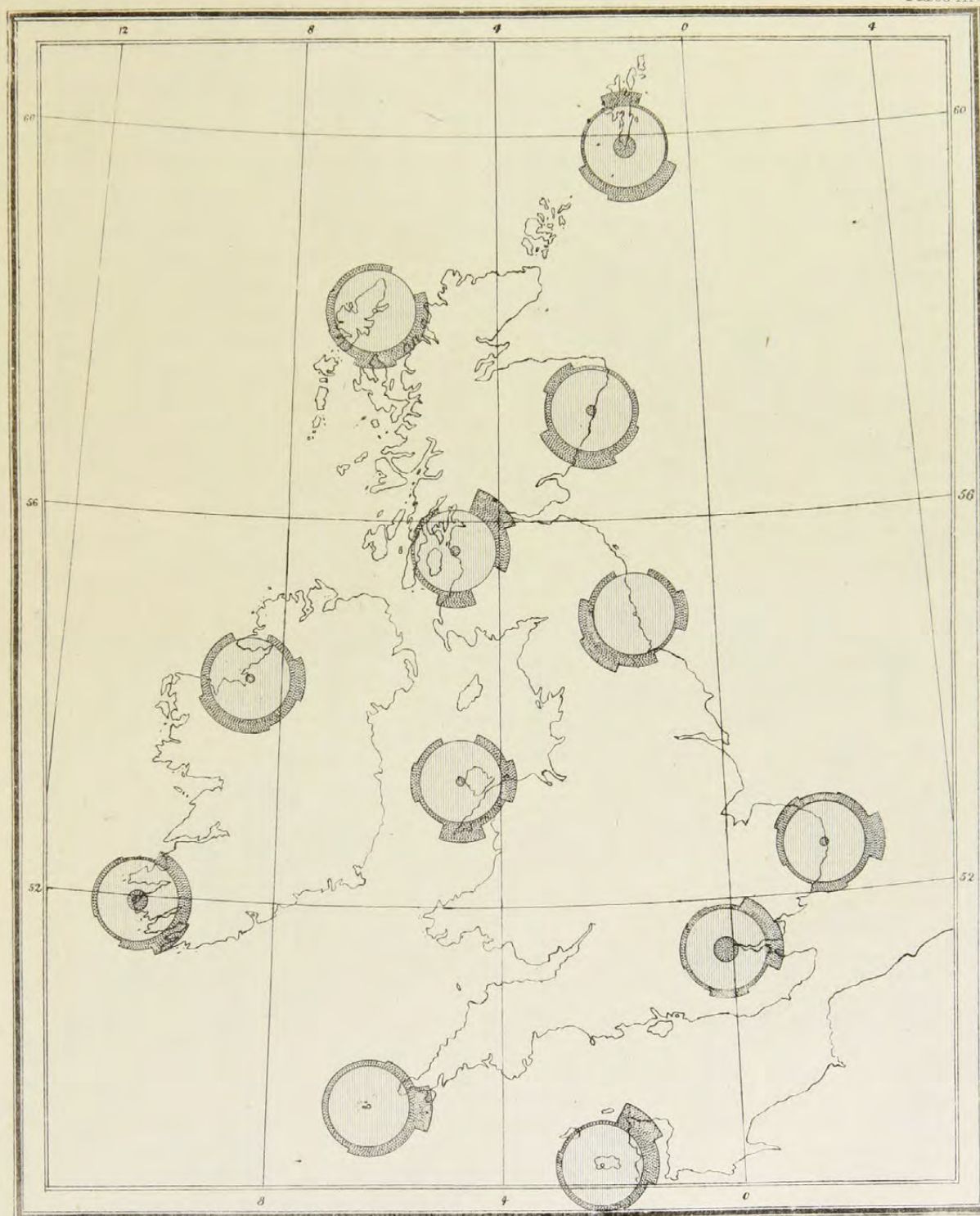
\* For information see Table III.

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



# MONTHLY WIND CHART FOR FEBRUARY 1886.

Plate III.



To face p. 36.

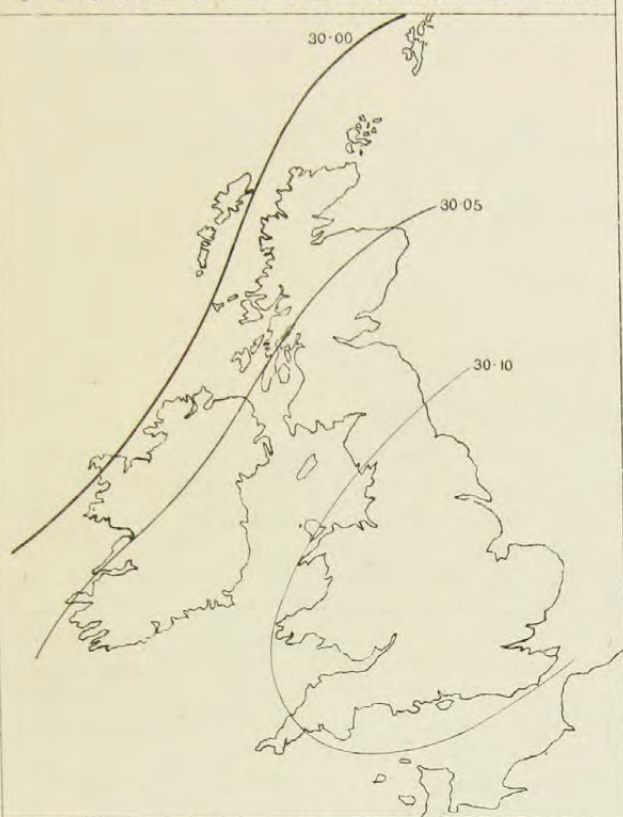
DANGERFIELD LITH. 22 BEDFORD ST. COVENT GARDEN 11975



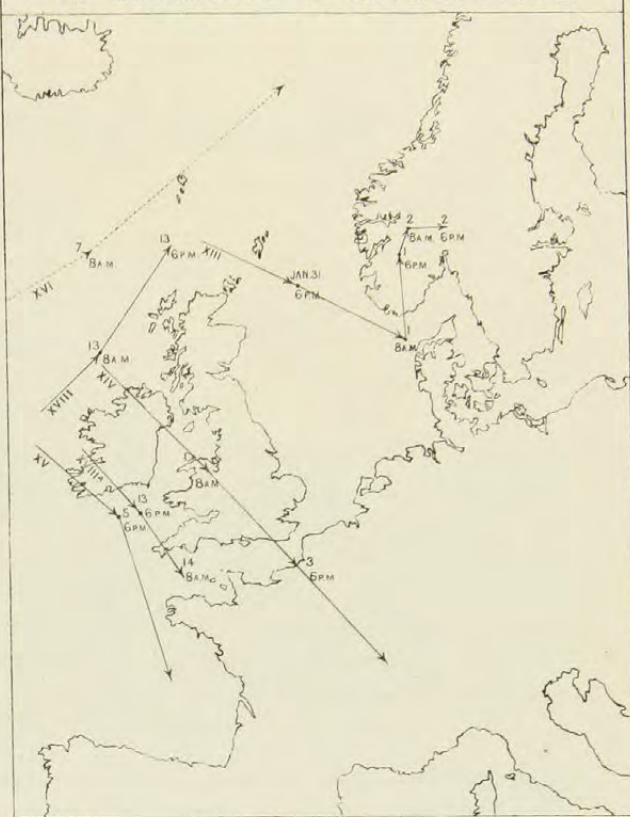




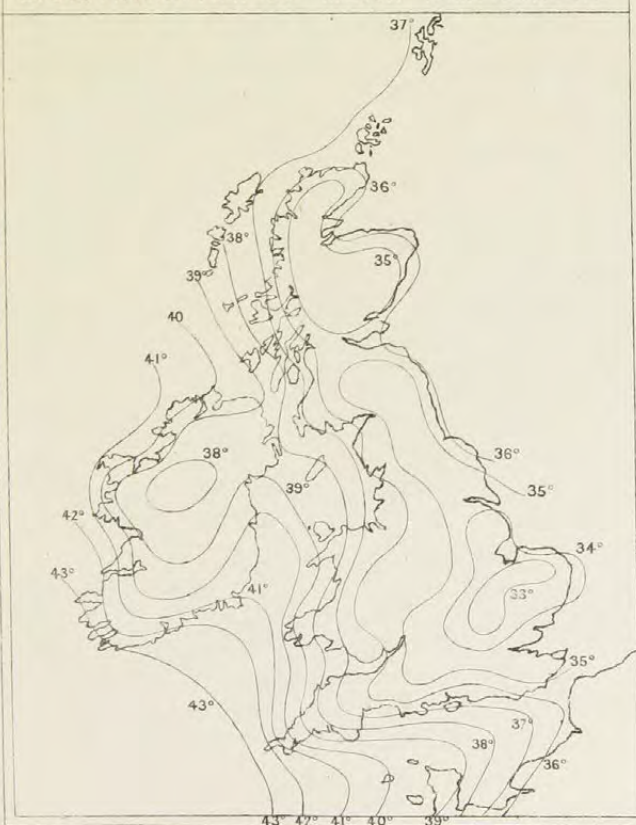
## 1. DISTRIBUTION OF MEAN PRESSURE



## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL









# MONTHLY WEATHER REPORT.

MARCH 1886.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of March was of two distinct kinds, one (from the 1st to the 17th) marked by cold wintry features, accompanied, for the greater part, by dry Easterly winds, but occasionally by heavy falls of snow and sharp frost; the other (from the 18th to the 31st), mild and almost springlike, in which the dominant winds were Southerly and South-westerly, the temperature high, the air mild and soft, and the rainfall large. The change from the one period to the other was exceptionally well defined, but the mean results of the two periods of extreme weather show that, taken as a whole, pressure was rather in excess of the average conditions for March, temperature slightly in defect, the winds more easterly than usual, and the rainfall in excess at many of the western stations, but in defect in the north of Scotland and the south of Ireland, as well as in some localities over England.

March 1-6.—This was a period of changeable but cold weather, during which the dominant pressure systems were cyclonic, but the type of distribution variable (on the night of the 1st, the lowest temperature of the whole winter  $2^{\circ} \cdot 7$  F. was recorded at Vienna. Two well developed cyclonic areas passed over us from west to east, the centre of one (No. XIX.\*) advancing immediately over the central parts of England, while the other (No. XX.\*) took a more southerly track, and travelling south-eastwards across France on the 5th, passed away over Italy and the Adriatic, and disappeared entirely from Europe during the 7th. The alternations of weather and the variations in the direction and force of the wind during this interval were therefore very great. The thermometer rose as the Southerly winds in front of the first disturbance set in; but as its centre advanced the wind backed into East and North-east on the northern side of its track, with a falling thermometer; large quantities of snow fell over all the north-western and northern parts of the kingdom, doing much damage, while in the south the wind veered round through North-west to North, and, after much rain and snow, the sky cleared, the wind lulled, and sharp frost set in. By 8 a.m. on the 4th the centre of the earlier system had passed out of our area to the eastward, but at evening of the same day there were indications of the advance of the new disturbance in the south-west. The wind drew round to South-east and East, except in the north, and, with a temporary rise of the thermometer rain again set in over our south-western districts and France, subsequently changing to sleet and snow as the centre advanced towards the Channel Islands, after which the wind backed round to North, a steady frost set in, the temperature on the night of the 6th falling as low as  $16^{\circ}$  at Loughborough and  $7^{\circ}$  at Upper Tean in Staffordshire. (No. VI., p. 32) came over the United Kingdom from the westward.

Over the eastern and central parts of the continent the distribution of pressure during this time was at first anticyclonic, and the weather very cold and dry. As, however, the first of the two depressions mentioned above advanced, the anticyclone moved away in an easterly direction, and milder, but much less settled weather spread over Germany and the western

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



parts of Russia, with Westerly and varying winds. The second depression, however, on reaching southern Europe brought about a North-easterly breeze over North Germany, and the frost again increased in intensity, especially over Finland and Northern Russia.

March 7-17.—The distribution of pressure now became anticyclonic, the system advancing over our Islands and the North Sea from the westward, increasing both in size and height as it did so, and bringing with it very cold weather. By the 8th its centre lay over the North Sea, and on the following morning it had reached Holstein. For a time the barometer fell at our western stations, and there is evidence that at least one large depression passed northwards outside our western coasts, at such a distance from our Islands that its movements cannot be shown on Map 2, Plate VI. The wind consequently rose to a strong gale from South-east in the west (see Charts in the Daily and Weekly Weather Reports for the 9th), but while the 8 a.m. temperatures increased to a little above  $40^{\circ}$  on our extreme south-western coasts they decreased over England, where a steady frost set in with dry weather. On the 10th the low-pressure systems in the far west were evidently passing away, the anticyclone in the east took up a more northerly position, and spread gradually to the westward over the whole of the United Kingdom. The wind became more Easterly, and blew very freshly, temperature remained low, and the air was exceedingly dry. It is remarkable how little change of importance there was over North-western Europe from this time until the 15th, beyond a daily fall of sleet in the north-east. Then, however, with the appearance of the north-eastern portion of a cyclonic system at a great distance outside our extreme south-western coasts, and an easterly movement of the anticyclone in the north, the wind began to veer a little in the south of Ireland, and to increase in force, while sleet and snow showers became rather more general, but the frost still held. On the 16th pressure varied from 30·7 inches and upwards over the Gulf of Bothnia, to somewhat below 29·8 inches over the Bay of Biscay; the winds had backed to north-east, and frost still prevailed over the United Kingdom. A more permanent change, however, soon set in, for on the 17th the barometer began to fall decidedly in the west, while the anticyclone in the north moved south-eastwards, and the wind began to veer round towards South-east over our western districts, and increase greatly in force, with sleet, rain and an unsettled appearance.

Throughout nearly the whole of this period frost and dry Easterly winds prevailed over the Continent, with anticyclonic conditions and slight gradients. It was not until the 14th that any cyclonic system appeared, but at 8 a.m. on that date a shallow one showed itself near Toulon, and spreading thence in a northerly and easterly direction covered northern Italy, Switzerland, and Austria by 8 a.m. on the 16th, and produced snow very generally over Central Europe, with some recovery of temperature. This system, however, subsequently moved south-eastwards to Turkey, and it was left to the Atlantic depressions mentioned below to bring in the South-westerly winds, and mild rain, which for a time closed the long winter over Western Europe.

March 18-19.—The weather of this period was transitional, for, while the anticyclone over Scandinavia began to move in a south-easterly direction, some large and apparently deep depressions arrived off our western coasts, and moving northwards caused the wind to veer to the Southward very generally, and to blow strongly in the west (see cyclonic system No. XXI.\*). Temperature consequently rose very decidedly, first at the western and north-western stations, and afterwards in the east. The frost disappeared rapidly, and instead of the harsh, dry, Easterly winds so prevalent during this winter, mild soft breezes from South-east and South were experienced very generally, with rain at all but the eastern stations. The amount of rainfall, however, was small everywhere, when considered in connexion with the completeness of the change of weather which had occurred.

March 20-25.—During this period the distribution of pressure was partly cyclonic and partly anticyclonic, the gradients were moderate, and favourable for Southerly winds, which prevailed very generally, and at times blew hard in the extreme west. No depression

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



of importance came within our area during this period, but some such systems were evidently passing in a northerly direction far outside the west of Ireland, their passage being marked by a decided increase in the strength of the Southerly wind at our western stations, together with slight variations of pressure and wind-direction. The air during this interval was warm, the daily maxima frequently rising above  $60^{\circ}$ , and on one occasion reaching  $65^{\circ}$  in some parts of Great Britain. The weather was very showery, over all the western districts, and at times in the east also.

From the 18th to the 20th pressure remained high over the Continent, and the weather was quiet. Over Russia and the Baltic the air was very cold, but the weather fair. On the 21st and 22nd, however, owing to a very shallow disturbance over Russia, the air became a little milder and the weather unsettled, while Westerly winds set in over Germany, but by the 23rd the Continental anticyclone had been re-formed, and the cold again became severe.

March 26-31.—The distribution of pressure over our Islands now became more decidedly cyclonic, and the type of gradient favourable for the prevalence of South-westerly to Westerly winds. The wind consequently veered very generally, with some fall of temperature and depressions (Nos. XXIII. to XXV.\*) soon appeared in the north-west and west, causing gales in most places, but especially in the west and north. Rain became heavier and more general than it had been previously, and the clouds were heavy. The first of these depressions developed a well-marked subsidiary disturbance over Ireland (see Map for 8 a.m., 27th), and a "hollow" over the western and south-western parts of England and afterwards over the North Sea. These, however, filled up, and there followed the two important depressions (Nos. XXIV. and XXV.), which travelled north-eastwards with great rapidity over the north-western and northern parts of our Islands, causing South-westerly and Westerly gales and rain in all parts of the kingdom (exceptionally severe in the north-west of Ireland) and hail in some places. As the month closed these disturbances were passing away, but the barometer remained high in the south and low in the north, the gradients were steep, and the general appearance of the sky very unsettled.

Over the Continent during this period the large anticyclone moved slowly to the south-eastward, and as the South-westerly current of wind spread eastwards over northern Europe the thermometer rose, and the frost disappeared entirely from Europe. On the morning of the 31st temperature varied from nearly  $60^{\circ}$  in the south-west of France and from between  $40^{\circ}$  and  $50^{\circ}$  over England and the north of France and North Germany, to about  $35^{\circ}$  over Finland and Russia.

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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 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XIX. March 1-3.	No. XX. March 5-6.	No. XXI. March 16.
<b>Form</b> . . . .	Nearly circular . . . .	Oval at first, then less regular . .	Irregular oval . . . .
<b>Size</b> . . . .	Large . . . .	Moderate . . . .	Large . . . .
<b>Depth</b> . . . .	Moderate . . . .	Shallow . . . .	Very shallow . . . .
<b>Where first Observed</b> . .	Off the south of Ireland . . . .	Off the mouth of the Channel . .	Over the Bay of Biscay, where also it dispersed.
<b>Direction of Motion</b> . .	Easterly; varying between east-north-east and east-south-east.	East-north-easterly at first then south-easterly.	Easterly till it reached the west of France.
<b>Rate of Motion</b> . . . .	Variable; slow as a whole . . . .	Varying, but generally moderate .	Slow . . . .
<b>Regions passed over by Steepest Gradients.</b>	British Islands and North Sea . .	Southern parts of our Islands, afterwards France and the north of Italy.	British Isles . . . .
<b>Termination</b> . . . .	Passed away to the Baltic, and apparently filled up on the 4th.	Passed south-eastwards to the Adriatic and south-eastern Europe.	Dispersed over the Bay of Biscay .
<b>Time under Observation</b> .	Nearly 3 days . . . .	Rather more than 2 days . . . .	Nearly 2 days . . . .
<b>Accompanying Winds</b> . .	Easterly (South-east to North-east) over greater part of kingdom. Westerly (South-west to North-west) in the south.	Easterly and Northerly, strong to a gale in the Channel. Westerly to Northerly in France.	North-easterly and Easterly in our Islands, South-easterly in west of France, Westerly in Spain.
" <b>Weather</b> . . . .	Very rough; much rain in south-west and south; heavy snow over the northern districts.	Cold and squally; snow and sleet in our Islands, sleet and rain in France.	Cold and dull; snow in some places. Temperature in London 28°, in north of Spain 49°.
" <b>Rainfall</b> . . . .	Very heavy (more than an inch) in south-west of Ireland. Nearly 0·9 in. of melted snow at York.	Not heavy; distribution irregular .	Consisting entirely of snow; not heavy.
<b>REMARKS</b> . . . .	This system arrived when pressure was highest (30·3 to 30·5 ins.) over the Baltic, North Germany, and the eastern shores of the North Sea, towards which region it advanced steadily. The anticyclone receded eastwards as the depression advanced, but a new anticyclone followed in the rear of the system, and after covering our Islands, moved south-eastwards to France. (See Daily Charts for 4th.)	This system followed closely on the anticyclonic system No. V. Its Easterly winds were strongest in the Channel, while over France the strongest winds were Northerly. The snow showers in the north and east seem to have been due to other (very local) depressions over the North Sea.	This was one of three minima, which at 8 a.m. 16th, lay in a vast (but shallow) low-pressure area, covering the whole of Germany, Austria, the Mediterranean, France, the Bay of Biscay, and Spain, while the centre of the great anticyclone No. VI., lay over Finland and the Gulf of Bothnia. On the night of the 16th, this minimum filled up, and a new one approached the Bay, whence it moved northwards up our western coasts. (See No. XXII.) No track can be drawn on Map 2 Plate VI.



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—MARCH 1886.

No. XXII. March 17-18.	No. XXIII. March 26-27.	No. XXIV. March 30.	No. XXV. March 31.
Uncertain - - - -	Uncertain - - - -	Oval - - - -	Oval.
Very large - - - -	Very large - - - -	Large - - - -	Large.
Uncertain, but probably deep. Lowest readings in west of Ireland 29.4 ins.	Uncertain; apparently moderate -	Deep - - - -	Moderate.
Off west of Spain - - -	To the westward of our Islands -	Off the west of Ireland - - -	Off the north-west of Ireland.
North-easterly and Northerly - -	North-easterly - - - -	North-easterly - - - -	North-easterly.
Moderate - - - -	Apparently moderate - - - -	Rapid - - - -	Rapid.
Bay of Biscay and western parts of British Isles.	Western and northern parts of our Islands.	British Isles, especially Ireland and Scotland.	Ireland and England with the Channel.
Travelled away to the northward -	Travelled away to the north-eastward	Travelled rapidly to the northward out of our area.	Filled up on approaching Norway.
Two days - - - -	Nearly 2 days - - - -	One day - - - -	Less than 1 day.
South-easterly to Southerly, strong to a gale in west.	Southerly and South-westerly; moderate in East and South-east, strong to a gale in West and North.	Southerly to Westerly, heavy gales in north-west, gales and strong squally breezes elsewhere.	South-westerly and Westerly, strong to a strong gale.
Much milder than for a long while past; sleet and rain squalls, especially in west.	Mild; showery in west at first, then rainy everywhere.	Squally, rainy, mild - - -	Squally, showery, rough; rather cold for a South-westerly wind.
Slight except about mouth of Bristol Channel.	Slight at first, afterwards becoming heavy in Ireland and north-west England as a subsidiary system came over us.	General, but not very heavy - -	General and somewhat heavy; hail and sleet in north-west and west.
This system advanced from the southward when pressure was highest over Scandinavia. Its advent brought in a spell of Southerly winds breaking up the cold dry foggy winter which had prevailed for so long. The barometer then rose over France, and south-westerly gradients were established all over the kingdom. The centre passed at too great a distance from our coasts for its movements to be shown on Map 2, Plate VI.	This system advanced when pressure was highest over central and southern Europe and lowest off our north-west coasts. Its centre passed at so great a distance from us, that our weather would probably not have suffered much had it not been for a well-marked subsidiary disturbance which came over Ireland early on the 27th, and filled up on reaching the west of Scotland. Other shallow local disturbances prevailed between the 27th and 29th.	This system advanced very suddenly at a time when pressure was highest (30.5 ins.) over the south-west of France, and lowest to the northward of our Island. On its centre reaching the north-east of Scotland, it began to move in a more northerly direction, and by 8 a.m. 31st, had passed almost out of our area of observation.	This system advanced very closely in the rear of the previous disturbance, to which it (at first) appeared to be subsidiary. Its collapse was very sudden.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—MARCH 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. V. March 3-4.	No. VI. March 6-19.
Form - - - - -	Uncertain; apparently variable - - -	Elongated at first, major axis bearing north and south, then nearly circular and afterwards oval.
Size - - - - -	Small - - - - -	Small.
Height - - - - -	Small. Maximum readings apparently all below 30 inches.	Small to great. Maximum readings increasing from 30.2 and upwards on 7th to 30.6 and upwards on 9th.
Where first Observed - - - - -	Off the west of Ireland - - - - -	Over the Bay of Biscay and western parts of our Islands.
Direction of Motion - - - - -	Eastwards and south-eastwards - - -	East-north-east.
Rate of Motion - - - - -	Moderate - - - - -	Moderate to slow.
Regions passed over - - - - -	British Isles and France - - - - -	British Isles, France, North Sea, and Germany.
Termination - - - - -	Passed away to the Adriatic and south-eastern Europe.	Passed eastward to the Baltic and Denmark.
Accompanying Wind - - - - -	Light and varying; Northerly and North-easterly at first, then South-easterly and Southerly.	Very light Northerly at first, then Southerly and South-easterly.
Weather - - - - -	Fair, dry, and cold; fog in some places - - -	Fine, dry, very cold; foggy in places.
REMARKS - - - - -	This system followed the cyclone No. XIX. very closely. On its reaching France, a well-marked ridge extended northwards from it over the North Sea.	This system followed closely in the rear of cyclone No. XX. On passing to the eastward of the North Sea it developed into a large system, and its centre remained over the Baltic, Denmark, North Germany, the North Sea, or Scandinavia, till the 19th, its western parts extending over the British Islands till the 17th. The centre then moved south-eastwards, and the whole system passed away out of our area.



## SECTION III.

## REMARKS FOR MARCH 1886.

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

THE mean pressure of the air, at 8 a.m., varied from about 29·98 inches over our south-eastern counties to about 29·78 inches in the extreme west of Ireland. The mean gradients were therefore moderate, and favourable for winds from a southerly point, whereas those for the average distribution in March are favourable for winds from the westward. On comparing the values for this month with those for the same period in the 20 years 1861-80, they show an excess of pressure amounting to about 0·08 in. over Kent and Sussex and 0·10 in. on the Northumberland coast, whereas in the west of Ireland there is a deficit amounting to about 0·10 in. The highest readings occurred at most stations on the 10th, at which time the centre of the large anticyclone No. VI. lay over the eastern parts of the North Sea, and readings varied from 30·6 inches and upwards in that region to nearly 30·2 inches over the south-west of Ireland; the lowest were recorded at the southern stations on the 5th (while the depression No. XX.\* lay over the Channel), at the central stations on the 1st (while depression No. XIX.\* was travelling across England), and at the northern stations on the 30th and 31st (while the two depressions Nos. XXIV. and XXV.\* were passing over Scotland). The range was not very large anywhere, but amounted to about 1·5 inches in the north-east of Great Britain.

*Movements of Depressions.*—Of the depressions observed during March those which first appeared off our north-western coasts after the middle of the month travelled in a north-easterly direction, and the movements of the two which appeared at the end of the month were unusually rapid. The one which appeared off the west of Ireland about the earlier part of the month took a more easterly course and travelled slowly; while the system which approached our south-western stations on the 5th, after moving eastwards up the Channel as far as Cherbourg, took a south-easterly course and passed away out of our area towards Turkey. Two depressions (Nos. XXI. and XXII.\*) appeared in the south-west about the middle of the month; one of them filled up over the Bay of Biscay, but the other travelled northwards outside our western coasts and brought in the Southerly winds, which broke up the long wintry weather.

*Anticyclones.*—Only two of these systems passed over us during the month. The first was of a very temporary character; it advanced towards us late on the 3rd, in the rear of the depression No. XIX.\*, and moving south-eastwards passed out of our area to the Mediterranean. The second advanced towards us on the 6th, and, though apparently an irregular and unimportant system at first, increased in size and height as it moved eastwards, and remained in our neighbourhood with great persistency till the 19th, when it moved away to the south-eastward. The highest readings recorded in this system exceeded 30·6 inches from the 9th to the 11th, and the movements of its centre after it reached the eastern shores of the North Sea were very slow and irregular.

*Winds.*—These were of two distinct kinds, viz., chiefly Easterly (South-east to North-east) until the 19th, after which they became Southerly and South-westerly. The Easterly winds were as a rule moderate or light (except in the west), but the Southerly and South-westerly winds were strong, and occasionally blew hard, especially as the more northerly of the depressions passed over. It was owing to these facts that the gales experienced were much more numerous at our western and northern stations than in the east and south-east.

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



*Temperature.*—The mean (sea level) temperature of March varied from nearly  $44^{\circ}$  at Valencia and Scilly and about  $41^{\circ}$  over the south-midland and home counties, to a little below  $38^{\circ}$  over central Scotland, and the extreme south of the Shetlands. The type of distribution had become very complex—the winter type predominating over the northern half of the kingdom, while the summer type began to appear over England and the south-east of Ireland (see Map 3, Plate VI.). Compared with the values for February those for March show a rise of about  $2^{\circ}$  over the northern parts of central Ireland,  $3^{\circ}$  over Scotland, and about  $7^{\circ}$  or  $8^{\circ}$  over our Eastern and the home counties; when compared with the averages for the corresponding month in the 20 years 1861–80, they show a deficit of about  $3^{\circ}$  in Scotland,  $2^{\circ}$  over Ireland and the north of England, and about  $1^{\circ}$  over the south-midland and home counties. At Scilly and Jersey the deficit was quite  $3^{\circ}$ . The highest values were recorded very generally between the 21st and 24th, at which time the maximum recorded varied from  $60^{\circ}$  to  $65^{\circ}$ , while the lowest were registered on the 7th over England (as the anticyclone No. VI. passed over) and on 4th or 13th in Ireland. A second minimum was registered over the south-east of England early on the 17th, quite as low as that of the 7th, and immediately preceding the rapid break up of the frost which prevail during the earlier half of the month. The range was very considerable at many of the inland stations, where it varied from  $49^{\circ}$  at Loughborough,  $48^{\circ}$  at Churchstoke, and  $47^{\circ}$  at several other stations, to between  $37^{\circ}$  and  $42^{\circ}$  over the inland parts of Ireland. At Newton Reigny, lying between two high ranges of hills, the total range was as much as  $54^{\circ}$ . At the coast stations the range was decidedly smaller; at Douglas (Isle of Man) it was only  $28^{\circ}$ , at Sumburgh Head  $27^{\circ}$ , and at Scilly  $22^{\circ}$ .

*Vapour Tension* varied from 0.18 in. over Scotland, and about 0.19 in. over central England to about 0.21 in. on our east coast and the east of Ireland, and to 0.24 in. at the extreme south-western stations of Ireland and England; but *Relative Humidity* varied from about 95 per cent. on our extreme north-western and south-eastern coasts to 85 per cent. over Scotland, on the one hand, and to  $84^{\circ}$  at Valencia and  $81^{\circ}$  at Scilly on the other.

*Rainfall.*—The total rainfall of the month varied from between 1 and 2 inches over our south-eastern counties and our north-eastern coasts generally, to upwards of 3 inches at several western stations, and to as much as 5 inches at Laudale (Loch Sunart), to 6 inches and upwards in the south of Ireland, and to  $7\frac{1}{2}$  inches at Llandovery (South Wales). At the last-named station nearly  $2\frac{1}{4}$  inches fell on the 26th, at which time a shallow subsidiary depression passed across Ireland and Wales from the south-westward, causing falls of more than an inch in the 24 hours at several stations. At several of the western stations the total fall was greatly in excess of the average, but over the greater part of England and Scotland there was about the average amount. In the southern parts of Ireland, the north of Scotland, and at Dungeness and Hurst Castle there was a marked deficit. The number of days of rain varied from 9 at Dungeness and from between 12 and 16 over the south-eastern parts of England generally, to 21 in the south of Ireland and at Dunrossness, to 23 at Stornoway and Aberdeen, and to 24 at Belmullet.

*Bright Sunshine.*—Assuming the total possible duration of bright sunshine during the month at each station to be represented by 100, the amounts actually recorded were as low as 13 in London, 15 at Glasgow, 17 at Leicester, and 19 at Plymouth, while in the north of Ireland they varied from 14 to 18. Elsewhere the values were higher, 20 to 25 per cent. being the most common; at Hastings, however, the value was 32, and at Jersey 35.

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



SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF MARCH 1886.



TABLE V.

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head - - -	29°886	37°4	32°6	41°6	37°1	24	7th	51	24th
	Wick - - - - -	29°888	38°3	33°8	43°7	38°8	25	7th	58	25th
	Stornoway - - -	29°842	37°5	33°5	44°1	38°8	22	12th, 13th	52	23rd
1. SCOTLAND, E.	Nairn - - - - -	29°873	36°3	31°7	44°7	38°2	16	12th	63	23rd
	Aberdeen - - -	29°916	36°5	32°4	42°9	37°7	19	12th	60	22nd
	Leith - - - - -	29°902	37°0	32°9	44°6	38°8	22	7th	64	23rd
2. ENGLAND, N.E.	Shields - - - -	29°924	38°4	33°9	43°6	38°8	19	7th	59	22nd, 23rd, 25th, 24th
	York - - - - -	29°943	37°8	33°4	46°1	39°8	16	7th	62	24th
	Spurn Head - - -	29°926	37°8	33°6	42°8	38°2	24	10th	58	25th
3. ENGLAND, E.	Yarmouth - - -	29°972	38°3	33°9	42°4	38°2	25	7th	57	27th
	Cambridge - - -	29°976	38°4	32°7	47°4	40°1	19	7th	65	24th
4. MIDLAND COUNTIES	Loughborough - -	29°956	36°7	33°0	46°8	39°9	16	7th	65	24th
	Oxford - - - - -	29°968	37°4	33°4	46°2	39°8	20	17th	63	24th
5. ENGLAND, S.	London - - - - -	29°978	38°5	34°3	46°9	40°6	21	7th, 17th	64	24th
	Dungeness - - -	29°976	37°6	33°7	44°3	39°0	22	7th, 17th	52	23rd, 25th
	Hurst Castle - - -	29°969	37°6	33°9	44°3	39°1	22	7th	56	23rd
6. SCOTLAND, W.	Ardrossan - - -	29°887	37°0	33°7	42°6	38°2	24	7th	57	24th
7. ENGLAND, N.W.	Hawes Junction* - -	28°657	33°8	29°4	38°5	34°0	12	7th	57	23rd, 24th
	Barrow-in-Furness - -	29°913	36°7	33°7	42°5	38°1	24	7th	57	24th
	Liverpool (Bidston) - -	29°915	37°4	34°3	44°0	39°2	21	7th	60	24th, 25th
	Holyhead - - - -	29°894	38°2	35°5	44°1	39°8	28	5th, 10th, 11th, 12th.	63	24th
8. ENGLAND, S.W.	Pembroke - - - -	29°889	38°3	35°8	43°0	39°4	28	11th, 12th, 13th, 18th, 7th	53	23rd, 24th
	Prawle Point - - -	29°938	40°2	36°0	43°9	40°0	27	7th	54	23rd
9. IRELAND, N.	Malin Head - - -	29°823	38°5	34°9	44°7	39°8	26	10th, 17th	58	23rd
	Donaghadee - - -	29°877	38°2	35°1	43°6	39°4	27	13th	59	21st
	Mullaghmore - - -	29°805	38°5	37°0	45°9	41°5	30	11th, 14th, 15th, 13th	59	23rd
	Belmullet - - - -	29°772	39°9	36°6	45°0	40°8	28	13th	55	24th
10. IRELAND, S.	Parsonstown - - -	29°843	39°0	33°1	47°3	40°2	19	4th, 5th	61	21st
	Valencia - - - -	29°788	43°5	39°2	48°3	43°8	27	13th	55	19th, 23rd, 24th, 26th, 30th, 26th
	Roche's Point - - -	29°827	41°2	37°8	46°5	42°2	28	4th, 13th	53	26th
CHANNEL ISLANDS	Scilly (St. Mary's) - -	29°867	44°2	40°1	47°0	43°6	33	13th, 14th	55	19th 25th
	Jersey (Noirmont) - -	29°958	40°4	37°6	46°1	41°9	29	10th, 11th	63	24th

\* 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 1886.

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. 0.194	% 87	7.5	ins. 1.44	ins. 0.25	19th	21	7	0	0	3	14	0	5	2	2	8	8	2	3	0	1
201	87	6.6	1.64	0.25	21st	17	8	0	0	5	13	3	3	0	3	5	12	1	3	2	2
210	93	6.9	2.68	0.34	30th	23	7	6	0	6	15	7	1	1	6	3	9	4	3	3	1
176	82	5.8	0.66	0.09	16th, 19th	14	3	0	0	4	6	0	1	0	4	4	2	5	5	1	9
184	85	7.4	2.67	0.66	19th	23	13	2	0	6	18	5	2	0	3	4	9	5	4	3	1
196	89	6.0	1.92	0.51	27th	18	10	0	0	7	8	1	1	2	4	8	3	3	2	6	2
206	90	8.3	1.76	0.33	1st	17	8	1	0	1	21	4	0	5	3	4	5	8	3	2	1
203	90	7.0	2.37	0.85	1st	20	5	0	0	7	16	0	6	4	6	0	7	5	2	1	0
212	94	5.0	1.77	0.58	30th	19	10	0	0	8	1	4	1	2	5	7	5	5	4	2	0
207	90	6.7	1.49	0.48	1st	17	9	3	1	5	11	3	2	3	6	5	3	6	5	1	0
208	90	7.3	1.54	0.50	1st	16	5	0	0	8	21	0	6	3	4	4	6	5	2	0	1
193	89	7.8	2.70	0.82	30th	15	10	4	1	4	20	4	2	4	5	6	2	6	4	1	1
198	89	7.2	1.65	0.32	28th	16	8	1	0	7	16	2	2	3	5	3	6	6	2	0	4
201	86	7.7	1.14	0.25	1st	13	7	1	0	6	20	3	0	3	6	5	1	9	4	2	1
219	97	6.4	0.66	0.17	1st	9	3	0	0	7	11	1	2	3	5	5	2	5	6	2	1
211	94	5.6	2.98	0.50	18th	18	4	1	1	9	9	7	2	6	6	4	2	7	3	1	0
208	95	7.5	1.59	0.27	19th	17	4	1	0	6	20	1	2	9	7	2	4	4	2	0	1
184	94	8.3	2.82	1.67	26th	20	9	3	0	3	23	1	0	4	9	4	6	5	2	0	1
204	94	7.0	3.76	1.20	26th	15	3	0	0	4	15	1	3	8	6	4	5	3	1	1	0
189	85	7.5	2.15	0.55	1st	18	7	0	0	4	17	1	2	2	9	8	2	5	2	1	0
214	93	6.2	3.59	1.27	26th	18	2	1	0	7	10	3	4	3	8	2	7	6	1	0	0
200	87	7.5	3.21	0.60	26th	18	2	0	0	0	13	8	0	6	7	6	5	4	1	2	0
224	90	8.5	2.81	0.33	17th	17	2	0	0	0	20	4	3	3	7	4	4	6	2	2	0
217	93	6.4	2.22	0.50	26th	20	5	4	0	8	15	2	2	3	3	5	12	5	1	0	0
210	91	6.8	2.89	0.49	27th	17	4	0	0	3	14	5	0	2	4	7	5	6	6	1	0
219	94	6.8	2.50	0.40	30th	16	8	5	1	5	9	10	1	3	6	11	3	5	1	1	0
212	87	7.0	3.65	0.45	30th	24	5	2	0	6	16	5	1	2	4	12	4	5	2	1	0
203	89	6.9	2.79	0.94	26th	16	3	0	0	6	15	0	1	1	0	6	8	4	1	1	9
240	84	7.8	6.04	0.97	26th	21	0	1	0	3	19	11	1	5	7	7	5	3	1	1	1
231	90	7.2	6.16	0.65	26th	21	4	1	0	3	14	8	4	2	3	8	6	4	2	2	0
240	81	8.8	3.50	0.63	18th	20	0	4	1	0	20	8	3	2	7	5	5	6	2	1	0
222	89	6.5	3.27	0.52	4th, 5th	19	1	2	1	5	13	6	1	5	10	4	3	7	1	2	0

barometric 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 1886.

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.						
STOENOWAY -	*	*	*	0	*	0	*	*	*	*	100	28
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	77	21
ALNWICK CASTLE -	33'5	42'4	38'0	20	9th	56	22nd, 23rd, 25th.	20	3'81	0'65	1st	—
DURHAM -	32'0	43'7	37'9	13	10th	62	24th	18	2'43	0'47	2nd	83
SCARBOROUGH -	35'4	44'6	39'8	25	7th	61	21st	19	1'94	0'35	1st	—
YORK -	*	*	*	*	*	*	*	*	*	*	82	23
HILLINGTON -	35'0	45'6	40'3	22	7th	61	24th	17	1'98	0'54	1st	77
GELDESTON -	33'9	44'8	39'4	22	7th	61	22nd	19	1'24	0'30	1st	79
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	86	24
ROTHAMSTED -	32'6	45'1	38'9	18	7th	62	24th	17	1'46	0'24	30th	—
BAWTRY -	31'7	45'8	38'8	11	8th	63	23rd	19	2'51	0'85	2nd	†84
LEICESTER -	34'2	47'0	40'6	18	7th	65	24th	11	2'36	0'49	29th	61
CHEADLE -	32'0	42'7	37'4	18	7th	60	24th	18	3'81	1'10	30th	—
CHURCHSTOKE -	31'7	43'6	37'7	13	7th	61	24th	14	2'88	1'28	30th	83
HEREFORD -	32'7	46'2	39'5	15	7th	62	24th	15	2'11	0'39	30th	—
CIRENCESTER -	32'2	44'6	38'4	15	7th	62	24th	13	2'44	0'47	30th	†80
OXFORD -	*	*	*	*	*	*	*	*	*	*	83	23
LONDON -	*	*	*	*	*	*	*	*	*	*	46	13
STRATHFIELD TURGIS -	32'6	47'1	39'9	18	7th, 17th	65	24th	12	1'21	0'21	1st	—
HASTINGS -	34'6	43'8	39'2	25	4th, 7th	60	24th	15	1'62	0'37	26th	116
SOUTHAMPTON -	34'8	46'6	40'7	22	7th, 17th	61	24th	19	2'56	0'42	26th	95
STOWELL -	33'6	45'0	39'3	19	7th, 17th	60	24th	19	2'64	0'32	27th	—
LAUDALE -	35'2	44'1	39'7	20	12th	59	24th	17	5'01	0'73	26th, 28th	—
GLASGOW -	33'6	42'1	37'9	21	7th	60	24th	16	3'01	0'40	19th	56
DOUGLAS -	35'2	42'9	39'1	26	7th	54	21st, 24th	19	4'18	1'08	26th	90
NEWTON REIGNY -	31'2	43'4	37'3	10	7th	64	24th	17	2'83	0'66	26th	92
STONYHURST -	33'3	42'8	38'1	14	7th	60	24th	16	3'67	0'86	26th	83
BLACKPOOL -	32'9	43'3	38'1	19	7th	63	24th	12	3'31	1'27	26th	79
MANCHESTER -	33'8	44'2	39'0	17	7th	63	25th, 27th	17	2'85	0'67	30th	—
LLANDUDNO -	34'6	45'1	39'9	23	7th, 14th	63	23rd, 24th	14	2'50	0'70	1st	82
LLANDOVERY -	31'7	45'8	38'8	15	3rd	64	23rd, 24th	17	7'50	2'15	26th	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	89	24
ABELINGTON -	33'6	44'4	39'0	20	4th	61	24th	18	4'36	0'69	26th	—
CULLOMPTON -	34'8	46'5	40'7	19	4th, 7th	61	21st, 24th	16	2'90	0'44	19th	84
FALMOUTH -	38'5	45'7	42'1	28	13th, 14th	55	21st, 23rd	19	3'44	0'54	17th	69
PLYMOUTH -	36'5	46'4	41'5	24	4th, 7th	60	23rd	18	3'18	0'57	19th	85
JERSEY -	*	*	*	*	*	*	*	*	*	*	128	35
LONDONDERRY -	35'4	47'2	41'3	23	13th	62	23rd	17	2'76	0'37	30th	—
MARKREE CASTLE -	32'4	45'7	39'1	16	13th	59	21st, 23rd	18	3'06	0'61	30th	65
BROOKBOROUGH -	33'8	45'2	39'5	21	4th, 13th	58	23rd	15	3'20	0'50	26th	—
ARMAGH -	34'3	45'3	39'8	22	12th	61	23rd	17	2'51	0'55	26th, 27th	52
EDGEWORTHSTOWN -	32'8	45'6	39'2	21	4th, 14th	60	21st	13	3'31	0'57	27th	—
DUBLIN -	36'5	46'2	41'4	23	4th	60	21st, 23rd, 25th, 27th.	19	2'07	0'46	26th	99
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	104	29
KILKENNY CASTLE -	34'0	46'3	40'2	16	4th	62	21st	15	1'99	0'34	26th	—
WATERFORD -	35'3	44'7	40'0	23	13th	54	21st	15	4'22	0'75	26th	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	93	26
KILLARNEY -	36'0	47'4	41'7	20	4th	59	21st	20	6'16	1'19	26th	—

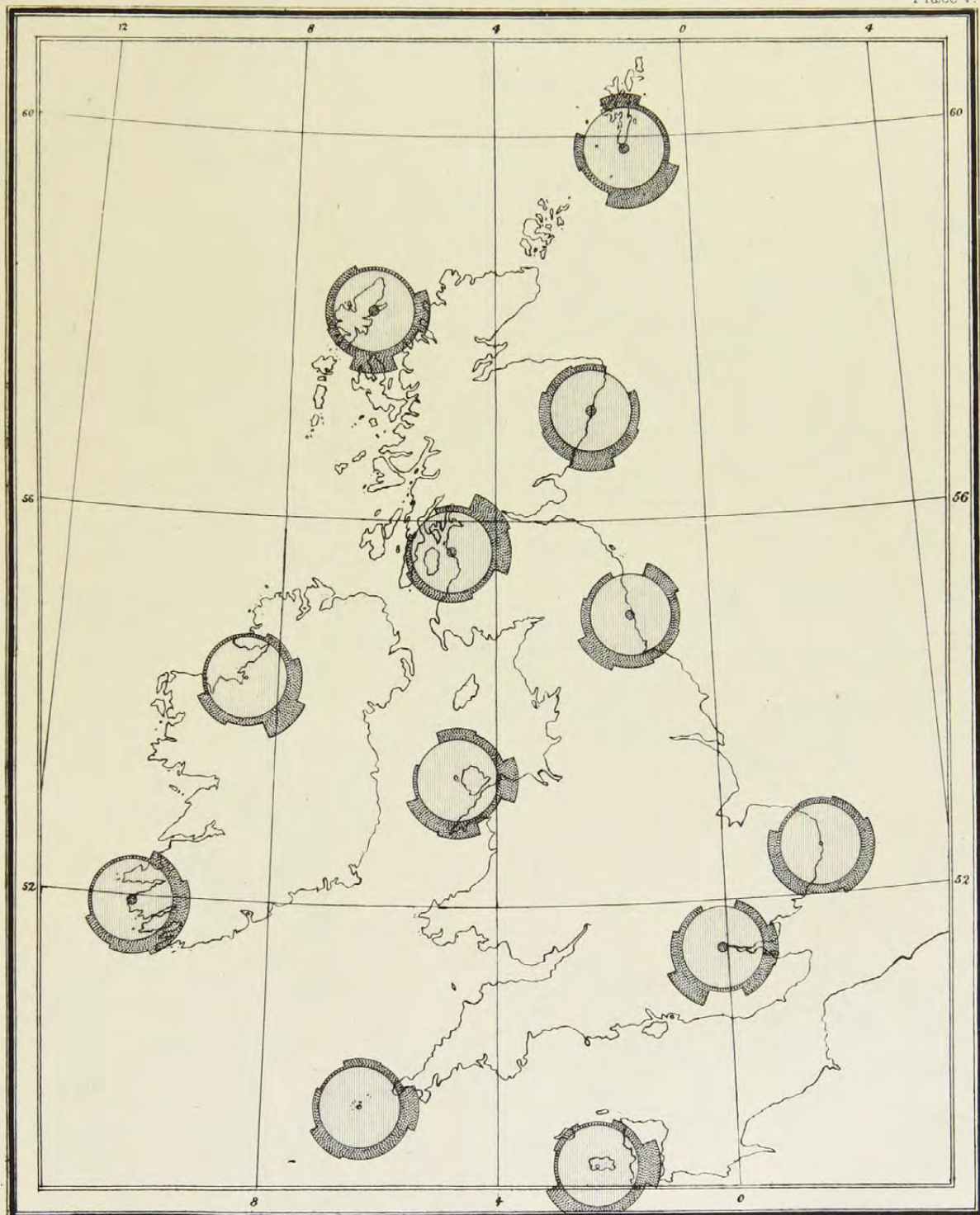
\* For information see Table V.

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



# MONTHLY WIND CHART FOR MARCH, 1886.

Plate V.



To face p. 38.

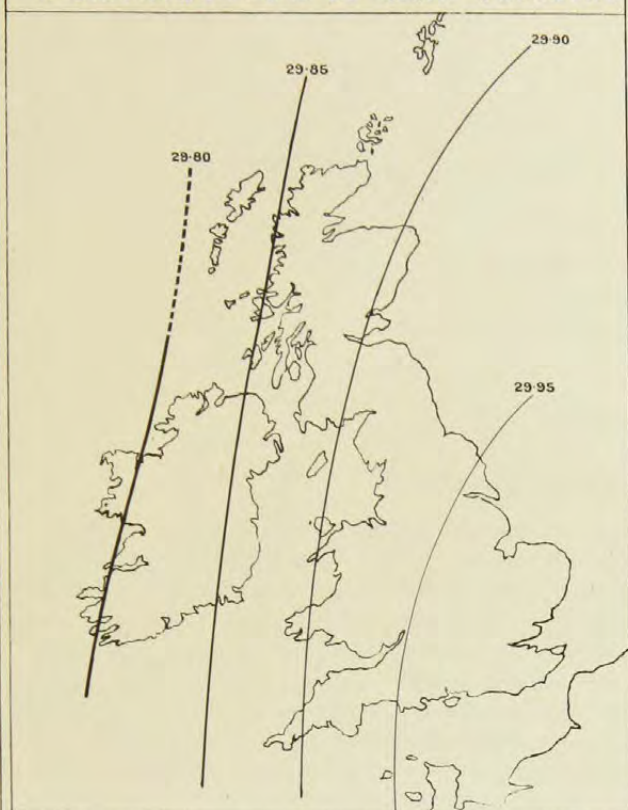
DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 12068.



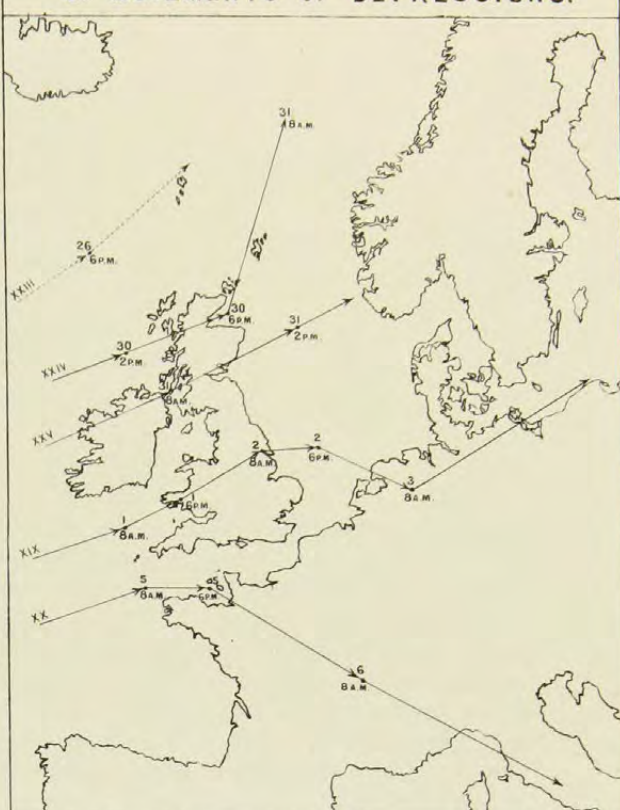




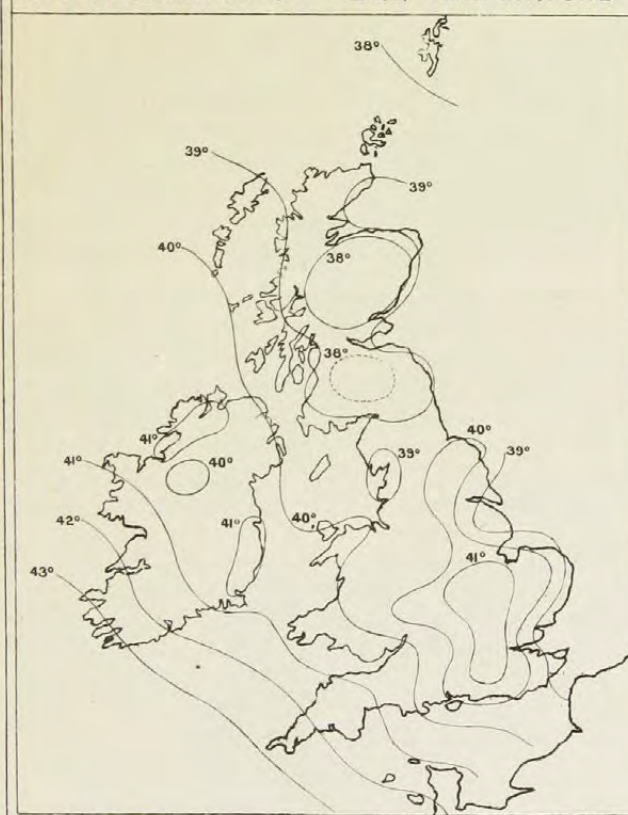
## 1. DISTRIBUTION OF MEAN PRESSURE



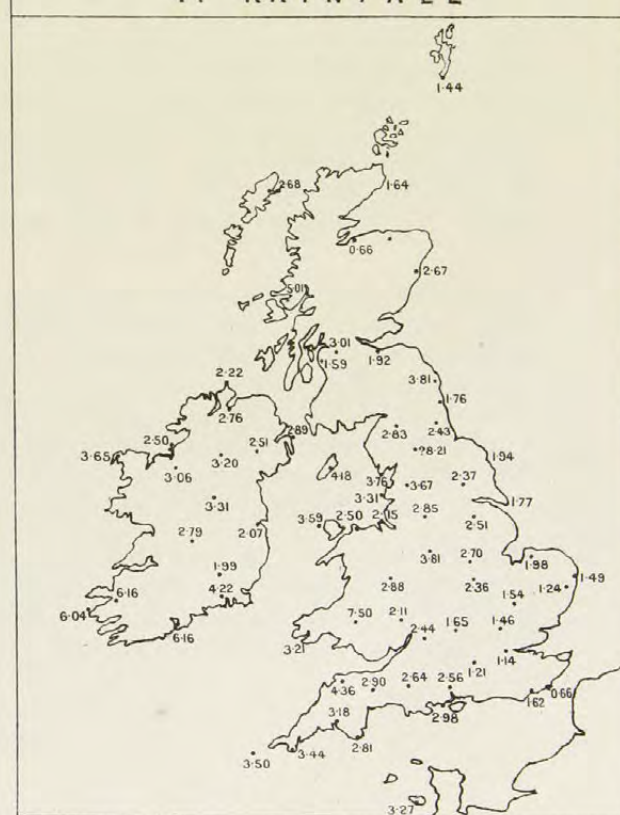
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL









# MONTHLY WEATHER REPORT.

APRIL 1886.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of April was somewhat changeable; rough, wet, and mild till the 9th with South-westerly winds, then quieter, but cold, with North-easterly winds and some cold showers, separated by intervals of bright sunshine. In these clear periods the sunshine was warm, but the nights were cold, and the daily range of temperature large. Taken as a whole pressure was slightly below the average and the gradients (for South-westerly winds) were less steep than usual. Temperature was rather low except over the southern parts of Hampshire, and its range considerable. The winds varied greatly; the rainfall was in excess of the average over the north-western districts, but deficient in the east, while the amount of bright sunshine recorded was not very different from usual. Two depressions deserve special notice, one of which passed slowly in a south-easterly direction over England on the 10th, while the other appeared near Wick on the 27th, and caused sudden changes of temperature, especially in the north. The anticyclones presented no features worthy of special remark, but high pressures were at times very prevalent in the north and west.

April 1-4.—The distribution of pressure during this period was of a southerly and south-westerly type, and the dominant systems were cyclonic over our Islands, and anti-cyclonic over France. Winds from between South-east and South-west were consequently prevalent, and, as the depressions Nos. XXVII. and XXVIII.\* passed near to or over our area, they increased to a strong gale in the west and north, and to a strong squally breeze in the south and east. Temperature was somewhat high, and while rain fell generally the amounts recorded were much greater at the western than at the eastern stations. Aurora was seen in the north of Scotland on the 4th.

April 5-9.—Some modification of the conditions just referred to now took place. The area of high pressure took up a more westerly position; the winds became more Westerly, and temperature fell a little. The rainfall decreased considerably, but cloudiness increased over England, and fogs appeared in the south. Two well-marked depressions, Nos. XXIX. and XXX.\* appeared during this interval, moving in a more easterly direction than those previously observed; one of them passed quickly away across Norway and Sweden, while the other, on reaching Scotland from the south-westward, took a more northerly course, and finally became filled up to the northward of the Shetland Isles.

During the whole of the period April 1-9 pressure remained high over south-eastern and southern Europe, but after the 5th a second high-pressure area began to appear over Spain, the southern parts of the Bay of Biscay and the south-west of France, and it was under these circumstances that the winds reported became more Westerly, as mentioned above, and the air cooler.

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



April 10-12.—The distribution of pressure during this interval was very complex; for as the depression last mentioned filled up, a new shallow system (No. XXXI.\*) was developed over the north-western parts of our Islands and moving south-eastwards filled up over the south-east of France on the 11th. As this passed over us the barometer rose in the north, the wind backed round from South-west to South-east and East at the eastern stations, while it veered to North-west, North, and North-east in the west. Temperature fell decidedly, and cold showers of rain, sleet, and hail fell very generally. Another, but still more shallow depression lay over the North Sea on the 12th, separating an anticyclone over northern Europe from another over and to the westward of the Bay of Biscay, Spain, and Portugal, but this filled up very quickly, and left us with comparatively uniform readings (highest in the south-west) and with light variable North-westerly breezes.

During this time the continental reports showed that pressure was high over Russia, as well as to the westward of Spain, but lowest, at first over central Europe and then over the Mediterranean and Adriatic, the weather being cold, dull, and unsettled.

April 13-20.—The anticyclone over Russia moved away to the eastward, and as the barometer rose in the west and north the Atlantic high-pressure system moved north-eastwards to a position off our north-western and northern coasts, and finally to Finland and northern Europe. At the same time pressure remained lowest over the Mediterranean and France, and under these circumstances the wind remained moderate or light over our Islands, and veered round to North-east and East. The air was dry and temperature low, but as some shallow local disturbances appeared occasionally over the northern parts of France (notably on the 18th and 19th), a good deal of cloud was reported, except in the north-west, and cold showers fell in the south and east.

April 21-22.—The distribution of pressure now became more complex, owing to the temporary appearance, on the 21st, of a second high-pressure system over Spain, which caused Westerly breezes to appear over southern Europe. These in connexion with the Easterly winds prevailing over our Islands and the North Sea caused several local disturbances to appear over western Europe and the North Sea, and these drew down very cold Northerly winds over the United Kingdom, accompanied by an extremely unsettled state of the sky. The Spanish anticyclone, however, soon gave way, the local disturbances broke up, pressure in the south fell generally, and Easterly breezes again spread over the kingdom.

April 23-26.—A decided change took place. Pressure gave way completely over Spain and the Bay of Biscay, and also over the extreme north of Europe, but as it increased over the eastern parts of the British Isles and the North Sea, an anticyclone was formed over the latter region. (See No. VIII., p. 45.) A depression then moved northward from the Atlantic shores of the Peninsula, and as it did so the wind over the United Kingdom veered to South-east, and although the nights remained cold, especially in the east, the days became warmer. In France the thermometer rose to above  $80^{\circ}$  on some occasions, and at some of our own stations it reached  $68^{\circ}$  to  $70^{\circ}$  on the 24th. Rain fell in the west, while in the east the weather was fine, but thunderstorms soon afterwards set in over the south of England. In the north a very unusual change occurred on the 27th. (See next paragraph.)

April 27-28.—The weather now broke up suddenly, for, while the barometer fell decidedly over the Bay of Biscay, causing a freshening of wind from South-east and East on our south-western coasts, and local thunder showers in the south, a small, shallow, isolated depression was formed near Wick, and was accompanied by most extraordinary contrasts between the weather and temperature at stations comparatively close together. Thus at 8 a.m., 27th, there was a gentle breeze from West-south-west at Aberdeen, with a temperature of  $60^{\circ}$ ; at Wick the wind was equally light from the North-westward, with slight rain and a temperature of  $49^{\circ}$ , but at Sumburgh Head the wind was strong from North-east, snow and rain were

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



falling, and the thermometer stood at  $36^{\circ}$ , or twenty-four degrees lower than at Aberdeen. This system moved south-eastwards and eastwards, while that in the south-west spread north-eastwards, and Northerly to Easterly winds, cold weather, rain, with local thunderstorms spread over the kingdom.

April 29-30.—Another sudden change now ensued. The barometer rose quickly, the two low-pressure systems referred to above filled up, an anticyclone (No. IX.) appeared in the north-west, and dry North-easterly breezes set in generally, blowing strongly in the south, but falling light and backing to North-west in the north. This anticyclone subsequently moved southwards, and extended a long ridge in an easterly direction, so that while the fine weather still held in the west, south, and east, in the north rain fell on the 30th. Another small local depression then appeared for a time off our north-east coasts, while a rather larger (but unimportant) system passed eastwards over the south of France. The month closed, however, with cold but improving weather generally.



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—APRIL 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXVII. April 1-2.	No. XXVIII. April 3-4.	No. XXIX. April 6-7.
Form - - - -	Uncertain - - - -	Apparently nearly circular - -	Nearly circular - - - -
Size - - - -	Uncertain, but apparently very large	Large - - - -	Large - - - -
Depth - - - -	Apparently very deep - - - -	Deep - - - -	Shallow - - - -
Where first Observed - -	Off the west coast of Ireland - -	To the north-westward of Ireland -	Near the Shetlands - - - -
Direction of Motion - -	About north-north-easterly - -	North-easterly - - - -	East-north-easterly - - - -
Rate of Motion - - - -	Apparently moderate - - - -	Moderate - - - -	Rapid to moderate - - - -
Regions passed over by Steepest Gradients.	The western and northern parts of our Islands.	The north-west and north of our Islands.	North-western Europe generally -
Termination - - - -	Travelled away to the northward -	Travelled away to the northward -	Travelled away over Finland - -
Time under Observation -	Two days - - - -	About one day - - - -	About 36 hours - - - -
Accompanying Winds - -	Southerly to South-westerly; very strong gales in the west and north; strong breezes in east and south.	South-westerly and Westerly gales and strong winds.	South-westerly and Westerly; strong to a gale.
" Weather - - - -	Mild; some rain,—first in west, and afterwards in other parts.	Mild, squally, and showery; temp. falling as wind veered.	Cool, squally, and somewhat showery
" Rainfall - - - -	Confined to the western stations until a subsidiary system advanced on the 2nd.	General, but not heavy - - - -	Very slight, especially in east and south-east; none at all in some localities.
REMARKS - - - -	This system advanced when pressure was highest (30·4 inches and upwards) over south-eastern and southern Europe, and lowest off our North-western coasts. Its centre passed so far to the westward of Ireland that its track cannot be shown on Map 2, Plate VIII. The subsidiary system which advanced over England late on the 2nd was small and shallow.	This system advanced when pressure was highest (30·5 and upwards) over eastern Europe, whence a ridge (30·3 and 30·2 inches) extended westwards across Austria and the Adriatic to the Mediterranean. It had a well-marked subsidiary disturbance which passed across Scotland on the night of the 4th, and at 8 a.m. on the 5th lay over the south of Norway (see charts in Daily and Weekly Reports for this date).	This depression also advanced under conditions very similar to those which accompanied the advance of No. XXVIII., but its movements were more easterly, and its track lay further to the southward. Its winds were consequently more Westerly. The movements of this system were at first so rapid that although it was not visible, even at our most western stations, at 6 p.m. 5th, yet by 8 a.m. 6th its centre lay to the eastward of Sumburgh Head.



- SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS, APRIL 1886.

No. XXX. April 7-9.	No. XXXI. April 10-11.	No. XXXII. April 23.
Nearly circular - - - - -	Elongated, irregular - - - - -	Uncertain; apparently nearly circular.
Moderate - - - - -	Moderate - - - - -	Apparently moderate.
Deep. Min. readings were below 28.5 inches -	Shallow - - - - -	Apparently moderate.
Off the west of Ireland - - - - -	Was formed over our north-western districts -	Over southern part of Bay of Biscay.
North-easterly and northerly - - - - -	South-easterly - - - - -	About north-north-west.
Moderate to slow - - - - -	Moderate to slow - - - - -	Moderate.
British Isles generally - - - - -	Ireland and France. The gradients were slight throughout.	Our south-western coasts.
Apparently filled up a little to the northward of the Shetlands early on 10th.	Dispersed over France - - - - -	Passed north-westwards out to sea.
More than three days - - - - -	About 36 hours - - - - -	About one day.
Southerly to Westerly and North-westerly; strong gales in west and north. A moderate East-north-easterly gale was felt at Stornoway.	Southerly in the east, Westerly in south, North-westerly and Northerly in the west; afterwards Northerly and Easterly generally. Wind strong in far west only.	Easterly and South-easterly; strong to a gale in extreme south-west.
Very wet, squally, and changeable; rain, followed by snow in west.	Becoming much colder, with hail, sleet, and snow showers.	Rainy in west; dry and cold in east. Temp. rising in rear of system.
Very general, and particularly heavy in Ireland as centre advanced.	General, but not heavy - - - - -	Nearly half an inch at Pembroke and Roche's Point; slight elsewhere.
This depression followed closely in the rear of No. XXIX., than which, however, it was much deeper, and in all respects a more serious disturbance. It was accompanied by a well-marked subsidiary which passed across England on the 8th. After the system filled up the distribution of pressure underwent a most important change. See next system.	With the formation of the disturbance (as No. XXX. was filling up) the system of pressure distribution over our Islands changed completely, anticyclonic North-westerly and Northerly winds taking the place of the cyclonic Westerly and Southerly current hitherto prevailing. See Section I., p. 40.	This system advanced while a band of high pressure lay from north-west to south-east over Great Britain and the North Sea, and is worth noting chiefly on account of the direction of its movements and its effect on the weather at our western stations and in the west of France.



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—APRIL 1886.

NATURE OF CHARACTERISTICS OBSERVED.		No. XXXIII. April 27-28.	No. XXXIV. April 29-30.
Form	- - - - -	Nearly circular - - - - -	Irregular, oval.
Size	- - - - -	Very small - - - - -	Small.
Depth	- - - - -	Very shallow - - - - -	Shallow.
Where first Observed	- - - - -	Off Wick - - - - -	Over Bay of Biscay.
Direction of Motion	- - - - -	Easterly - - - - -	Easterly.
Rate of Motion	- - - - -	Slow - - - - -	Moderate.
Regions passed over by Steepest Gradients		North Sea. Gradients always slight	North of France and south of our Islands. Gradients never steep.
Termination	- - - - -	Filled up over the Skager Rack - - - - -	Passed eastwards to Germany.
Time under Observation	- - - - -	About 36 hours - - - - -	About 36 hours.
Accompanying Winds	- - - - -	Complete cyclonic circulation of light winds	Easterly and North-easterly, strong in the Channel.
Weather	- - - - -	Sleet and snow to northward of centre, fine warm weather to southward. Variations of temperature extraordinarily large.	Cold, cloudy, gusty. Some rain in France.
Rainfall	- - - - -	Chiefly snow; very heavy in north and afterwards spreading southwards over our Islands.	Very slight.
REMARKS	- - - - -	<p>This system was developed close to Wick and with another (larger) system near Corunna brought about a break up of the fine warm weather previously existing over the United Kingdom.</p> <p>In its rear an anticyclonic system was formed in the north-west, and cold dry North-easterly breezes spread all over the kingdom.</p>	
		<p>This system would be scarcely worth notice but for the strength of the Easterly winds, which, in conjunction with anticyclone No. IX., it produced in the Channel and south of England.</p>	



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS, APRIL 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. VII. April 5.	No. VIII. April 24-26.	No. IX. April 29-30.
Form - - - - -	Oval - - - - -	Irregular, oval - - - - -	Oval, but irregular.
Size - - - - -	Small - - - - -	Small - - - - -	Small.
Height - - - - -	Small. Maximum readings 30·2 ins. and upwards.	Small. Maximum readings 30·2 ins. and upwards.	Small. Maximum readings 30·2 ins. and upwards.
Where first Observed - - -	Over France - - - - -	Over the North Sea - - - - -	Off our north-western coasts.
Direction of Motion - - -	None - - - - -	None - - - - -	Southerly and afterwards easterly.
Rate of Motion - - - - -	None - - - - -	None - - - - -	Slow.
Regions passed over - - -	France - - - - -	The North Sea - - - - -	The British Isles and North Sea.
Termination - - - - -	Dispersed - - - - -	Dispersed on 27th - - - - -	Developed into a large system which lay over the eastern shores of the North Sea during earlier part of May.
Accompanying Winds - - -	South-westerly in our Islands and north of France, Easterly in south of France.	South-easterly in our Islands, North westerly in Denmark and Norway.	Veering round from North-west to North-east, East, and South-east.
Weather - - - - -	Fine; haze and fog on its southern side.	Fine and dry - - - - -	Fine, dry.
REMARKS - - - - -	This system lasted for but few hours, in a ridge, which extended westwards from a larger system lying over Russia. It soon broke up leaving the ridge referred to still lying over the south of France.	This system was formed in the middle of a broad band of high pressure which lay from north-west to south-east over our Islands and the North Sea on the 23rd and 24th. Its movements were unimportant and its dispersal was sudden on the appearance of the small depression (No. XXXIII.), near Wick, on the 27th.	This system appeared soon after the break up in the weather brought about by the cyclonic system No. XXXIII. (see p. 44) and produced a new spell of fine dry weather with warm days, but cold nights.



## SECTION III.

## REMARKS FOR APRIL 1886.

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

*Pressure.*—The mean pressure of the air at 8 a.m., varied from 29·79 inches at the southern extremity of the Shetlands, and 29·82 inches at Stornoway, to about 29·92 inches over our south-eastern countries; the gradients were therefore favourable for South-westerly winds of little strength, and the distribution was anticyclonic over the south-eastern half of the kingdom, and cyclonic in the north-west. Compared with the values for March, those for this month show a decrease amounting to nearly a tenth of an inch in the west and south of Ireland, and to rather more than half a tenth in the north of Scotland; in Wales the values for the two months are identical, while over the eastern parts of England there is a decrease of half a tenth of an inch, but when compared with the averages for the corresponding month in the 20 years 1861–80, they show a slight deficit generally—amounting to about 0·05 in. in the extreme north-west, and to about 0·02 in. in the south-east. The lowest readings occurred very generally between the 7th and 9th, at which time the deep depression No. XXX. lay over the northern parts of our area, and the barometer fell to 28·5 inches in some places; but the highest values observed were recorded between the 14th and 16th, at which time the centre of a large anticyclonic system lay off our western coasts, where the barometer rose to above 30·4 inches. The total range was consequently large in the west and north, but was slight in the south-east.

*Movements of Depressions.*—These were, as a rule quite normal, their direction being generally from south-west to north-east, their tracks lying over or outside our western and northern districts, while their rate of motion was moderate. One system, however, and this the deepest observed during the month, began to move slowly after striking our north-west coasts, and finally filled up suddenly off the north of Scotland; this was followed by the development of a shallow irregular system which passed south-eastwards, immediately over the United Kingdom, to France. A small disturbance was formed near Wick on the 27th, near the middle of an anticyclonic system which had lasted for several days; it broke up the weather completely for a time, and moved in a south-easterly and easterly direction to the neighbourhood of the Scaw, where it filled up. The isolated disturbance which passed eastwards over the south of France towards the end of the month calls for no special remark.

*Anticyclones.*—Only three of these systems passed completely over our area during the month, and they were all small and low. There was, however, a large system lying to the south-westward of the British Islands on the 13th, and this subsequently moved northwards and eastwards, partly overlapping our Islands and giving us cold North-easterly winds. It finally passed eastwards over Europe, leaving a broad anticyclonic band over the North Sea, and in this the system No. VIII. was subsequently formed.

*Winds.*—These were very variable, both the South-westerly and North-easterly currents being well represented, with a considerable intermingling of winds from intermediate points in many places. Thus, at Scilly, the dominant winds were Easterly, but there was also a large percentage of winds from between South-west and North-west; at Ardrrossan and at Shields the North-easterly winds were most prevalent, but the South-westerly and Westerly winds were, nevertheless, more fully represented at these stations than those from the remaining points, while at Sumburgh Head the prevailing winds were from North and North-north-east, and next to them were those from South-east. The Valencia wind-rose is remarkable for the uniformity in the size of its petals, showing great similarity in the amount of wind prevailing from each quarter, the only notable variation being between those from North-east and South-east.



*Temperature.*—The mean (sea-level) readings at 8 a.m. varied from between  $47^{\circ}$  and  $49^{\circ}$  over several of our southern counties and at Valencia, to a little below  $44^{\circ}$  over the northern parts of central Ireland, a little below  $44^{\circ}$  over southern Scotland, and to  $41.5$  at Sumburgh Head. Local areas of cold were observed in the north-west of Wales, the north of Ireland, and the south of Scotland, while warm areas were observed over Devonshire, Hampshire, and many other of the southern and midland parts of England. This irregularity is mainly owing to the fact that, while the summer type of distribution had spread over all the midland and southern parts of England, the winter type was still slightly manifest over Ireland and the northern parts of Great Britain. Compared with the values for March, those for April show an increase amounting to between  $6^{\circ}$  and  $9^{\circ}$  over our southern and the home counties,  $5^{\circ}$  in the north of England, and  $4^{\circ}$  or  $5^{\circ}$  over Scotland and Ireland, but when compared with the averages for April in the 20 years 1861–80, however, they show a deficit over all counties excepting Hampshire, where the normal values and those recorded this year agree closely. In Ireland the deficit was about  $3^{\circ}$ , in Scotland about  $2^{\circ}$ , and over our Midland counties about  $1^{\circ}$  to  $2^{\circ}$ . The lowest values occurred in some places between the 10th and 12th in the rear of depression No. XXXI. as it passed to the south-eastward over our Islands, and cold Northerly winds put an end to the long spell of mild South-westerly winds which prevailed during the earlier part of the month (see Section I.); in most other places, however, the minima occurred on the 30th, when the anticyclonic system No. IX. was spreading over us from the westward. The highest readings were recorded between the 25th and 27th, just before the anticyclone No. VIII. gave way. None of the extremes are worthy of special remark, and the range was consequently not very large for April. At Loughborough and Cambridge, however, it amounted to  $42^{\circ}$ , and at Parsonstown to  $43^{\circ}$ .

*Vapour Tension*, as shown by the dry and wet-bulb thermometers at 8 a.m., varied from 0.28 in. off our south-western coasts to about 0.22 in. over the east of Scotland, and about 0.23 in. over our northern counties, while *Relative Humidity* varied from somewhat about 90 per cent. over the Channel and off our north-western coasts, to between 80 and 83 over the greater part of Ireland and England. At some isolated stations it was still lower, the values for Belmullet and London being both 79.

*Rainfall.*—This varied from very little above an inch at Aberdeen, and from less than 1.5 inches over the greater part of our north-eastern and eastern counties, to 2 inches at Holyhead, to 2.2 inches in the Channel Islands and Scilly, to 3.2 inches on the south coast of Ireland, to 4.9 inches at Hawes Junction, and to 6.6 inches at Laudale. The fall was rather below the average for the 20 years 1866–85 at most of the north-eastern and eastern stations, and also along the south coast of Ireland, but was somewhat in excess on our north-western coasts, especially at Laudale. This excess in the north-west is readily explained by the number of depressions which passed in a north-easterly direction, by our north-western coasts during the earlier part of the month.

*Bright Sunshine.*—Assuming that the total amount of bright sunshine which could have been possibly recorded at each station during the month is represented by 100, the values actually registered varied from 46 at Douglas (Isle of Man), 43 at Jersey, Southampton, and Stornoway, and 40 at Markree Castle and Aberdeen, to 30 at Durham and Bawtry,  $32^{\circ}$  at York and Valencia, and 33 in London. Over our eastern counties the percentage varied from 35 to 38. These values do not call for special comment.



TABLE VII.

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			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° 793	41° 6'	36° 0'	46° 2'	41° 1'	32	1st, 28th, 29th, 30th, 22nd	50	24th
	Wick	29° 825	43° 0'	35° 7'	49° 4'	42° 6'	28		55	12th, 25th,
	Stornoway	29° 815	43° 1'	36° 4'	49° 1'	42° 8'	31	1st, 29th	55	25th
1. SCOTLAND, E.	Nairn	29° 822	41° 7'	34° 2'	50° 7'	42° 5'	23	2nd	59	2nd
	Aberdeen	29° 853	43° 4'	36° 0'	49° 9'	43° 0'	30	10th	61	27th
	Leith	29° 867	43° 6'	37° 5'	50° 9'	44° 2'	33	10th, 24th, 30th	72	27th
2. ENGLAND, N.E.	Shields	29° 886	42° 9'	37° 9'	47° 9'	42° 0'	30	30th	63	27th
	York	29° 915	43° 2'	37° 4'	52° 4'	44° 9'	28	30th	66	27th
	Spurn Head	29° 897	43° 2'	39° 0'	47° 4'	43° 2'	34	10th	57	4th
3. ENGLAND, E.	Yarmouth	29° 924	43° 9'	38° 9'	48° 9'	43° 9'	34	7th, 10th, 12th	56	5th
	Cambridge	29° 930	45° 7'	37° 4'	56° 1'	46° 8'	29	12th, 30th	71	27th
4. MIDLAND COUNTIES	Loughborough	29° 922	42° 9'	38° 0'	54° 7'	46° 4'	29	11th	71	27th
	Oxford	29° 932	44° 4'	39° 4'	54° 4'	46° 9'	30	12th	69	24th
5. ENGLAND, S.	London	29° 925	45° 6'	40° 7'	55° 5'	48° 1'	34	12th	70	24th
	Dungeness	29° 908	45° 7'	39° 0'	51° 1'	45° 1'	29	12th, 13th	58	6th, 28th
	Hurst Castle	29° 919	45° 3'	41° 3'	52° 6'	47° 0'	32	12th	66	28th
6. SCOTLAND, W.	Ardrossan	29° 869	43° 4'	38° 4'	50° 5'	44° 5'	32	29th	62	25th
7. ENGLAND, N.W.	Hawes Junction*	28° 641	39° 5'	33° 9'	46° 3'	40° 1'	24	30th	65	27th
	Barrow-in-Furness	29° 887	43° 6'	39° 9'	51° 6'	45° 8'	33	10th, 11th, 30th	63	27th
	Liverpool (Bidston)	29° 896	44° 4'	40° 1'	52° 8'	46° 5'	34	10th, 30th	70	27th
	Holyhead	29° 894	44° 9'	41° 2'	49° 8'	45° 5'	37	1st, 9th, 10th, 30th.	64	26th
8. ENGLAND, S.W.	Pembroke	29° 895	44° 5'	41° 5'	50° 4'	46° 0'	34	10th	63	28th
	Prawle Point	29° 916	46° 0'	40° 5'	51° 8'	46° 2'	34	11th, 12th	67	28th
9. IRELAND, N.	Malin Head	29° 852	43° 4'	38° 8'	49° 7'	44° 3'	33	1st, 2nd, 10th	64	26th
	Donsghadee	29° 884	43° 3'	38° 4'	49° 9'	44° 2'	31	10th	56	27th
	Mullaghmore	29° 866	44° 3'	40° 7'	51° 9'	46° 3'	29	10th	67	26th
	Belmullet	29° 863	46° 2'	41° 6'	51° 2'	46° 4'	35	1st, 10th	67	26th
10. IRELAND, S.	Parsonstown	29° 896	44° 3'	37° 1'	53° 6'	45° 4'	28	30th	71	27th
	Valencia	29° 886	48° 8'	42° 5'	54° 1'	48° 3'	34	30th	65	25th, 26th
	Roche's Point	29° 885	46° 4'	41° 1'	53° 4'	47° 3'	33	19th	60	28th
CHANNEL ISLANDS	Scilly (St. Mary's)	29° 893	48° 1'	43° 3'	50° 9'	47° 1'	36	11th	56	28th
	Jersey (Noirmont)	29° 910	47° 4'	43° 4'	53° 0'	48° 2'	34	11th	70	27th

\* 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 1886.

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. 0.220	84	7.1	ins. 2.28	0.85	26th	16	5	1	0	4	12	1	6	7	2	6	3	4	2	1	0
238	86	6.6	1.57	0.28	7th, 27th	18	2	3	1	7	14	4	5	2	4	3	4	5	3	4	0
254	91	5.6	2.89	0.67	25th	20	3	5	0	10	10	6	0	5	4	4	3	5	5	4	0
224	86	5.3	0.96	0.45	27th	19	2	1	0	6	5	1	2	4	2	0	1	7	6	2	6
222	79	5.5	1.15	0.19	18th	17	0	0	0	9	9	3	6	3	2	1	4	6	4	4	0
226	79	5.1	1.13	0.26	27th	14	2	0	0	11	7	0	1	6	5	2	0	3	11	2	0
227	83	7.3	1.45	0.41	18th	14	0	1	0	4	16	1	4	5	4	0	3	8	4	1	1
234	84	6.6	1.88	0.34	2nd	19	1	0	0	5	12	0	8	3	3	1	5	3	5	1	1
243	87	5.4	1.35	0.32	10th	18	1	1	0	5	5	6	4	5	3	4	1	7	4	2	0
249	87	5.4	1.32	0.31	7th	16	0	1	1	8	5	2	3	6	5	1	1	4	6	3	1
253	83	7.2	1.03	0.27	7th	14	0	3	1	8	19	0	8	5	3	0	3	7	1	3	0
235	85	8.4	1.77	0.42	2nd	18	3	4	2	0	15	3	2	6	5	1	2	5	6	3	0
244	83	7.0	2.24	0.82	28th	14	2	4	2	5	14	1	2	10	3	3	4	5	2	2	0
240	79	6.7	1.37	0.44	28th	14	0	4	1	7	12	3	1	7	8	1	0	6	5	2	0
279	92	6.1	1.60	0.50	7th	12	0	0	0	6	7	1	3	5	10	0	1	2	7	2	0
270	89	5.8	1.63	0.49	7th	18	2	2	2	6	7	3	3	9	5	0	2	6	3	2	0
254	91	6.2	0.96	0.22	4th	12	0	0	0	8	13	4	0	9	7	0	1	6	3	1	3
210	87	7.5	4.88	1.15	4th	21	6	5	0	4	19	0	0	8	8	1	0	7	6	0	0
234	82	5.6	2.78	0.47	4th	18	0	0	1	5	10	5	2	14	0	0	2	8	2	2	0
228	78	6.2	1.42	0.18	18th	20	1	3	0	8	14	3	1	8	5	3	2	6	4	1	0
261	88	5.4	2.03	0.46	2nd	14	0	0	1	9	6	3	4	6	3	0	4	6	3	2	2
251	86	6.1	1.90	0.43	23rd	14	1	0	1	5	5	8	1	7	7	2	2	5	3	3	0
267	87	6.2	1.80	0.43	7th	17	0	2	1	6	12	4	4	10	3	0	2	4	4	2	1
249	88	4.3	1.69	0.33	4th, 13th	16	1	0	0	15	8	2	3	5	5	2	4	5	4	2	0
244	87	5.1	1.32	0.25	7th	16	0	0	0	10	8	3	1	7	6	2	2	5	4	3	0
235	80	5.8	1.93	0.33	9th, 13th	17	2	5	0	9	7	10	3	3	10	1	3	3	3	3	1
241	79	4.0	2.30	0.52	6th	16	0	1	0	15	6	5	5	3	8	3	3	3	3	2	0
241	82	5.6	1.94	0.34	4th	13	2	0	0	7	9	0	5	4	1	2	3	3	4	3	5
280	81	7.1	3.19	1.03	6th	17	0	3	0	1	11	5	3	5	4	2	3	3	3	3	4
260	83	6.7	3.29	0.62	28th	16	1	1	1	3	10	4	4	4	6	4	1	4	4	3	0
273	82	8.4	2.17	0.37	19th	20	0	2	1	0	16	9	1	4	12	1	2	3	5	2	0
282	87	6.4	2.19	0.36	8th	17	1	3	4	7	14	4	1	8	7	1	1	6	4	1	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 1886.

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.						
STONORWAY	*	*	*	*	*	*	*	*	*	*	183	43
ABERDEEN	*	*	*	*	*	*	*	*	*	*	171	40
ALNWICK CASTLE	37'4	47'5	42'5	30	9th, 29th	66	15	1'78	0'40	18th	—	—
DURHAM	36'3	49'9	43'1	27	30th	67	21	1'52	0'42	18th	125	30
SCARBOROUGH	38'4	48'0	43'2	32	10th	59	17	2'46	0'72	18th	—	—
YORK	*	*	*	*	*	*	*	*	*	*	132	32
HILLINGTON	37'3	52'7	45'0	30	10th	69	14	1'89	0'38	10th	144	35
GELDESTON	37'9	51'9	44'9	32	10th, 27th	62	13	1'43	0'32	7th	158	38
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	156	38
ROTHAMSTED	37'7	53'7	45'7	30	30th	66	20	1'96	0'51	7th	—	—
INGATESTONE	38'5	54'1	46'3	31	10th	64	10	1'12	0'33	7th	—	—
BAWTRY	36'9	52'8	44'9	29	30th	70	17	1'74	0'34	17th	†124	30
LEICESTER	37'7	54'6	46'2	30	11th	70	20	2'14	0'40	2nd	110	27
CHEADLE	36'2	52'1	44'2	29	11th	66	16	1'79	0'36	2nd	—	—
CHURCHSTOKE	36'4	53'4	44'9	27	12th	71	16	1'28	0'32	7th	146	35
HEREFORD	38'8	55'7	47'3	28	12th	71	16	1'99	0'36	18th	—	—
CIRENCESTER	37'5	53'8	45'7	29	12th	70	17	1'72	0'45	2nd	151	37
OXFORD	*	*	*	*	*	*	*	*	*	*	151	37
LONDON	*	*	*	*	*	*	*	*	*	*	134	33
STRATHFIELD TURGIS	37'9	57'1	47'5	28	13th	73	15	1'37	0'44	7th	—	—
HASTINGS	41'1	52'8	47'0	33	11th	66	15	1'59	0'53	7th	152	37
SOUTHAMPTON	40'7	56'9	48'8	32	11th	73	15	2'69	1'04	28th	175	43
STOWELL	38'7	54'0	46'4	32	12th, 30th	70	17	2'31	0'56	18th	—	—
LAUDALE	36'4	50'7	43'6	29	11th	62	14	6'63	2'70	7th	—	—
GLASGOW	37'5	50'3	43'9	32	30th	65	12	1'16	0'22	3rd	149	35
DOUGLAS	39'5	50'9	45'2	29	30th	62	17	2'32	0'35	4th	191	46
NEWTON REIGNY	35'8	50'8	43'3	23	30th	69	19	3'21	0'38	4th	156	37
STONYHURST	37'3	50'6	44'0	28	30th	66	18	3'63	1'04	8th	146	35
BLACKPOOL	38'9	51'7	45'3	27	30th	68	17	2'29	0'56	8th	138	33
MANCHESTER	38'1	52'5	45'2	30	11th	68	15	1'92	0'35	8th	—	—
LLANDUDNO	40'3	52'5	46'4	33	30th	67	14	1'67	0'30	23rd	142	34
LLANDOVEERY	36'6	56'1	46'4	23	11th	77	17	2'95	0'71	10th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	171	42
ARLINGTON	38'8	55'8	46'3	29	12th	70	17	2'57	0'47	10th	—	—
CULLOMPTON	39'2	55'5	47'4	29	12th	70	14	2'40	0'43	2nd	145	35
FALMOUTH	41'9	51'2	46'6	36	9th, 10th, 12th	59	19	2'90	0'51	7th	151	37
PLYMOUTH	42'7	55'0	48'9	35	11th, 30th	67	16	2'16	0'64	7th	155	38
JERSEY	*	*	*	*	*	*	*	*	*	*	175	43
LONDONERRY	37'0	54'1	45'6	29	30th	73	14	2'06	0'40	8th	—	—
MARKEE CASTLE	35'8	52'8	44'3	26	30th	70	17	2'11	0'74	27th	169	40
BROOKBOROUGH	36'5	52'8	44'7	28	10th, 30th	71	12	2'33	0'35	6th	—	—
ARMAGH	36'4	52'7	44'6	29	30th	66	15	1'32	0'24	5th	150	36
EDGEWORTHSTOWN	36'4	52'4	44'4	28	12th	64	10	2'05	0'58	7th	—	—
DUBLIN	39'9	52'6	46'3	32	11th	65	15	1'32	0'37	4th	171	41
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	157	38
KILKENNY CASTLE	38'2	53'7	46'0	27	12th	65	13	1'75	0'37	6th	—	—
WATERFORD	38'8	53'2	46'0	29	12th	64	16	2'26	0'62	23rd	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	132	32
KILLARNEY	39'1	53'6	46'4	27	30th	65	14	3'54	1'08	6th	—	—

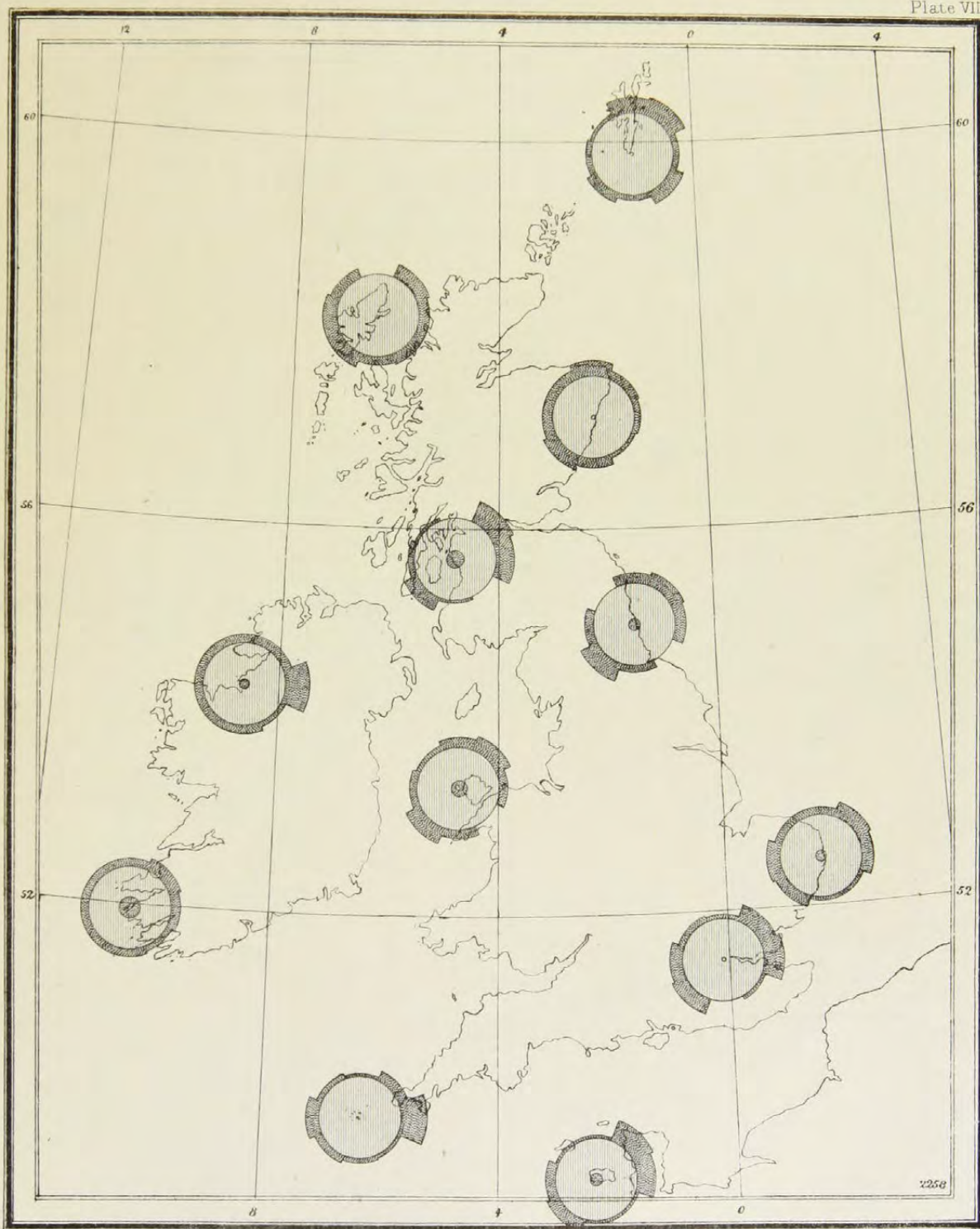
\* For information see Table VII.

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



# MONTHLY WIND CHART FOR APRIL, 1886.

Plate VII.



To face page 50.

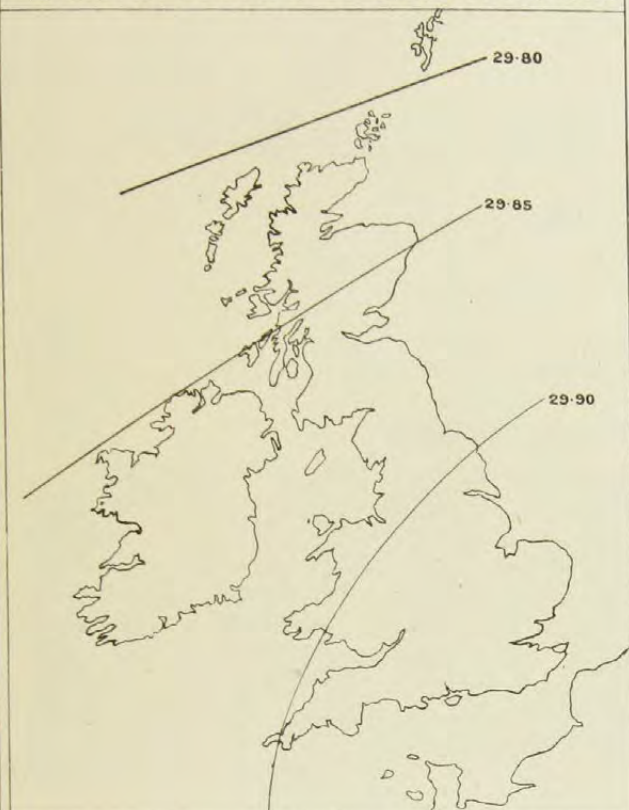
DANGERFIELD, LITH. 22, BEDFORD ST COVENT GARDEN, 12257.



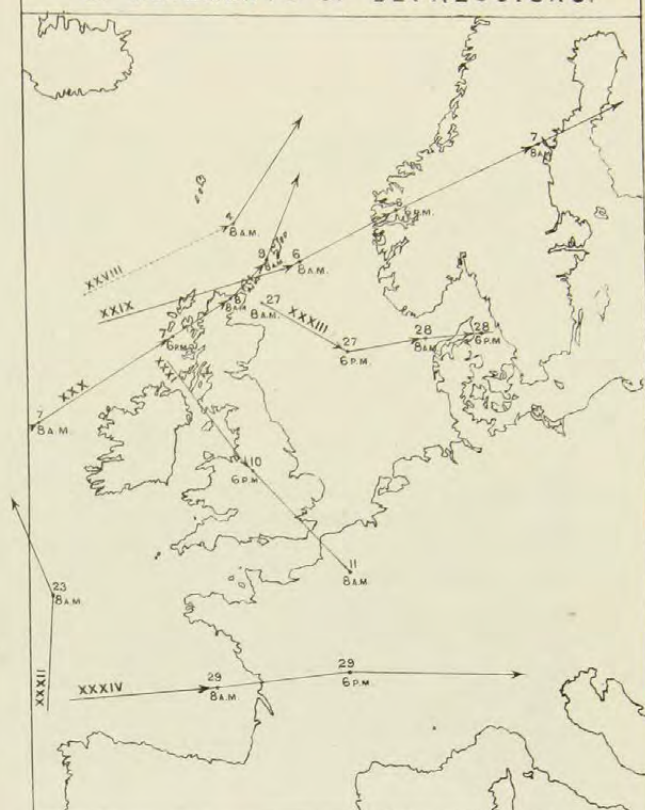




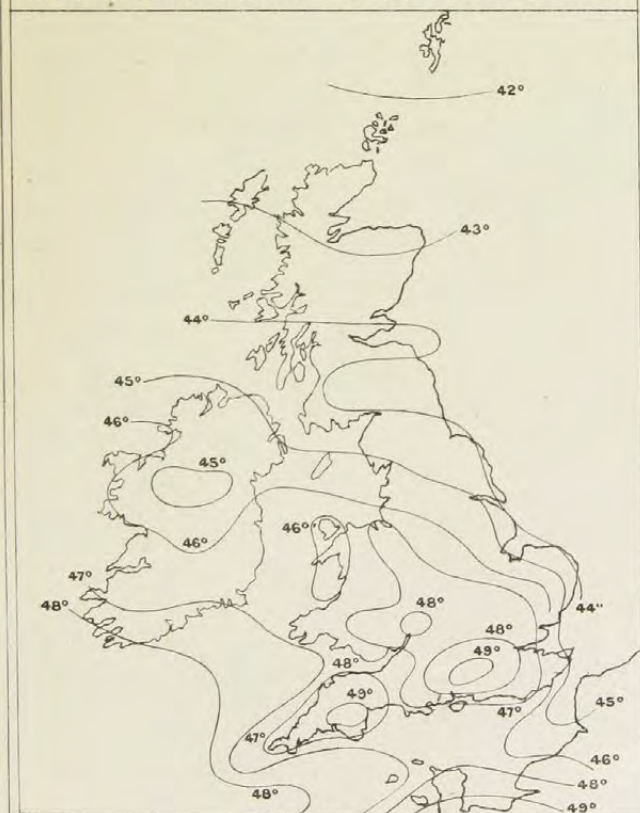
## 1. DISTRIBUTION OF MEAN PRESSURE



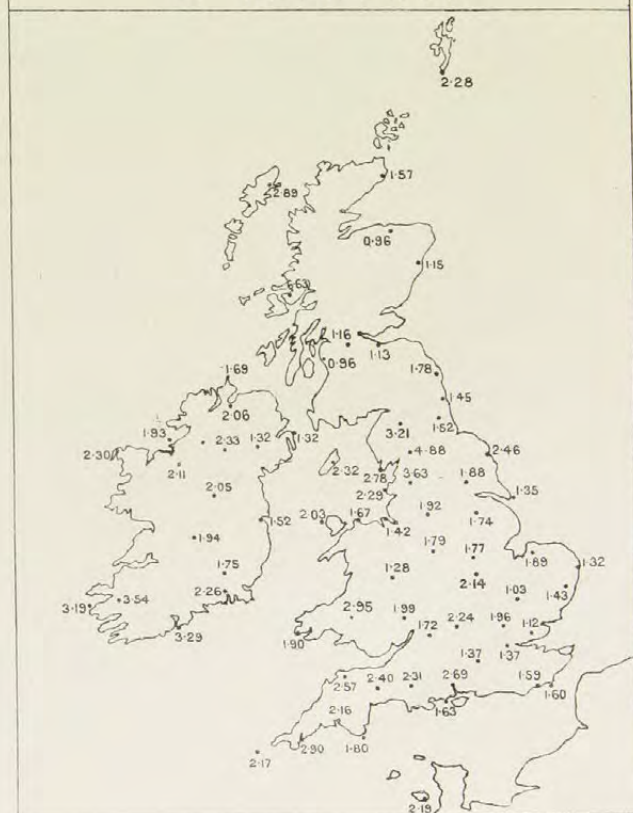
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL





1. DISTANCE OF NEAR-NEAR

2. DISTANCE OF NEAR-NEAR

3. DISTANCE OF NEAR-NEAR

4. DISTANCE OF NEAR-NEAR



# MONTHLY WEATHER REPORT.

MAY 1886.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of May was at first fine, bright and dry; sometimes warm during the day, but cold at night. After the 8th, however, it became most unseasonable, and was marked by rainfall of unusual amount over England and Ireland (especially between the 11th and 14th), by frequent thunderstorms, especially in the south of our Islands and over France, as well as by constant changes in the type of pressure distribution, and consequently in the direction and force of the wind. Depressions were numerous, but not deep, and on several occasions two or more minima appeared simultaneously near their centres. The amount of rainfall was largely in excess of the mean, except in the extreme north and extreme south of our Islands, as much as three or four times the normal quantity for May having occurred at some of our west Midland stations. The amount of bright sunshine recorded was small.

May 1-7.—The distribution of pressure over the British Islands during this period was anticyclonic, owing to the existence of a well-formed anticyclone (No. IX.), which first appeared off our north-western coasts on April 29, and, after moving southwards for one day, travelled slowly to the eastward and became a large and lasting system over the eastern shores of the North Sea. The weather was fine, dry, and bright, except at some of our northern and western stations, where showers of rain fell occasionally, as the South-easterly to South-westerly winds freshened. As the centre of the anticyclone passed over, the wind fell to a calm, temperature became low, especially on the nights of April 30 and May 1, when sharp frosts occurred over the inland parts of our Islands. Then, as the gradients for Southerly (South-east to South-west) winds spread over us, the thermometer rose, especially during the daytime, so that whereas on May 2 the maximum readings over Ireland and England varied from only  $50^{\circ}$  to  $55^{\circ}$ , those recorded on the 4th exceeded  $65^{\circ}$  in many places, and those on the 7th rose to between  $72^{\circ}$  and  $77^{\circ}$  over England. No depression of importance appeared over our area during this interval.

May 8-10.—The anticyclone in the east now dispersed, and a new one (No. X.) appeared in the north. The distribution of pressure consequently became rather complex, and a shallow depression (No. XXXV.\* ) advanced northwards from Spain to the north of France. The wind became variable, the sky assumed a very unsettled appearance, halos and auroræ were reported locally, showers became more general, and thunderstorms occurred on the Continent. Temperature gave way decidedly, especially during the day-time.

May 11-15.—This was one of the wettest and most unsettled periods which have been experienced at this season for many years. At 8 a.m. on the 11th pressure was, as a whole, highest over the Mediterranean and southern Europe, while anticyclone No. X. lay off our northern coasts. Small shallow, depressions then began to appear over various parts of our Islands and the north of France, but the disturbance referred to in the previous

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



paragraph broke up. One of the new systems (No. XXXVI.\*) advanced over the western parts of our area from the north-westward, and underwent such sudden modifications in form that it is impossible to identify it with certainty with the system which lay off the south of Ireland early on the 12th. Depression No. XXXVI. was followed by an Easterly wind, and this increased in force, and brought exceedingly heavy rains to the north-east of Ireland, which extended to the eastern parts of that country. On the morning of the 12th a well-marked, but apparently decreasing system lay a little to the southward of Cape Clear, whence it moved eastwards to Gloucestershire and disappeared. In the course of the ensuing 24 hours several other small minima appeared in the "valley" of low pressure which, lying over our southern counties, the Channel, and north of France, separated the anticyclone in the north from the larger one in the far south. The weather occasioned by this very complex distribution was unusually wet, especially over the north and west midland counties of England. In some places the fall continued for 60 hours, and amounts were reported varying from one to three inches in 24 hours. Floods of exceptional height were observed in the neighbourhoods referred to, and the amount of damage done by them was very serious. It was on the night of the 12th also that a severe tornado occurred over central Spain, doing much harm at Madrid, and similar, but less violent phenomena occurred locally in some parts of Germany. During the 13th some of the minima over the British Islands filled up, but two of them began to travel, one (No. XXXVII.\*) taking a northerly course up our east coast, while the other (No. XXXVIII.\*) moved eastwards towards Belgium, and afterwards filled up. In France much rain fell from time to time and thunderstorms occurred in many places, but the rainfall with the Westerly and South-westerly winds over the Continent was not nearly so great as that which occurred with the Easterly winds over Ireland and England. The temperature of the air in the north was lower by several degrees than that in the south, so that as the two baric minima just referred to moved on—one to the northward and the other to the eastward—the cold Northerly wind of their western sides was spread all over the kingdom on the 13th, bringing with it strong squalls and cold showers to the southern stations. The fall consisted of a mixture of rain, hail, and sleet, which subsequently gave way to drier weather, and a sharp night frost occurred at the inland stations. During the 14th the barometer rose generally, and, as the depressions passed away the wind backed round to North-west and West, with improving weather, and the thermometer rose somewhat.

This system of disturbed weather was very extensive; the trough of low-pressure in which it occurred lying at times over the whole of south-western Europe, the North Sea, North Germany, and the Baltic Provinces of Russia.

May 16-18.—The type of pressure distribution had now become south-westerly, and the gradients moderate; during its continuance a depression (No. XXXIX.\*) appeared in the north-west, and, travelling north-eastwards, produced South-westerly (South to West) winds, moderate to strong in force, with showery weather, but mild air. At 8 a.m. on the 17th, however, a cyclonic system (No. XL\*), both larger and deeper than those recently observed, arrived off the west of Ireland, bringing with it Southerly (South-east to South-west) gales and rains, which were felt almost all over the kingdom. On reaching the north of Scotland, the disturbance proved to have a double-minimum, and as this passed out of our area to the northward, it apparently filled up.

May 19-21.—The barometer then rose very decidedly, and while some tendency towards the formation of a new anticyclonic system was shown over Ireland (see 8 a.m. and 6 p.m. reports of the 19th) the barometer fell over the Bay of Biscay, and a new but not deep depression (No. XLI.\*) advanced over Great Britain from the south-westward. At 8 a.m. on the 20th its centre was between Scilly and Penzance, and this system also, as it moved northwards, developed several small minima within its central area (see 6 p.m. map of 20th), causing very sudden changes of wind, pressure, and temperature; thunderstorms occurred in places, and in the immediate neighbourhood of its centre a great deal of rain fell, but in

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



more remote localities the rainfall appears to have been singularly small, and at several stations there was none at all.

May 22-23.—The distribution of pressure during this interval was mainly anticyclonic (see the maps in the Daily and Weekly Reports and system No. XI. p. 56), and the weather was consequently dry for a little while in most parts of the British Isles. Over France, however, severe thunderstorms and rain were very prevalent, and these at times spread northward to our extreme southern and south-eastern counties, accompanied by shallow depressions; one of these occurred in London early on the 22nd). Conditions were therefore still unsettled, and during the night of the 23rd the anticyclone broke up.

May 24-29.—The distribution of pressure during this interval was cyclonic—the systems being at first very large, shallow, and ill defined, but afterwards smaller, deeper, and well-marked (See No. XLII.\*). The winds consequently varied greatly both in force and direction. Temperature was low and variable, and while rain fell from day to day in all parts of the kingdom, the fall was at times very heavy locally (especially in London on the 24th), and thunderstorms occurred at times over our southern stations and very frequently over France. With the 29th, however, a decided improvement took place and the barometer rose.

May 30-31.—The dominant pressure system during this time was anticyclonic; the winds consequently fell light, and the weather cleared up. Temperature, however, did not rise much even during the daytime, and the nights were cold and unseasonable. The month closed without any indications of warm settled weather.

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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 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXXV. May 10-12.	No. XXXVI. May 11-13.	No. XXXVII. May 12-16.	No. XXXVIII. May 13-15.
Form - - - -	Oval - - - -	Varying; generally oval -	Nearly circular - - -	About circular - - -
Size - - - -	Moderate to small - -	Moderate - - - -	Small to moderate - -	Small - - - -
Depth - - - -	Shallow - - - -	Varying; shallow to moderate	Very shallow to moderate -	Shallow - - - -
Where first Observed -	Over the north of Spain -	Off the west of Ireland -	Over the north of France, near the Cherbourg promontory.	At the mouth of the Channel -
Direction of Motion -	North-easterly and easterly -	South-easterly till 8 a.m. 12th, then south-westerly and afterwards easterly.	North-easterly and northerly	Easterly - - - -
Rate of Motion - -	Rapid at first, then very slow	Slow - - - -	Very slow - - - -	Very slow - - - -
Regions passed over by Steepest Gradients.	Bay of Biscay and France, gradients only slight.	Ireland - - - -	British Islands and German Ocean.	England - - - -
Termination - - -	Passed eastwards to north Germany, and filled up on 11th.	Dispersed over eastern part of Bristol Channel.	Passed away to the northward.	Passed eastwards to Belgium and filled up on 15th.
Time under Observation -	Nearly two days - - -	About two days - - -	More than four days - -	About 60 hours - - -
Accompanying Winds -	Moderate Easterly to Northerly over our southern stations and France.	Easterly (moderate to a gale) in north-west and north, South-westerly in the south.	Easterly (strong) on its northern side. South-westerly and Westerly in the south. Afterwards Northerly.	East to North-east and North-west on its northern and western sides, South-westerly in the south.
Weather -	Changing from fine to thundery and rainy.	Very heavy rain, with thunder and lightning at times.	Much rain, with some thunder and lightning; then very cold, with snow.	Much rain - - - -
Rainfall -	Heavy over France, and considerable afterwards at some of our southern stations.	Unusually heavy in Ireland, and fell with the Easterly wind in rear of the depression.	Heaviest over England, and with the Easterly wind: amount decreasing as wind became northerly, and then becoming mingled with snow.	Fell chiefly with the Easterly winds prevailing over England.
REMARKS - - -	<p>This system was unimportant so far as wind-force is concerned, but important in its relation to the weather (thunder and rain) which it brought to the southern and south-eastern parts of the United Kingdom and France.</p> <p>It was followed by the formation of a high-pressure area over Spain and another off our north-western coasts, and by a complete break-up of the weather all over the kingdom.</p>	<p>This advanced as No. XXXV. was passing away from our south-eastern districts. It underwent many changes in form and depth before it finally dispersed (see Charts in the Daily and Weekly Weather Reports). The Easterly current on its northern side was from 10° to 14° colder than the South-westerly one in the south.</p>	<p>This system (which in conjunction with Nos. XXXVI. and XXXVIII. formed a long "trough" over our southern districts at 8 a.m. on the 13th) produced a fresh gale at Yarmouth. The system was developed between two high-pressure areas one over the northern parts of our area and the other over the Mediterranean and south of France. Its movements were very peculiar.</p>	<p>This system also was apparently developed near the mouth of the English Channel between the two high-pressure areas; its motion being eastwards, while No. XXXVII. moved northwards up our eastern coasts was remarkable.</p>
These three minima were present at the same time in a long trough which at 8 a.m. 13th lay over the south of our Islands, and the north of France. They were accompanied by the heaviest rains known over England for many years, and were followed by deep floods. There is some doubt as to the movement of No. XXXVI. after the evening of the 11th. See section I., p. 51.				



## SECTION II.

TABLE OF CYCLONIC SYSTEMS—MAY 1866.

No. XXXIX. May 16.	No. XL. May 17-19.	No. XLI. May 20-22.	No. XLII. May 27-29.
Apparently nearly circular - - -	Oval, and complex, having two minima.	Oval, but somewhat irregular and complex at times.	Varying; somewhat circular at times.
Small - - - - -	Large - - - - -	Moderate - - - - -	Small to large.
Moderate - - - - -	Deep. Minimum readings were below 29 ins.	Shallow - - - - -	Shallow to deep; afterwards filled up quickly.
Off the north-west coast of Ireland -	Off the west of Ireland; - - -	To the southward of the Start Point	Over the Bay of Biscay.
North-easterly and northerly - - -	North-easterly - - - - -	North-north-easterly - - -	North-easterly and northerly.
Moderate - - - - -	Apparently rapid at first, but decreasing to <i>nil</i> later.	Slow to moderate - - - - -	Rapid at first, but decreasing later.
Our western and northern districts -	British Islands, especially the more western parts.	British Isles and North Sea. Never very steep.	British Islands and the North Sea.
Travelled away to northwards - - -	Filled up off our extreme northern coasts.	Travelled away over Lapland, and out of our area.	Filled up off the north-east of Scotland.
About 36 hours - - - - -	About 60 hours - - - - -	Nearly three days - - - - -	Two days.
South-westerly, strong - - - - -	Southerly and South-westerly gales and strong breezes; a North-easterly gale at Stornoway.	Cyclonic circulation of moderate breezes.	Cyclonic circulation; the strongest were those from South-west in the rear of its centre.
Squally, showery, mild - - - - -	Mild, squally, and wet - - - - -	Very unsettled and thundery; heavy local showers.	Very unsettled and squally; much rain.
General, but not heavy - - - - -	General, but not heavy - - - - -	Very partial and local, but exceeding an inch in places.	General and heavy, exceeding an inch in several places.
This system advanced very quickly as No. XXXVII. passed off, and though not large brought showery weather to all parts of the kingdom. The rain spread to our south-eastern counties more quickly than it had been expected to do, but the air was much softer and milder than that of the few previous days.	This system appeared at first to be simple in its structure, but on its centre reaching Scotland two minima were shown. The system was then already filling up, and by the 19th it had disappeared. It was followed by the appearance of other very shallow systems over the Bay of Biscay and France, causing a renewal of thundery weather over our Islands (see system No. XLI., and also the charts in the Daily and Weekly Weather Reports).	This system, though of so little depth, maintained its form during the whole of the time it was in our neighbourhood. It was of complex structure, several minima being shown in its central area at 6 p.m. 20th (see Chart in Weekly Weather Report).	This system advanced while pressure was highest over France and the Mediterranean, and lowest off our northern coasts (the gradients being moderate); for a time it was accompanied by a subsidiary system which lay over the south-western parts of our Islands, but which filled up during the night of the 27th. It is worthy of especial note (1) on account of the rapidity of its advance from the Bay of Biscay early on the morning of the 27th; (2) for the manner in which it altered its movement and depth; and (3) for the suddenness with which it filled up off our north-east coasts.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS, MAY 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. X. May 8-12.	No. XI. May 21-24.	No. XII. May 30-June 1.
Form - - - - -	Varying; generally elongated - - -	Varying greatly; rather elongated as a rule.	Irregular. Somewhat oval.
Size - - - - -	Apparently large - - - - -	Small - - - - -	Small.
Height - - - - -	Small. Maximum readings seldom above 30 ins.	Small. Maximum readings 30·3 ins. and upwards on 22nd.	Small. Maximum readings 30·1 ins. and upwards.
Where first observed - - -	Off our northern and north-eastern coasts	Off our south-western coasts - - -	Off our north-western coasts.
Direction of Motion - - -	Apparently northerly and north-westerly.	North-easterly - - - - -	South-easterly and easterly.
Rate of Motion - - - - -	Very slow, sometimes stationary - -	Slow - - - - -	Very slow.
Regions passed over - - -	Our northern districts only - - -	British Isles and North Sea - - -	British Isles.
Termination - - - - -	Apparently dispersed - - - - -	Travelled away to Finland - - -	Travelled away to the eastward over the Continent.
Accompanying Wind - - -	Easterly; strong to a gale at times -	Anticyclonic circulation. Westerly and North-westerly as the system advanced; Easterly in its rear.	Very light; North-easterly and Easterly.
„ Weather - - - - -	Uncertain. Very bad and rainy weather prevailed over Ireland and England (see Section I.) owing to small local depressions.	Fine - - - - -	Fine in our Islands; showery in France.
REMARKS - - - - -	While this system lay over our northern districts a still larger high-pressure area lay over the Mediterranean and southern Europe, and in the "valley" between them numerous depressions appeared, causing exceptionally heavy rain. See Section I., page 52.	This system advanced closely in the rear of the cyclonic system No. XLI. (see page 55), and was succeeded by another series of ill-defined depressions which lay over our southern districts and the north of France early on the 23rd, but which have not been deemed worth tabulating in the Table of Cyclonic System, (pages 54 and 55).	This system was apparently formed off our north-west coasts, and at 8 a.m. on 30th, appeared to be joined by a "col" to another system lying over Germany. On reaching the North Sea another anticyclone appeared off our north-west coasts. (See Maps for 6 p.m. 31st and Monthly Report for June).



## SECTION III.

## REMARKS FOR MAY 1886.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from about 29·94 inches over our south-eastern counties and the Channel Islands, to a little above 29·88 inches at Belmullet and Stornoway, and to 29·86 inches at Sumburgh Head. The mean gradients were therefore slight and favourable as a whole for winds from South-westerly and Southerly points, and compared with the map for April, that for May shows a trifling increase of pressure generally, amounting to about 0·07 in. at Stornoway, 0·06 in. at Sumburgh Head, 0·02 in. in the north-west of Ireland, and only 0·01 in., or less, over our south-eastern counties and the south-west of Ireland. In the Scilly Islands a very slight decrease is shown. When compared with the average conditions for May, in the 20 years 1861–80, it appears that pressure during this month was on the whole defective, by amounts varying from 0·04 in. or 0·05 in. over the northern and eastern parts of Great Britain, and between 0·08 in. and 0·10 in. in the west of Ireland. The gradients were therefore favourable for winds from a more Southerly point than the average for this time of year. The highest readings were recorded in nearly all places between the 1st and 3rd, at which time the anticyclone No. IX. (see the April Report) was passing over our area, and on which occasion the barometer rose to above 30·4 inches over the North Sea and east of England. The lowest readings occurred at the southern stations on the 13th, when the complex cyclonic distribution referred to in Section I. (p. 52) lay over the Channel and its neighbourhood, but in the north the lowest values were recorded either on the 18th (during the prevalence of cyclonic system No. XL\*) or on the 28th (when the system No. XLII.\* passed over Scotland). The range was, however, moderate everywhere, viz. 1·0 inch to about 1·25 inches.

*Movements of Depressions.*—These were very remarkable, especially during the middle part of the month, when systems appeared from unusual directions and disappeared with extraordinary suddenness, so much so that it is difficult to say whether some of the tracks (and more especially that of No. XXXVI.\*) may not be liable to some modification when more marine observations are available. The mean direction of movement, however, was about north-north-easterly, and the rate of motion varied greatly.

*Anticyclones.*—Four of these systems appeared during the month, but as the first one (No. IX.) advanced over us on April the 29th, its characteristics are tabulated in the Report for that month. The appearance of No. X. over the northern parts of our area simultaneously with the existence of a second system over the Mediterranean and southern Europe, was productive of very bad weather over the United Kingdom and France, and, in a less serious degree, over Germany also (see Section I.) On the 19th, again a very small system appeared temporarily over the north of Ireland, and for a time it appeared as though similar weather would result; however, the small anticyclone soon gave way on this occasion, but not before a great deal of rain and thunder had occurred over England.

*Winds.*—The winds reported were very varied. At the northern stations the dominant directions were Northerly and North-easterly (see Plate IX.); in the east and south the Easterly and South-westerly currents were pretty equally divided in their prevalence, while in the west of Ireland the prevalent directions were South-easterly and North-westerly. These facts show how severe was the conflict between the main currents during the month, and account for the very disturbed condition of the weather, to which attention has already been drawn in Sections I. and II.

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



*Temperature.*—The mean (sea-level) temperature of the month varied from a little above  $53^{\circ}$  over many parts of our southern and south midland counties, and from between  $50^{\circ}$  and  $51^{\circ}$  over the south and south-east of Ireland, to between  $48^{\circ}$  and  $49^{\circ}$  over Connaught, to somewhat above  $47^{\circ}$  over central Scotland, and to  $44^{\circ} \cdot 6$  at Sumburgh Head. These values show an increase since April, amounting to rather more than  $5^{\circ}$  over the south of England, to about  $4^{\circ}$  in Scotland and the north of Ireland, and to about  $3^{\circ}$  over the south and south-east of Ireland; but when compared with the averages for May in the 20 years 1866–81 they show a deficit of about half a degree over the south-east of England, two degrees over the northern half of Great Britain, and of two or three degrees over the major part of Ireland. The summer type of distribution was well developed over the whole of Great Britain, and the southern and south-eastern parts of Ireland, but not over the western and northern provinces of Ireland. The highest readings observed occurred in almost all places between the 6th and 9th, and varied from  $70^{\circ}$  to  $77^{\circ}$  over the inland counties of England, while the Southerly winds on the western side of anticyclone No. IX. prevailed, but the lowest occurred with almost equal uniformity on the 1st or 2nd, at which time the same anticyclonic system was passing across the kingdom from the westward. The range was large over our inland counties, amounting to as much as  $49^{\circ}$  at Rothamsted and Cambridge, and  $48^{\circ}$  at Bawtry, Hillington, and Strathfield Turgiss; over central Ireland, however, it did not exceed  $37^{\circ}$ , and at the coast stations round the kingdom was much smaller still. At Scilly the total range for the month was only  $18^{\circ}$ , at Sumburgh Head  $21^{\circ}$ , at Douglas (Isle of Man)  $29^{\circ}$ , and at Jersey  $31^{\circ}$ .

*Tension of Vapour.*—This varied from between  $0 \cdot 31$  in. and  $0 \cdot 34$  in. in the extreme south and south-west to about  $0 \cdot 26$  in. in the extreme north and north-east, but was locally as low as  $0 \cdot 25$  in. at Sumburgh Head and Hawes Junction. In London, too, the tension was rather low ( $0 \cdot 29$  in.) when compared with that at all the surrounding stations, where the values varied from  $0 \cdot 30$  in. to  $0 \cdot 34$  in. *Relative Humidity*, however, was very irregularly distributed, being as high as 91 per cent. at Pembroke, while it was only 84 at Scilly and Roches Point, and 87 at Holyhead. In most other places the percentage value exceeded 80, but in London it was as low as 73, at Liverpool 74, at Aberdeen 76, at Shields 77, and at York 78.

*Rainfall.*—This was very large except on the extreme south-western, eastern, and north-western coasts of Great Britain. It was especially large over the west and north Midlands, in some of which places the total fall was four times as great as the average for the 20 years 1866–85. The amounts actually recorded varied from 1·4 inches at Scilly, and rather more than an inch and a half at Stornoway and some stations on our east coast, to between three and four inches in many parts of Ireland, as well as over our southern counties and some parts of Scotland, to more than 5 inches at Valencia, Dublin, and several of the English Midland stations, to more than 6 inches at Douglas (Isle of Man), Stonyhurst, Hereford, and Llandovery, and to more than 7 inches at Churchstoke. In some other parts of the west Midlands the fall is stated to have been still larger, but in all cases the excess was owing mainly to the heavy downpour which occurred between the 11th and the 14th—some stations having then experienced a continuous heavy fall for more than 60 hours.

*Bright Sunshine.*—The values for this element were decidedly low generally. Assuming that the total amount which could possibly be recorded at each station during the month is represented by 100, then the amounts actually recorded were as low as 19 at Glasgow, 20 to 26 over the northern counties of England and many parts of Ireland, and from 30 to 35 in most other places. On the shores of the English Channel, however, and at Geldeston (Norfolk) they were above 40, and at Hastings and Falmouth were as high as 47.



# SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS,

DURING THE MONTH OF MAY 1886.



TABLE IX.

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 82° 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°856	44°6	39°5	48°8	44°2	33	1st, 10th	54	5th
	Wick	29°866	47°1	39°1	53°9	46°5	27	1st	64	7th
	Stornoway	29°881	46°8	39°0	52°0	45°5	32	1st, 16th, 31st	65	23rd
1. SCOTLAND, E.	Nairn	29°865	46°8	39°8	54°3	47°1	31	2nd	62	3rd
	Aberdeen	29°885	48°5	41°4	54°1	47°8	34	1st	68	7th
	Leith	29°892	47°7	41°5	55°2	48°4	34	2nd	69	6th, 7th
2. ENGLAND, N.E.	Shields	29°908	48°1	41°9	52°4	47°2	33	2nd	64	4th, 7th
	York	29°924	48°8	42°1	57°4	49°8	31	2nd	73	6th, 7th
	Spurn Head	29°913	48°2	43°9	53°5	48°7	37	2nd	62	4th, 5th, 6th, 29th.
3. ENGLAND, E.	Yarmouth	29°942	50°5	44°8	55°2	50°0	33	1st	64	18th
	Cambridge	29°937	52°2	42°2	62°3	52°3	26	1st	75	6th
4. MIDLAND COUNTIES	Loughborough	29°935	49°4	43°5	60°4	52°0	30	1st	75	7th
	Oxford	29°939	50°0	44°2	59°8	52°0	31	1st	73	7th
5. ENGLAND, S.	London	29°938	52°9	44°5	62°5	53°5	29	1st	76	7th
	Dungeness	29°934	52°4	46°6	58°0	52°3	40	5th, 6th, 15th	65	7th
	Hurst Castle	29°938	51°6	46°3	58°1	52°2	34	1st	68	9th
6. SCOTLAND, W.	Ardrossan	29°887	47°1	42°2	52°4	47°3	37	2nd, 13th, 27th	63	22nd
7. ENGLAND, N.W.	Hawes Junction*	28°664	44°1	37°9	50°0	44°0	24	14th	65	7th
	Barrow-in-Furness	29°899	47°6	43°9	55°4	49°7	36	13th	63	7th
	Liverpool (Bidston)	29°901	49°8	44°7	56°7	50°7	38	2nd, 12th	68	4th, 7th
	Holyhead	29°898	48°7	44°9	54°6	49°8	38	1st	64	7th
8. ENGLAND, S.W.	Pembroke	29°895	49°2	45°6	53°8	49°7	40	1st	61	22nd
	Prawle Point	29°929	51°4	45°5	55°8	50°7	37	1st	64	9th
9. IRELAND, N.	Malin Head	29°868	47°7	43°1	52°8	48°0	35	13th	64	22nd
	Donaghadee	29°896	47°4	41°6	52°0	46°8	35	22nd	61	6th
	Mullaghmore	29°875	49°2	46°1	55°3	50°7	37	12th	66	6th
	Belmullet	29°886	48°9	45°5	53°5	49°5	38	13th	62	6th
10. IRELAND, S.	Parsonstown	29°892	49°7	42°2	57°3	49°8	31	1st	68	6th
	Valencia	29°883	51°0	45°8	56°2	51°0	38	1st, 13th	65	31st
	Roche's Point	29°883	50°5	44°1	55°3	49°7	36	1st, 27th	63	31st
CHANNEL ISLANDS	Scilly (St. Mary's)	29°902	53°2	47°4	56°6	52°0	42	1st, 27th, 28th	60	24th, 29th
	Jersey (Noirmont)	29°941	52°9	48°3	59°1	53°7	41	1st	72	9th

\* 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 1886.

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.	Show.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calm.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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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 1886.

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	*	*	*	*	*	*	*	*	*	*	*	174	34
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	157	31
ALNWICK CASTLE	41'7	52'2	47'0	30	1st	65	6th	15	3'04	1'35	27th	—	—
DURHAM	40'4	55'2	47'8	27	2nd	74	6th	18	2'85	0'59	12th	100	20
SCARBOROUGH	42'8	53'6	48'2	35	2nd	65	4th, 5th	21	4'01	1'34	13th	—	—
YORK	*	*	*	*	*	*	*	*	*	*	*	97	20
HILLINGTON	42'1	60'7	51'4	26	2nd	74	7th	18	2'42	0'41	13th	170	35
GELDESTON	42'8	59'8	51'3	27	1st	71	7th	13	1'81	0'37	13th	205	43
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	168	35
ROTHAMSTED	42'6	60'0	51'3	25	1st	74	6th	20	4'20	0'98	12th	—	—
INGLESTONE	42'9	60'0	51'5	30	1st	72	7th	16	3'35	0'94	24th	—	—
BAWTRY	42'1	58'0	50'1	29	2nd	77	7th	24	5'56	1'65	13th	1107	22
LEICESTER	43'3	60'6	52'0	32	1st	74	7th	19	4'90	1'01	13th	122	25
CHEADLE	41'6	56'2	48'9	32	2nd	70	6th, 7th	21	5'60	1'65	13th	—	—
CHURCHSTOKE	40'2	58'4	49'3	28	1st	73	6th	21	7'26	2'78	13th	133	27
HEREFORD	43'3	61'8	52'6	30	1st	76	6th, 7th	17	6'75	2'17	12th	—	—
CIRENCESTER	40'8	59'7	50'3	28	1st	71	7th, 8th	19	4'49	0'95	12th	161	33
OXFORD	*	*	*	*	*	*	*	*	*	*	*	164	34
LONDON	*	*	*	*	*	*	*	*	*	*	*	150	31
STRATHFIELD TURGISSE	42'3	62'8	52'6	26	1st	74	7th, 8th	21	4'30	0'91	12th	—	—
HASTINGS	47'1	58'9	53'0	34	1st	67	9th	18	3'08	1'13	12th	226	47
SOUTHAMPTON	45'4	60'9	53'2	31	1st	72	9th	22	3'86	0'48	31st	178	37
STOWELL	43'6	58'7	51'2	31	1st	70	9th	18	3'39	1'06	12th	—	—
LAUDALE	42'0	53'5	47'8	33	1st	67	23rd	22	3'75	0'75	17th	—	—
GLASGOW	42'1	53'9	48'0	35	2nd	65	22nd	14	2'64	0'43	20th	93	19
DOUGLAS	41'3	53'2	47'3	34	28th	63	7th	22	6'56	2'59	12th	154	31
NEWTON REIGNY	39'2	53'6	46'4	31	27th	69	6th	24	5'04	1'42	27th	116	23
STONYHURST	41'8	54'3	48'1	32	1st	67	7th	22	6'12	1'23	31st	126	26
BLACKPOOL	42'4	55'1	48'8	31	1st	64	4th	19	4'67	0'76	11th	141	29
MANCHESTER	43'0	56'0	49'5	34	1st	70	7th	24	5'79	0'72	31st	—	—
LLANDUDNO	44'4	56'3	50'4	36	1st	65	7th	16	4'18	1'02	11th	149	31
LLANDOVERY	42'1	62'4	52'3	32	3rd, 5th, 13th	74	6th, 7th	19	6'09	1'47	13th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	188	39
ARLINGTON	43'2	58'5	50'9	32	1st	69	9th	18	4'23	0'64	15th	—	—
CULLOMPTON	42'9	60'9	51'9	30	1st	71	9th, 10th	17	3'83	0'55	11th	150	31
FALMOUTH	46'2	57'1	51'7	39	1st	63	10th	20	2'42	0'56	11th	222	47
PLYMOUTH	46'8	60'0	53'4	37	1st	68	6th, 10th	13	1'82	0'42	11th	194	41
JERSEY	*	*	*	*	*	*	*	*	*	*	*	207	44
LONDONDERRY	42'3	58'3	50'3	33	1st	69	22nd	21	2'18	0'29	10th	—	—
MARKEE CASTLE	41'0	55'3	48'2	29	27th	66	6th	23	3'99	0'86	11th	143	29
BROOKEBOROUGH	41'3	56'1	48'7	32	26th	67	6th	14	4'83	1'01	11th	—	—
ARMAGH	41'2	56'3	48'8	32	1st, 13th, 27th	66	6th	19	3'54	1'10	11th	114	23
EDGEWORTHSTOWN	40'9	56'1	48'5	33	1st, 13th, 14th, 15th, 26th.	66	6th	15	3'28	0'62	12th	—	—
DUBLIN	44'2	56'7	50'5	36	1st, 15th	67	5th	21	5'47	1'27	12th	159	33
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	124	26
KILKENNY CASTLE	42'0	56'9	49'5	28	1st	64	5th, 22nd	19	3'22	0'51	20th	—	—
WATERFORD	42'8	56'7	49'8	29	1st	64	31st	21	3'65	0'57	23rd	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	166	34
KILLARNEY	42'4	56'7	49'6	33	1st, 27th, 28th, 29th.	67	6th	21	4'18	0'56	17th	—	—

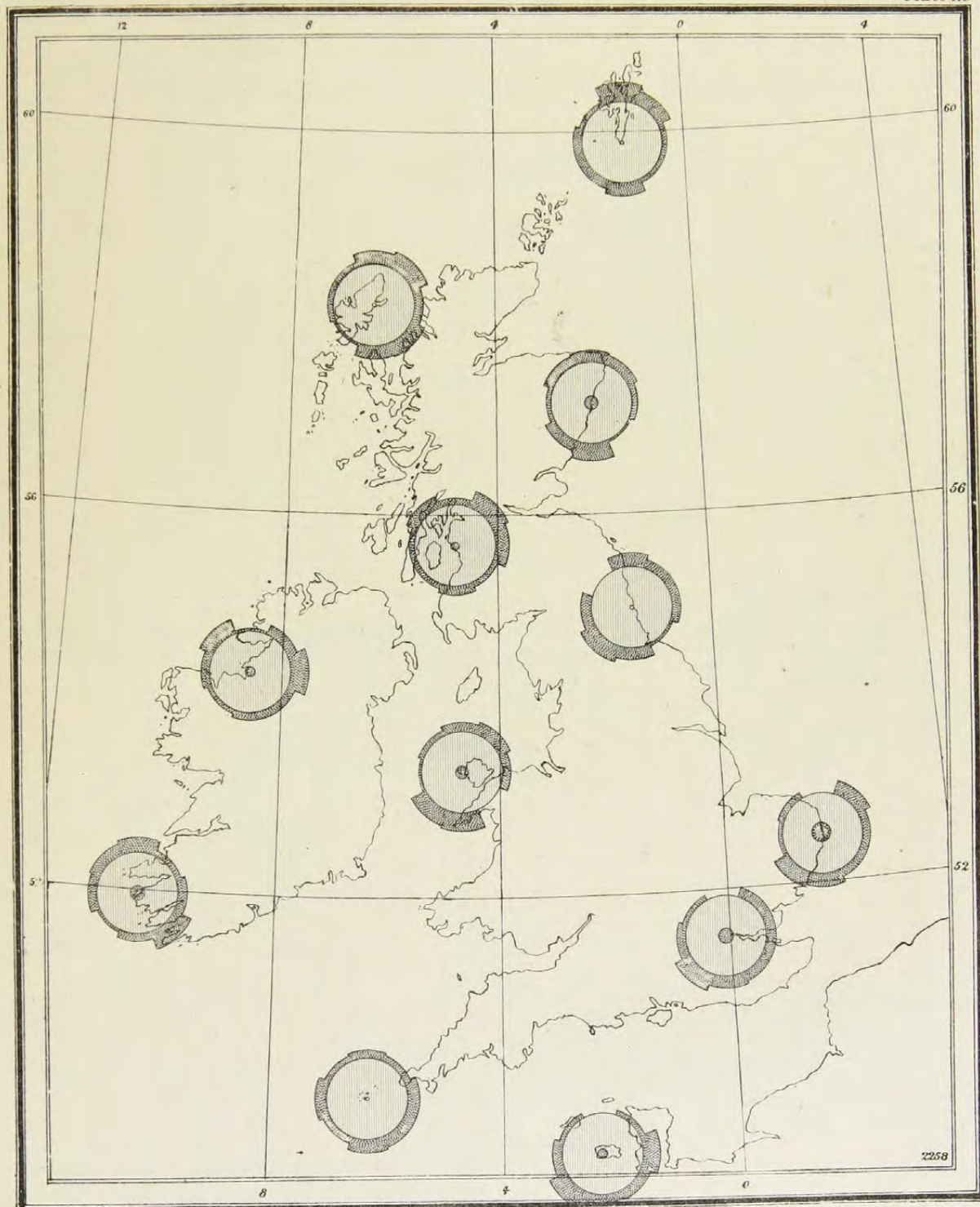
\* For information see Table IX.

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



# MONTHLY WIND CHART FOR MAY, 1886.

Plate IX.



To face p. 62.

DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 12382.

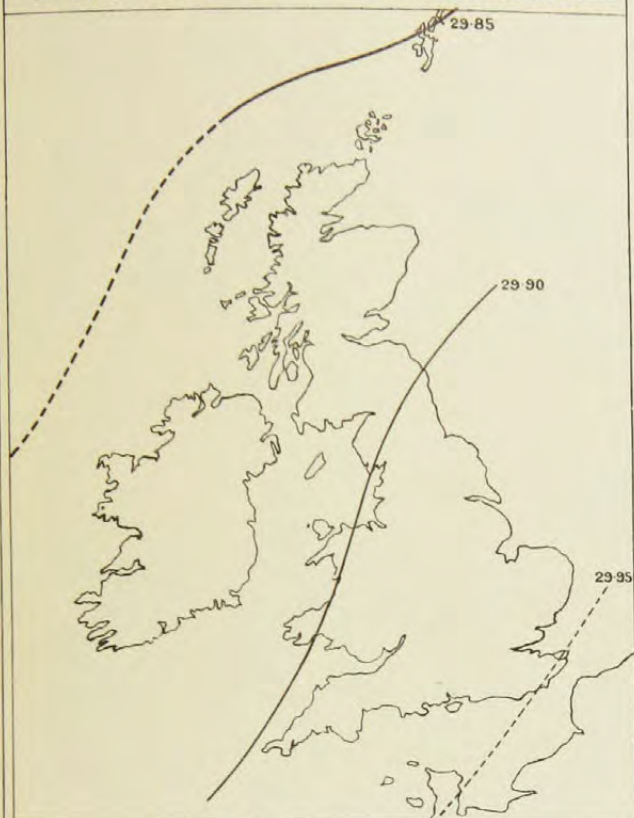


RECEIVED MAY 1955





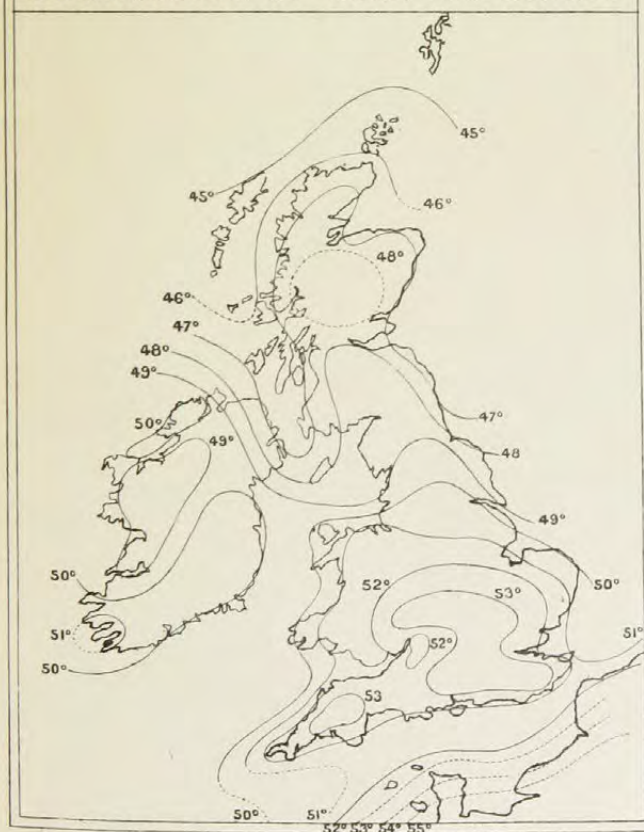
# 1. DISTRIBUTION OF MEAN PRESSURE



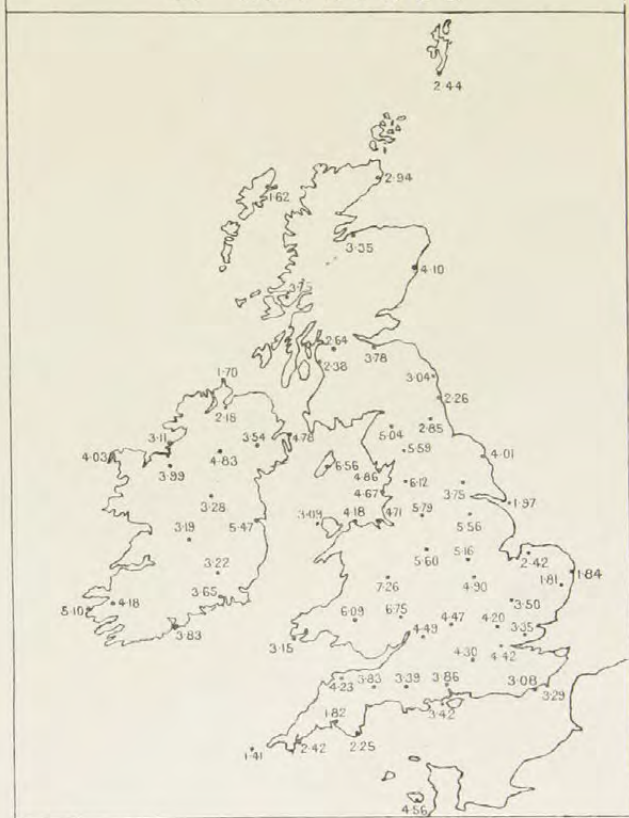
# 2. MOVEMENTS OF DEPRESSIONS.



# 3. DISTRIBUTION OF MEAN TEMPERATURE



# 4. RAINFALL









# MONTHLY WEATHER REPORT.

JUNE 1886.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of June was on the whole cold, cloudy, dry, and quiet. Until the 21st it was most unseasonable, the temperatures being much below the average and the winds as a rule unpleasant and dry. On the 22nd, however, a change commenced, and from this date a spell of really good summer weather spread gradually over us, and was still in progress on the 30th. During this period the thermometer rose on one occasion to between  $78^{\circ}$  and  $80^{\circ}$  over several parts of England, and the amount of bright sunshine was very large. Taking the month as a whole, pressure was rather in excess at the southern stations, and slightly defective in the north; temperature was low everywhere; the winds were chiefly from the northern half of the compass, but were not strong; the air was dry, and the rainfall deficient.

June 1-2.—The weather during this period was of a somewhat unsettled character. An anticyclone lay over the eastern shores of the North Sea, whence a broad band (or col) extended westwards over the northern half of the British Islands, while over the Bay of Biscay lay a low-pressure system, and a small subsidiary disturbance (No. XLIII.\*) over the north of France; the latter moved first in a northerly and afterwards in a north-easterly direction, causing thunderstorms and rain at all our stations, and an especially heavy fall over our north midland and north-eastern counties. As the subsidiary system advanced the anticyclone passed out of our area in an easterly direction, and reached the Baltic provinces at 8 a.m. on the 2nd, but a new anticyclone appeared in the north-west, and subsequently spread all over the kingdom.

Over central and southern Europe the weather during this time was fine, the wind light and variable, and pressure uniformly high.

June 3-7.—The distribution of pressure over our Islands and their neighbourhood during this interval was anticyclonic, the system (No. XIII., p. 67) advancing to us from the north-westward, and spreading completely over the United Kingdom by the morning of the 4th. At this time the wind was North-westerly to South-westerly in the north, and North-easterly to Easterly in the south; temperature was low, the minimum at Cambridge being  $34^{\circ}$ , and the weather was dry generally, but hazy or foggy in the south-west. The anticyclone then moved in a south-westerly direction, the system broke up, and rain began to fall in the west, accompanied by South-westerly winds, with a rather decided increase of temperature over France and the south-east of England during the daytime.

June 8-15.—The weather now became cyclonic owing to the advance of some depressions from the Atlantic to our western coasts. These moved in a direction about parallel to the arrow marked "A" on Map 2, Plate XII., but at too great a distance from the Irish coast for the details as to their form, depth, &c. to be given in Section II. As they passed northwards, however, some of them developed "hollows" over the more eastern parts of the

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



United Kingdom and the North Sea (see the charts for 11th to 13th in the Daily and Weekly Weather Reports), and, as the North-westerly winds on the south-western sides of these alternated with the Southerly and South-easterly winds on their eastern sides, considerable variations of temperature were recorded, as well as rather showery weather, and local thunderstorms of considerable severity. On June 16th a small and shallow, but well-marked, depression (No. XLIV.\*) arrived over the south of Norway, apparently from the north-westward, and as it moved south-eastwards the barometer rose in the West, and the distribution of pressure over the United Kingdom changed permanently.

The Continental reports for this time showed that there were two high-pressure areas prevalent, one over northern and the other over south-western Europe, and that as the depressions referred to passed northwards outside our western and northern coasts, local disturbances were developed in the hollow on the western side of these systems, causing the disturbed weather referred to.

June 16-21.—The high-pressure area in the south-west now moved northwards along our western coasts, and pressure gave way in the east and also over the Mediterranean. The wind therefore drew permanently into North and North-west over the British Islands and France, and temperature became very low for the time of year over Great Britain. The mean readings for the week ended on June 21st varied from  $1^{\circ}$  below the average in the south of Ireland to  $6^{\circ}$  below over the eastern and Midland counties of England. The air, however, was dry, and, as the sky was much clearer and the wind lighter at the Irish stations than in the eastern parts of England, the thermometer there rose considerably during the day time, so that maximum readings in the south-west of England and over Ireland were much higher than those at the more central and eastern of the English stations. On the 20th and 21st some shallow depressions appeared over the southern parts of Scandinavia, but these soon dispersed, only causing a temporary increase in the strength of the Northerly wind over the North Sea. On the 20th, however, a shallow depression (No. XLV.\*) appeared near Trieste, and moving northwards, travelled across Austria and Germany to the Baltic, which it reached at 8 a.m. on the 22nd; it then moved north-westwards across Scandinavia, and disappeared from our area over the Atlantic. In its rear the barometer rose steadily, the gradients became favourable for winds from a more Westerly point, and a complete change took place in the weather over western and north-western Europe.

The weather which prevailed over the Continent during this week was remarkable; for, while the cold North-westerly and Northerly current of wind (on the western sides of the hollows referred to above) blew persistently over the British Islands and France, the central and northern parts of Europe were favoured with the Southerly and South-easterly airs of the same hollows, and the anticyclonic airs of the more northern of the two high-pressure areas referred to above. Temperature was consequently very high in those parts, the readings over Sweden and Finland being greatly in excess of those recorded in the United Kingdom. The greatest difference occurred on the 18th, on which date the maximum temperature recorded in the shade at Hernösand was no less than  $34^{\circ}$  higher than that registered in London.

June 22-30.—A marked change now took place; for as the depression (No. XLV.\*) moved away to the north-westward, the anticyclonic system which lay off our western coasts moved southwards to the Bay of Biscay, and the barometer rose in the south. The higher pressures then spread eastwards over France, and moved northwards to the United Kingdom. As this occurred the wind over western Europe backed into West and South-west, and lulled, first to a moderate breeze and afterwards to nearly a calm. Temperatures rose day by day; on the 24th many of the maxima over England exceeded  $70^{\circ}$ , on the 26th they varied from  $70^{\circ}$  to  $77^{\circ}$ , and (after a temporary change in the opposite direction on the 27th) they rose to between  $75^{\circ}$  and  $79^{\circ}$  on the 29th and 30th. This was the first portion of a period of perhaps the finest and most "summer-like" weather which we have experienced for many years.

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



On the Continent also the weather became gradually more and more settled, but it was not until after the 26th that the 8 a.m. temperatures in the south of France were at all generally above  $70^{\circ}$ , though on the northern shores of the Adriatic they had reached that value a day or two earlier. The month closed with anticyclonic airs and dry weather over all the countries in western Europe.



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—JUNE 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XLIII. June 1-2.	No. XLIV. June 15-17.	No. XLV. June 20-23.
Form - - - -	Oval - - - -	Uncertain at first; nearly circular at 8 a.m. on 16th.	Varying greatly.
Size - - - -	Very small to small - - - -	Small - - - -	Small to large.
Depth - - - -	Very shallow - - - -	Shallow - - - -	Shallow.
Where first Observed - -	Near Havre - - - -	Over the south-west of Norway -	Over the northern part of the Adriatic.
Direction of Motion - -	Northerly and north-easterly -	South-easterly - - - -	Northerly and north-westerly.
Rate of Motion - - - -	Slow - - - -	Moderate - - - -	Slow to moderate.
Regions passed over by Steepest Gradients.	South-east of our Islands and North Sea.	The North Sea - - - -	Central Europe, the Baltic, and Scandinavia. Gradients slight throughout.
Termination - - - -	Travelled away over Russia - -	Travelled away to North Germany -	Travelled away to sea, to westward of Norway.
Time under Observation -	About two days - - - -	About two days - - - -	About three days.
Accompanying Winds - -	North-easterly to northward of its centre, South-westerly and Westerly in south.	Westerly to Northerly in our Islands; force not great. -	Northerly to North-westerly and Westerly in our Islands.
" Weather - - - -	Rainy and close; thunder in places -	Cold, cloudy; some rain - - -	Cold; dry at first, afterwards showery, as wind drew into West.
" Rainfall - - - -	Heavy on our north-eastern coasts, slight elsewhere.	Slight, and confined to the north and north-east districts.	Slight; but more in north than elsewhere.
REMARKS - - - -	<p>This system was formed in an area of low pressure which stretched eastwards over France from a large, but not deep, low-pressure area, which at 8 a.m. 1st lay over the Bay of Biscay. Temperature rose greatly over our south-eastern counties as well as over France on the 1st and 2nd, but fell rapidly again as the system passed off.</p> <p>Another very small system appeared to the south-east of England on the 2nd, but its existence was too brief and its other features too unimportant to merit further notice in this table.</p> <p>This depression was apparently formed in a hollow developed over the north-eastern parts of our area by an apparently large depression, the centre of which was moving north-eastwards outside our extreme northern coasts. On its disappearance from our area northerly gradients prevailed generally over the United Kingdom, and the weather remained cold with us, while it became warm over northern Europe.</p> <p>This system appeared when pressure was highest (30.2 inches and upwards) off our western coasts, and cold Northerly winds prevailed over the United Kingdom. As it moved northwards the anticyclone in the west moved southwards to a position off the west of Portugal. A ridge then spread eastwards over France (in the rear of the depression now under notice), and on the 24th the anticyclonic system (No. XIV.) began to extend northwards from France, bringing fine warm weather to our Islands.</p>		



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—JUNE-JULY 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XIII. June 3-7.	No. XIV. June 24-27.	No. XV. June 26-July 7.
Form - - - - -	Varying; generally rather elongated -	Elongated and varying - - - -	Varying; elongated.
Size - - - - -	Large - - - - -	Large - - - - -	Large.
Height - - - - -	Small. Maximum readings 30·2 ins. and upwards on 4th and 5th.	Small. Maximum readings 30·2 ins. on 24th.	Small. Maximum readings 30·3 ins. and upwards on various dates.
Where first Observed - -	Off our north-west coasts - -	Bay of Biscay and west of France -	Over Atlantic to south-westward of our Islands.
Direction of Motion - -	South-eastwards and south-westwards	Easterly - - - - -	North-easterly and easterly, then stationary, or moving very little and irregularly.
Rate of Motion - - - -	Very slow - - - - -	Moderate - - - - -	Very slow.
Regions passed over - -	British Isles, and the Atlantic off our western coasts.	France, Germany, and Central and southern Europe.	Western Europe generally.
Termination - - - - -	Broke up, and major part passed away to south-westward.	Uncertain; apparently passed eastwards out of our area after spreading northwards over the whole of France and our southern counties.	Broke up into two or more parts and dispersed.
Accompanying Wind - -	Very light anticyclonic circulation; chiefly North-easterly at first, but becoming North-westerly as centre moved southwards.	Light variable breezes - - - -	Light and anticyclonic in direction.
„ Weather - - - - -	Fine, dry, and cold - - - -	Fine and warm - - - - -	Very fine and warm.
REMARKS - - - - -	<p>This system advanced as the cyclonic system No. XLIII. passed off. On reaching the more central parts of the United Kingdom it broke into two parts, one of which moved eastwards to Germany, while the other moved south-westwards to the Atlantic, off the Portuguese coast. Pressure, however, remained (relatively) high over the United Kingdom on the 7th, and on the 8th a narrow and irregularly defined band, of high-pressure, in which readings exceeded 29·3 ins., lay from south-west to north-east right across north-western Europe. (See maps in the Daily and Weekly Reports.)</p> <p>This system may very probably be the same (or part of the same) which had been lying over the Atlantic off our north-western and western coasts since June 16th, and to which position it had advanced from Spain between the 14th and 16th. It is impossible, however, to speak positively on this point, as marine observations are not at present available.</p> <p>It was the advance of this system which brought the first touch of real summer to our Islands this season.</p> <p>This system (which was very large) advanced as No. XIV. was beginning to give way, and brought about a continuance of the bright warm weather which had set in over our southern counties earlier in the month.</p> <p>The appearance of the sky on many days was unusually tranquil.</p>		



## SECTION III.

REMARKS FOR JUNE 1886.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from a little above 30 inches over the southern half of Ireland, Wales, and the south-western counties of England to about 29·88 inches in Caithness and to 29·82 inches at Sumburgh Head. These values show an increase on those for May amounting to 0·15 in. over the south of Ireland to 0·10 in. over the north of Ireland, 0·04 in. over the north-east of England, and 0·03 in. in the south-east. In the extreme north of Scotland the increase was only 0·01 in., while at Sumburgh Head there was a slight decrease. The gradients were favourable for winds from the westward and north-westward, whereas the average distribution of pressure for June during the 20 years 1861–80 was favourable for winds from the westward and south-westward, and the gradients were rather less steep than those of this year. The lowest readings occurred at our northern and north-eastern stations on the 23rd, when a large depression (No. XLV.) lay off our northern coasts; in the east and south pressure was lowest on the 12th, when a hollow lay over our Islands; and in the west on the 9th, when a depression lay off the west of Ireland. (See Section I., p. 63.) The highest values were recorded very generally on the 30th, when the anticyclone No. XV. covered the whole of our Islands. The range was very small everywhere, especially in the south.

*Movements of Depressions.*—These were very singular. Of those mentioned in Section II., one was developed near Havre, and moved northwards and north-eastwards; another advanced across the south-west of Norway and Denmark from the north-westward, while the third appeared over the northern part of the Adriatic on the 20th, and, moving north-eastwards, northwards, and north-westwards, passed out to sea off the west of Norway early on the 23rd. These systems were all small and shallow. Another series of depressions appears to have travelled northwards outside our extreme western coasts (parallel to the arrow marked A on Map 2) between the 8th and 12th, but their centres were too far from us for their characteristics to be tabulated in Section II.

*Anticyclones.*—Three of these systems came sufficiently within our area to be included in Section II. Their movements varied a great deal from time to time, but there was nothing in their form or intensity calling for special remark. Between the 16th and 21st, however, a large system lay over the Atlantic, off the west of Ireland, giving us cold Northerly winds and very unseasonable weather, but its centre lay at too great a distance for its characteristics to be accurately tabulated. It seems highly probable that this system and the anticyclone No. XIV. which advanced over France from the Atlantic on the 24th were identical, and that the latter was only an offshoot of the system No. XV. which advanced subsequently.

*Winds.*—These were chiefly Westerly at our western stations, North-westerly in the north, Northerly (but variable) in the east, and North-easterly in the south. In force they were, as a rule, light to fresh, gales being very rare, except at one or two very exposed stations on our north-western, northern, and eastern coasts; even there, however, the gales were very moderate.

*Temperature.*—The mean temperature at 8 a.m. varied from between 57° and 59° over the southern and south-western counties of England, to a little above 55° over the northern counties, to between 51° and 52° in the extreme north of Scotland, and to a little below 49° at Sumburgh Head. In Ireland the values ranged from between 57° and 58° over the south-eastern counties, to 54° or 55° in the extreme north-west, and to 53° at Malin Head.



These values show a rise since May amounting to between  $5^{\circ}$  and  $6^{\circ}$  over Great Britain, and the north-west of Ireland, and to between  $7^{\circ}$  and  $8^{\circ}$  over the south-east of Ireland; when compared with the averages for June in the 20 years 1861–80, however, they show a deficit of  $2^{\circ}$  or  $3^{\circ}$  over the home and northern counties, and to a degree or degree and a half over the greater part of Ireland. In the south-west of England the deficit does not exceed a degree at several stations, and at Plymouth it is only half a degree. The summer type of distribution was very strongly marked, a result largely due to the sudden burst of warm bright weather which occurred towards the end of the month. The highest readings occurred in most places between the 28th and 30th, at which time the anticyclone (No. XV.) lay over our Islands, but at some of the north-western stations the maximum was recorded on the 19th, when pressure was highest over the Atlantic, and light Northerly breezes prevailed in those regions, with bright weather. The lowest readings occurred in nearly all districts between the 1st and 5th, when the anticyclone No. XIII. lay over us. The range was not very large; at most of the inland stations it varied from  $35^{\circ}$  to  $39^{\circ}$ . On the coasts it was, of course, much smaller; at Scilly it was only  $20^{\circ}$ , at Jersey  $24^{\circ}$ , at Yarmouth  $25^{\circ}$ , at Sumburgh Head and Stornoway  $27^{\circ}$ , and at Douglas (Isle of Man)  $32^{\circ}$ .

*Tension of Vapour.*—This varied from about 0.30 in. in the east of Scotland, and from between 0.32 in. and 0.35 in. over the inland counties of England, to between 0.38 in. and 0.41 in. on the extreme south-western coasts of our islands and Jersey. *Relative Humidity* ranged from 72 per cent. at Aberdeen, and between 71 and 75 per cent. near London, to between 85 and 88 per cent. at most stations on our west and south coasts. The values, however, were very irregular.

*Rainfall.*—This was below the average at all stations. The amounts collected were less than an inch over the southern counties of England, the south of Ireland, and at Scarborough, Durham, and Donaghadee, and, although the fall was larger in the north-west and north, it exceeded 3 inches at one station only, viz., Londonderry. Even at Laudale the fall was less than 3 inches. The number of rainy days also was small, varying from between four and nine in the south-west, south, and south-east, to between 13 and 19 in the north and east of Ireland.

*Bright Sunshine* was defective during the earlier part of the month, but in excess towards its close, when from 60 to 80 per cent. of the possible amount was recorded over the southern half of England, and nearly 90 per cent. in Jersey. Assuming that the total amount which could possibly be recorded at each station during the month is represented by 100, the values actually recorded during the entire month were 54 at Jersey, 48 at Pembroke, Falmouth, and Hastings, and upwards of 40 over most of our southern and south-eastern counties. In the north and west Midlands, however, and the north of Ireland, the values were below 30, but at Aberdeen the percentage was 37.



TABLE XI.

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 29° 8' 19	48° 9	43° 8	53° 1	48° 5	38	3rd	65	19th
	Wick	29° 8' 75	52° 6	44° 9	57° 7	51° 3	36	3rd	65	30th
	Stornoway	29° 8' 90	51° 0	44° 6	56° 6	50° 6	36	3rd	63	30th
1. SCOTLAND, E.	Nairn	29° 8' 87	53° 1	45° 2	61° 6	53° 4	34	1st	71	30th
	Aberdeen	29° 9' 04	53° 8	45° 3	60° 4	52° 9	35	3rd	70	28th
	Leith	29° 9' 30	54° 5	46° 3	62° 9	54° 6	34	3rd	72	29th
2. ENGLAND, N.E.	Shields	29° 9' 42	53° 5	45° 8	59° 4	52° 6	37	4th	70	28th
	York	29° 9' 80	54° 0	47° 2	63° 4	55° 3	38	4th	76	29th
	Spurn Head	29° 9' 54	53° 1	47° 9	57° 5	52° 7	41	4th	67	11th, 29th
3. ENGLAND, E.	Yarmouth	29° 9' 64	54° 5	48° 9	60° 6	54° 8	45	5th, 6th	70	11th
	Cambridge	29° 9' 88	56° 7	46° 0	67° 3	56° 7	34	5th	79	29th
4. MIDLAND COUNTIES	Loughborough	29° 9' 96	55° 3	47° 8	65° 5	56° 7	37	4th	78	28th
	Oxford	30° 0' 10	55° 8	49° 4	64° 9	57° 2	40	5th	76	29th
5. ENGLAND, S.	London	29° 9' 95	57° 1	50° 1	67° 6	58° 9	42	5th	78	29th
	Dungeness	? 29° 9' 66	56° 3	50° 1	62° 5	56° 3	44	7th, 14th	69	29th
	Hurst Castle	30° 0' 15	56° 4	50° 6	65° 7	58° 2	44	5th, 6th	75	19th
6. SCOTLAND, W.	Ardrossan	29° 9' 48	53° 6	47° 8	59° 4	53° 6	40	3rd	77	19th
7. ENGLAND, N.W.	Hawes Junction*	28° 7' 39	51° 0	43° 9	58° 3	51° 1	37	3rd, 4th, 27th, 3rd	70	19th, 29th
	Barrow-in-Furness	29° 9' 75	53° 3	50° 2	59° 5	54° 9	42	3rd	70	19th
	Liverpool (Bidston)	29° 9' 86	54° 7	50° 3	61° 5	55° 9	45	3rd, 4th	70	9th
	Holyhead	30° 0' 04	53° 7	49° 9	59° 1	54° 5	47	5th	65	30th
8. ENGLAND, S.W.	Pembroke	30° 0' 19	54° 8	51° 3	59° 3	55° 3	47	8th, 18th	71	29th, 30th
	Prawle Point	30° 0' 25	57° 8	49° 6	62° 7	56° 2	45	2nd	77	19th
9. IRELAND, N.	Malin Head	29° 9' 66	52° 0	47° 9	56° 6	52° 3	41	24th	70	30th
	Donaghadee	29° 9' 85	53° 1	46° 9	59° 1	53° 0	39	4th	66	28th
	Mullaghmore	29° 9' 90	54° 0	50° 9	59° 5	55° 2	47	1st, 3rd	73	30th
	Belmullet	30° 0' 10	54° 5	50° 7	58° 6	54° 7	45	1st	72	30th
10. IRELAND, S.	Parsonstown	30° 0' 22	56° 0	48° 9	64° 0	56° 5	39	27th	78	30th.
	Valencia	30° 0' 47	57° 3	51° 3	62° 7	57° 0	43	20th	74	30th
	Roche's Point	30° 0' 28	56° 7	50° 8	63° 1	57° 0	48	13th, 15th	71	29th
CHANNEL ISLANDS	Seilly (St. Mary's)	30° 0' 32	57° 5	52° 7	61° 1	56° 9	50	1st, 8th, 18th	70	30th
	Jersey (Noirmont)	30° 0' 18	56° 5	51° 4	61° 8	56° 6	47	5th	71	29th

\* 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 1886.

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. 0.299	% 87	7.7	ins. 2.06	0.50	14th	21	0	0	0	3	15	0	4	2	0	5	2	2	11	4	0
332	83	7.8	1.44	0.40	14th	14	0	1	0	0	17	3	1	2	0	3	7	0	6	10	1
321	85	7.1	1.82	0.48	14th	18	0	1	0	4	11	5	2	3	1	2	3	8	4	5	2
312	77	6.0	1.07	0.36	14th	12	0	0	1	4	5	1	4	2	0	0	1	4	8	5	6
299	72	5.9	1.01	0.35	1st	11	0	0	0	7	10	0	3	2	1	1	6	2	4	9	2
320	76	4.6	2.01	0.83	9th	7	0	0	1	10	5	0	2	3	3	1	1	1	11	5	3
314	77	6.8	1.07	0.85	1st	8	0	0	1	3	15	1	5	2	2	2	1	6	8	3	1
322	77	7.1	0.75	0.15	13th	7	0	0	0	6	16	0	6	2	2	0	5	1	9	5	0
336	83	4.5	1.69	1.05	1st	9	0	0	2	10	3	5	5	4	1	2	2	2	7	5	2
350	82	5.0	0.66	0.21	13th	12	0	1	2	9	2	0	5	9	1	0	1	0	6	6	2
346	75	7.0	0.57	0.20	13th	10	0	1	1	3	11	0	9	4	2	1	1	2	9	1	1
339	77	7.7	1.56	0.98	1st	11	0	1	2	2	15	3	4	2	5	1	0	2	9	6	1
352	78	5.4	1.47	0.55	2nd	9	0	0	1	10	9	0	4	7	2	0	1	5	5	4	2
328	71	6.5	0.82	0.33	10th	9	0	0	2	5	13	1	3	7	4	0	0	3	7	3	3
409	90	5.8	1.13	0.35	13th	10	0	0	0	5	5	0	4	9	4	0	0	1	6	5	1
389	86	5.1	0.49	0.15	19th	10	0	0	1	6	3	1	4	7	4	1	1	1	5	5	2
352	86	6.4	1.03	0.51	11th	11	0	0	0	8	14	2	0	2	3	1	3	5	8	6	2
318	85	7.0	3.41	1.32	1st	12	0	0	3	6	18	0	4	0	3	2	3	7	4	5	2
353	87	7.2	1.45	0.55	14th	10	0	0	1	4	16	0	3	4	1	1	3	3	6	9	0
338	79	7.3	0.97	0.36	1st	10	0	0	1	3	16	2	0	2	3	3	2	3	12	4	1
364	88	6.5	1.10	0.58	1st	9	0	0	0	5	6	0	3	3	1	0	3	7	6	5	2
375	87	6.2	1.29	0.48	9th	8	0	0	1	4	7	0	5	4	1	5	2	3	4	4	2
379	79	4.5	0.79	0.31	1st	9	0	0	0	12	8	0	4	7	4	0	2	4	4	4	1
343	88	8.7	2.19	0.48	9th	19	0	0	0	3	24	0	3	4	2	0	2	3	11	4	1
349	86	6.6	0.64	0.13	12th, 13th	13	0	0	0	4	11	1	2	9	5	0	3	2	7	2	0
350	84	7.5	1.70	0.62	9th	16	0	0	1	2	9	4	4	0	5	2	2	4	8	4	1
360	85	7.9	1.29	0.27	8th	16	0	0	0	4	19	3	0	6	1	0	4	3	13	3	0
378	84	7.3	1.78	0.76	9th	12	0	0	1	3	17	0	1	1	1	1	2	6	4	5	9
401	85	7.4	1.21	0.29	11th	15	0	0	0	4	16	1	5	1	1	5	1	4	7	3	3
363	79	5.2	0.82	0.36	9th	6	0	0	0	11	8	0	5	1	2	3	1	4	5	8	1
411	86	7.4	0.46	0.31	9th	7	0	0	0	2	10	0	5	3	4	1	2	3	5	5	2
390	85	5.7	0.98	0.45	19th	6	0	0	3	9	12	0	3	8	3	0	0	3	5	7	1

barometrical observations at this station are not reduced for altitude.



TABLE XII.

OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of June 1886.

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	*	*	*	*	*	*	*	*	*	*	*	156	29
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	193	37
ALNWICK CASTLE	46.8	58.8	52.8	36	2nd, 3rd	70	28th	7	1.44	1.32	1st	—	—
DURHAM	45.9	63.5	54.7	36	4th	78	28th	11	0.92	0.67	1st	155	30
SCARBOROUGH	47.6	58.3	53.0	40	4th	67	28th	7	0.78	0.38	1st	—	—
YORK	*	*	*	*	*	*	*	*	*	*	*	152	30
HILLINGTON	45.3	64.5	54.9	33	5th	77	28th	11	0.90	0.26	1st	190	38
GELDESTON	46.5	62.7	54.6	39	4th, 6th, 7th, 8th.	73	29th	8	0.51	0.14	16th	197	40
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	207	42
ROTHAMSTED	47.3	65.0	56.2	36	5th	77	26th	10	1.14	0.45	2nd	—	—
INGLESTONE	46.7	65.7	56.2	38	4th, 5th	75	29th	7	0.43	0.15	18th	—	—
BAWTRY	47.4	64.5	56.0	37	4th	78	29th	6	0.85	0.34	1st	† 130	26
LEICESTER	47.5	64.7	56.1	38	4th	79	29th	10	1.50	0.89	1st	128	26
CHEADLE	46.7	61.2	54.0	40	4th	72	28th, 29th	12	1.39	0.69	1st	—	—
CHURCHSTOKE	46.3	63.0	54.7	40	7th	74	29th	13	1.35	0.34	1st, 2nd	132	26
HEREFORD	49.1	68.3	58.7	44	7th, 21st	79	28th	9	1.22	0.44	2nd	—	—
CIRENCESTER	47.0	64.3	55.7	40	5th, 14th	75	29th	11	0.93	0.33	2nd	186	38
OXFORD	*	*	*	*	*	*	*	*	*	*	*	203	41
LONDON	*	*	*	*	*	*	*	*	*	*	*	207	42
STRATHFIELD TURGIS	47.0	68.9	58.0	38	5th	80	29th	11	0.60	0.16	10th, 12th	—	—
HASTINGS	50.0	63.1	56.6	44	5th	71	28th, 29th	7	0.84	0.27	2nd	236	48
SOUTHAMPTON	50.0	68.7	59.4	44	5th	80	29th	9	0.66	0.20	19th	221	45
STOWELL	47.9	64.1	56.0	42	5th	76	29th	4	0.57	0.26	12th	—	—
LAUDALE	46.8	58.5	52.7	35	1st	68	19th	16	2.83	0.86	14th	—	—
GLASGOW	47.1	61.4	54.3	41	1st, 3rd, 27th	75	19th	10	1.42	0.40	1st	152	29
DOUGLAS	47.2	60.3	53.8	40	28th	72	30th	11	1.39	0.56	14th	192	38
NEWTON REIGNY	45.1	61.9	53.5	34	3rd	73	30th	12	1.67	0.71	1st	180	35
STONYHURST	47.3	61.3	54.3	41	3rd	73	19th	8	2.89	0.83	1st	161	32
BLACKPOOL	48.3	60.1	54.2	37	27th	68	19th, 30th	12	1.16	0.59	14th	159	31
MANCHESTER	47.9	62.7	55.3	43	3rd, 27th	74	29th	8	1.95	0.95	1st	—	—
LLANDUDNO	49.9	61.2	55.6	46	3rd, 5th	70	29th, 30th	8	1.22	0.66	1st	158	32
LLANDOVERY	46.7	67.7	57.2	37	6th	† 83	30th	9	1.90	0.61	12th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	239	48
ARLINGTON	47.5	62.5	55.0	42	27th	75	29th, 30th	11	1.05	0.26	1st	—	—
CULLOMPTON	47.7	67.5	57.6	42	11th, 16th	78	29th	8	0.64	0.18	1st	185	38
FALMOUTH	50.9	62.3	56.6	48	11th	74	29th	9	0.92	0.47	9th	233	48
PLYMOUTH	51.4	66.1	58.8	46	11th	76	29th	9	0.73	0.25	1st	211	44
JERSEY	*	*	*	*	*	*	*	*	*	*	*	259	54
LONDONDERRY	47.3	62.6	55.0	36	1st	73	30th	15	3.65	1.36	8th	—	—
MARKREE CASTLE	47.8	60.6	54.2	38	1st, 27th	73	30th	17	2.12	0.71	9th	131	26
BROOKBOROUGH	47.4	62.1	54.8	36	1st, 27th	77	30th	10	2.63	0.89	7th	—	—
ARMAGH	47.5	62.5	55.0	38	1st	75	30th	15	1.62	0.42	11th	142	28
EDGEWORTHSTOWN	47.8	62.7	55.3	41	1st	78	30th	12	2.45	0.58	10th	—	—
DUBLIN	51.0	64.0	57.5	46	3rd, 27th	72	10th, 28th, 29th, 30th.	15	1.29	0.54	2nd	163	33
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	147	29
KILKENNY CASTLE	49.5	64.2	56.9	44	13th, 27th	77	30th	10	1.41	0.63	1st	—	—
WATERFORD	49.4	65.8	57.6	45	24th	77	29th	8	0.55	0.13	2nd	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	178	36
KILLARNEY	50.0	63.9	57.0	41	10th	78	30th	12	0.94	0.18	1st	—	—

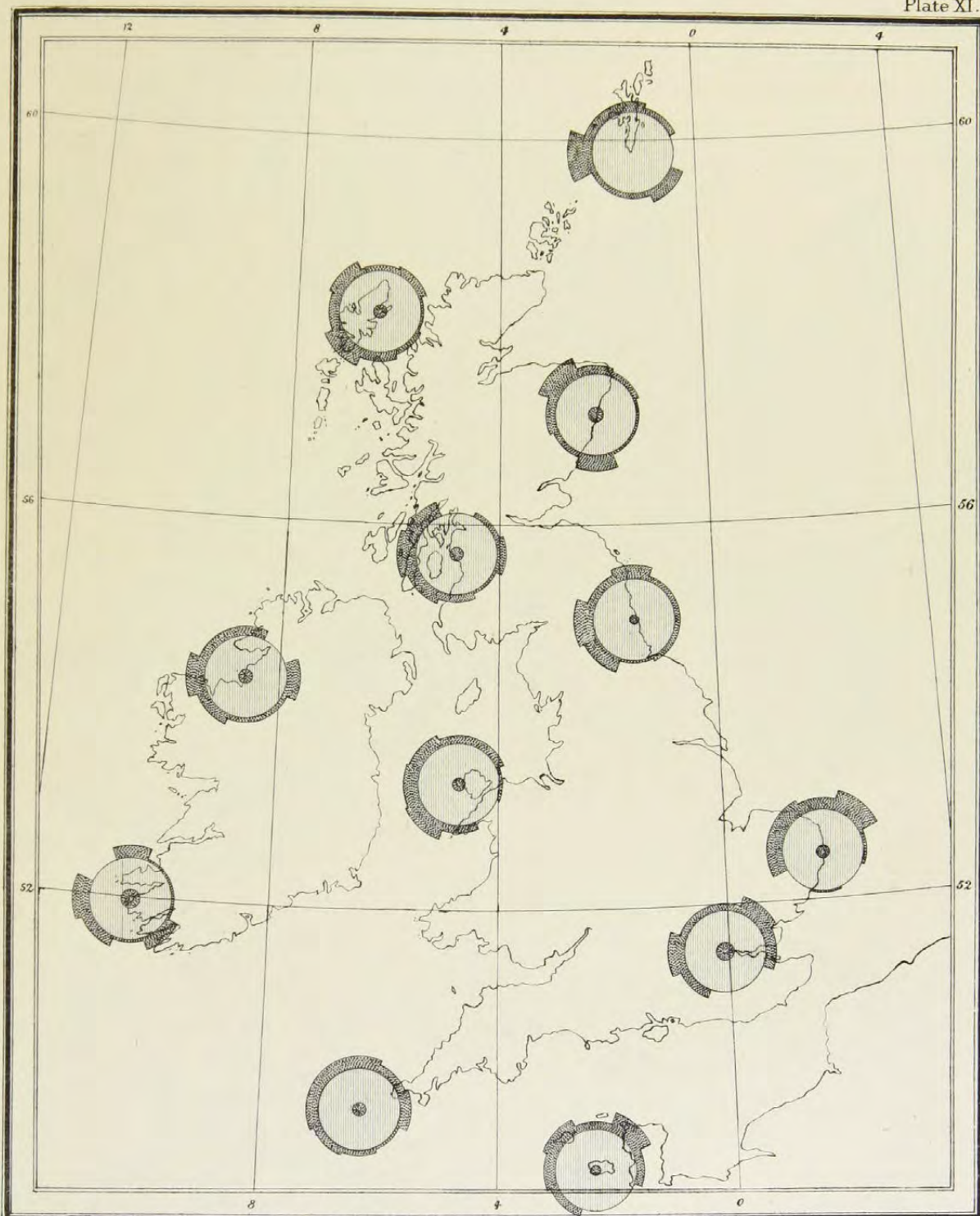
\* For information see Table XI.

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



# MONTHLY WIND CHART FOR JUNE 1886.

Plate XI.



To face p. 72.

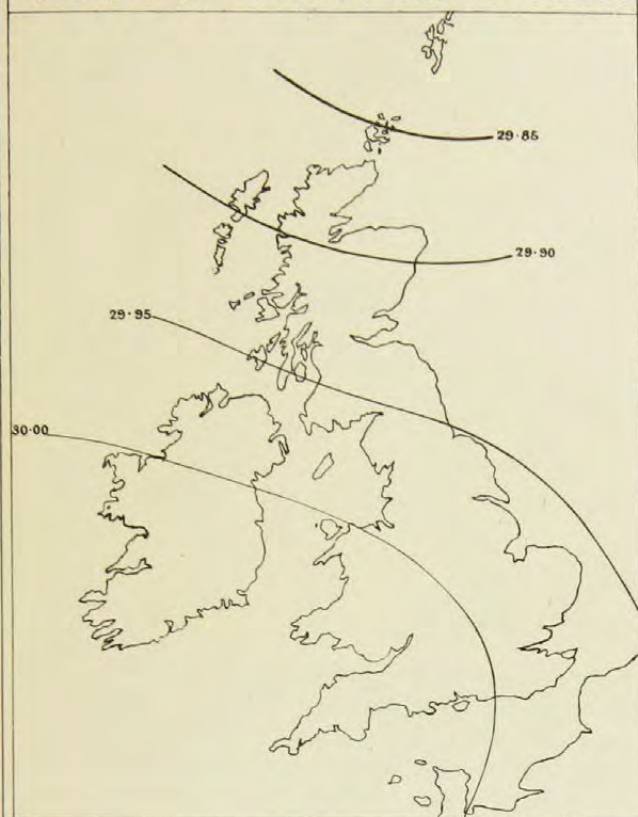
DANGERFIELD LITH. 22, BEDFORD ST. COVENT GARDEN. 127/3



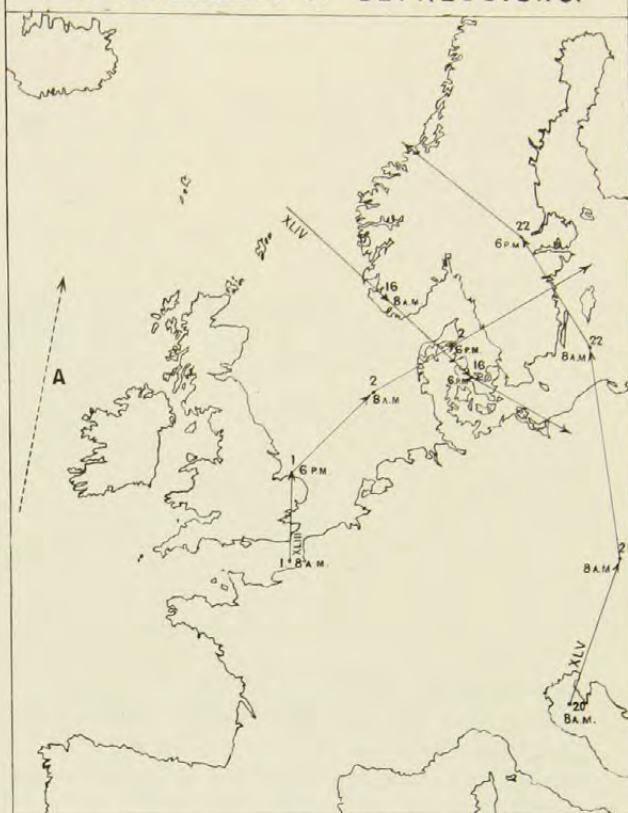




## 1. DISTRIBUTION OF MEAN PRESSURE



## 2. MOVEMENTS OF DEPRESSIONS.



### 3. DISTRIBUTION OF MEAN TEMPERATURE



#### 4. RAINFALL









# MONTHLY WEATHER REPORT.

JULY 1886.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather during July was at first fine, bright, and warm. It then changed, and became variable, showery, and at times very unsettled. Towards the end of the month large amounts of rain fell all over the kingdom, but especially over the north of England, and thunderstorms were both frequent and severe. Taken as a whole, pressure was below its average value, and the mean gradients for Westerly winds were rather steep for the time of year. Depressions were somewhat numerous, but, as a rule, shallow. The anticyclones observed lay principally over the southern parts of our area, and were not high. The winds were Westerly and South-westerly, and at times blew strongly. Temperature was rather low, the rainfall large, and the fall was somewhat irregularly distributed. Bright sunshine was very deficient after the 7th.

July 1-7.—During this period the dominant system of pressure-distribution over western Europe was anticyclonic, and the gradients favourable, mainly, for South-westerly winds. The weather was warm and exceedingly fine, being, in fact, a continuance, with some improvement, of that observed at the end of June. The anticyclone was large and stable, and the heat considerable. Over England the maximum temperatures occurred between the 4th and 6th, when the thermometer rose to between  $85^{\circ}$  and  $89^{\circ}$  at the inland stations, but at this time the barometer was beginning to fall, and the sky appeared less settled than it had previously done. On the following day (though temperature then rose to  $83^{\circ}$  in London) showers began to fall in many parts of England, the anticyclone showed unmistakeable signs of breaking up, and a small shallow depression (No. XLVI.\*) was developed over England, and moved eastward to North Germany, while the wind veered to the North-west and temperature fell.

On the Continent the weather during this period remained very fine and warm, but at its close began to break up, especially over France.

July 8-9.—The anticyclone, No. XV. (see the June Report) now broke into two distinct parts, one of which moved eastwards to Germany and eastern Europe, while the other moved westward to the Atlantic; the winds became North-westerly all over the kingdom, and temperature fell so decidedly that on the 8th the daily maxima recorded over England were from  $7^{\circ}$  to  $10^{\circ}$ , and on the 9th as much as  $20^{\circ}$ , lower than those registered

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



on the 7th. Clouds increased greatly, rain fell in almost all parts of the kingdom, and thunder was heard in some places.

The unsettled weather spread quickly over Germany on the 8th and 9th, where shallow local disturbances appeared and thunderstorms were severe.

July 10-13.—On the 10th there was some improvement; the Atlantic anticyclone began to advance slowly to the eastward over France, and, with a decrease of pressure in the north-west, the wind drew back to West and South-west again; over France and England the weather cleared up. Anticyclonic conditions now prevailed over all the southern half of our area, and cyclonic in the extreme north and north-west, the type of distribution being westerly to south-westerly, and the gradients slight. A well-marked, but shallow depression arrived off our north-western coasts early on the 11th, bringing South-westerly breezes, and showers to several of the western and north-western counties. Its centre, however, was too far from us, and its effect on our winds and weather too slight for its characteristics to be tabulated in Section II. The details of the anticyclone, however, are tabulated. (See No. XVI., p. 78.) Over England and France the weather was fine, and the thermometer rose again, the maxima recorded ranging from 70° to 75° over England and the eastern parts of Scotland. On the afternoon of the 13th the barometer began to fall decidedly on the west coasts, as another depression began to approach Ireland from the Atlantic.

On the Continent anticyclonic conditions spread rapidly over France and Germany, where the weather again became fine and warm, while in the extreme north-west of Europe it was wet and changeable.

July 14-16.—The weather now became very rainy, unsettled, (and, for the time of year) cold, owing to the advance of depression No. XLVII.\* The system was large, but not deep, elongated in form, and, at first, moved in the direction of its minor axis. At 8 a.m. on the 14th, its centre had reached the east of Scotland, but its movement then changed abruptly to the north-north-eastward and northward, and the centre passed outside of our area of observation on the 15th. As it advanced heavy rains spread all over the kingdom, and the wind, after blowing strongly from the Southward, veered to North; temperature fell decidedly, but no serious thunderstorms were reported. On the 16th the centre of the system lay over the Atlantic at a considerable distance from the Norwegian coast, but the weather was still unsettled over the British Islands. The system was followed by several very shallow and local subsidiary disturbances which passed over the British Islands on the 16th, but these brought very little rain with them and soon dispersed.

On the Continent also the weather was very unsettled as the disturbance passed across the British Isles, and on the 15th a hollow was formed, stretching from the North Sea across eastern Germany, Hungary, and South-western Russia to the Black Sea. This dispersed as the main disturbance moved northwards.

July 17-24.—The weather of this period, though far from being settled, was warmer over England than that of the periods which immediately preceded and followed it, a condition which was brought about by the reappearance of an anticyclone (apparently No. XVI.) over France, and its spreading northwards over the countries lying to the eastward of the North Sea. Simultaneously with this a few depressions appeared off our western coasts, some of which passed northwards in a direction parallel to the arrow marked "A" on Map 2, Plate XIV. Others (such as XLVIII.\* and XLVIII.A.\*) came more within the area of observation, and brought mild, showery weather to all districts and thunderstorms to some localities.

Over France the weather at first became very fine and warm as the anticyclone spread over the country, but with the appearance of the small depressions referred to, thunderstorms were experienced very generally, especially on the night of the 19th, after which the weather improved again.

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



July 25-31.—The weather now became extremely unsettled and rainy. Pressure remained high over the southern parts of our area, and became high in the north also. In the meantime two well-marked but not deep depressions (No. XLIX. and L.\*) advanced from the Atlantic to our western coasts, and travelling across the United Kingdom in an easterly direction, brought with them very heavy falls of rain and serious thunderstorms. In each case the rain was heaviest with the Easterly wind prevailing in the left front and on the left side of the disturbances. Over some of our northern counties more than 2 inches fell in one day (the 25th), and in those regions the total fall for the week ending on the 26th exceeded the average by about 2 inches. The two systems were separated by an interval of fair but not warm weather, in which the Northerly winds in the rear of the one disturbance lulled to a calm, which in its turn gave way to the Southerly breezes of the incoming system. The central areas of both systems were large and badly defined, and the second (No. L.), contained two distinct minima. (See the Daily and Weekly Reports for the dates referred to.)

On the Continent also these depressions caused very disturbed weather as they passed, but their effects were less marked in eastern and central than they were in western Europe, where the rain was heavy and the winds were occasionally high.

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



## SECTION II.

TABLE OF CYCLONIC SYSTEMS, JULY 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XLVI. July 7-8.	No. XLVII. July 13-16.	No. XLVIII. July 21-23.
Form - - - -	About oval - - - -	Irregular, oval - - - -	Apparently somewhat oval at first. Form of isobars on western side unknown.
Size - - - -	Small - - - -	Large - - - -	Large - - - -
Depth - - - -	Very shallow - - - -	Moderate - - - -	Moderate. Gradients rather steep near its centre.
Where first Observed - -	Over the south-east of England - -	Off the west of Ireland - -	Off the west of Ireland - -
Direction of Motion - -	Easterly - - - -	Easterly till 8 a.m. 14th, then north-north-easterly.	North-easterly at first, then northerly and north-westerly.
Rate of Motion - - - -	Very slow, to moderate - - - -	Moderate - - - -	Moderate to slow - - - -
Regions passed over by Steepest Gradients.	East of England and Netherlands. Gradients very slight.	Ireland, England, and the North Sea	Our north-western districts - -
Termination - - - -	Travelled away to North Germany. (See "Remarks" below.)	Travelled away to the northward -	Travelled away to the northward -
Time under Observation -	About one day - - - -	Nearly two days - - - -	Rather more than one day - -
Accompanying Winds - -	North-westerly and Northerly over England. South-westerly in the Netherlands, afterwards veering to North-west.	South-westerly to North-westerly; strong, to a fresh gale.	South-easterly to South-westerly, strong to a gale. Gales strong in the west.
" Weather - - - -	Showery - - - -	Rainy, changeable; squally everywhere.	Rainy, squally, and unsettled in west; very bright and warm at times in the east.
" Rainfall - - - -	Not very heavy - - - -	Heavy in most places - - - -	Heavy in west and north-west -
REMARKS - - - -	<p>This system was formed over our south Midland counties as the anticyclone No. XV. (see June Report) was breaking up. Its duration was brief, but its effect on the weather over our south-eastern counties was very decided.</p> <p>It is possible that it subsequently merged with the disturbance which lay over the Baltic on the 9th.</p>		
	<p>This depression advanced when pressure was highest over the Peninsula and south-west of France and lowest to the northward of our Islands, the gradients being moderate. Its change of motion after 8 a.m. 14th is worthy of note.</p>		
	<p>This system advanced when pressure was higher over Germany, the east of France, and the eastern shores of the North Sea (see anticyclone No. XVII.) Its change of movement to the north-westward appears to be due to the development of a second high-pressure system over the north of Scandinavia early on the 22nd. The latter system, however, did not spread much. A well-marked subsidiary disturbance followed. (See XLVIII.A.)</p>		



- SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS, JULY 1886.

No. XLVIII. July 23-25.	No. XLIX. July 25-27.	No. L. July 29-31.
About circular - - - - -	Elongated, very irregular, and complex - -	Very irregular and complex.
Moderate - - - - -	Large - - - - -	Large.
Shallow - - - - -	Shallow - - - - -	Shallow. Gradients over British Isles almost nil at 8 a.m. 30th.
Off the south coast of Ireland - - -	Off the west of Ireland - - -	Off the west of Ireland.
Easterly till 8 a.m. 24th, then nearly north-easterly.	Easterly till 8 a.m. 26th, then north-easterly and variable.	Easterly till 8 a.m. 31st, then north-north-easterly.
Moderate - - - - -	Moderate - - - - -	Slow.
The Channel, and west and north of France -	British Isles and France - - -	Channel and France. Gradients were all slight.
Travelled away to the Baltic and Finland -	Passed away to the northward - - -	Moved away to the northward.
About 60 hours - - - - -	About three days - - - - -	Three days.
South to West and North-west; strong to a gale in France, fresh to strong in British Islands.	South-westerly and Westerly in the south, North-easterly in the north; afterwards Northerly on all our coasts. Force never exceeded a strong breeze.	Southerly at first, then very variable, afterwards North-westerly; never strong.
Squally, very wet and unsettled - - -	Very wet; heavy thunderstorms about and much rain.	Very rainy and unsettled; hardly any thunder reported.
Very heavy in north-west and north of France -	2.20 ins. fell at York on 25th. 1.81 in. at Oxford, and more than an inch in several other places during the passage of the centre.	General, but heaviest in the north-west.
This system appeared to be, at first, subsidiary to No. XLVII., but on reaching the south of England moved as an independent system. Its motion after passing out of our area was much slower than while it was travelling over these Islands.	This system arrived very closely behind No. XLVIII., and brought with it very bad weather. Temperature fell greatly as the centre passed eastwards and the Northerly wind set in.	This system was very extensive, and shallow about its centre. Its movements were slow and its form varied a good deal from time to time. It was worth notice on account of its effect on the weather rather than for any increase of wind.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS, JULY 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XVI. July 10-12.	No. XVII. July 20-21.	No. XVIII. July 28-30.
Form . . . . .	Somewhat oval, but varying . . . . .	Oval near its centre . . . . .	Somewhat oval, but varying.
Size . . . . .	Large . . . . .	Small . . . . .	Large.
Height . . . . .	Small. Maximum readings 30·3 ins. and upwards on 11th.	Small. Maximum readings 30·1 to 30·2 ins.	Small. Maximum readings 30·2 ins. and upwards.
Where first Observed . . . . .	Over the Bay of Biscay . . . . .	Over France . . . . .	Over the Bay of Biscay.
Direction of Motion . . . . .	Easterly at first, then south-westerly . . . . .	Easterly . . . . .	Easterly and south-easterly.
Rate of Motion . . . . .	Slow . . . . .	Moderate . . . . .	Slow to moderate.
Regions passed over . . . . .	Bay of Biscay and France . . . . .	France and south Germany . . . . .	Bay of Biscay, France, and Germany.
Termination . . . . .	See Remarks . . . . .	Merged with No. XVI. over central Europe.	Passed away to eastern and south-eastern Europe.
Accompanying Winds . . . . .	South-westerly in our Islands, Easterly over the Peninsula, Northerly in the south of France.	Anticyclonic circulation of airs and light winds.	The usual anticyclonic light winds shifting from North-west to North and East on its southern side, and backing round to West and South-west in the north as the centre passed by.
Weather . . . . .	Very fine in south, but not very warm; dull and rather showery in our Islands.	Very fine . . . . .	Fine.
REMARKS . . . . .	<p>This was probably only a reappearance of the western portion of No. XV., which lay over the Bay of Biscay at 8 a.m. on the 7th, and moved thence in a westerly direction for a short time.</p> <p>For several days after the 12th this system seemed to be lying over the Peninsula or the adjacent parts of the Atlantic. On the 17th it again advanced over France, and finally settled down over Germany and Austria as a large high-pressure area, whence it subsequently extended westwards to France again.</p> <p>As soon as this anticyclone had merged with No. XVI. the whole (combined) system spread rapidly, and at 8 a.m. on the 21st covered nearly the whole of Europe, while the depression No. XLVIII. advanced to our western coasts. Later on (22nd) it broke into two parts, one of which lay off the extreme northern parts of Europe and the other in the south, the two being joined by a col. A new maximum appeared over Spain on the 24th and moved thence in an easterly direction to southern Russia.</p> <p>This system advanced from the Atlantic as the depression No. XLIX. passed away to the eastward, and continued to move steadily till it reached south-eastern Europe. The temperatures accompanying it over France were not very high.</p>		



## SECTION III.

## REMARKS FOR JULY 1886.

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

*Pressure.*—The mean pressure for the month at 8 a.m. varied from 29·98 inches in the Channel Islands, and 29·96 inches at Prawle Point and Hurst Castle, to 29·75 inches in the extreme north of Scotland, and to 29·72 inches at Sumburgh Head. The gradients were, therefore, favourable for a prevalence of Westerly winds (the normal condition at this time of year), but were rather steeper than the average. The values, when compared with those for June, show a decrease amounting to above 0·10 in. in the north of Scotland, and of only 0·06 in. in the east of England, but of as much as 0·14 in. over the south of Ireland. When compared with the average distribution for the 20 years 1861–80, they show a deficit amounting to about 0·10 in. in the north of Scotland, but to only 0·02 in. over the Channel Islands, Hampshire, Dorsetshire, and Devonshire. The lowest readings occurred at the north-western stations on the 22nd, at which time the depression No. XLVIII. lay off Mullaghmore; at the northern stations the lowest occurred on the 14th, when the depression No. XLVII. lay off the east of Scotland, while in the south-west, south, and east the lowest were experienced on the 26th as the depression No. XLIX. passed over the country from the westward. The highest values were recorded between the 1st and 5th, at which time the anticyclone XV. (see report for June) lay over the kingdom. The range was not large anywhere.

*Movements of Depressions.*—These were comparatively simple, the major part of them travelling in an easterly direction until they came under the influence of the north-west coast of the Continent, when they turned north-eastwards and travelled across Scandinavia. One system (No. XLVIII.) moved north-eastwards at first, and on reaching the north-west of Ireland changed its course, and travelling in a northerly and north-westerly direction, passed out to sea again. It is remarkable that the subsidiary disturbance which followed in the rear of this took a course nearly easterly until the evening of the 23rd, and then moving east-north-east and north-east passed across Denmark and the south of Sweden to Finland.

*Anticyclones.*—These were, in all, three in number, but they present no features worthy of special note. They all appeared first over France, and passed thence in an easterly direction to Germany or south-eastern Europe.

*Winds.*—These were chiefly Westerly at the southern stations, South-westerly in the north-west and north-east, partly Southerly and partly North-westerly in the north. They were somewhat strong for the time of year, but gales were by no means frequent, the largest number reported being eight, at Mullaghmore, where the Southerly (South-west and South-east) winds of the incoming depressions blew very strongly.

*Temperature.*—The mean (sea-level) temperature of the month varied from a little above 63° over the home counties, and a little above 61° in the extreme east of Ireland, to rather below 58° in the extreme north-west of Ireland, to 54° in the north of Scotland, and to 51° at Sumburgh Head—showing an increase since June of about 4° in almost all parts of the kingdom. Compared with the averages for the corresponding month in the 20 years 1861–80 the values show a slight deficit, amounting to about 1°, except, perhaps, in some parts of Ireland—where, however, the average values are not so well determined as those for Great Britain. The effect of the cool Westerly and South-westerly winds from the Atlantic along the valleys of the Clyde and Forth is distinctly shown. The lowest readings were recorded between the 7th and 10th in most places, but on or about the 28th in others, notably in the north-east of Scotland; the first of these cold periods occurred during the



North-westerly winds which set in at the close of the hot period which prevailed at the commencement of the month, while the latter was with the anticyclonic and North-westerly winds which were felt in the rear of depression No. XLIX. There were other dates on which cold weather was recorded over limited areas, but these cannot be referred to in detail here. The highest were recorded over England and Ireland between the 1st and 6th, while in Scotland the maxima occurred between the 19th and 23rd. The range was large at inland stations, exceeding  $40^{\circ}$  over the home counties, and the north-eastern parts of Great Britain, while at Llandovery (S. Wales), it is reported to have amounted to  $53^{\circ}$ . At Sumburgh Head it was as small as  $18^{\circ}$ , at Scilly,  $21^{\circ}$ , and at Jersey and Valencia,  $27^{\circ}$ .

*Vapour Tension* varied from about 0.48 in. at Hurst Point, and slightly above 0.46 in. along the south coast of England, to 0.36 in. over Caithness, and to 0.33 in. at Sumburgh Head, while *Relative Humidity* varied from 74 per cent. at Aberdeen, Leith, and in London, and about 77 or 78 over our Midland counties, to upwards of 85 per cent. at many of the western and southern coast stations. The distribution of both elements was, however, very irregular.

*Rainfall* was very irregularly distributed. Spurn Head, Hereford, and Dublin were the only stations at which the fall was less than 2 inches, but in many places (especially in the west and north) it exceeded 4 inches, and in some it was as high as 6 to 8 inches. At Alnwick Castle and at Killarney the fall was 5.1 inches, at Blackpool 5.3 inches, at Edgeworthstown 5.4 inches, at Llandovery 5.7 inches, at Newton Reigny 5.9 inches, and at Valencia 6 inches. The greatest fall reported was 8 inches, at Hawes Junction. At Laudale (Loch Sunart) the fall was 5.7 inches, but this is about two tenths of an inch less than the average fall at that station for July.

*Bright Sunshine*.—The amount recorded varied a great deal, and though large during the first week, was, on the whole, small for the time of year. Assuming that the total amount which could be recorded during the month at any station be represented by 100, the values actually recorded varied from 56 at Jersey, 51 at Hastings, 50 at Falmouth and Southampton, and 40 to 45 over many of our southern and western districts, to 24 at Markree Castle (Co. Sligo), 27 at Armagh, 28 at Stornoway and Laudale, and to 32 at York, Bawtry, and Parsonstown.



# SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF JULY 1886.



TABLE XIII. -

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			Means of				Absolute Extremes.			
			At 8 a.m.	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 29° 718	51° 1	46° 6	54° 5	50° 6	41	7th, 8th	59	1st, 20th, 21st, 23rd, 19th
	Wick	29° 754	55° 2	47° 2	60° 1	53° 7	30	29th	69	
	Stornoway	29° 758	53° 9	47° 7	59° 5	53° 6	38	9th, 10th	75	21st
1. SCOTLAND, E.	Nairn	29° 761	56° 2	48° 9	64° 8	56° 9	37	9th	80	1st
	Aberdeen	29° 778	57° 3	48° 8	64° 6	56° 7	40	10th	81	2nd
	Leith	29° 801	58° 9	47° 8	67° 2	57° 5	44	9th	80	2nd
2. ENGLAND, N.E.	Shields	29° 829	58° 5	51° 1	65° 3	58° 2	42	28th	80	2nd
	York	29° 870	59° 4	51° 7	68° 0	59° 9	42	10th	85	2nd
	Spurn Head	29° 867	58° 5	53° 8	64° 5	59° 2	49	10th	75	19th
3. ENGLAND, E.	Yarmouth	29° 904	60° 4	54° 0	66° 5	60° 3	47	10th, 28th	81	6th
	Cambridge	29° 914	62° 2	51° 5	72° 7	62° 1	42	16th	87	6th
4. MIDLAND COUNTIES	Loughborough	29° 902	61° 2	53° 1	71° 6	62° 4	45	16th	85	4th
	Oxford	29° 932	61° 1	54° 0	70° 7	62° 4	44	28th	84	4th
5. ENGLAND, S.	London	29° 938	62° 4	53° 7	72° 4	63° 1	45	28th	86	4th
	Dungeness	29° 932	61° 1	54° 8	66° 7	60° 8	46	28th, 29th	74	5th
	Hurst Castle	29° 958	62° 1	55° 0	69° 9	62° 5	46	10th	79	18th, 21st
6. SCOTLAND, W.	Ardrossan	29° 817	57° 1	51° 9	63° 0	57° 5	42	10th	71	21st
7. ENGLAND, N.W.	Hawes Junction*	28° 638	54° 5	48° 4	61° 2	54° 8	38	10th	73	1st
	Barrow-in-Furness	29° 850	57° 0	53° 7	62° 4	58° 1	48	27th, 28th	71	18th
	Liverpool (Bidston)	29° 877	59° 8	54° 5	65° 8	60° 2	49	28th	75	18th, 20th
	Holyhead	29° 881	57° 6	53° 2	63° 1	58° 2	49	10th	72	3rd, 4th
8. ENGLAND, S.W.	Pembroke	29° 910	58° 1	55° 4	61° 9	58° 7	51	9th	71	3rd
	Prawle Point	29° 958	60° 7	54° 3	65° 4	59° 9	46	10th	77	4th
9. IRELAND, N.	Malin Head	29° 803	56° 0	51° 7	60° 8	56° 3	48	14th, 17th, 24th, 27th, 10th	73	1st
	Donaghadee	29° 847	57° 5	50° 5	63° 8	57° 2	43		76	4th
	Mullaghmore	29° 823	57° 7	54° 7	63° 1	58° 9	48	14th	77	1st
	Behmullet	29° 830	57° 0	53° 6	61° 6	57° 6	47	17th	72	1st
10. IRELAND, S.	Parsonstown	29° 874	58° 9	51° 4	66° 7	59° 1	45	9th, 10th	79	1st, 3rd
	Valencia	29° 894	59° 7	53° 5	64° 7	59° 1	47	10th, 15th	74	3rd
	Roche's Point	29° 893	58° 5	52° 4	64° 9	58° 7	47	26th	74	1st, 3rd, 5th
CHANNEL ISLANDS	Scilly (St. Mary's)	29° 940	61° 4	56° 7	66° 0	61° 4	54	9th	75	3rd
	Jersey (Noirmont)	29° 980	61° 2	55° 8	67° 6	61° 7	50	10th	77	3rd, 5th, 18th

\* 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 1886.

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.	°/82	8'7	ins.	ins.	14th	21	0	0	0	1	22	0	4	2	4	3	3	7	6	2	0
0'332			4'32	1'20																	
'368	85	6'7	2'51	0'83	13th	18	0	0	0	4	14	2	4	1	0	5	8	0	5	7	1
'353	85	6'8	3'65	0'57	29th	23	0	0	1	5	11	3	4	2	2	4	5	5	5	5	1
'355	78	5'7	2'53	0'89	13th	21	0	0	0	4	5	0	2	3	2	1	3	6	9	4	1
'348	74	7'0	2'28	0'46	13th	18	0	0	1	3	12	3	1	3	2	3	7	5	3	7	0
'363	74	6'1	2'55	0'68	13th	16	0	0	1	7	10	0	1	2	2	1	2	2	10	10	1
'382	78	6'1	4'03	1'12	26th	13	0	0	2	7	8	0	4	1	1	0	4	13	6	2	0
'394	78	5'4	4'88	2'20	25th	16	0	0	2	13	11	0	4	1	0	1	10	5	7	3	0
'417	86	4'2	1'93	0'46	19th	17	0	0	1	11	2	2	5	1	2	1	5	7	6	4	0
'421	81	4'3	4'23	0'91	12th	19	0	0	2	12	4	0	3	1	1	1	3	9	6	5	2
'433	78	6'1	3'54	1'40	25th	13	0	0	4	9	12	0	7	1	0	1	7	8	5	2	0
'411	77	6'6	2'44	0'77	25th	16	0	0	3	5	13	3	0	1	1	4	2	4	15	4	0
'415	77	5'7	3'59	1'81	25th	14	0	0	1	10	9	0	1	2	1	3	5	9	5	4	1
'416	74	5'6	2'50	0'92	25th	12	0	0	1	9	9	0	2	0	2	3	7	4	7	5	1
'469	87	5'6	2'93	0'57	13th	12	0	0	2	7	7	0	4	0	2	1	2	5	10	4	3
'478	86	4'5	2'89	0'65	13th	12	0	0	1	9	1	4	4	3	2	1	1	10	5	3	2
'387	82	6'0	2'61	0'40	13th	14	0	0	0	9	12	1	1	1	3	2	4	9	5	4	2
'376	89	7'3	7'02	1'34	22nd	21	0	0	4	7	20	0	1	0	0	0	11	8	7	2	2
'397	85	6'5	5'98	1'43	26th	18	0	0	2	4	12	2	3	2	1	4	2	6	8	5	0
'369	72	7'1	3'74	0'81	21st	13	0	0	1	2	12	1	0	0	1	5	2	5	13	5	0
'415	87	5'5	3'96	0'95	26th	18	0	0	0	8	7	2	3	0	1	1	6	9	5	3	3
'435	89	6'5	3'79	0'71	16th	18	0	0	0	4	12	1	2	3	1	4	2	4	8	7	0
'431	82	3'8	3'25	0'92	12th	15	0	0	1	13	5	2	0	3	3	1	3	8	8	4	1
'391	87	6'5	3'40	0'64	13th	22	0	0	0	7	13	1	3	2	1	2	5	5	7	6	0
'414	87	5'2	3'63	1'01	25th	16	0	0	0	6	6	2	5	3	4	3	2	3	7	4	0
'389	82	7'1	2'80	0'46	13th	23	0	0	1	2	7	8	1	3	2	2	5	9	5	4	0
'402	86	7'6	4'34	0'63	18th	26	0	0	0	3	19	3	1	1	0	2	7	5	9	6	0
'392	79	7'9	2'50	0'37	17th	20	0	0	0	2	19	0	1	0	0	2	4	4	3	5	12
'424	83	8'4	5'99	1'33	20th	24	0	0	0	4	24	4	4	0	2	6	3	7	4	4	1
'400	82	6'0	4'50	1'08	20th	16	0	0	0	7	9	1	6	0	0	5	6	5	3	6	0
'461	85	7'4	3'54	0'66	13th	18	0	0	0	4	14	4	3	1	1	2	4	6	8	5	1
'449	83	4'7	3'06	0'77	19th	12	0	0	4	13	10	1	1	3	3	3	3	8	5	4	1

barometer at this Station is not reduced for altitude.



TABLE XIV.

OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of July 1886.

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	*	*	*	*	*	*	*	*	*	*	149	28
ABERDEEN	*	*	*	*	*	*	*	*	*	*	199	38
ALNWICK CASTLE	50.5	64.3	57.4	42	27th	76	18	3.54	1.60	26th	—	—
DURHAM	50.6	69.4	60.0	41	28th	83	13	5.08	1.47	26th	179	35
SCARBOROUGH	53.2	66.5	59.9	45	28th	81	14	3.81	1.55	25th	—	—
YORK	*	*	*	*	*	*	*	*	*	*	162	32
HILLINGTON	51.0	70.9	61.0	41	16th, 17th	84	15	4.41	0.85	25th	203	41
GELDESTON	51.4	69.7	60.6	40	10th	83	18	3.36	0.83	25th	214	43
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	213	43
ROTHAMSTED	50.5	70.3	60.4	41	10th	83	14	2.31	0.80	25th	—	—
INGATESTONE	51.7	70.6	61.2	44	28th	84	16	2.57	0.70	25th	—	—
BAWTRY	51.8	70.0	60.9	43	9th	82	16	2.47	0.64	23rd	160	32
LEICESTER	53.1	71.4	62.3	46	9th, 16th	85	17	3.74	0.70	7th	169	34
CHEADLE	51.2	66.2	58.7	44	28th	79	16	3.73	0.70	23rd	—	—
CHURCHSTOKE	50.6	67.9	59.3	38	28th	82	16	2.21	0.45	13th	198	40
HEREFORD	53.0	71.9	62.5	42	28th	84	18	1.70	0.20	13th	—	—
CIRENCESTER	51.0	69.4	60.2	38	28th	82	16	3.23	0.66	25th	214	43
OXFORD	*	*	*	*	*	*	*	*	*	*	214	43
LONDON	*	*	*	*	*	*	*	*	*	*	196	40
STRATHFIELD TURGISS	51.9	73.4	62.7	44	1st, 28th	87	13	2.00	0.43	25th	—	—
HASTINGS	54.6	66.9	60.8	46	28th	76	13	2.53	0.73	13th	248	51
SOUTHAMPTON	54.4	72.4	63.4	48	28th	89	11	2.47	0.53	13th	243	50
STOWELL	52.7	68.5	60.6	44	10th	80	16	2.79	1.02	25th	—	—
LAUDALE	50.9	61.3	56.1	38	9th	76	22	5.73	1.19	22nd	—	—
GLASGOW	51.7	64.0	57.9	41	28th	77	14	2.30	0.62	17th	152	29
DOUGLAS	50.5	63.0	56.8	40	10th	75	15	4.48	1.00	29th	209	41
NEWION REIGNY	49.6	64.9	57.3	40	10th	77	17	5.87	0.98	25th	198	39
STONHURST	51.4	63.8	57.6	41	9th	76	16	4.96	1.00	21st	173	34
BLACKPOOL	53.1	64.1	58.6	46	1st	74	16	5.25	0.87	25th	189	37
MANCHESTER	51.9	66.4	59.2	43	10th	79	17	3.54	0.70	25th	—	—
LLANDUDNO	53.8	65.9	59.9	48	10th	78	15	2.53	0.42	29th	189	35
LLANDOVERY	50.5	70.8	60.7	35	9th	88	20	5.74	0.82	29th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	212	43
ARLINGTON	52.1	66.1	59.1	42	10th	77	18	4.68	1.46	11th	—	—
CULLOMPTON	51.7	70.5	61.1	39	10th	84	13	3.15	0.68	25th	203	41
FALMOUTH	54.8	66.3	60.6	50	9th, 10th	77	17	4.53	0.69	20th	243	50
PLYMOUTH	55.4	69.3	62.4	45	10th	83	13	3.47	0.72	13th	218	45
JERSEY	*	*	*	*	*	*	*	*	*	*	268	56
LONDONDERRY	51.0	65.7	58.4	43	17th	81	23	2.93	0.40	13th	—	—
MARKREE CASTLE	49.6	63.9	56.8	43	10th	79	22	3.33	0.65	12th	123	24
BROOKEBOROUGH	49.6	64.9	57.3	41	28th	80	16	3.40	0.50	17th	—	—
ARMAGH	50.7	65.0	57.9	41	9th, 28th	77	21	3.01	0.63	17th	137	27
EDGEWORTHSTOWN	50.2	65.2	57.7	41	7th	78	17	5.39	1.20	18th	—	—
DUBLIN	54.8	67.2	61.0	49	9th, 27th	79	18	1.72	0.34	17th	178	36
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	159	32
KILKENNY CASTLE	51.2	67.5	59.4	43	10th, 26th	81	18	3.82	0.80	17th	—	—
WATERFORD	52.3	67.6	60.0	45	10th, 28th	84	17	4.28	1.00	20th	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	159	32
KILLARNEY	50.8	65.5	58.2	41	15th	78	18	5.48	0.91	21st	—	—

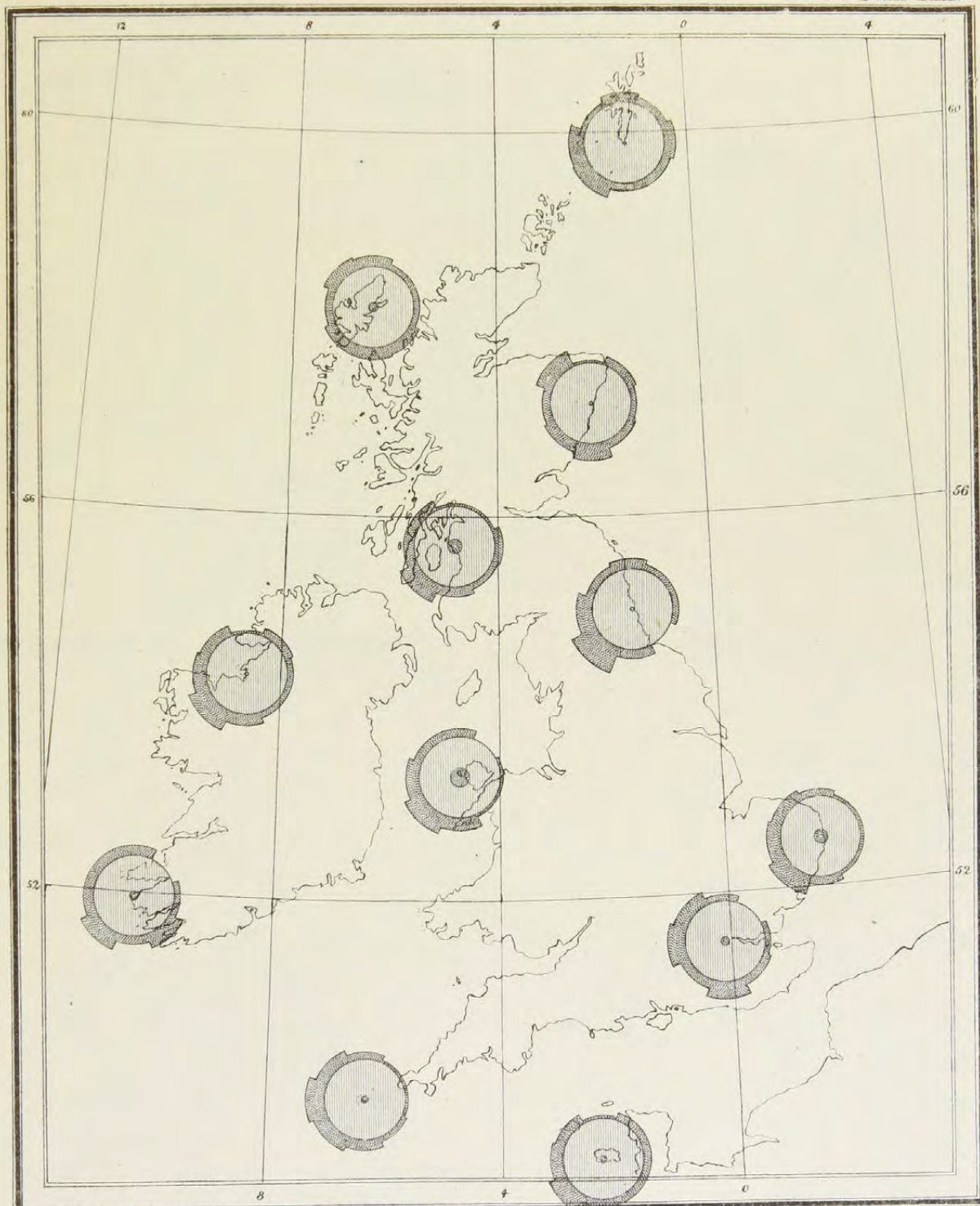
\* For information see Table XIII.

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



# MONTHLY WIND CHART FOR JULY 1886.

Plate XIII.



To face p. 84.

ANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 12941.















# MONTHLY WEATHER REPORT.

AUGUST 1886.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of August was not at all settled. The mean pressure at 8 a.m. differed little from the average, but several depressions passed more or less directly over the Kingdom, and the anticyclones which came within our area, were of irregular and variable form. Temperature, on the whole, differed but little from its normal value, but frost occurred on the ground once at the western stations, and in the shade at Wick, while some of the maxima in the east were high. The winds were moderate; they were chiefly Southerly to Westerly in direction, and gales were rare; the weather was cloudy, but in most places not rainy. Bright sunshine was deficient. Towards the end of the month a brief period of warm bright weather prevailed in most parts of England and the east of Ireland.

August 1-2.—The weather during this time remained in a changeable unsettled condition, as it had been during the latter part of July, but showed some signs of improvement after the 1st, when the barometer rose in the west, anticyclonic airs and light breezes beginning to prevail in the west and south-west with dry weather.

At the western and central continental stations also the weather remained changeable, with rain at times, but in Finland and Russia it was generally fine and warm.

August 3-6.—The barometer now rose in the south-west and west, and an anticyclone of irregular form advanced over western Europe from the Atlantic. At 8 a.m. on the 4th the system lay completely over us, and had two large and well-defined maxima, one of which covered the British Islands, while the other lay over Spain. The weather at once improved, light and variable breezes were reported on our own and the French coasts, and North-westerly breezes in Scandinavia. The sky, however, was less clear, and had a less settled appearance than is usual with anticyclones during the summer time, while rain fell locally on our extreme northern, south-western, and south-eastern coasts. Temperature, however, rose during the daytime, and the maxima recorded over England increased to between 70° and 77° on the 6th.

Over the Continent the weather was less favourable, showers being of almost daily occurrence (except in the extreme south); temperature was low in France, but high over Finland and the Baltic, where until after the 5th the readings were much higher than anywhere but in southern Europe.

August 7-11.—The anticyclone now moved eastwards and southwards to France, Germany, and Austria, and slight gradients for Westerly winds set in over the British Islands. Shallow depressions were then formed in various places; one appeared off our northern coasts on the 7th, whence it passed away to the northward next day (see the charts in the Daily and Weekly Reports), and another was formed near the mouth of the Loire during the night of the 9th, whence it travelled north-eastwards and grew much deeper; its centre reached the north of Denmark on the 11th, after which it passed away north-westwards to the Atlantic on the 12th.



Over southern Europe the weather improved during this interval; elsewhere it was very cloudy and at times showery, and in northern Europe temperature gave way decidedly. On the 10th the eastern portion of the anticyclone dispersed over Austria and Germany, while the western portion advanced eastwards over France from the Atlantic.

August 12-17.—The distribution of pressure over north-western Europe now became more markedly cyclonic, and the depressions which appeared were deeper than those previously existing. One cyclonic system (No. LIII. \*) reached the west of Ireland on the night of the 12th, and at 8 a.m. on the 13th its centre lay near Limerick. This broke up the weather in all parts of the kingdom, and in the south of Ireland the rainfall was heavy. The wind also was strong and squally, temperature fell decidedly, and, at first, it appeared as though a stiff gale was likely to set in. As the centre advanced, however, the system filled up gradually, so that on reaching the North Sea it was difficult to trace the form of the central area at all, but the wind shifted to North-west for a time with cold weather, after which it lulled to a calm. Another disturbance (No. LIV. \*) moved north-eastwards outside our extreme north-western coasts on the 16th, and caused a renewal of the showery weather—the rainfall in this instance being heaviest on the shores of the Irish Sea. A “hollow” was developed over the North Sea next day, which again caused the wind to veer to North-west over the United Kingdom, and the weather was very cold again for the time of year.

On the Continent the weather, though finer than in the British Islands, was nevertheless somewhat changeable, except in the extreme south.

August 18-23.—A new anticyclonic system now advanced over western Europe from the westward, but exhibited the same want of irregularity both in outline and pressure as had been noticed in its predecessor. On the evening of the 17th its centre was advancing towards our south-western districts from the south-westward, and by the morning of the 20th the system covered nearly the whole of France, Germany, the North Sea, England, and Ireland; two maxima were shown—one off the south-west of Ireland, and the other over the eastern counties of England. On the whole the weather improved, but the amount of cloud was large for anticyclonic conditions, and there were local showers frequently—some of them heavy, especially those at Pembroke and over Ireland on the 21st. Thunderstorms occurred over France on the 21st and 22nd, and on the latter date they extended to some of our southern stations also. Temperature remained rather low till the 21st, when it increased to between 74° and 76° over the warmer parts of England, and it reached 78° or 79° in several places on the 23rd and 24th.

Over France the weather at first improved as this system advanced, but after the 20th thunderstorms were of frequent occurrence, and in some places the rain was heavy.

August 24-25.—The weather of this period was transitional. At 8 a.m. on the 24th the anticyclone mentioned above was passing away to the eastward, and the barometer was falling over the United Kingdom with light Southerly and South-easterly winds, unsettled weather and some rain in several places. A new anticyclone, however, began to advance towards us from the westward, and the two systems were united by a “col” which at 8 a.m. on the 24th lay across England and the North Sea, while a large but not deep depression swept by our north-western coasts to the north-eastward at too great a distance to be noted in detail in Section II. The weather improved a little with us, but in France and some parts of Germany heavy rain and some thunder occurred in a very shallow depression which subsequently moved on to north Germany.

August 26-31.—In this period the distribution of pressure was anticyclonic, and the weather much finer than any that had been experienced since the first week in July. The new anticyclone (No. XXI.), after moving slowly in an easterly direction towards France at 6 p.m. on the 25th, began at the same time to spread northwards. At 8 a.m. on the 28th its

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



centre had reached the Tyrol, and the system then spread northwards across Germany to the eastern shores of the North Sea. The weather improved rapidly, and temperature over England and at the Continental stations increased steadily, so that the daily maxima recorded varied from  $75^{\circ}$  to  $79^{\circ}$  over the inland parts of England. On the 30th and 31st they rose to between  $80^{\circ}$  and  $87^{\circ}$ , and the nights also were warm. Ireland and Scotland, however, were at times largely influenced by depressions which were passing north-eastwards outside our west and north-west coasts, so that the weather there was less fair than that over England, and the temperatures, as a rule, were lower.

To western and central Europe also the new system brought very fine quiet warm weather, but in Scandinavia, Lapland, and Finland, the conditions were unsettled, changeable, and colder.



## SECTION II. - - - - -

TABLE OF CYCLONIC SYSTEMS.—AUGUST 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. LL. August 1-3.	No. LII. August 9-12.	No. LIII. August 12-14.	No. LIV. August 15-16.
Form - - - -	Oval - - - -	Nearly circular - - -	Nearly circular at first, then varying greatly.	Uncertain; apparently circular, or nearly so.
Size - - - -	Small - - - -	Small to moderate - -	Moderate - - - -	Large.
Depth - - - -	Shallow - - - -	Very shallow, to moderate -	Moderate to shallow - -	Moderate.
Where first Observed -	Off the south-west coast of Ireland.	Near the mouth of the Loire -	Off the west of Ireland -	To the westward or north-westward of our Islands.
Direction of Motion -	Easterly till 8 a.m. 2nd, then north-easterly.	North-easterly till morning of 11th, then north-westerly.	Easterly till 6 p.m., 13th, then apparently north-easterly, but uncertain.	North-easterly.
Rate of Motion - -	24 m. per hour - - -	Slow to moderate - - -	Moderate - - - -	Moderate.
Regions passed over by Steepest Gradients.	Channel and north of France. Gradients never really steep.	British Islands and North Sea. Never really steep.	France, and the southern parts of the British Isles.	The western and northern parts of our Islands.
Termination - - -	Passed away over northern Russia.	Travelled away to the Atlantic, to the westward of Norway.	Travelled away to the north-eastward and dispersed.	Travelled away to the northward.
Time under Observation -	About 60 hours - - -	About 60 hours - - -	About 48 hours - - -	About 30 hours.
Accompanying Winds -	Small, but complete cyclonic circulation. Light on its northern side, strong to a gale over France.	Light Easterly at first, then backing round to West, and freshening.	South-east to South-west, strong, then Northerly, light, and very variable.	Southerly to Westerly: strong to a gale in the west and north-west, moderate elsewhere.
" Weather -	Showery, squally, and unsettled.	Showery and changeable with thunderstorms.	Rainy (especially in the south-west of our Islands), squally, unsettled.	Squally. Showery.
" Rainfall -	Confined to the southern parts of our area; not heavy.	General, but not heavy in the south.	Very heavy in south of Ireland, slighter elsewhere. Apparently decreased in quantity as the system advanced.	General: heavy in north-west and west only.
REMARKS - - - -	This system arrived when pressure was highest over the Iberian Peninsula and south-west of France, while a small depression lay between the Shetlands and Norway. This latter caused much rain in the North, but there was a distinct zone of dry weather between the two disturbances.	This system was developed over Brittany late on the 9th, and grew deeper as it advanced north-eastwards. On its reaching our south-eastern counties another system advanced over Scotland from the west, and apparently merged with the system referred to here over the more northern parts of the North Sea and the south of Norway. The resulting disturbance then passed away to the north-westward, while a fresh depression (No. LIII.) came towards Ireland from the Atlantic. (See Charts for 12th in the Daily and Weekly Reports.)	This disturbance was very well-formed when it first appeared, but underwent great modifications as it advanced eastwards, and was apparently joined by a second minimum in the north later on. (See Daily and Weekly Reports for 14th.) The whole system then filled up very quickly, and the depression No. LIV. advanced to our western coasts.	This system advanced when pressure was highest (30.2 ins. and upwards), in the south-west of France and north of Spain, and lowest off our north-western coasts. As it passed away to the northward, a subsidiary "hollow" was developed over Scotland and the North Sea, and in this a shallow subsidiary system was formed, which subsequently passed eastwards to north Germany and the Baltic. (See charts in Daily and Weekly Reports for the 17th.)



# TABLE OF DEPRESSIONS.

## SECTION II.—continued.

### TABLE OF ANTICYCLONIC SYSTEMS.—AUGUST 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XIX. August 3-16.	No. XX. August 17-23.	No. XXI. August 25—September 2.
Form - - - -	Very variable and irregular - -	Very irregular; elongated - -	Elongated, but variable.
Size - - - -	Large - - - -	Large - - - -	Large.
Height - - - -	Slight. Maximum readings 30.1 ins. and upwards.	Slight. Maximum values 30.3 ins. on 20th.	Slight. Maximum readings 30.2 ins. and upwards on 26th to 28th.
Where first observed - -	Over Bay of Biscay and off our western coasts.	Over Bay of Biscay - - -	Over Bay of Biscay.
Direction of Motion - -	Easterly at first, then southerly -	North-easterly and easterly - -	North-eastwards and eastward.
Rate of Motion - - -	Slow - - - -	Very slow and variable - - -	Very slow.
Regions passed over - -	British Isles and France - -	British Isles, France, North Sea, and Germany.	British Isles, France, and Germany.
Termination - - -	Settled down over France, Germany, and southern Europe as a large system, and remained in or about that position till after middle of the month.	Apparently moved away to the eastward over Europe.	Moved away to the eastward, over Europe.
Accompanying Wind - -	Very light; North-westerly at first, then Southerly and South-westerly.	Light Westerly and South-westerly on its northern side; Easterly and North-easterly in the south.	Very light and variable; chiefly Westerly in north, and Easterly in south.
" Weather - - -	Fair as a rule, and somewhat foggy, but not so uniformly fine as might have been expected, especially in the south-west.	Less fair than is usual with such systems.	Fine as a rule, and warm, but with occasional showers, owing to local irregularities in pressure.
REMARKS - - -	This system was a little complex, there being two distinct maxima separated by a narrow band of lower pressure, which at 8 a.m. on 4th lay over Brittany and central France. (See Maps in the Daily and Weekly Reports for this date.)	This system also was complex; its form was irregular, and at times there were several co-existent maxima, causing local eddies of wind, and showers of rain. As this system passed off, No. XXI. advanced quickly from the westward, and in the space between these two systems a shallow low-pressure area was formed over France, and subsequently passed north-eastwards. (See Charts in Daily and Weekly Reports for 24th and 25th.)	This system, also, was somewhat complex, its outline being irregular; at times more than one maximum occurred simultaneously. At 8 a.m. on the 27th there were two distinct maxima shown over France and Germany. (See Daily Reports of 27th to 29th.)



## SECTION III.

## REMARKS FOR AUGUST 1886.

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

*Pressure.*—The mean pressure for the month, at 8 a.m., varied from a little above 30·0 inches over the Channel and the southern counties of England, to 29·9 inches over the north of Ireland and south of Scotland, to 29·8 inches a little to the northward of Inverness, and to 29·74 inches at Sumburgh Head. Compared with the values for July, those for August show an increase of about 0·05 in., over the southern parts of our Islands, while in the north the change was scarcely appreciable; when compared with the average conditions for August in the 20 years 1861–80, they show a deficit of a few hundredths of an inch in the north, and an equally slight excess in the south. The gradients were favourable for an excess of wind from the South-westward, and were rather steeper than the average ones for the time of year. The highest readings occurred in most places on the 20th, when the anticyclone No. XX. lay over us, and the barometer rose a little above 30·3 inches in many parts of Ireland and England; in the north of Scotland, the Orkneys and Shetlands, the highest occurred on the 21st, as a depression, which was off our extreme northern coasts on the 20th, passed away, and the anticyclone No. XX. spread northwards. The lowest readings were recorded over Ireland and England on the 13th during the time that the depression No. LIII. was passing over; in Scotland the lowest were registered on the 16th, as the centre of the depression No. LIV. passed by our northern coasts. The range, however, was small as the extremes were not remarkable.

*Movements of Depressions.*—These were mainly north-easterly, but the tendency of nearly all of them on reaching our area, to move in a more northerly course than they had done previously was very decided. In one instance (No. LII.\*), the system came over Britanny, and moved north-eastwards till it reached the north of Denmark; its movement then changed, and travelling north-westwards the system passed out to sea again off the west of Norway. The systems were not deep, and showed a tendency to fill up on reaching our shores. One, however (No. LII.\*) was developed off the mouth of the Loire and grew much deeper in its progress, so that on leaving the Norwegian coast on the 12th, it gave lower readings and steeper gradients over the southern half of Scandinavia than any of the other systems observed during the month.

*Anticyclones.*—There were three such systems the centres of which came within our area during August, and they were all marked by being of little height, very irregular in form, and showing two or even three distinct maxima at a time; they were consequently not accompanied by the very fine settled weather which is usual with such systems in summer. The last one, however, (No. XXI.) showed great improvement in this respect after its centre reached Germany, when with slight southerly gradients on its western side we experienced a brief period of exceedingly fine warm weather, with gentle Southerly and South-easterly winds.

*Winds.*—These blew mainly from between South and South-west especially at the north-western stations and Scilly. In the south and east of England, and at Jersey, the proportion of winds from West was large, and those from North and North-east also were well represented. The winds were as a rule light or moderate in force. Gales were almost unknown except on our extreme western coasts, and there the highest numbers reported were 7 at Mullaghmore, and 5 each at Stornoway and Valencia.

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



*Temperature.*—The mean (sea-level) temperature for the month varied from between  $63^{\circ}$  and  $64^{\circ}$  over the more southern of the home counties, to a little above  $60^{\circ}$  over Durham and Yorkshire, to about  $55^{\circ}$  in Caithness and to  $52^{\circ}\cdot6$  at Sumburgh Head. Over Ireland it ranged from a little above  $60^{\circ}$  over the south-eastern counties, to about  $58^{\circ}$  at Belmullet and Malin Head. Compared with the values for July those for August show hardly any change so far as Great Britain is concerned, but in the east and south-east of Ireland the values were very slightly lower in the latter than in the former month. When compared with the averages for August in the 20 years 1861–80, it appears that the mean temperatures over England were almost exactly at their normal values, while in Ireland and the north of Scotland they were low, but to a very small extent. The highest readings occurred in most places between the 29th and 31st, during the period of warm weather with which the month closed. At many of the western stations, however, the maximum was recorded on the 6th, while the anticyclonic system No. XIX. prevailed, and in a few cases the maximum was recorded between the 17th and 20th. The lowest readings were registered very generally between the 2nd and 4th at a time when the Northerly and North-westerly winds in front of the anticyclone No. XIX. were spreading over the kingdom. In many cases the minimum values ( $34^{\circ}$  to  $37^{\circ}$ ) were very low for the time of year, and the range for the month was consequently larger than might have been expected, from the fact that the maxima were by no means high. Thus at the inland stations over the midland, southern, and eastern counties of England the range varied from  $40^{\circ}$  to  $44^{\circ}$ , and even at Markree Castle it was  $38^{\circ}$ . The most singular case, however, was at Wick, where owing to the very low minimum of  $30^{\circ}$  registered on the 4th, the range for the month was as large as  $43^{\circ}$ .

*Vapour Tension* varied from  $0\cdot48$  in. along the south-east coast of England and at Jersey to  $0\cdot36$  in. in the extreme north of Scotland and to  $0\cdot35$  at Sumburgh Head. It was much higher on the coasts than inland. *Relative Humidity*, varied from a little above 90 per cent. at many of the southern and western coast stations to between 80 and 85 over the home counties and to 77 in the east of Scotland.

*Rainfall.*—In most districts the rainfall was very deficient, aggregate amounts of less than an inch being registered at Leith, Durham, London, Strathfield Turgiss, and Pembroke, and less than an inch and a half in many other places. At some stations, however, owing to heavy local falls during the passage of small disturbances, the amounts were in excess of the average—*e.g.* at Valencia, Kilkenny, and Cambridge. Considering the smallness of the fall the number of rainy days was large; thus, at Valencia there were 27, at Markree Castle 26, at Stornoway 25, at Belmullet 23, at Sumburgh Head and Killarney 21, and at Malin Head 20. Over the greater part of England they varied from 10 to 15, but in some cases there were only 9, while Strathfield reported 8, and Hereford only 6.

*Bright Sunshine.*—Had it not been for the period of bright weather which set in towards the end of the month the records of bright sunshine would have been low indeed for the time of year. As it was they were not anywhere large, none of the stations recording half of the amount possible. Assuming that the total possible duration during the month at each station be represented by 100, the amounts actually recorded were only 47 at Jersey and Geldeston, 44 at Oxford, 43 at Hillington, 42 at Cambridge and Hastings, and 41 at Southampton. All other stations had less than 40 per cent., and at the Irish stations and Stornoway the percentage varied from 20 to 27.



TABLE XV.

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			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° 738	52° 3	47° 5	56° 8	52° 2	43	3rd, 4th, 5th	61	24th
	Wick	29° 789	55° 2	47° 3	61° 8	54° 6	30	4th	73	30th
	Stornoway	29° 784	53° 6	47° 5	59° 3	53° 4	39	4th	63	30th
1. SCOTLAND, E.	Nairn	29° 810	55° 3	49° 4	64° 6	57° 0	40	4th, 22nd, 23rd	71	18th
	Aberdeen	29° 839	57° 4	49° 1	64° 8	57° 0	38	4th	75	20th
	Leith	29° 874	58° 0	51° 0	66° 0	58° 5	42	3rd	75	28th, 29th
2. ENGLAND, N.E.	Shields	29° 912	57° 0	51° 1	65° 3	58° 2	43	3rd	77	30th
	York	29° 956	57° 4	52° 1	68° 5	60° 3	43	3rd	80	30th, 31st
	Spurn Head	29° 951	58° 5	54° 5	64° 5	59° 5	49	3rd	77	31st
3. ENGLAND, E.	Yarmouth	29° 968	60° 3	54° 3	66° 7	60° 5	44	3rd	76	7th
	Cambridge	29° 985	60° 3	51° 8	71° 9	61° 9	44	12th	86	30th 31st
4. MIDLAND COUNTIES	Loughborough	29° 983	59° 1	53° 2	71° 1	62° 2	43	5th	86	30th
	Oxford	30° 001	59° 1	53° 8	69° 7	61° 8	43	3rd	84	30th
5. ENGLAND, S.	London	30° 008	60° 6	54° 3	72° 4	63° 4	46	3rd	87	30th, 31st
	Dungeness	29° 975	60° 8	55° 0	67° 2	61° 1	43	3rd	75	30th, 31st
	Hurst Castle	30° 015	61° 0	55° 7	68° 9	62° 3	48	18th	77	24th
6. SCOTLAND, W.	Ardrossan	29° 891	56° 7	52° 0	61° 7	56° 9	43	4th	69	29th
7. ENGLAND, N.W.	Hawes Junction*	28° 721	54° 1	48° 5	61° 1	54° 8	37	3rd	73	30th
	Barrow-in-Furness	29° 941	56° 9	54° 4	62° 3	58° 4	48	3rd, 4th	71	30th
	Liverpool	29° 962	59° 1	54° 9	66° 4	60° 7	48	4th	77	30th
	Holyhead	29° 961	57° 3	54° 2	62° 4	58° 3	46	4th	67	23rd
8. ENGLAND, S.W.	Pembroke	29° 992	58° 7	56° 0	61° 9	59° 0	51	3rd	66	22nd
	Prawle Point	30° 026	60° 2	54° 6	65° 3	60° 0	48	3rd	75	30th
9. IRELAND, N.	Malin Head	29° 866	56° 1	52° 9	62° 0	57° 5	49	2nd	68	14th, 30th
	Donaghadee	29° 923	56° 6	50° 7	63° 2	57° 0	38	4th	72	20th
	Mullaghmore	29° 893	57° 4	54° 6	63° 4	59° 0	49	12th	73	30th
	Belmullet	29° 891	57° 5	53° 4	61° 5	57° 5	46	1st, 22nd	65	3rd, 19th, 27th, 30th.
10. IRELAND, S.	Parsonstown	29° 948	57° 7	51° 7	64° 8	58° 3	43	3rd, 22nd	71	6th, 15th, 29th
	Valencia	29° 966	58° 8	54° 7	63° 3	59° 0	47	3rd	67	27th
	Roche's Point	29° 968	58° 9	54° 2	64° 4	59° 3	45	1st	73	6th
CHANNEL ISLANDS	Scilly (St. Mary's)	30° 014	60° 6	56° 6	64° 4	60° 5	53	3rd	69	27th, 30th
	Jersey (Noirmont)	30° 030	60° 5	56° 6	66° 5	61° 6	52	2nd	77	29th

\* 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 1886.

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.
ins.	°	ins.	ins.	in.																	
0.347	11	8.6	1.84	0.44	1st	21	0	0	0	2	22	1	3	1	0	2	7	5	7	6	0
368	85	6.7	2.21	0.95	10th	16	0	0	0	5	14	2	0	1	0	0	12	2	5	10	1
363	88	6.5	3.28	0.59	30th	25	0	0	0	5	10	5	1	1	0	2	9	12	3	3	0
357	82	4.8	1.19	0.60	10th	17	0	0	0	8	4	0	1	0	1	0	0	15	5	3	6
365	77	5.1	1.01	0.17	10th	11	0	0	0	10	4	2	2	0	0	0	10	9	5	4	1
375	78	5.8	0.59	0.32	10th	12	0	0	1	8	7	0	0	2	1	4	1	5	11	7	0
383	82	7.2	2.15	0.74	18th	11	0	0	0	3	12	0	3	1	1	0	6	12	6	2	0
403	86	6.5	2.55	0.67	18th	11	0	0	1	8	12	0	4	2	1	1	9	5	6	3	0
441	90	4.8	1.20	0.42	18th	13	0	0	0	8	4	0	5	0	2	2	3	8	5	6	0
452	87	4.5	2.02	0.40	10th, 17th	12	0	0	0	13	6	0	4	3	1	1	3	5	8	2	4
450	87	6.3	2.64	1.23	17th	11	0	0	2	9	15	0	9	0	1	0	5	10	0	3	3
435	87	7.8	1.80	0.70	9th	13	0	0	1	2	16	0	2	3	1	3	1	5	10	5	1
426	85	6.0	1.49	0.54	9th	9	0	0	0	9	12	0	2	4	0	1	4	9	4	3	4
432	82	7.4	0.79	0.17	9th	12	0	0	0	4	16	0	2	4	1	1	2	5	7	6	3
480	89	6.6	1.58	0.26	17th	10	0	0	0	4	9	0	3	5	0	1	3	4	6	6	3
480	90	6.4	1.00	0.17	1st, 12th, 23rd.	14	0	0	0	5	7	1	5	7	3	0	1	6	5	2	2
421	91	6.6	1.66	0.43	10th	16	0	0	1	10	17	2	2	2	2	3	8	4	6	3	1
381	91	7.8	3.20	1.01	15th	19	0	0	2	5	21	0	1	1	2	1	6	10	5	3	2
406	88	7.1	2.56	0.72	6th	15	0	0	1	4	15	2	3	4	1	2	5	6	2	8	0
395	79	7.2	1.70	0.63	15th	14	0	0	1	4	14	0	2	1	1	7	5	4	8	3	0
436	92	6.7	1.60	0.48	15th	10	0	0	0	5	8	0	4	1	0	0	8	10	2	3	3
444	91	7.0	0.87	0.25	12th	14	0	0	0	4	14	2	4	2	1	2	6	6	5	4	1
456	88	5.5	1.28	0.42	1st	13	0	0	0	10	9	2	3	6	2	0	2	4	8	4	2
401	88	8.2	1.87	0.39	10th	20	0	0	0	0	15	0	5	1	1	2	9	7	4	2	0
423	92	6.6	2.14	0.39	6th	18	0	0	0	6	15	1	1	3	1	1	3	10	10	2	0
400	84	7.8	2.83	0.68	30th	19	0	0	0	1	11	7	1	1	2	3	8	8	4	3	1
414	87	8.5	2.98	0.75	25th	23	0	0	0	2	22	3	3	3	0	3	5	10	6	1	0
411	86	8.4	2.24	0.45	21st	19	0	0	0	2	19	0	1	1	0	3	5	7	1	1	12
455	92	8.5	5.27	1.16	12th	27	0	0	0	1	21	5	3	1	3	5	4	6	5	2	2
438	89	7.2	3.53	0.92	21st	18	0	0	0	4	14	2	5	2	0	1	5	9	7	2	0
461	87	8.4	1.87	0.40	5th, 8th, 12th.	15	0	0	0	2	19	3	3	2	2	2	6	5	2	6	3
480	92	6.2	1.81	0.52	13th	18	0	0	4	9	14	2	2	5	4	1	0	6	8	5	0

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 1886.

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 - - -	*	*	*	*	*	*	*	*	*	*	*	123	26
ABERDEEN - - -	*	*	*	*	*	*	*	*	*	*	*	160	35
ALNWICK CASTLE - -	52.2	63.9	58.1	44	2nd, 3rd	72	28th, 30th, 31st	11	1.06	0.36	10th	—	—
DURHAM - - -	50.5	67.8	59.2	41	4th	77	6th, 30th	12	0.92	0.29	18th	165	36
SCARBOROUGH - - -	53.3	66.4	59.9	45	4th	79	31st	9	1.82	0.51	18th	—	—
YORK - - -	*	*	*	*	*	*	*	*	*	*	*	151	33
HILLINGTON - - -	51.1	70.2	60.7	40	3rd	84	30th, 31st	12	1.98	0.40	9th	194	43
GELDESTON - - -	51.6	69.8	60.7	40	5th	83	31st	11	1.50	0.32	18th	209	47
CAMBRIDGE - - -	*	*	*	*	*	*	*	*	*	*	*	188	42
ROTHAMSTED - - -	51.9	70.3	61.1	42	3rd, 30th	85	31st	13	1.12	0.26	13th	—	—
INGATESTONE - - -	52.2	70.3	61.3	43	3rd	86	31st	12	1.59	0.58	9th	—	—
BAWTRY - - -	52.3	70.0	61.2	41	5th	84	30th	14	1.70	0.31	9th	†141	31
LEICESTER - - -	53.1	70.4	61.8	44	3rd	86	30th	13	1.80	1.03	9th	153	34
CHEADLE - - -	51.4	66.6	59.0	42	3rd	78	30th	11	1.71	0.64	9th	—	—
CHURCHSTOKE - - -	49.8	68.6	59.2	41	3rd	81	30th	10	1.13	0.42	9th	176	39
HEREFORD - - -	52.8	72.9	62.9	43	3rd	85	30th	6	1.05	0.76	9th	—	—
CIRENCESTER - - -	51.7	68.7	60.2	39	3rd	83	30th	9	1.73	0.69	9th	184	41
OXFORD - - -	*	*	*	*	*	*	*	*	*	*	*	197	44
LONDON - - -	*	*	*	*	*	*	*	*	*	*	*	175	39
STRATHFIELD TURGIS-	55.7	74.1	64.9	45	1st	85	31st	8	0.89	0.21	10th, 16th	—	—
HASTINGS - - -	55.3	67.3	61.3	47	3rd	77	30th, 31st	12	1.54	0.50	23rd	186	42
SOUTHAMPTON - - -	54.5	72.2	63.4	47	3rd, 5th, 12th	80	30th	10	1.31	0.41	23rd	184	41
STOWELL - - -	52.7	67.4	60.1	43	3rd	79	30th	12	1.35	0.27	12th	—	—
LAUDALE - - -	50.5	61.1	55.8	41	4th, 22nd	66	13th	24	3.78	0.92	30th	—	—
GLASGOW - - -	50.6	62.2	56.4	42	4th	69	28th, 29th	15	1.81	0.48	10th	105	23
DOUGLAS - - -	54.1	61.9	58.0	40	4th	67	7th	14	2.65	0.59	12th, 15th	147	32
NEWTON REIGNY - -	49.8	64.5	57.2	38	3rd	73	30th	11	1.15	0.29	6th	166	36
STONYHURST - - -	52.0	64.7	58.4	41	2nd, 4th,	76	30th	16	2.36	0.70	6th	147	32
BLACKPOOL - - -	53.3	64.8	59.1	38	4th	76	30th	9	1.43	0.39	15th	162	36
MANCHESTER - - -	52.6	66.9	59.8	42	3rd	78	30th	12	2.57	0.64	13th	—	—
LLANDUDNO - - -	54.0	65.2	59.6	45	4th	73	30th	11	1.36	0.39	12th	158	35
LLANDOVERY - - -	49.8	70.5	60.2	37	17th	58.1	30th	16	1.09	0.48	15th	—	—
PEMBROKE - - -	*	*	*	*	*	*	*	*	*	*	*	157	35
ARLINGTON - - -	52.1	65.8	59.0	43	3rd	77	30th	14	2.41	0.72	15th	—	—
CULLOMPTON - - -	52.3	69.6	61.0	41	3rd, 5th	80	30th	10	2.06	0.56	9th	143	32
FALMOUTH - - -	55.2	65.6	60.4	48	3rd	71	27th	11	2.27	0.48	13th	156	35
PLYMOUTH - - -	54.7	67.5	61.1	46	18th	72	19th, 24th	9	2.20	0.49	9th	156	35
JERSEY - - -	*	*	*	*	*	*	*	*	*	*	*	206	47
LONDONDERRY - - -	51.2	60.7	59.0	42	22nd	75	19th	16	2.04	0.38	30th	—	—
MAEKREE CASTLE - -	49.7	64.1	56.9	34	22nd	72	30th	26	3.08	0.70	12th	92	20
BROOKEBOROUGH - -	49.9	64.7	57.3	36	23rd	72	20th	15	2.89	0.55	25th	—	—
ARMAGH - - -	50.6	65.3	58.0	36	1st	71	6th	18	2.45	0.46	12th	105	23
EDGEWORTHSTOWN - -	50.5	64.5	57.5	40	11th	72	6th	18	2.68	0.43	12th	—	—
DUBLIN - - -	54.2	66.6	60.4	47	11th	76	30th	13	1.50	0.37	21st	122	27
PARSONSTOWN - - -	*	*	*	*	*	*	*	*	*	*	*	94	21
KILKENNY CASTLE - -	52.5	66.2	59.4	43	1st	74	6th	15	2.33	0.54	21st	—	—
WATERFORD - - -	53.1	66.2	59.7	44	11th	74	6th	17	3.04	0.76	12th	—	—
VALENCIA - - -	*	*	*	*	*	*	*	*	*	*	*	118	26
KILLARNEY - - -	53.0	63.5	59.3	43	1st, 3rd	73	6th	21	3.85	1.03	30th	—	—
FOYNES - - -	53.1	64.3	58.7	47	2nd, 3rd, 21st	72	29th	19	3.21	0.46	20th	—	—

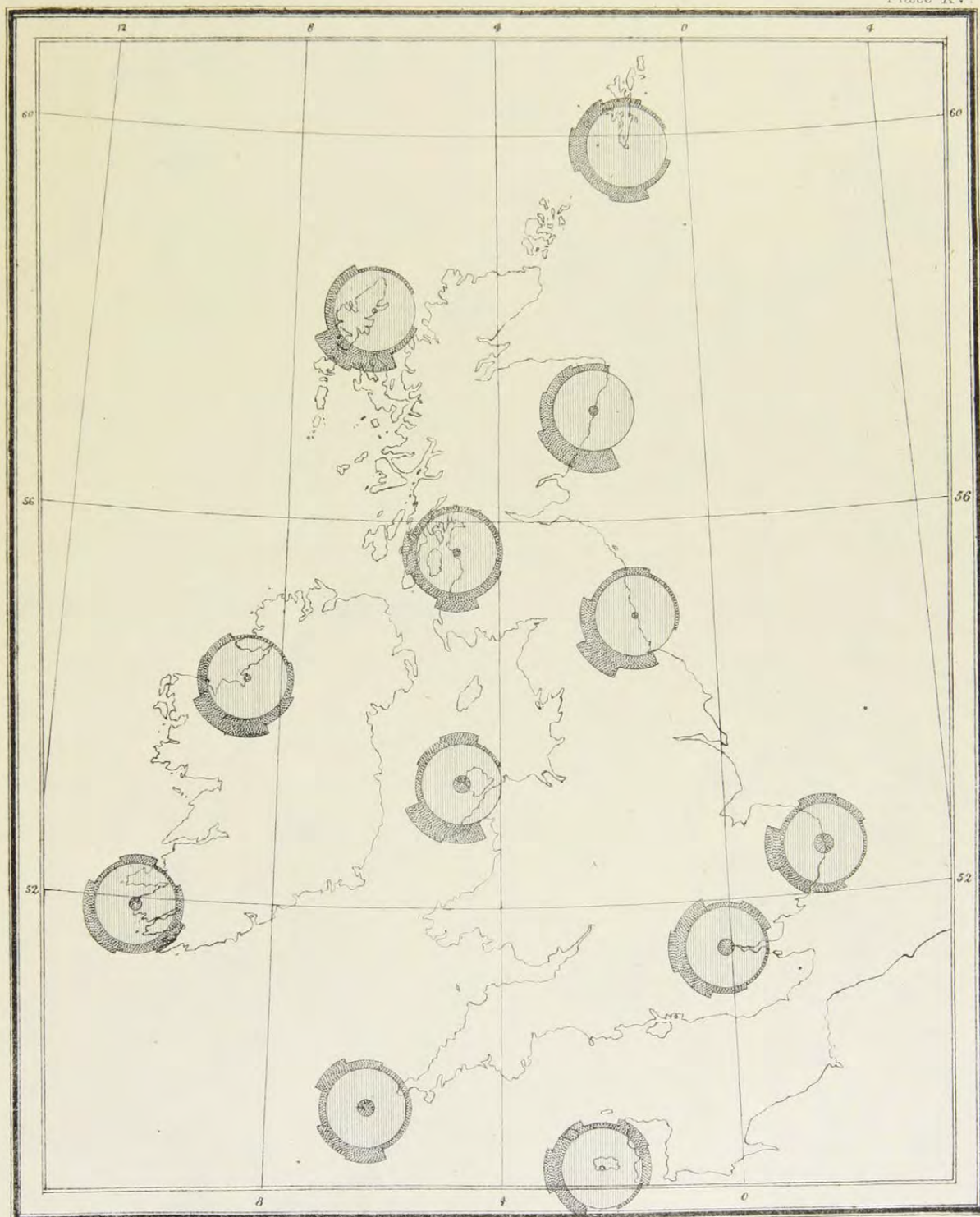
\* For information see Table XV.

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



# MONTHLY WIND CHART, FOR AUGUST, 1886.

Plate XV.



To face p. 34.

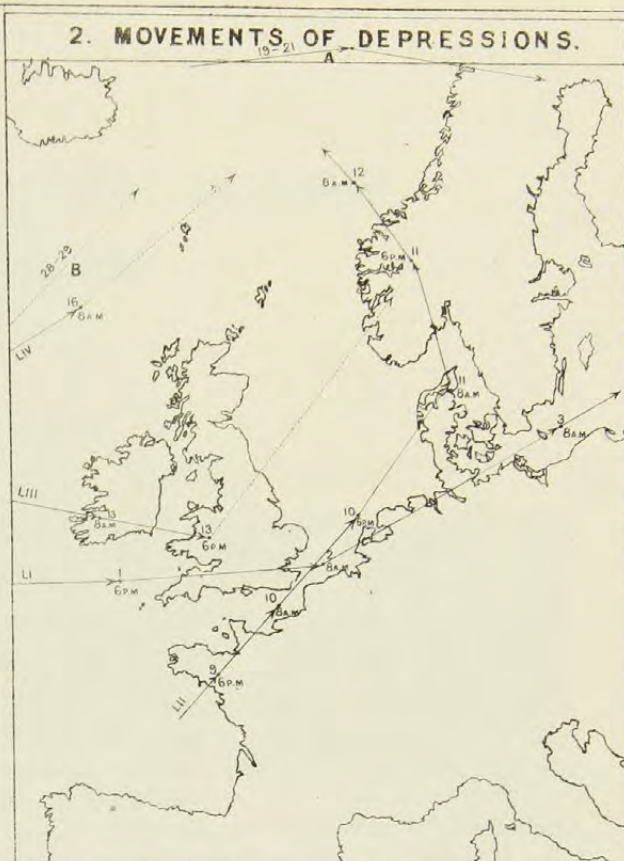
DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 1886.



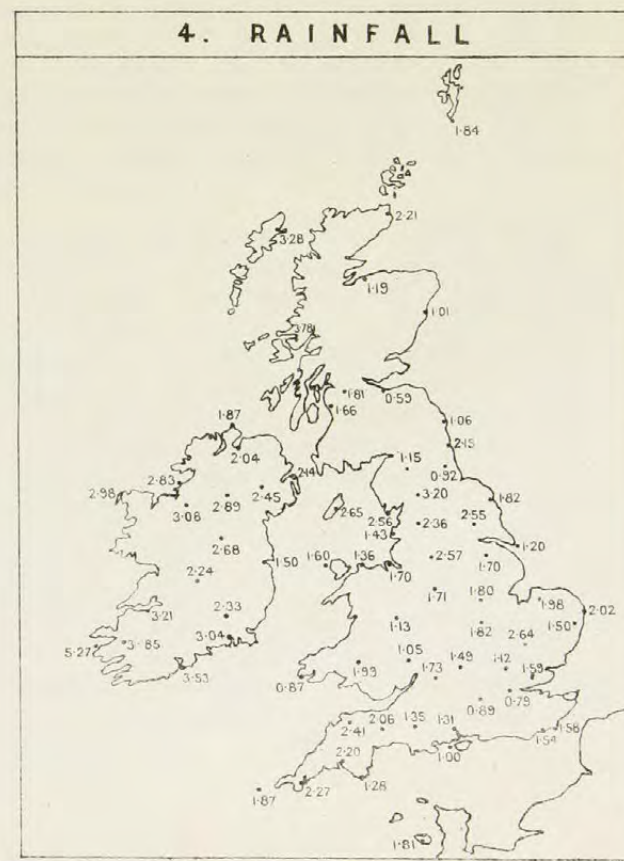




## 2. MOVEMENTS OF DEPRESSIONS.



#### 4. RAINFALL









# MONTHLY WEATHER REPORT.

SEPTEMBER 1886.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of September was somewhat peculiar; over the greater part of England it was fair as a whole and rather warm, while in Ireland and Scotland it was dull and rather cold. In all districts the changes from heat to cold have been very sudden, the most marked case being that which took place over the south-east of England on the 2nd. Pressure was rather above its average value, and its range was not large except in the north-west and north. Temperature was in excess of the mean over the south-eastern part of the country, but in defect in the west and north; the differences, however, were not large: its range during the month was considerable. The wind was chiefly South-easterly and South-westerly in the north and north-west, but was very variable elsewhere, and not strong. Gales were pretty frequent in the extreme west and north-west, but were not severe. Rainfall was in excess of the average at most of the western and north-western stations, but in defect elsewhere; and the amount of bright sunshine was small except over the south-eastern half of England.

September 1.—The weather over western Europe on this day was fine, especially over England and France, where the maximum temperatures were as high as  $80^{\circ}$  to  $87^{\circ}$  and the winds were very light and variable from the Westward. The appearance of the sky, however, was less settled than on the previous days, and the subsequent formation of a second (small) anticyclonic system (No. XXII.) in the west and south-west, brought about a conflict of wind currents in the south and east, which caused a sudden collapse of the bright warm weather which had prevailed during the previous few days.

September 2 to 4.—The change of weather during this interval, in which the distribution of pressure was of a complex and variable type, was very remarkable. At 8 a.m. on the 2nd the anticyclone No. XXI. still lay over Germany and France, while the new one referred to in the last paragraph lay over Ireland, Wales, and the west of England. The collision between the Northerly winds of the latter system and the Southerly of the former produced several local depressions over the south-eastern and southern parts of our area, and these were accompanied by heavy falls of rain and sudden changes of temperature, so that in London the temperature at 2 p.m. on the 2nd was no less than  $26^{\circ}$  lower than that recorded at the same hour on the 1st. The rainfall at Hurst Castle was 1.2 ins., and the wind blew freshly from North and North-east over our south-eastern counties. Over the northern parts of the kingdom the weather remained fair. On the 3rd some amelioration was observed (though thunderstorms were experienced in the south), the rainfall decreased, temperature rose a little, the wind lulled and veered, and while the new anticyclone advanced north-eastwards to the northern parts of England and Ireland the small depression referred to above began to move away to the north-westward, and to fill up. On the 4th conditions had improved greatly; the depressions moved away towards Ireland, the anticyclone passed eastwards towards the Baltic, the wind became more Southerly, and temperature during the afternoon rose to a maximum of  $79^{\circ}$  in the south-east of England.



Over central and eastern Europe the weather remained fine, but in France the changes referred to above were felt very decidedly, and thunderstorms of considerable severity occurred both on the 2nd and 3rd, accompanied by a fall of temperature. On the 4th, however, the weather was improving.

September 5-12.—The distribution of pressure now underwent a further change; gradients for South-westerly winds became prevalent, and gradually grew steep, and, as is usual under such circumstances, depressions appeared in the west and north-west and moved north-eastwards, past our north-western coasts. At first they were apparently shallow, but their centres passed by at so great a distance from us, in a direction parallel to the arrow marked "A" on Map 2, Plate XVIII., that their effect on our winds was trifling. Owing to subsidiary disturbances, however, showery weather and thunderstorms were very prevalent in nearly all parts of the kingdom. Early on the 8th a depression of great size (No. LV.)\* arrived off the north-west of Ireland, producing Southerly and South-westerly gales in the west and north, and freshening South-westerly winds elsewhere, with some rain, which commenced first in the west, and then spread eastwards to all parts of the kingdom. This was followed rapidly by No. LVI.,\* the movements of which were very similar to those of its predecessor; as, however, the system was deep and its centre apparently passed nearer to our coasts than that of No. LV., the gales and winds which it produced were stronger, and its rainfall much heavier—especially over the Irish Sea. Another, less deep, system (No. LVII.)\* followed on the 11th, but in its rear the barometer rose and the general distribution of pressure again began to change.

The unsettled weather caused by these disturbances spread gradually over western Europe, where, though the wind was not strong as a rule, thunderstorms were of almost daily occurrence, and the rainfall was large. Over central and eastern Europe the weather was less disturbed.

September 13-14.—The weather experienced during this brief period was of a transitional character. The continental high-pressure area over France and Germany still held, but instead of the low-pressure area recently existing over the Atlantic, a second anticyclone (No. XXIII.) appeared, and between this and the older system the shallow depression, No. LVIII.,\* was formed over Ireland, and travelling north-eastwards, caused heavy local rains in Ireland and Scotland, as well as less heavy falls in the west and north generally. By 8 a.m. on the 15th, however, the new anticyclone was spreading all over the kingdom and was becoming the dominant system of north-western Europe. Temperature, after rising to 80° at Jersey and in London on the 14th, fell decidedly as the wind drew into East, but the weather became dry generally.

As the new system advanced the old continental anticyclone moved eastwards and dispersed, and on the 15th thunderstorms were experienced very generally in Germany. Temperature also began to give way very decidedly over northern Europe.

September 15-20.—The dominant pressure-system during this time was anticyclonic and the gradients favourable for Easterly and South-easterly winds. At first these gradients were confined to the southern half of our area (see Charts of 15th), but as the centre of the system passed eastwards to the North Sea they spread northwards over our western districts, while over Scandinavia steep gradients for Westerly winds appeared. The Easterly wind over the United Kingdom was cold and dry at first, but on the 18th and 19th, when some shallow local depressions began to appear off our south-western and south-eastern coasts, the thermometer rose again, and the appearance of the sky became less settled.

In France thunderstorms were very prevalent during this period, apparently owing to the fact that a second high-pressure system lay over the Iberian Peninsula, the Westerly winds of which were opposed to the Easterly winds of the more northern system, the region of contact between the currents being France and the Bay of Biscay.

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



September 21-25.--The dominant system of pressure distribution at this time was still anticyclonic, but the system was a new one, and the type of gradient varied from north-easterly at the commencement of the period, to westerly and south-westerly at its close. The new anticyclone (No. XXIV.) appeared off our north-western coasts on the 20th, remained there for a day or two, while the old one was dispersing over Poland and the western parts of Russia. Some small depressions (and notably No. LIX.)\* then appeared in the south. The winds were therefore North-easterly at first and blew strongly over the southern parts of the kingdom, while over southern Europe (owing to the persistence of the high-pressure area over Spain) they were Westerly and South-westerly (see the Charts for the 21st and 22nd in the Daily and Weekly Reports). In the western and central districts the weather was fair, but in the north and north-east and on our southern coasts there were cold showers. Gradually, however, the anticyclone moved southwards down the western coasts of our Islands, and, as the wind backed round to North, West, and South-west, the rain ceased in the south and east, while showers set in on our west and north-west coasts.

On the Continent a good deal of rain fell, and thunderstorms occurred frequently.

September 26-30.—The system of pressure-distribution now became cyclonic and simpler, and the type of gradient favourable for Westerly and South-westerly winds. Temperature consequently rose generally, especially over England, until on the 29th maxima were recorded as high as  $70^{\circ}$  to  $71^{\circ}$  at our inland stations. Depressions again began to move from south-west to north-east outside our extreme north-western coasts, the most important of them being No. LX.,\* the centre of which passed close to the Farö Isles on the 27th. Another large system passed outside our western and north-western coasts on the 30th, but its centre was at so great a distance from us that its characteristics could not be tabulated in Section II. Its movements, however, were apparently about parallel to the broken arrow marked "A" on Map 2, Plate XVIII.

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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 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. LV. September 8.	No. LVI. September 9.	No. LVII. September 11.
Form - - - -	Uncertain; but apparently somewhat oval.	Apparently nearly circular - -	Apparently nearly circular - -
Size - - - -	Large - - - -	Large - - - -	Large - - - -
Depth - - - -	Moderate - - - -	Deep - - - -	Moderate - - - -
Where first Observed - -	Off the north-west of Ireland - -	Off the north-west of Ireland - -	Off the north-west of Ireland - -
Direction of Motion - -	North-easterly - - - -	North-easterly - - - -	North-easterly - - - -
Rate of Motion - - - -	Moderate - - - -	Moderate - - - -	Moderate - - - -
Regions passed over by Steepest Gradients.	The western and northern parts of the British Islands.	The western and northern parts of the British Isles.	The north-western parts of the British Islands.
Termination - - - -	Travelled away to the northward -	Travelled away to the northward -	Travelled away to the northward -
Time under Observation -	About 24 hours - - - -	About one day - - - -	About one day - - - -
Accompanying Winds - -	Southerly and South-westerly; gales in the west and north-west, moderate winds elsewhere.	Southerly and South-westerly; gales in the west and north.	Southerly and South-westerly; gales in west and north-west, moderate in east and south.
„ Weather - - - -	Squally and showery in west and north, cloudy in south-east.	Squally and rainy except in the south-east.	Squally and rainy in the west and north, fair elsewhere.
„ Rainfall - - - -	Heavy in west and north of Ireland, slight elsewhere.	Heavy in the west and north-west, slight elsewhere.	Rather heavy in Ireland, slight elsewhere.
REMARKS - - - -	This system advanced when pressure was highest over the Bay of Biscay and the west and north of France. It was accompanied by a very shallow subsidiary disturbance over France, which, however, soon dispersed.	This system followed closely on No. LV., but its centre passed rather nearer to our coasts. It was followed by a subsidiary "V"-shaped disturbance, which on the morning of the 10th caused South-westerly gales and some rain over our south-eastern counties also.	This system advanced while pressure remained highest in France and Germany. It was followed, however, by a decided rise of the barometer over the United Kingdom, and a complete change in the distribution of pressure over our area generally.



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—SEPTEMBER 1886.

No. LVIII. September 13-14.	No. LIX. September 21-22.	No. LX. September 27.
Somewhat oval - - - - -	Oval - - - - -	Apparently nearly circular.
Small to moderate - - - - -	Small to moderate - - - - -	Large.
Very shallow, to moderate - - - - -	Shallow - - - - -	Apparently deep.
Over the southern half of Ireland - - - - -	To the westward of Ushant - - - - -	Off the north-west of our Islands.
North-easterly - - - - -	Easterly at first, then variable - - - - -	North-easterly till 6 p.m. on the 27th, then easterly.
Slow to rapid - - - - -	Very slow - - - - -	Moderate.
British Isles and Scandinavia. Gradients were never very steep.	Channel, England, and south of Ireland - - - - -	The British Isles and North Sea, more especially the western and northern parts.
Travelled away to northern Russia - - - - -	Filled up over Brittany - - - - -	Apparently filled up off the west of Norway
About two days - - - - -	About two days - - - - -	About two days.
South-easterly to South-westerly over Great Britain and Irish Sea, North-easterly to North-westerly and Westerly in the west of Ireland.	North-easterly in our Islands, Westerly and South-westerly in France.	South-westerly; gales in west and north, fresh breezes in south-east.
Very rainy around the centre; fair in the east and south-east districts.	Wet, cold, and unsettled - - - - -	Squally, showery, mild.
Very heavy in certain parts of Ireland and Scotland, moderate or slight elsewhere.	Heavy at several of the Channel stations - - - - -	Heaviest in north-west; very slight in east and south-east.
This system was apparently formed over the South of Ireland by the sudden appearance of a second anticyclone (No. XXIII.) over the Atlantic, where for many days pressure had been low. Between this new system and the previously existing continental anticyclone over Germany and France, the new depression was formed. (Compare maps for 12th, 13th, and 14th in Daily and Weekly Weather Reports.)	This system was formed in the zone of low pressure which lay between anticyclone No. XXIV. and another high-pressure area over Africa and the extreme south of Europe. Its movements were very slight and irregular, and its collapse somewhat sudden, as the southern high-pressure area gave way.	This system reached our shores while pressure was highest in France and lowest off our north-west coasts. It was followed by a subsidiary disturbance, which reached our north-western coasts on the 29th, and by another primary system which passed outside our western and north-western coasts on the 30th, but at such a distance from us that its characteristics cannot be tabulated in this section.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—SEPTEMBER 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXII. September 2-4.	No. XXIII. September 14-20.	No. XXIV. September 20-28.
Form - - - - -	Very variable; somewhat oval on the 3rd.	Very variable - - - - -	Uncertain.
Size - - - - -	Small - - - - -	Small to large - - - - -	Large.
Height - - - - -	Very small. Maximum readings 30.2 ins. and upwards, on 3rd.	Moderate. Maximum readings 30.6 ins. and upwards on 15th and 16th.	Uncertain; centre lying over Atlantic.
Where first Observed - - -	Over Ireland, the west of England and the Bay of Biscay.	Off the west of Ireland - - -	To the north-westward of our Islands.
Direction of Motion - - -	North-easterly and easterly - - -	Varying much, but on the whole easterly.	Southerly and South-easterly.
Rate of Motion - - - - -	Slow - - - - -	Very slow - - - - -	Slow.
Regions passed over - - -	British Islands and North Sea - -	British Isles, North Sea, and eastern shores of North Sea.	Western parts of our Island and Bay of Biscay.
Termination - - - - -	Travelled away to the Baltic - - -	Travelled away to the eastward and dispersed.	Became a permanent system over southern Europe.
Accompanying Wind - - -	Very light North-westerly and Northerly at first; North-easterly to Easterly later.	North-westerly and North-easterly at first, but South-easterly and easterly after the centre reached the North Sea.	Northerly and North-easterly at first; afterwards backing to West and South-west.
„ Weather - - - - -	Fine within the system itself, but unsettled and cold in the south-east and east of England. (See Section I.)	Fine and dry; temperature (which was high on 14th) fell decidedly as the wind became Easterly.	Fine and cold in our Islands at first, especially in the West.
REMARKS - - - - -	<p>This system was apparently formed in a ridge, which on the 1st extended westward from the anticyclone No. XXI. (see August Report) in a westerly direction, across France and the Bay of Biscay. It then moved north-eastward, and at 8 a.m. 3rd lay across the northern parts of Ireland and England and the south of Scotland. In the "lane" of low pressure which separated the two high-pressure areas on the 2nd the weather was very wet and unsettled.</p> <p>The changes which occurred in the form of this system while in one neighbourhood were very considerable (compare maps of 16th, 17th, and 19th), and the appearance of some depressions in the south-west caused the Easterly wind over our Islands to freshen greatly at times.</p> <p>This system appeared off our north-west coasts while No. XXIII. was disappearing from our area. The mingling of the North-easterly winds of the new system with the Westerly airs of the high-pressure area over southern Europe again produced very rainy, thundery weather over France and in Germany also; a well-marked local depression being formed near the mouth of the Channel on the 21st and 22nd (see Section I.).</p>		



## SECTION III.

## REMARKS FOR SEPTEMBER 1886.

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

*Pressure.*—The mean pressure for the month at 8 a.m. varied from between 30·00 inches and 30·04 inches over the greater part of England to 29·9 inches in the north-west of Ireland, and to 29·8 inches off the north of Scotland. Compared with the values for August, those for September show an increase of about 0·1 in. in the extreme north of Scotland, 0·04 in. over the south-east of England, and about 0·03 in. over the extreme north of Ireland, but a decrease of about 0·02 in. at Roches Point, and of 0·04 in. at Valencia; when compared with the average distribution of pressure for September in the 20 years 1861–80, they show an excess generally, amounting to about 0·08 in. to 0·10 in. over Great Britain, but to only about 0·02 in. in the west of Ireland. The gradients were very slight, especially over England, but were favourable for a predominance of Southerly winds in Ireland, and for South-westerly in Scotland. These indications are fully borne out by the wind-roses on Plate XVII., while the absence of any decided gradient over England corresponds with a very even balancing of the winds from South-west with those from North-east over that country. The highest readings were recorded in all places on the 16th or 17th, at which time the anticyclone No. XXIII. was passing over us. At many of the northern stations the maxima exceeded 30·6 inches. The lowest readings, however, occurred at the north-western stations on the 9th, when the barometer fell below 29 inches in the Hebrides, as the depression No. LVI. passed north-eastwards on its way from the Atlantic towards northern Europe, and at the southern and south-eastern stations on the 21st or 22nd, at which time the shallow depression No. LIX. advanced over Brittany from the westward. The range, therefore, was considerable in the north and north-west, but small in the south.

*Movements of Depressions.*—These were very uniformly from south-west to north-east, and the rate moderate. Most of their tracks lay outside our west and north-west coasts, but one (No. LVIII.) passed directly over Ireland and Scotland, while another (No. LIX.), after moving eastwards from the Bay of Biscay to Brittany, ceased its progress eastwards, and after a slight southerly movement filled up in the latter position.

*Anticyclones.*—Three of these systems came within our area during the month, and all of them advanced towards us from the Atlantic. One of them (No. XXIII.) underwent very great modifications in form as it passed over, and its movements were very erratic. Neither of the others exhibited features worthy of special notice.

*Winds.*—The winds reported were mainly Southerly and South-westerly at our northern stations, while over England and the south-west of Scotland the prevalence of winds from those points was about balanced by those from between North and East. In Ireland the winds principally observed were South-westerly and Easterly. In force they were, as a rule, moderate, but in the west and north-west the Southerly and South-westerly winds frequently rose to a gale, as the various depressions referred to in Section II., and in Map 2, Plate XVIII., passed by those regions in a north-easterly direction. In this way it happened that eight gales were reported at Ardrrossan, seven at Stornoway, six each at Valencia, Belmullet, and Donaghadee, and five at Aberdeen, while on our eastern and south-eastern coasts there were none.

*Temperature.*—The mean (sea level) temperature of the air for the month varied from a little above 60° over Surrey, Kent, Berkshire, and Hampshire, to a little below 54° over the extreme north of England, and to between 50° and 51° in the extreme north of Scotland, the Shetlands, and the Hebrides. In Ireland they ranged from about 57° in the extreme south-west of Ireland to rather below 53° over the counties of Sligo, Leitrim, and Fermanagh.



Compared with the isothermal map for August that for September shows a decrease of temperature everywhere, amounting to  $3^{\circ}$  over the home counties, to  $4^{\circ}$  in the south-east of Ireland, to nearly  $5^{\circ}$  over the north of Ireland, and to as much as  $6^{\circ}$  in some parts of Scotland. When compared with the average conditions for September during the 20 years 1861-80, however, it appears that over the south-eastern parts of England temperature was about a degree in excess of its normal value, while in Scotland and Ireland it was about  $2^{\circ}$  in defect. It will be observed also that since the previous month a great change has occurred in the form of the isotherms in the west and north, the winter type of distribution having been established in Scotland, Ireland, and the north of England; over the south-east of England, however, the summer type, though less clearly marked than in August, has nevertheless been maintained. The lowest values recorded occurred on the 23rd or 24th over the greater part of Ireland and England, while the anticyclone No. XXIV. was passing southward over our western districts, but that at the northern and north-western stations the cold was sharpest between the 15th and 17th, at which time the anticyclone No. XXIII. lay over the kingdom. Early on the 11th, also, the cold was very sharp over our eastern counties just before the advance of the depression No. LVII.\* The highest values were recorded in most places either on the 1st or the 4th (see Section I.), but some of our south-western stations experienced the greatest heat on the 14th or 18th. The range of temperature was high at some of the southern and eastern stations, amounting to  $40^{\circ}$  at Southampton,  $41^{\circ}$  at Rothamsted,  $42^{\circ}$  at Ingatestone,  $43^{\circ}$  at Newton Reigny,  $45^{\circ}$  in London, and (it is said) to  $51^{\circ}$  at Strathfield Turgiss. At Scilly, however, it was only  $18^{\circ}$ , and at Sumburgh Head  $21^{\circ}$ .

*Vapour Tension* varied from 0.46 in. at Jersey and about 0.42 in. along the south-east, south, and south-west coasts of the British Isles to about 0.35 in. over the northern parts of England and Ireland, and to 0.30 in. at Nairn. *Relative Humidity*, however, ranged from nearly 90 per cent. on our extreme south-western, eastern, and north-western coasts to between 85 and 88 per cent. at most of the inland stations.

*Rainfall*.—This was deficient over the midland, eastern, and north-eastern parts of Great Britain, where in many places the total amount collected was little more than an inch. At Geldeston, however, a heavy local fall brought up the amount to 2.2 in. In the west and north-west large amounts were recorded in many localities, due partly to the fact that the depression tracks nearly all lay off our north-western coasts, and partly to the advance of the shallow, but very rainy depression No. LVIII. right over Ireland and Scotland. The number of rainy days was not large anywhere.

*Bright Sunshine*.—This was deficient in the north-eastern, northern, and western parts of the kingdom, but was decidedly larger in the south-east. Assuming that the total possible amount which could have been recorded at each station to be represented by 100, then the amounts actually recorded varied from 47 at Jersey, and from 40 to 45 over the south-eastern parts of England (excepting London), to between 29 and 34 at the Irish stations, to between 25 and 34 at the Scotch stations, and to between 19 and 29 over the north-east of England. The lowest percentage of all was 19, at Durham.

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



- LIVE TABLE

Observations are made at 3 and 9 AM daily, and the mean of the observations is taken as the basis for the daily mean. The observations are made at the following stations: London, Liverpool, Manchester, Glasgow, Edinburgh, and Dublin.

SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS,

DURING THE MONTH OF SEPTEMBER 1886.



TABLE XVII.

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 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° 84.2	50° 0	45° 5	54° 1	49° 8	38	15th	59	5th
	Wick - - -	29° 88.6	52° 0	44° 6	58° 2	51° 4	31	17th	69	3rd
	Stornoway - - -	29° 86.1	50° 5	45° 0	56° 8	50° 9	38	17th	63	5th
1. SCOTLAND, E.	Nairn - - -	29° 90.0	49° 6	42° 8	59° 7	51° 3	31	18th	70	11th
	Aberdeen - - -	29° 92.8	51° 0	44° 8	59° 8	52° 3	33	17th	70	1st
	Leith - - -	29° 95.2	52° 6	46° 5	61° 2	53° 9	33	16th	68	12th, 30th
2. ENGLAND, N.E.	Shields - - -	29° 97.7	53° 6	49° 1	60° 7	54° 9	40	16th	69	1st
	York - - -	30° 01.2	54° 8	48° 4	63° 9	56° 2	39	23rd	74	4th
	Spurn Head - - -	30° 01.3	57° 2	52° 9	62° 5	57° 7	47	23rd, 24th, 25th.	72	1st
3. ENGLAND, E.	Yarmouth - - -	30° 02.5	59° 3	54° 4	65° 1	59° 8	46	25th	74	1st
	Cambridge - - -	30° 03.5	57° 7	49° 0	67° 3	58° 2	39	16th	80	1st
4. MIDLAND COUNTIES	Loughborough - - -	30° 03.0	54° 9	49° 2	65° 6	57° 4	39	23rd	75	4th
	Oxford - - -	30° 04.1	55° 6	51° 0	65° 4	58° 2	42	16th, 17th, 23rd.	75	4th
5. ENGLAND, S.	London - - -	30° 04.3	58° 1	52° 1	68° 4	60° 3	40	17th, 18th	85	1st
	Dungeness - - -	30° 02.6	59° 2	54° 2	65° 6	59° 9	39	24th	75	4th
	Hurst Castle - - -	30° 03.9	58° 0	53° 1	65° 3	59° 2	40	24th	75	14th
6. SCOTLAND, W.	Ardrossan - - -	29° 94.2	52° 5	48° 3	59° 2	53° 8	38	16th	72	4th
7. ENGLAND, N.W.	Hawes Junction* - - -	28° 76.5	50° 8	45° 8	56° 8	51° 3	32	16th	67	4th
	Barrow-in-Furness - - -	29° 98.5	54° 0	50° 8	60° 4	55° 6	41	16th	72	4th
	Liverpool (Bidston) - - -	29° 99.9	55° 3	51° 1	62° 2	56° 7	42	23rd	70	9th
	Holyhead - - -	29° 98.4	55° 0	51° 6	60° 2	55° 9	45	23rd	67	3rd
8. ENGLAND, S.W.	Pembroke - - -	29° 99.4	56° 2	53° 1	60° 5	56° 8	44	23rd	63	3rd, 4th, 15th
	Prawle Point - - -	30° 02.4	57° 3	53° 3	62° 2	57° 8	43	23rd, 24th	74	14th
9. IRELAND, N.	Malin Head - - -	29° 89.7	52° 9	48° 9	58° 4	53° 7	38	8th	65	9th, 15th
	Donaghadee - - -	29° 95.6	54° 2	49° 2	59° 9	54° 6	42	20th	66	12th
	Mullaghmore - - -	29° 90.5	53° 8	50° 3	60° 5	55° 4	45	10th, 24th	67	4th
	Belmullet - - -	29° 89.5	54° 5	50° 2	60° 1	55° 2	45	16th, 17th, 22nd.	67	4th
10. IRELAND, S.	Parsonstown - - -	29° 95.1	53° 1	46° 5	61° 6	54° 1	32	23rd	66	4th, 17th, 19th
	Valencia - - -	29° 92.5	57° 2	52° 4	62° 2	57° 3	42	23rd	67	20th
	Roche's Point - - -	29° 95.1	56° 2	50° 5	60° 8	55° 7	43	23rd	65	1st
CHANNEL ISLANDS	Seilly (St. Mary's) - - -	29° 98.3	59° 9	55° 6	63° 1	59° 4	50	17th, 18th, 22nd.	68	9th
	Jersey (Noirmont) - - -	30° 02.6	60° 3	56° 7	66° 1	61° 4	51	24th, 25th	80	14th

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



TABLE XVII.

REPORTING STATIONS in the BRITISH ISLANDS, during the Month of September 1886.

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 Sk'y.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins. 0.324	90	7.5	ins. 3.11	ins. 0.47	27th	20	0	0	0	4	15	1	4	1	0	1	4	5	8	0	7
*325	84	5.9	1.47	0.50	13th	16	0	1	1	9	12	3	2	1	1	1	9	4	8	2	2
*322	88	6.0	4.57	0.69	9th	21	0	2	1	9	11	7	2	2	2	1	7	7	4	0	5
*298	84	5.7	2.47	1.12	13th	14	0	0	1	6	6	2	0	2	1	0	1	6	4	1	15
*313	84	5.2	1.66	0.61	13th	13	0	0	0	11	7	5	5	0	0	0	6	8	4	3	4
*335	84	6.3	2.14	0.57	29th	13	0	0	0	8	12	0	0	3	1	4	4	6	5	5	2
*361	88	7.2	1.65	0.54	9th	14	0	0	0	4	14	0	4	4	5	0	2	9	4	2	0
*370	85	6.2	1.12	0.24	25th	16	0	0	0	7	11	0	9	3	1	1	10	2	3	1	0
*423	90	4.6	0.97	0.18	4th	16	0	0	1	7	3	1	4	6	2	1	5	10	1	1	0
*418	83	3.6	1.24	0.55	10th	14	0	0	0	16	2	0	2	5	4	0	3	8	4	4	0
*411	86	5.3	1.06	0.36	10th	8	0	0	0	13	12	0	7	5	1	0	8	7	2	0	0
*376	88	7.0	1.09	0.23	2nd	12	0	0	0	2	12	1	1	5	3	1	1	9	5	2	3
*388	87	5.6	1.88	0.58	4th	10	0	0	1	13	14	0	3	8	1	0	8	7	1	1	1
*403	82	6.8	1.74	0.46	10th	10	0	0	1	6	13	2	1	6	5	2	4	6	3	1	2
*433	87	5.9	2.06	0.54	4th	15	0	0	3	8	10	2	8	1	4	2	3	4	6	1	1
*430	89	6.0	2.42	1.20	2nd	15	0	0	1	5	4	4	3	9	3	0	1	9	2	3	0
*351	88	6.1	4.49	1.36	5th	15	0	0	1	9	14	8	3	10	2	2	5	4	2	2	0
*338	91	8.0	8.73	1.67	9th	18	0	0	1	4	20	2	2	5	4	1	4	11	1	0	2
*357	85	7.2	4.69	1.64	9th	17	0	0	0	5	16	3	3	8	0	2	7	5	1	4	0
*359	82	7.0	3.35	1.49	9th	13	0	0	1	6	15	0	1	3	8	3	6	4	4	1	0
*386	89	6.1	5.61	1.53	9th	15	0	0	1	8	11	2	2	4	5	0	5	7	3	2	2
*399	88	6.3	4.95	1.45	9th	17	0	0	2	5	9	4	1	4	7	1	5	7	1	4	0
*418	89	6.6	2.11	0.70	21st	16	0	0	1	5	12	4	2	8	3	0	2	10	2	1	2
*338	85	6.3	4.22	0.94	29th	19	0	0	0	4	9	2	1	2	4	3	10	4	4	2	0
*391	93	6.0	2.80	0.50	26th	16	0	0	0	9	12	6	1	2	7	1	5	10	3	1	0
*350	84	6.2	4.48	1.37	7th	19	0	0	0	7	7	5	1	2	9	2	7	8	1	0	0
*356	84	5.6	4.61	1.00	6th	19	0	0	0	9	12	6	1	2	7	4	3	7	4	2	0
*349	86	6.7	3.01	0.73	26th	17	0	0	0	6	14	0	2	4	0	4	7	6	1	0	6
*417	89	7.5	3.97	0.82	13th	22	0	0	0	5	19	6	2	4	5	4	6	4	3	1	1
*396	88	6.6	6.27	1.15	9th	20	0	0	1	7	13	3	3	3	3	4	1	9	3	4	0
*442	87	7.7	3.26	0.84	9th	17	0	0	0	2	15	5	2	3	6	2	5	7	2	3	0
*455	87	6.5	1.49	0.43	21st	12	0	0	1	6	13	4	2	8	6	1	1	8	3	1	0

barometrical observations at this station are not reduced for altitude.



TABLE XVIII.

OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of September 1886.

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 -	*	*	*	0	*	0	*	*	*	*	128	34
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	130	34
ALNWICK CASTLE -	47'7	58'6	53'2	33	15th	66	1st	16	2'08	0'60	9th	—
DURHAM -	47'5	61'6	54'6	37	16th	75	1st	13	1'52	0'56	9th	73
SCARBOROUGH -	51'0	62'7	56'9	46	11th, 23rd	74	1st	16	1'26	0'25	9th	—
YORK -	*	*	*	*	*	*	*	*	*	*	106	28
HILLINGTON -	48'7	66'0	57'4	42	11th, 17th, 26th, 27th.	79	1st	13	1'49	0'32	10th	132
GELDESTON -	51'5	66'1	58'8	42	11th	85	1st	9	2'17	0'82	4th	167
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	162	43
ROTHAMSTED -	48'9	65'6	57'3	40	11th, 17th	81	1st	13	1'38	0'35	2nd	—
INGATESTONE -	50'8	66'4	58'6	42	11th, 23rd	84	1st	10	1'05	0'52	10th	—
BAWTRY -	48'5	65'2	56'9	38	16th	74	4th	15	1'07	0'38	9th	†91
LEICESTER -	49'6	65'7	57'7	41	16th	79	4th	14	1'60	0'41	1st	105
CHEADLE -	48'0	61'5	54'8	39	23rd	69	4th	15	2'94	1'04	4th	—
CHURCHSTOKE -	47'3	62'1	54'7	36	16th	69	1st	13	2'74	0'92	9th	117
HEREFORD -	48'1	65'1	56'6	38	18th, 24th	72	7th, 9th	12	2'05	0'61	4th	—
CIRENCESTER -	48'3	63'5	55'9	41	11th, 16th, 18th	72	4th, 13th	13	2'62	0'55	2nd	120
OXFORD -	*	*	*	*	*	*	*	*	*	*	151	40
LONDON -	*	*	*	*	*	*	*	*	*	*	126	34
STRATHFIELD TURGIS -	48'8	68'2	58'5	34	17th, 18th	85	1st	9	1'76	0'62	2nd	—
HASTINGS -	54'4	65'9	60'2	44	24th	79	1st	12	1'33	0'29	27th	159
SOUTHAMPTON -	52'1	67'6	59'9	41	24th	81	13th	12	2'65	1'28	2nd	150
STOWELL -	50'2	63'3	56'8	38	24th	74	14th	15	2'97	0'91	3rd	—
LAUDALE -	46'9	58'8	52'9	40	15th, 16th, 26th	71	4th	17	9'50	1'04	15th	—
GLASGOW -	47'7	58'2	53'0	36	16th	68	4th	16	4'96	0'95	5th	94
DOUGLAS -	49'2	59'5	54'4	38	23rd	68	4th	15	4'54	0'91	5th	118
NEWTON REIGNY -	44'6	59'2	51'9	28	16th	71	4th	17	4'11	1'14	9th	108
STONYHURST -	48'0	60'6	54'3	38	16th	68	5th, 13th	14	4'08	1'07	9th	124
BLACKPOOL -	49'2	61'3	55'3	35	16th	70	4th, 13th	15	4'60	1'28	9th	92
MANCHESTER -	49'0	62'2	55'6	39	23rd	70	4th, 13th	16	4'26	1'27	9th	—
LLANDUDNO -	50'8	61'7	56'3	43	16th	68	9th, 13th	14	3'56	0'95	9th	89
LLANDOVERY -	47'0	65'1	56'1	38	22nd, 23rd	74	13th	19	6'42	1'10	9th	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	111	30
ARLINGTON -	50'3	62'8	56'6	44	24th	70	13th	13	4'22	0'87	25th	—
CULLOMPTON -	49'0	65'3	57'5	34	24th	73	14th	14	2'06	0'32	27th	117
FALMOUTH -	53'9	62'6	58'3	43	23rd	70	14th	16	5'08	1'67	4th	116
PLYMOUTH -	53'1	63'9	58'5	46	23rd	72	14th	17	2'07	0'39	30th	118
JERSEY -	*	*	*	*	*	*	*	*	*	*	175	47
LONDONERRY -	46'2	62'7	54'5	39	16th	72	4th	19	4'58	0'95	7th	—
MARKREE CASTLE -	43'6	60'7	52'2	33	15th	67	4th	19	4'47	0'74	7th	108
BROOKBOROUGH -	44'6	60'6	52'6	31	23rd	70	4th	13	3'89	0'97	15th	—
ARMAGH -	45'9	60'4	53'2	36	17th, 20th, 23rd	67	1st	18	3'33	0'72	13th	119
EDGEWORTHSTOWN -	45'9	60'5	53'2	34	23rd	64	5th, 10th, 12th, 30th, 13th.	15	3'61	0'76	26th	—
DUBLIN -	50'5	61'8	56'2	39	23rd	70	*	15	2'47	0'65	9th	126
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	115	31
KILKENNY CASTLE -	48'4	62'2	55'3	34	24th	67	29th	15	4'07	0'75	9th	—
WATERFORD -	49'5	61'6	55'6	38	23rd	66	2nd	17	4'44	1'10	9th	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	112	30
KILLARNEY -	49'2	61'8	55'5	33	23rd	66	4th, 19th, 30th	21	7'56	1'56	13th	—
POYNES -	49'0	61'8	55'4	38	22nd	67	30th	17	3'52	0'70	13th	—

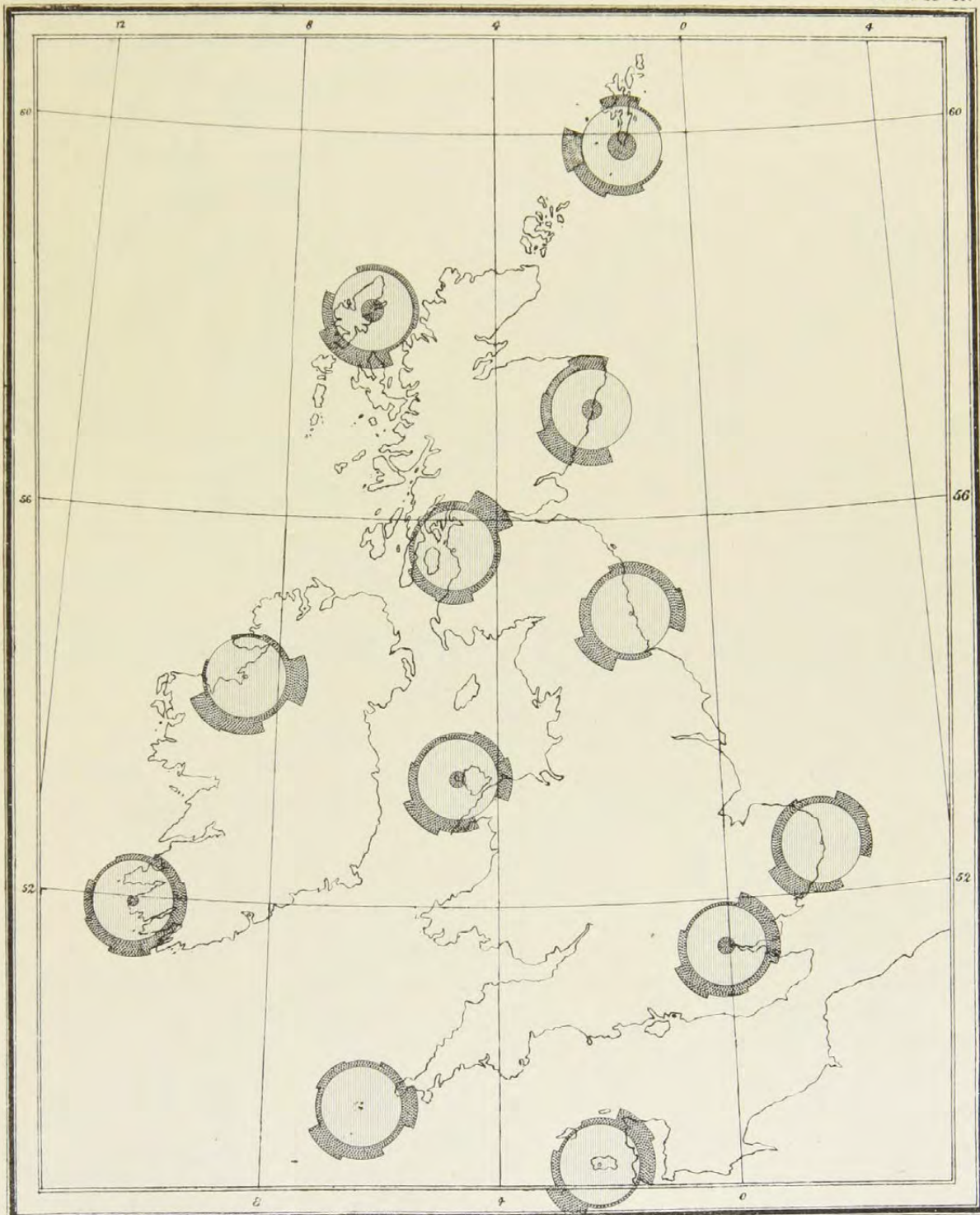
\* For information see Table XVI.

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



# MONTHLY WIND CHART FOR SEPTEMBER, 1886.

Plate XVII.



To face p.106.

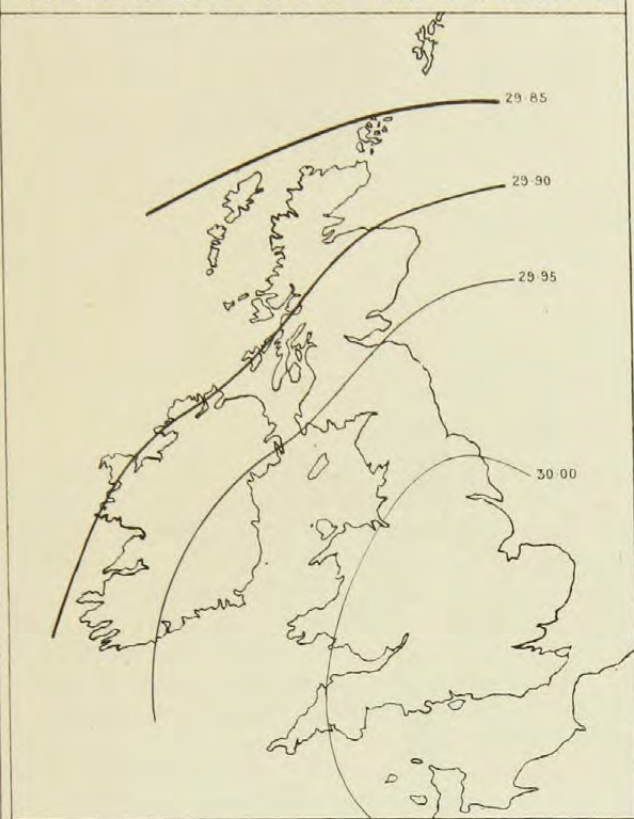
DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 18406-12/86



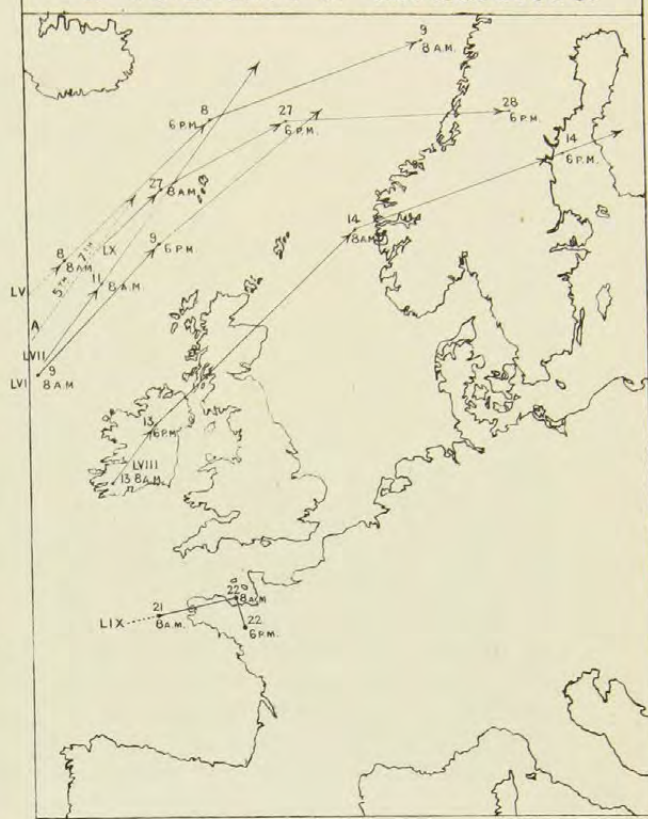




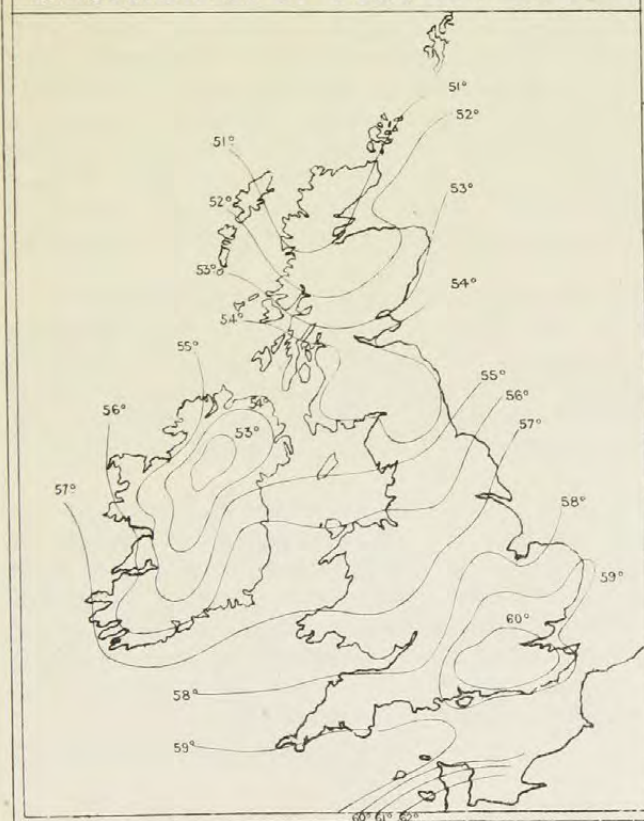
## 1. DISTRIBUTION OF MEAN PRESSURE



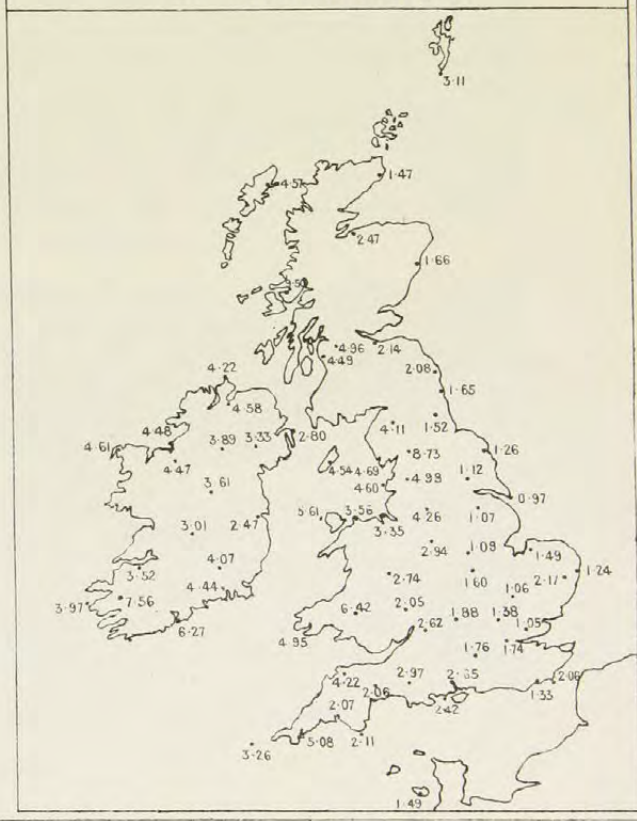
## 2. MOVEMENTS OF DEPRESSIONS.



### 3. DISTRIBUTION OF MEAN TEMPERATURE



#### 4. RAINFALL









# MONTHLY WEATHER REPORT.

OCTOBER 1886.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of October was marked by several important features: (1) by the high temperatures which prevailed during the first few days of the month; (2) by the large number of depressions (many of them small and shallow) which passed directly over us, and by their irregular movements, as well as by the absence of anticyclones; (3) by the large and very deep system which passed over between the 14th and 17th, and the severity of its Westerly gales on our south-western and southern coasts; and (4) by the large number of thunderstorms which prevailed. Taking the month as a whole, pressure was slightly in excess of its average value in October at our northern stations, but in defect elsewhere. The gradients were slight and favourable for winds from a more southerly point than the normals. Temperature was from two to three degrees above the average; the winds varied greatly both in force and direction; and, except in a few places, the rainfall was large. Bright sunshine was deficient, especially over the north-eastern and midland counties.

October 1-6.—During this period the general distribution of pressure over north-western Europe was favourable for Southerly winds; the gradients were moderate as a rule, and the winds were not strong. Moreover, as the dominant system over the eastern parts of our area was anticyclonic, the thermometer rose very considerably during the daytime, so that maxima of  $75^{\circ}$  to  $78^{\circ}$  were recorded over England on the 1st, and  $75^{\circ}$  to  $80^{\circ}$  on the 4th. This warm, hot weather, however, was not continuous, for while some large depressions passed outside our extreme western coasts on the 2nd and 5th in a direction about parallel to the broken arrow marked "A" on Map 2, Plate XX., smaller systems were developed over the Bay of Biscay, and, moving northwards, brought thunderstorms and heavy rain to the British Islands, and finally broke up the bright warm weather completely.

October 7-8.—During these two days the distribution of pressure was complex, but the gradients were slight; while pressure was on the whole lowest in the north-west, a large "hollow" lay over the United Kingdom, and shallow, small disturbances appeared in the south-west, south, and south-east, causing thunderstorms, showers, and wet fogs, and keeping the weather in an unsettled condition generally. Temperature was rather high, but its diurnal range was small and the winds were exceedingly light and variable.

October 9-18.—The distribution of pressure now reverted to the old type, viz., that favourable for South-westerly winds, while the dominant systems were cyclonic. At first temperature rose over England, as a large depression (No. LXI.\*) approached our western coasts, and Southerly breezes spread all over the country. These were at first accompanied by fair weather, but as the depression moved north-eastwards a "hollow" was developed over the North Sea, and the wind veered towards South-west and West over the United Kingdom,

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



while rain spread all over the country, and thunderstorms occurred in some places. No sooner had this system passed away to the north-eastwards than another disturbance (No. LXII.\*) appeared off our north-west coasts; this proved to be both deep and large, and caused South-westerly gales in the west and north. With this a subsidiary was formed over north-west of England, and growing deeper, moved east-north-eastwards till it reached the meridian of  $5^{\circ}$  E. It then turned northwards, and travelling steadily in that direction, passed out of our area to the northward of Christiansund. The next system (No. LXIII.\*) was of unusual depth, and its gradients (especially those on its southern side) were very steep. Its centre was observed to be approaching Ireland late on the 14th, causing Southerly gales to set in over that country, and to spread rapidly in an Easterly direction, with a rise of temperature and much rain. As the centre passed eastwards and south-eastwards the wind veered to South-west, West, and North-west on its southern side, and blew with a violence seldom exceeded in this country, while in the north it backed round through South-east and East to North-east, and blew with the force of a "strong gale."† At 8 a.m. on the 17th the centre had reached Holland, where it remained for nearly 36 hours, and grew shallower very quickly, while the weather improved. The centre then moved abruptly to the southward, and the system filled up entirely not far from Charleville in the Ardennes. By this time the barometer had risen over the northern and north-western parts of our area, and as a low-pressure system appeared over the Bay of Biscay, the pressure-distribution, winds, and weather became of an entirely new type.

October 20-22.—The conditions over the British Islands and their neighbourhood were still cyclonic but complex, for while a high-pressure area lay over Finland and the north of Scandinavia, there was another over Spain, while the readings between these two regions were relatively low. The depression (No. LXIV.\*) which lay over the Bay of Biscay on the 18th and 19th now began to move north-eastwards to the North Sea, while other cyclonic systems appeared off our north-western coasts. The winds consequently became exceedingly variable, showers fell in most places, and thunderstorms again prevailed over the British Islands, the Netherlands, and North Sea.

October 23-28.—The distribution of pressure now became more simple. Pressure was highest to the eastward of the North Sea, and a large ridge extended thence in a westerly direction across Scotland and the north of Ireland, while a depression, which appeared off the west of Ireland on the 22nd, travelled rapidly to the northward and passed out of our area; this was followed by another which was formed off our south-west coasts, and moving south-eastwards to the Bay of Biscay dispersed quickly. A new one (No. LXV.\*) then came over the Bay from the westward, and cold Easterly winds set in all over the kingdom, and blew strongly over the southern counties. The cold was greater in the northern and north-western parts of our area (where the distribution of pressure was anticyclonic) than in the south, but was not severe anywhere. Over our Islands the weather became much finer than of late, and fog appeared in some parts, but in the south-west and south of France thunderstorms occurred and much rain fell, while showers were reported daily in the south of England. The movements of this depression were very peculiar (see Map 2, Plate XX.), for after reaching the southern parts of the Bay of Biscay and the foot of the Pyrenees, it returned in a north-westerly direction, and moving in a track somewhat to the northward of that by which it entered the Bay, passed out again to the Atlantic on the 28th.

October 29-31.—The distribution of pressure now became favourable for Southerly and South-westerly winds, which accordingly set in—first, at our western, and afterwards at our eastern and south-eastern stations. Temperature rose decidedly, maxima of from  $63^{\circ}$  to  $65^{\circ}$  being recorded over England on the 29th, when the weather was fine and bright. Gradually, however, the cyclonic systems encroached more and more over us, and with freshening South-

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

† An account of this gale by Mr. C. Harding was read before the R. Met. Soc. Nov. 17, 1887.



westerly winds, depressions again began to appear off our north-west coasts, and to move north-eastwards, while cloudiness increased, and mild rains with bright intervals spread gradually over the kingdom. The new depressions, though large, were not deep, and their centres passed at so great a distance from our extreme north-western coasts, that their characteristics cannot be tabulated in Section II., nor their tracks shown on Map 2, Plate XX.



## SECTION II.

TABLE OF CYCLONIC SYSTEMS, OCTOBER 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. LXI. October 9-10.	No. LXII. October 12.	No. LXIII. October 12-13.
<b>Form</b> - - -	Uncertain; apparently nearly circular	Uncertain; apparently nearly circular	Ill-defined at first, then nearly circular
<b>Size</b> - - -	Large - - -	Large - - -	Very small to moderate - -
<b>Depth</b> - - -	Moderate - - -	Moderate - - -	Very shallow to moderate - -
<b>Where first Observed</b> - -	Off the west of Ireland - -	To the north-westward of our Islands	Over Wales and north-west of England
<b>Direction of Motion</b> - -	North-easterly - - -	North-easterly - - -	East-north-easterly till 8 a.m. 13th, then northerly.
<b>Rate of Motion</b> - - -	Moderate - - -	Apparently moderate - - -	Slow to moderate - - -
<b>Regions passed over by Steepest Gradients.</b>	Western and north-western parts of the British Islands.	The British Islands generally	The south of England, Channel, and north of France.
<b>Termination</b> - - -	Travelled away to north of Scandinavia, and grew less deep.	Travelled away to the northward of our area.	Travelled away to the northward -
<b>Time under Observation</b> -	About 36 hours - - -	About one day - - -	Nearly two days - - -
<b>Accompanying Winds</b> - -	South-south-east to South-west; gale in Ireland and west of Scotland.	Southerly and South-westerly; strong to a gale.	South-easterly to South-westerly and Westerly gales.
" <b>Weather</b> -	Squally with slight rain in west at first; afterwards showery generally, and mild.	Squally, rainy, mild. Thunderstorms in south-west.	Squally, showery, unsettled. Thunderstorms over the North Sea.
" <b>Rainfall</b> -	Very slight till wind veered to westward of south, then heavy in west and south-west.	Very heavy locally—on our north-west coasts and at Yarmouth.	None in Scotland, nor in the south and south-east of England.
<b>REMARKS</b> - - -	This disturbance arrived when pressure was highest over France and Sweden, and lowest off our north-western coasts—the gradients being slight. It completely dispersed a very shallow elongated depression which had been lying over the north of France on the 8th, and as it advanced north-eastwards the system spread out greatly and covered nearly the whole of the United Kingdom. (See charts in Daily and Weekly Reports for 9th and 10th.)	This system advanced when pressure was highest over Spain and the south of France, and rather high in Finland also. Although its centre was further from our coasts than that of the previous disturbance, its steepest gradients lay completely over the United Kingdom, and its gales were consequently felt more generally than those of No. LXI. In its rear a well-marked subsidiary system was developed, which subsequently grew deeper and moved as an independent system.	This system was developed in the rear of No. LXII., and grew quickly as it moved. It caused the gales of the previous system to extend further southward than they would otherwise have done, and produced South-easterly gales on the north-eastern shores of the North Sea.



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS, OCTOBER 1886.

No. LXIII. October 14-17.	No. LXIV. October 18-21.	No. LXV. October 24-28.
Oval - - - - -	Somewhat oval, but irregular - - -	Variable; somewhat circular to oval, but irregular.
Large - - - - -	Large - - - - -	Large.
Very deep; minimum pressure below 29.5 inches on 14th.	Shallow - - - - -	Shallow.
Off the west of Ireland - - - - -	Over the Bay of Biscay - - - - -	Off the north-west of Spain.
Easterly (varying between south-east and north-east) till evening of 17th, when it moved southwards suddenly, and filled up.	Stationary for some time, then north-easterly -	Easterly and South-easterly till the 26th, after which it moved north-westward till it passed out of our area.
Slow - - - - -	Slow - - - - -	Slow.
British Islands, France, and Netherlands - -	Brittany, the Channel, and south-east of England	The south-west of the British Isles and the west of France.
Filled up over the north-east of France - -	Filled up over the North Sea - - - -	Travelled away to the Atlantic.
About three days - - - - -	Three days - - - - -	Nearly a week.
Easterly gales on its northern side and Westerly in the south. The latter exceptionally severe on our south-western coasts.	South-easterly to North-easterly over our Islands and France, but not strong.	Easterly in our Islands and the north of France; strong at times.
Very rough and rainy. Lightning in some places.	Very unsettled; severe thunderstorms on its northern side.	Showery in the south-west and south; fair, dry, and cold.
General; heaviest on our west and north-west coasts. More than an inch in several places.	Partial but heavy in some localities—more particularly in the south.	Confined to the south-western and southern districts. Heavy at times at our southern stations.
This depression appeared in the west immediately after No. LXIIA. had passed away to the northward, and, as its centre came directly over the British Isles, its gales were felt very generally. The wind and sea were of exceptional force on our south-western coasts. By the time the centre reached Holland the system had grown much shallower, and finally it filled up very abruptly.	This system was developed over the Bay of Biscay while No. LXIII. was dying out over France. At first it was motionless, and on moving north-eastwards it gradually grew shallower, till on the 21st it disappeared entirely by filling up.	This system seems to have been developed off our south-western coasts, while the anticyclonic ridge (No. XXV.) was spreading over the northern parts of our area. Its movements were very peculiar and its progress gradual.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—OCTOBER 1886.

	NATURE OF CHARACTERISTICS OBSERVED.	No. XXV. October 23-28.
	Form - - - - -	Anticyclonic ridge stretching from east to west.
	Size - - - - -	Large.
	Height - - - - -	Moderate. Max. readings exceeding 30·4 inches.
	Where first Observed - - - - -	Over northern part of our area.
	Direction of Motion - - - - -	None.
	Rate of Motion - - - - -	None.
	Regions passed over - - - - -	Northern parts of our area.
	Termination - - - - -	Dispersed.
	Accompanying Winds - - - - -	Easterly (South-east to North-east).
	Weather - - - - -	Fair, dry; cold fogs locally.
	REMARKS - - - - -	{ This ridge extended westwards from a large anti-cyclone which lay over the Baltic and Russia. For a ridge it was very persistent and exhibited all the characteristics of an independent anti-cyclonic system.



## SECTION III.

REMARKS FOR OCTOBER 1886.

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

*Pressure.*—The mean pressure for the month, at 8 a.m., varied from 29·8 inches over the eastern counties of England and Scotland, to about 29·7 inches off the north-west of Ireland, and to 29·72 inches at Valencia. The mean gradients were therefore very slight and favourable for a predominance of winds from South and South-east, except on our north-west coasts, where a certain amount of South-westerly winds is indicated. The values when compared with those for September show a reduction amounting to about a quarter of an inch over our south-eastern and south Midland counties, to 0·2 inch in Ireland, to 0·1 inch in the north of Scotland, but to only 0·02 inch in the Shetland Isles; when compared with the averages for the 20 years 1861–80, they show an excess of 0·10 inch in the Shetlands, and of 0·03 or 0·04 inch over the northern parts of Scotland, but a deficit of about 0·10 inch at Valencia, Holyhead, London, and Yarmouth, of 0·12 inch or 0·13 inch over the English Channel, and of 0·15 inch at Scilly. The lowest readings occurred at our extreme north-western and northern stations on the 12th, while the depression No. LXII. was passing near those regions on its way to the Scandinavian coast; but over Ireland and England the lowest occurred on the 15th or 16th when the deep depression No. LXIII. was passing across the British Islands. The highest values, however, were registered in most places on the 24th during the prevalence of the anticyclonic ridge No. XXV., in which the barometer rose to 30·4 inches and upwards in Scotland, and to 30·6 inches in the south of Norway. The range for the month was not great in Scotland, but in Ireland and England, where the readings on the 15th were very low, it was somewhat large—about 1·8 inches.

*Movements of Depressions.*—These were exceedingly irregular. Several large disturbances moved in a northerly or north-easterly direction outside our extreme western coasts, especially during the earlier part of the month; some others, of less size and intensity, advanced north-eastwards from the Bay of Biscay, and brought thunderstorms to all parts of the kingdom, and one, which was developed over our north-western counties, moved eastwards till it reached the meridian of 5° E., when it turned northwards and travelled out of our area. The two most remarkable tracks, however, are those of the storm of October 14–17, and of the shallower system of October 24–28. In one case the storm came to our coasts in an east-north-easterly direction, then moved south-eastwards to the neighbourhood of Boulogne, then north-eastwards to Holland, after which it ran suddenly to the southward and filled up. The other came over the Bay of Biscay from the west-south-westward, thence it moved south-eastwards to the neighbourhood of the Pyrenees, and after that returned north-westwards, and subsequently passed out of our area near the south-west of Ireland. (See Map 2, Plate XX.)

*Anticyclones.*—Only one system of this description came sufficiently within our area for its characteristics to be tabulated in Section II., and even this was only a ridge, which extended over the northern parts of the British Islands from a large system the central parts of which lay over the Baltic and Russia.

*Winds.*—These were mainly South-easterly in the Shetland Isles and east of Scotland, as well as at our south-eastern stations, while at most of our western stations the wind-roses on Plate XIX. point to an alternation of currents from North-east and South-west. At Mullaghmore, however, the South-easterly winds preponderated, owing in all probability to a peculiar formation of the hills round that region, which are reported to cause an excess of wind from the South-eastward, and occasionally produce local gales from that quarter while in the surrounding regions the air is more quiet. The force of the wind varied



as much as its direction, and although general gales were rare, local gales and squalls occurred somewhat frequently during the thunderstorms, so that at Prawle Point gales were reported on 10 days, at Mullaghmore on 7, and at Valencia, Scilly, Hurst Castle, and Dungeness on 6. The most severe gale, by far, was that which prevailed at our southern and south-western stations during the 15th and 16th. Calms occurred much more frequently at the southern than at the northern stations.

*Temperature.*—The mean (sea-level) temperature of the air varied from between  $53^{\circ}$  and  $55^{\circ}$  in the extreme south of England, and from between  $52^{\circ}$  and  $53^{\circ}$  in the south of Ireland, to rather below  $50^{\circ}$  over central Ireland and the inland parts of the south of Scotland, and to somewhat below  $49^{\circ}$  over central Scotland. The isothermal map (No. 3, Plate XX.), when compared with that for September, shows a reduction of  $6^{\circ}$  during the month over our south-eastern counties, of about  $4^{\circ}$  over the north of England and south of Scotland, and of about  $3^{\circ}$  over the central parts of Scotland and Ireland. When compared with a map showing the mean distribution over the United Kingdom during the 20 years 1861–80, it appears that the temperature of the month now under discussion was slightly in excess everywhere the difference from the average amounting to about  $2^{\circ}$  or  $3^{\circ}$  over our south-eastern and eastern counties, to rather less than  $2^{\circ}$  in the south of Scotland and the north of Ireland, and to about a degree over central Scotland and the southern half of Ireland. The lowest readings were recorded in most places between the 22nd and 28th, at which time the large anticyclonic ridge, already referred to in several places, lay across the United Kingdom and the North Sea, and relatively low pressures were found over the Bay of Biscay. In some places, however, lower values occurred between the 11th and 15th, during the existence of the minor ridges which prevailed at times between the large depressions that were then passing over our Islands and their neighbourhood. The minima, however, were not at all low anywhere, very few of those over England being as low as the freezing point, which is a very exceptional feature for October. The highest readings occurred everywhere during the first week, and over our south-eastern and Midland counties they were very high indeed. A maximum of  $80^{\circ}$  was recorded in London on the 4th and at Cambridge on the 1st, 4th, and 5th, while in many other parts the maxima ranged from  $75^{\circ}$  to  $78^{\circ}$ . The total range of temperature for the month, however, though considerable, was not so large as might have been anticipated, its value varying from  $43^{\circ}$  at Leicester and Cambridge,  $42^{\circ}$  at Cirencester, and  $41^{\circ}$  in London, to between  $32^{\circ}$  and  $39^{\circ}$  over central Ireland, and to only  $16^{\circ}$  at Sumburgh Head,  $18^{\circ}$  at Spurn Head,  $20^{\circ}$  at Scilly,  $27^{\circ}$  at Jersey and Douglas (Isle of Man), and  $29^{\circ}$  at Valencia.

*Vapour Tension.*—This varied from 0.40 in. at Jersey, and about 0.38 in. along the south coast of England, to between 0.31 in. and 0.33 in. over the Midland and northern counties of England, and to about 0.29 in. at Nairn and Parsonstown. *Relative Humidity* was as high as 97 per cent. at Hawes Junction, and 90 to 93 over England as a whole, while it was from 87 to 93 over Ireland and 90 to 93 in Scotland.

*Rainfall.*—This was, on the whole, excessive, but at stations in the north-east of Scotland, and in some parts of our South-eastern counties it was less than the average. The fall was not at all regularly distributed,—a feature common to periods in which thunderstorms have been very prevalent. The numbers of rainy days varied from only 12 at Spurn Head, 14 at Hillington, and 15 at Geldeston, to as many as 25 at Prawle Point, 26 at Hurst Castle, and 28 at Scilly. In the north and east of Scotland they varied from 18 to 21.

*Bright Sunshine.*—This was deficient everywhere, but especially so in the east of Scotland and the north-eastern and midland counties of England, where, in common with Armagh and Glasgow, the instruments as a rule recorded less than 20 per cent. of the amount possible for the time of year. Assuming that the total amount which could be registered during the month at any station be represented by 100, then the values actually recorded varied from between 30 and 36 at the Channel stations, in the east of Norfolk, and at Valencia, to only 20 in London, at Cullompton and York, 19 at Armagh and Leicester, 18 at Glasgow, 17 at Durham, 16 at Cheadle and Bawtry, and to 15 at Aberdeen.



# SUMMARY OF THE METEOROLOGICAL OBSERVATIONS

MADE AT

TELEGRAPHIC REPORTING STATIONS IN THE BRITISH ISLANDS

DURING THE MONTH OF OCTOBER 1886.



TABLE XIX. -

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 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° 8' 19	49° 1'	45° 5'	52° 3'	48° 9'	40°	23rd	56°	1st, 4th
	Wick	29° 7' 92	49° 3'	44° 2'	54° 0'	49° 1'	31°	26th	60°	7th
	Stornoway	29° 7' 49	47° 5'	42° 5'	55° 1'	48° 8'	33°	28th	66°	5th
1. SCOTLAND, E.	Nairn	29° 7' 69	46° 6'	41° 3'	55° 2'	48° 3'	29°	26th	66°	5th
	Aberdeen	29° 8' 04	49° 2'	45° 5'	54° 6'	50° 1'	34°	15th	62°	2nd
	Leith	29° 7' 88	49° 5'	45° 1'	56° 3'	50° 7'	34°	23rd	68°	1st
2. ENGLAND, N.E.	Shields	29° 7' 86	50° 3'	46° 5'	54° 5'	50° 5'	36°	15th	61°	2nd
	York	29° 7' 92	50° 1'	46° 1'	57° 5'	51° 8'	38°	23rd	69°	4th
	Spurn Head	29° 7' 84	52° 6'	49° 3'	56° 1'	52° 7'	44°	11th	62°	2nd
3. ENGLAND, E.	Yarmouth	29° 7' 99	52° 9'	48° 8'	57° 6'	53° 2'	41°	14th	66°	1st
	Cambridge	29° 8' 03	51° 3'	45° 6'	60° 5'	53° 1'	37°	14th	80°	1st, 4th, 5th
4. MIDLAND COUNTIES	Loughborough	29° 7' 91	49° 7'	46° 2'	58° 7'	52° 5'	36°	22nd, 23rd	77°	4th, 5th
	Oxford	29° 7' 93	50° 5'	47° 1'	58° 4'	52° 8'	36°	22nd, 23rd	76°	5th
5. ENGLAND, S.	London	29° 7' 99	51° 8'	47° 7'	60° 6'	54° 2'	39°	18th, 22nd	80°	4th
	Dungeness	29° 7' 95	53° 6'	48° 9'	60° 7'	54° 8'	36°	18th	70°	1st
	Hurst Castle	29° 7' 78	53° 6'	49° 6'	59° 8'	54° 7'	40°	18th, 22nd	70°	4th
6. SCOTLAND, W.	Ardrossan	29° 7' 64	50° 5'	47° 3'	55° 3'	51° 3'	39°	22nd, 23rd	64°	4th, 5th
7. ENGLAND, N.W.	Hawes Junction*	28° 5' 47	46° 8'	43° 2'	52° 0'	47° 6'	35°	23rd	60°	3rd, 7th
	Barrow-in-Furness	29° 7' 66	51° 4'	48° 5'	56° 0'	52° 3'	41°	26th	68°	5th
	Liverpool (Bidston)	29° 7' 64	50° 8'	48° 1'	56° 7'	52° 4'	40°	26th	72°	5th
	Holyhead	29° 7' 44	52° 5'	49° 8'	57° 3'	53° 6'	42°	22nd	71°	5th
8. ENGLAND, S.W.	Pembroke	29° 7' 38	53° 4'	50° 4'	56° 8'	53° 6'	42°	27th	66°	4th
	Prawle Point	29° 7' 64	53° 8'	49° 2'	57° 8'	53° 5'	39°	18th, 19th	67°	8th
9. IRELAND, N.	Malin Head	29° 7' 11	49° 7'	46° 6'	54° 5'	50° 6'	37°	22nd	64°	5th
	Donaghadee	29° 7' 53	50° 2'	44° 8'	55° 2'	50° 0'	32°	22nd	62°	5th
	Mullaghmore	29° 7' 11	50° 5'	47° 2'	56° 2'	51° 7'	41°	10th, 20th	65°	3rd, 5th
	Belmullet	29° 7' 09	50° 0'	46° 4'	55° 6'	51° 0'	35°	26th	64°	4th, 5th
10. IRELAND, S.	Parsonstown	29° 7' 32	48° 3'	43° 0'	56° 3'	49° 7'	32°	22nd	66°	5th
	Valencia	29° 7' 24	52° 5'	48° 0'	57° 7'	52° 9'	36°	27th	65°	4th, 6th
	Roche's Point	29° 7' 19	52° 5'	48° 2'	57° 6'	52° 9'	41°	17th, 26th, 27th	65°	7th
CHANNEL ISLANDS	Scilly (St. Mary's)	29° 7' 29	55° 5'	51° 3'	58° 2'	54° 8'	44°	18th	64°	5th
	Jersey (Noirmont)	29° 7' 80	55° 5'	52° 1'	59° 9'	56° 0'	44°	18th	71°	1st

\* 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 1886.

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

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

TENSION OF VAPOUR.	RELATIVE HUMIDITY.	AMOUNT OF CLOUD.	RAINFALL.			WEATHER, No. of Days of							WIND, No. of Observations of								
			Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	%		ins.	ins.																	
307	88	8.2	2.76	0.03	21st	20	0	0	0	2	19	0	2	3	2	9	6	1	1	0	7
316	90	7.6	1.66	0.28	20th	18	0	0	0	4	17	2	1	0	3	5	11	3	5	2	1
304	93	5.0	4.29	1.23	16th	21	0	1	0	10	7	4	3	4	4	2	4	6	2	1	5
287	90	6.7	1.46	0.29	3rd, 16th	17	0	0	0	4	10	0	0	2	4	1	7	4	2	0	11
314	91	7.5	2.48	0.41	21st	21	0	0	0	5	18	3	2	1	2	7	8	4	4	1	2
320	90	7.9	2.81	0.53	16th	20	1	0	0	3	18	0	2	1	4	8	3	2	7	1	3
336	92	9.1	2.94	0.86	1st	18	0	0	2	0	23	1	0	5	6	3	3	5	3	0	6
336	93	7.1	3.88	0.95	6th	21	0	0	2	8	17	0	3	4	6	5	5	2	4	1	1
357	89	5.6	2.04	0.43	12th	12	0	0	2	7	7	4	2	3	7	6	4	3	5	1	0
359	90	4.1	2.31	0.71	12th	14	0	1	2	14	4	4	1	1	7	5	5	2	6	1	3
352	93	6.5	2.76	0.99	20th	16	0	0	2	10	17	0	3	6	3	3	5	4	2	1	4
333	94	8.5	4.48	0.60	20th	20	0	1	3	2	22	0	1	3	5	8	2	2	5	1	4
339	93	6.9	3.29	0.42	15th	21	0	0	1	8	17	1	3	5	2	4	5	7	2	1	2
341	88	7.0	1.85	0.38	12th	17	0	0	0	9	19	5	0	2	4	6	3	2	5	1	8
377	91	7.5	2.92	0.83	15th	21	0	0	0	2	14	6	1	1	4	6	5	3	3	8	0
386	93	6.7	5.22	0.85	6th	26	0	0	2	2	6	6	3	5	9	2	0	3	6	3	0
322	87	6.2	2.51	0.57	11th	20	0	1	0	9	13	2	2	8	8	0	3	4	4	2	0
310	97	9.0	8.30	1.28	1st	26	0	0	1	2	25	0	1	6	9	3	7	4	0	0	1
329	87	6.8	6.60	1.56	12th	19	0	1	1	3	15	2	3	11	4	1	3	5	2	2	0
325	87	7.0	4.98	0.97	1st	21	0	0	2	7	17	0	1	4	8	7	2	4	3	1	1
346	88	5.5	4.57	0.85	12th	19	0	0	2	10	5	2	1	6	5	3	4	5	3	2	2
372	92	7.0	5.55	1.00	15th	24	0	0	0	0	7	5	1	5	5	5	3	4	3	4	1
371	89	6.5	7.20	0.95	25th	25	0	0	3	2	8	10	3	5	1	7	4	3	4	4	0
321	90	7.2	3.15	0.89	11th	19	0	0	0	3	16	2	2	4	2	6	10	4	1	2	0
337	93	6.6	4.46	0.94	14th	17	0	0	0	6	13	4	0	4	7	4	4	7	4	1	0
319	87	6.0	4.42	1.10	15th	18	0	0	0	5	5	7	1	3	8	7	4	3	2	2	1
312	87	5.7	5.81	1.74	15th	21	0	0	0	10	11	4	3	3	8	5	2	5	4	1	0
296	88	6.8	4.41	1.37	15th	17	0	0	0	6	16	0	0	0	1	6	1	5	0	4	14
347	88	7.3	7.39	1.28	14th	22	0	1	1	4	17	6	4	5	2	4	4	4	3	2	3
344	87	6.4	7.07	1.26	14th	21	0	0	1	6	12	5	3	4	3	4	2	6	6	3	0
389	88	8.3	4.38	0.94	1st	28	0	0	0	0	17	6	1	4	5	4	5	3	4	5	0
400	91	6.9	7.61	0.96	5th	26	0	0	3	4	12	4	0	3	4	7	3	6	4	4	0

barometer at this Station is not reduced 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 1886.

STATIONS.	AIR TEMPERATURE.							RAINFALL.				BRIGHT SUNSHINE.	
	Means of			Absolute Extremes.				Rainy No. of Days.	Total Fall in the Month.	Maximum Fall in One Day.	Date.	No. of Hours recorded.	Percentage of possible Dura- tion.
	Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.						
STORNOWAY -	*	*	*	*	*	*	*	*	*	*	*	113	36
ABERDEEN -	*	*	*	*	*	*	*	*	*	*	*	47	15
ALNWICK CASTLE -	46°2	54°1	50°2	38	21st	61	8th	22	4°51	1°40	1st	—	—
DURHAM -	45°1	55°3	50°2	35	23rd	64	3rd, 8th	22	5°05	1°15	1st	55	17
SCARBOROUGH -	48°5	55°4	52°0	42	14th	65	1st	21	2°47	0°37	9th	—	—
YORK -	*	*	*	*	*	*	*	*	*	*	*	63	20
HILLINGTON -	46°0	59°6	52°8	37	14th	77	4th	14	3°22	0°63	6th	100	31
GELDESTON -	46°5	59°9	53°2	33	23rd	72	4th	15	2°47	0°64	12th	117	36
CAMBRIDGE -	*	*	*	*	*	*	*	*	*	*	*	82	25
ROTHAMSTED -	45°6	58°4	52°0	35	22nd	76	1st, 4th, 5th	23	3°77	0°58	12th	—	—
INGATESTONE -	46°8	59°0	52°9	38	15th	77	4th	20	2°64	0°60	12th	—	—
BAWTRY -	45°6	57°8	51°7	32	23rd	71	4th, 5th	19	3°78	0°61	6th	731	16
LEICESTER -	46°9	58°8	52°9	35	22nd	78	5th	20	4°22	0°55	12th	62	19
CHEADLE -	45°1	55°1	50°1	38	11th, 14th, 22nd	68	5th	25	4°22	0°62	1st	—	—
CHURCHSTOKE -	44°9	55°5	50°2	35	11th	72	5th	24	4°05	1°66	1st	50	16
HEREFORD -	46°6	57°9	52°3	38	11th, 22nd	75	5th	23	3°82	0°78	17th	—	—
CIRENCESTER -	45°1	57°0	51°1	31	22nd	73	5th	24	4°18	0°40	12th	64	20
OXFORD -	*	*	*	*	*	*	*	*	*	*	*	73	23
LONDON -	*	*	*	*	*	*	*	*	*	*	*	66	20
STRATHFIELD TURGIS -	45°7	60°0	52°9	33	18th	75	1st, 4th, 5th	20	3°80	0°52	1st	—	—
HASTINGS -	50°1	59°7	54°9	41	14th	71	4th	22	3°54	0°82	12th	112	34
SOUTHAMPTON -	48°6	60°3	54°5	35	22nd	72	4th, 5th	25	5°33	0°58	12th, 19th	81	25
STOWELL -	47°5	57°3	52°4	33	22nd	71	4th	26	5°07	0°72	12th	—	—
LAUDALE -	44°9	56°4	50°7	33	26th	68	5th, 7th	20	8°02	1°38	11th	—	—
GLASGOW -	46°0	54°4	50°2	32	23rd	60	1st, 8th	20	3°47	0°60	11th	56	18
DOUGLAS -	47°7	56°0	51°9	37	22nd	64	5th	17	4°70	0°79	11th	93	29
NEWTON REIGNY -	43°4	55°5	49°5	30	26th	66	5th	20	5°47	1°20	1st	69	22
STONYHURST -	45°9	55°3	50°6	39	22nd	65	5th	21	5°17	0°72	1st	72	22
BLACKPOOL -	47°6	56°9	52°3	36	26th	68	4th, 5th	19	4°73	0°78	12th	83	26
MANCHESTER -	46°8	56°9	51°9	39	22nd	71	5th	20	5°84	0°82	1st	—	—
LLANDUDNO -	48°6	57°4	53°0	43	22nd	72	5th	18	5°77	1°45	20th	74	23
LLANDOVERY -	45°9	58°3	52°1	36	10th	75	4th	25	8°09	1°39	15th	—	—
PEMBROKE -	*	*	*	*	*	*	*	*	*	*	*	82	25
ARLINGTON -	46°7	56°8	51°8	39	22nd	68	4th, 5th	23	8°37	1°14	1st, 15th	—	—
CULLOMPTON -	47°0	58°9	53°0	34	22nd	70	4th	26	5°82	0°79	22nd	64	20
FALMOUTH -	48°9	57°4	53°2	39	18th	64	4th	28	6°67	1°18	15th	81	25
PLYMOUTH -	48°7	58°9	53°8	36	18th, 22nd	69	4th	24	5°17	0°79	1st	81	25
JERSEY -	*	*	*	*	*	*	*	*	*	*	*	106	33
LONDONDERRY -	44°1	56°7	50°4	33	26th	68	5th	18	4°38	1°98	15th	—	—
MARKKEE CASTLE -	42°4	56°3	49°4	30	22nd	64	4th	17	5°44	2°14	15th	86	27
BROOKBOROUGH -	42°9	55°8	49°4	29	22nd	68	4th	16	4°08	1°50	15th	—	—
ARMAGH -	44°6	55°5	50°1	33	22nd	65	5th	21	4°69	1°83	15th	61	19
EDGEWORTHSTOWN -	42°9	54°7	48°8	31	22nd	64	4th, 5th	18	4°55	1°41	15th	—	—
DUBLIN -	47°7	56°2	52°0	36	22nd	65	5th	24	6°16	1°56	15th	60	21
PARSONSTOWN -	*	*	*	*	*	*	*	*	*	*	*	82	25
KILKENNY CASTLE -	44°1	56°8	50°5	31	22nd	65	5th	17	4°83	0°71	15th	—	—
WATERFORD -	46°1	56°7	51°4	31	22nd	65	7th	19	5°70	0°93	11th	—	—
VALENCIA -	*	*	*	*	*	*	*	*	*	*	*	105	33
KILLARNEY -	44°2	56°7	50°5	30	27th	64	4th, 5th, 7th	22	6°73	0°96	14th	—	—
POYNES -	46°2	56°5	51°4	37	21st, 26th	65	5th	17	4°31	0°74	9th, 14th	—	—

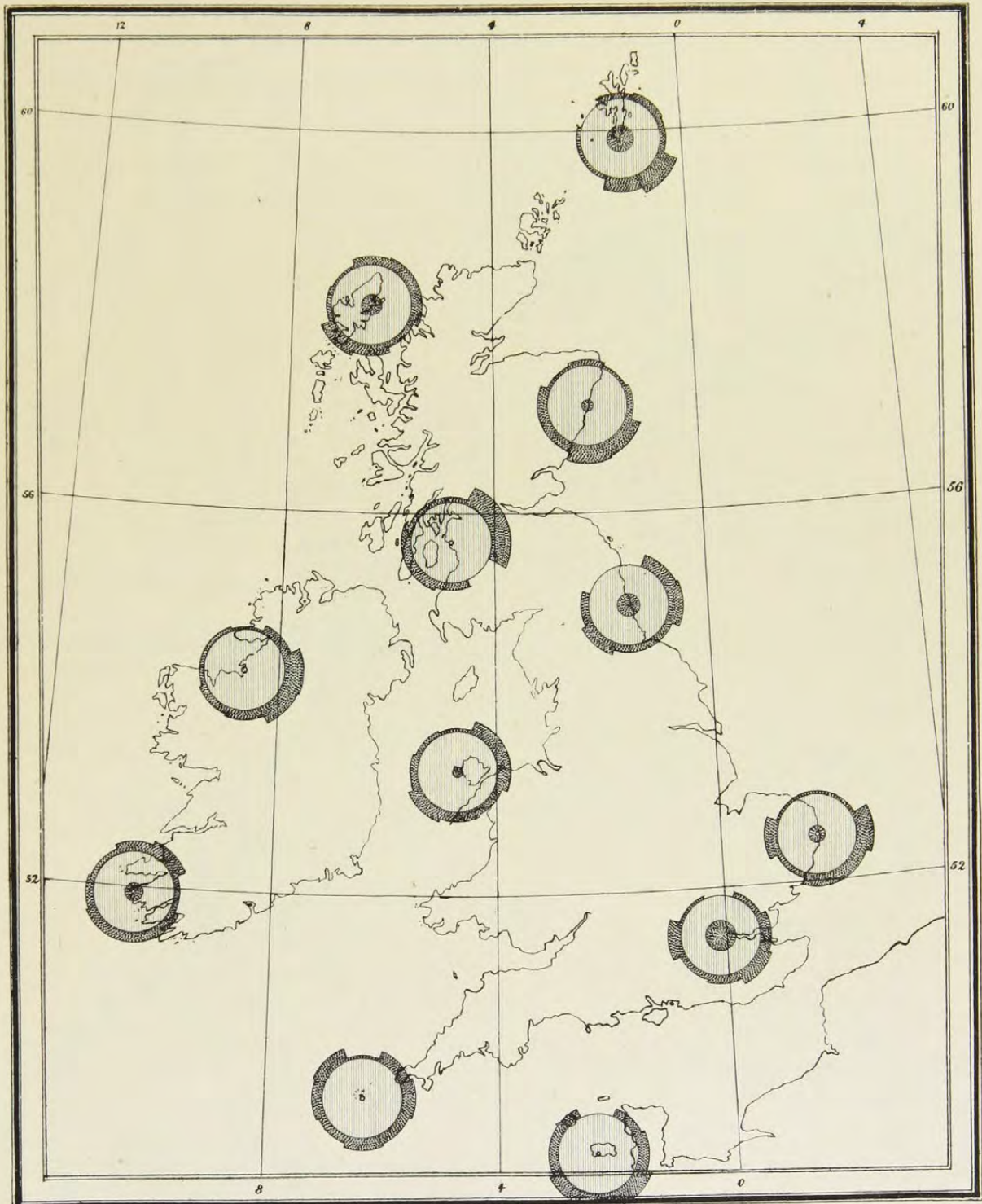
\* For information see Table XIX.

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



# MONTHLY WIND CHART FOR OCTOBER, 1886.

Plate XIX



To face p. 118.

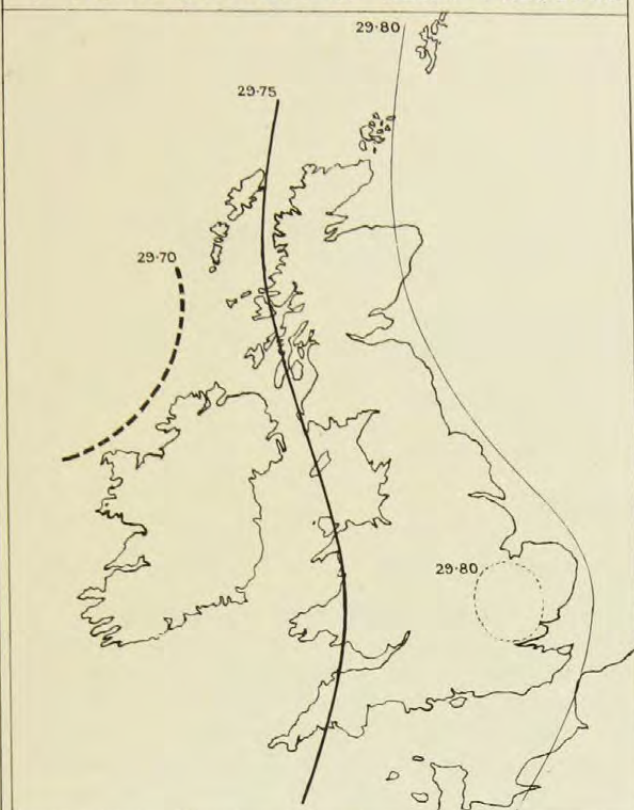
DANGERFIELD, LITH. 22, BEDFORD ST COVENT GARDEN 13448.



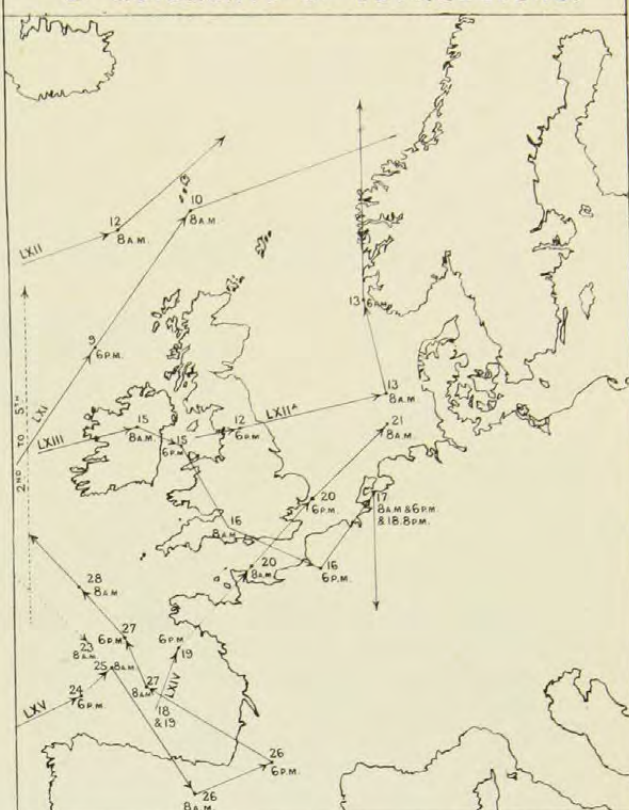




## 1. DISTRIBUTION OF MEAN PRESSURE



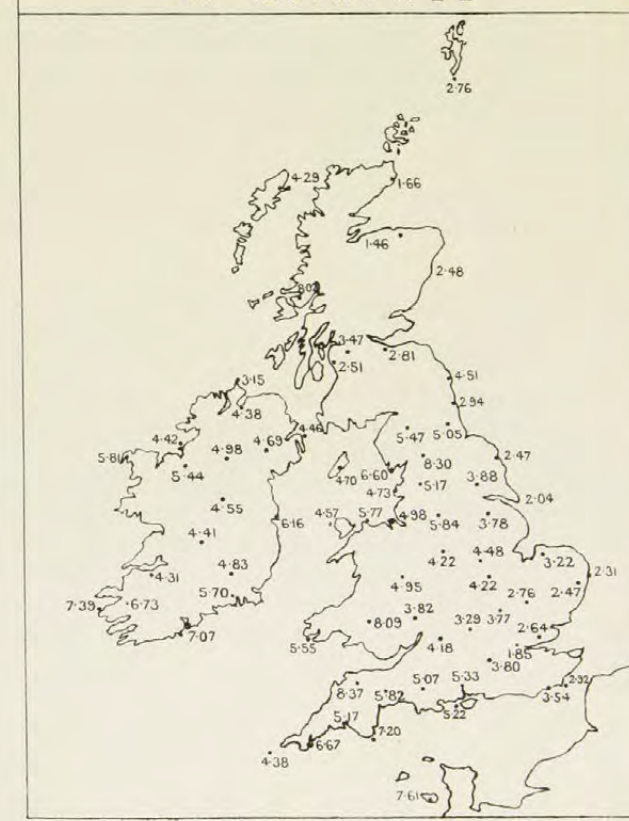
## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL









# MONTHLY WEATHER REPORT.

NOVEMBER 1886.

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## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of November was of a very changeable character. Pressure was slightly below its normal value in the north, but above it in the south; depressions were numerous, but, as a rule, they were neither large nor deep; of anticyclones there was only one, but that was large and well-marked. Temperature was in excess of the mean, and exhibited very sudden, but not unusually large changes. The wind was chiefly Westerly and South-westerly, and gales, though frequent in the west, were not severe. The rainfall was large in the south-west and south, and also at some northern stations, but defective over the Midland counties as a whole. Bright sunshine was deficient in the south, while in the north-east a large amount was recorded.

November 1-4.—The dominant system of pressure-distribution during this period was cyclonic, the gradients were at times steep and favourable for South-westerly winds, and the general tendency of pressure was to decrease. As is usual under such conditions in winter, the temperature was high, the weather unsettled and showery, and as some depressions passed by our north-western coasts in a north-easterly direction, the South-westerly winds increased to the force of a gale at many places on our western and north-western coasts. The centres of these depressions passed at so great a distance from our north-western coasts that their characteristics cannot be tabulated in Section II., nor can their tracks be drawn at all accurately in Map 2, Plate XXII.

November 5-15.—The weather of this period was very unsettled: it was wet, cold, and often windy, and the movements of the depressions were peculiar. During the 5th pressure was highest over south-eastern Europe, and a shallow depression (No. LXVI.)\* advanced over our western coasts from the north-westward. In its rear the barometer rose decidedly, so that North-easterly and Easterly winds set in over our northern and north-western districts, while Westerly and South-westerly winds prevailed at our southern and south-eastern stations; temperature decreased decidedly, much cold rain fell, especially in the north, and lightning was seen in the south-east of England. The system grew deeper as it moved eastwards, and Northerly winds spread all over the kingdom, with cold but clearing, weather. No sooner had this disturbance passed off than the barometer rose in the south, and the evening of the 8th again found us with moderate gradients for South-westerly winds and milder weather. Another depression then appeared over Ireland. It was apparently

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



formed in the subsidiary "hollow" of a larger system, the centre of which travelled in a north-easterly direction outside our extreme north-western coasts. The new system took a south-easterly and afterwards a southerly course, and in its rear the barometer rose quickly, and strong, cold North-easterly and Easterly winds again set in. On its central parts reaching the north-west of France and Bay of Biscay several small minima were developed—at 6 p.m. on the 9th there were three of them. One of these, LXVII.B., moved east-north-eastwards to our south-eastern coasts, while the other, LXVIIA., passed south-westwards to Corunna, and the third filled up. In the meantime another small system had been developed over Germany, and moving north-westwards over the German Ocean passed out of our area along the western coast of Norway. The minimum off our south-eastern coasts now moved northwards and north-north-westwards along the north-east coast of Great Britain, producing Northerly breezes over England as it did so, but the condition was soon complicated by the sudden advance of yet another system from the north-westward during the night of the 11th; the centre of this was found next morning close to Holyhead. These two systems moved quite independently of one another, for while the one travelled away to the north-westward between the north-east of Scotland and the Shetland Islands, the other changed its course, and, going north-eastwards passed across the North Sea and Denmark to the Baltic. The Northerly winds were so cold that the minimum temperature for the month occurred more generally on the 9th than on any other day, but there were no reports of snow in the level parts of the country, though much fell on the hills. With the 15th, however, this series terminated, and the distribution of pressure became less complicated.

November 16-20.—The distribution of pressure, though still cyclonic, was now more simple and of a westerly and south-westerly type; some large depressions travelled in a north-easterly direction outside our extreme northern coasts, while subsidiary systems took a more southerly course, and travelling across England caused their rough and unsettled weather to spread to the southern parts of our area. Temperature changed greatly and suddenly, the mild South-westerly and Southerly winds in front of the systems alternating with the cold North-westerly breezes in their rear, and *vice versa*; sharp frosts occurred at night when the ridges between the cyclonic systems passed over the kingdom at that time.

November 21-28.—A very decided change of weather now took place. The barometer rose rapidly, the depressions above referred to passed away, and a well-formed anticyclone was developed over the United Kingdom. At 8 a.m. 22nd the central portion of this system stretched from south-west to north-east over the Bay of Biscay, France, England, and the North Sea; temperature fell except in the west and north-west, and calms, fogs, and sharp frosts spread over the kingdom. For the next two days pressure increased steadily, until on the 24th it was as high as nearly 30.8 inches over England and Ireland. Fog and frost increased in intensity, and in London the fog was of a very irritating nature, especially during the daytime of the 24th, when it was dry and very dense. A singular change then took place; the anticyclone centre had continued to move slowly to the westward until at evening on the 24th it lay over Ireland, and a light Northerly breeze spread over Great Britain. With this Northerly breeze the fog cleared off and temperature rose decidedly; and when on the three following days the centre again moved eastwards over England, the cold and the fog did not recur with anything like the intensity with which they prevailed before. The centre of the anticyclone (which was now growing less intense), reached France on the 28th, the barometer fell in the north, and steep gradients for Westerly winds spread over the country, with rising temperature and damper air.

November 29-30.—A very large low-pressure area now advanced over northern Europe from the north-westward, and South-westerly to North-westerly winds prevailed over the United Kingdom, the former accompanied by rain generally, and the latter by snow in the north. The low-pressure system, however, lay at too great a distance from us for its characteristics to be tabulated, or its track to be drawn on Map 2, Plate XXII. Temperature was unsteady, and at 8 a.m. on the 30th was rather low and falling, with a North-westerly wind.

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## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—NOVEMBER 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. LXVI. November 5-7.	No. LXVII. November 9-13.	No. LXVIII. November 11-14.
<b>Form</b> - - - - -	Elongated and irregular - - -	Elongated at first, and irregular; very variable later.	Oval.
<b>Size</b> - - - - -	Large - - - - -	Moderate - - - - -	Small to moderate.
<b>Depth</b> - - - - -	Shallow - - - - -	Shallow - - - - -	Shallow to moderate.
<b>Where first Observed</b> - - -	Off the north-west coast of Ireland -	Forming over Ireland - - -	To the north-westward of the Hebrides.
<b>Direction of Motion</b> - - -	South-easterly till 8 a.m. 6th, then north-easterly.	South-easterly till evening of 9th, then variable. (See remarks below.)	South-south-easterly till 6 p.m. 12th, then east-north-easterly and north-easterly.
<b>Rate of Motion</b> - - - - -	Varying; moderate to very slow, then slow.	Slow, and variable - - - - -	Rapid to moderate.
<b>Regions passed over by Steepest Gradients.</b>	British Isles, the north of France, and North Sea.	North-western Europe - - - - -	Ireland, England, and southern parts of the North Sea.
<b>Termination</b> - - - - -	Filled up over the south of Sweden -	Broke into two distinct parts which moved, one in a northerly, and the other in a southerly direction.	Passed away to the Baltic.
<b>Time under Observation</b> - -	About 60 hours - - - - -	Nearly three days - - - - -	About three days.
<b>Accompanying Winds</b> - - -	Complete cyclonic circulation; light to moderate at first, then strong to a gale.	South-westerly to Westerly at first, then Easterly, North-easterly, and Northerly. The latter winds blew strongly at times.	Chiefly Northerly and Westerly; not very strong.
" <b>Weather</b> - - - - -	Very rainy and squally; mild at 8 a.m. 5th, afterwards cold and very unsettled.	Cold, squally, and showery; the 9th was apparently coldest day in the month.	Cold, squally, showery, changeable.
" <b>Rainfall</b> - - - - -	Heaviest over north of England, where fall was very large.	Heaviest in south-east as the eastern portion of the broken system was being developed.	General; not heavy.
<b>REMARKS</b> - - - - -	This system advanced to our north-western coasts, when pressure was highest over the south-east of France and lowest to the north-westward and northward of our Islands. As it moved over the country it grew deeper, and as the barometer rose quickly in its rear the North-easterly and Northerly winds blew hard and were very cold.	This system also advanced from the north-westward at first and increased in size, while the barometer rose in its rear. On reaching Brittany and the Bay of Biscay it developed several minima. (See maps for 6 p.m. 9th and those for the 10th in Weekly Weather Report.) One of these subsequently travelled northwards up our east coasts, while the other moved southwards to Spain. During the motion northward of the former, another minimum (No. LXVIII.) came rapidly down our western coasts from the north-westward, but on reaching Wales curved eastward and north-eastward, and travelled away to the Baltic.	This system came south-south-eastwards down our western coasts, as the eastern minimum of No. LXVII. moved northward up our eastern coasts; the weather was consequently in a very disturbed condition.



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—NOVEMBER 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. LXIX. November 9-10.	No. LXX. November 17-18.
Form - - - - -	Nearly circular - - - - -	Nearly circular.
Size - - - - -	Small - - - - -	Moderate.
Depth - - - - -	Shallow - - - - -	Moderate.
Where first Observed - - - - -	Over north Germany, to the southward of Berlin	Advancing eastwards off the west of England.
Direction of Motion - - - - -	North-westerly and northerly - - - - -	Easterly till 6 p.m. 17th, then north-easterly.
Rate of Motion - - - - -	Moderate - - - - -	Rapid.
Regions passed over by Steepest Gradients	North Sea and Denmark - - - - -	The south of England, Channel north of France, and Netherlands.
Termination! - - - - -	Uncertain, but apparently travelled away to the northward.	Apparently filled up near Christiania.
Time under Observation - - - - -	About 30 hours - - - - -	About two days.
Accompanying Winds - - - - -	Northerly on eastern shores of North Sea, but afterwards shifting to South.	South to West and North-west gales on southern side of its centre; moderate Easterly on its northern side.
„ Weather - - - - -	Rainy at first, then fair - - - - -	Squally, with rain.
„ Rainfall - - - - -	Heavy, but confined to countries lying to eastward of North Sea.	Heaviest in the south; rainless at some of the northern stations.
REMARKS - - - - -	This system advanced north-westward over the North Sea at the very time that No. LXVIII., was moving south-eastwards and southwards along our west and south-west coasts. At present it is not quite certain whether the system filled up near Skudesnaes on the night of the 10th, or whether it passed away to the northward off the west coast of Norway.	
	This system was apparently secondary to a much larger one in the extreme north-west, the centre of which was apparently moving in a direction about parallel to the arrow marked B on Map 2, Plate XXII.	



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—NOVEMBER 1886.

NATURE OF CHARACTERISTICS OBSERVED.		No. XXVI. November 22-28.
Form - - - - -	-	Elongated, irregular, and varying.
Size - - - - -	-	Large.
Height - - - - -	-	Moderate. Maximum readings 30·7 ins. and upwards on 24th and 25th.
Where first observed - - - - -	-	To the south-westward of our Islands.
Direction of Motion - - - - -	-	North-easterly at first; westerly after 23rd, and easterly to south-easterly after 25th.
Rate of Motion - - - - -	-	Slow.
Regions passed over - - - - -	-	British Isles and France.
Termination - - - - -	-	Passed away to southward.
Accompanying Wind - - - - -	-	Light to moderate anticyclonic circulation.
„ Weather - - - - -	-	Very cold; dense fogs in central area.
REMARKS - - - - -	-	<p>This system advanced close in the rear of the cyclonic system which passed in an easterly direction by our northern coasts on the 20th and 21st.</p> <p>The sudden rise of temperature over England as the centre passed westward to Ireland and a light Northerly breeze set in is very striking, especially as the thermometer did not fall again when the system returned eastwards.</p>



## SECTION III.

## REMARKS FOR NOVEMBER 1886.

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

*Pressure.*—The mean pressure of the air at 8 a.m. varied from between 29·93 inches and 29·95 inches over the English Channel and from 29·91 inches over the south of Ireland to about 29·77 inches in the north of Ireland, 29·72 inches at Inverness and about 29·65 inches at Sumburgh Head. The resulting gradients were moderate, and favourable for a predominance of Westerly to South-westerly winds during the month, a feature which is found to be abundantly confirmed by the figures in Table XXI. and the wind-roses on Plate XXI. Compared with the values for October, those for the present month show an increase of about 0·2 inch of pressure on our south-western coasts, and of about 0·1 inch over our eastern counties, but a decrease of 0·05 inch in the west of Scotland, and of about 0·07 inch in the Hebrides and Shetland. When compared with the average conditions which prevailed during November in the 20 years 1861–80 they show a deficiency of about 0·05 inch in the north of Scotland, but a slight excess, of about 0·015 inch, on our extreme south-western coasts and in the Channel Islands. The lowest readings were recorded over the greater part of the kingdom on the 5th or 6th, at which time the barometer fell below 28·9 inches as the centre of the depression No. LXVI.\* passed across Ireland and England; in the extreme North, however, the readings on that occasion were not so low as those recorded on the 15th, when the depression No. LXVIII.\* was passing over the North-western parts of Scotland on its way towards Scandinavia. The highest pressure occurred very generally on the 24th or 25th, at which time the large anticyclone No. XXVI. lay over us, and the barometer rose to between 30·7 inches and 30·8 inches over Ireland and the southern half of England. Thus the range for the month was large (about 2 inches) at the central stations, over which the central parts of both the highest and lowest pressure systems passed, but was considerably smaller in the north which was affected by only the northern portions.

*Movements of Depressions.*—These were very remarkable. All the larger systems appeared to pass north-eastwards at such a distance from our north-western coasts that their motion cannot be accurately traced in Map 2, Plate XXII., nor can their chief characteristics be tabulated in Section II. Between the 5th and 15th, however, a series of disturbances of a very peculiar character prevailed over our area; some of the minima passing southwards down our western coasts, while others moved northwards simultaneously over our eastern districts or the North Sea. Some minima filled up while others were developed over our immediate neighbourhood, and in one case the central area developed three distinct minima on its reaching France and the Bay of Biscay. (See Sections I. and II.)

*Anticyclones.*—Only one of these systems came within our area during the month. It was, however, large and well defined, and in it the barometer rose to nearly 30·8 inches. After moving slowly to Ireland, it advanced eastwards and south-eastwards, and finally passed out of our area in a southerly direction.

*Winds.*—These were mainly Westerly and South-westerly, and, as may be inferred by what has already been shown with regard to the movements of the depressions, they blew hardest as a rule on our extreme western and north-western coasts. During the prevalence of the cyclonic system No. LXX,\* however, the Westerly wind blew hard on our south-western and southern coasts, while during the prevalence of the anticyclone No. XXVI. light North-easterly and Easterly wind prevailed in the south for a few days but were not experienced at all in the extreme north. Gales were not numerous in the east and south-east, but were of more frequent occurrence in the west and the north-west, the number of days

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



on which they were reported being 11 at Stornoway, 10 at Mullaghmore, 7 at Valencia, and 6 at Scilly. Calms were of very frequent occurrence at Parsonstown and Nairn.

*Temperature.*—The mean (sea-level) temperature of the air varied from  $50^{\circ}$  at Jersey and Scilly, and a little above  $48^{\circ}$  in the south of Ireland and at Falmouth, to a little above  $44^{\circ}$  over the inland parts of Ireland, to a little below  $43^{\circ}$  over the inland parts of our northern and eastern counties, and apparently to about the same value over central Scotland. On comparing the isothermal Map (2, Plate XXII.) with that for October, it appears that the mean temperature for the month exhibited a decrease of about  $5^{\circ}$  over Scotland and Ireland, by  $9^{\circ}$  or  $10^{\circ}$  over the southern half of England, and by  $7^{\circ}$  in the island of Jersey; but when compared with a map showing the average distribution for November during the 20 years 1861–80 it appears that, taken as a whole, the present month has been slightly warmer than the average, the difference amounting to two or three degrees, except over some of our northern counties, where it was *very* slight. The winter type of distribution (*viz.* cold inland when compared with coast stations) had become fully established, the difference between the values at the north midland stations and those on our north-eastern coasts being rather more strongly marked than usual. The lowest readings were recorded on very various dates in different parts of the kingdom. In England they seem to have occurred between the 22nd and 24th, when the centre of the large and growing anticyclone No. XXVI. lay over that country, but in Ireland and several western parts of Great Britain the 9th appears to have been the coldest day, the cold being caused by the Northerly and Easterly winds of depression No. LXIX.,\* whose centre was then over our western districts, and moving southwards. In all parts of the country temperature was low on this occasion, and, taking the kingdom as a whole, the 9th was probably the coldest day of the month. The highest readings were recorded, with few exceptions, on the 1st, when mild South-westerly winds were spreading over the country, and the thermometer rose to  $62^{\circ}$  at Hereford,  $61^{\circ}$  at Southampton and Hastings,  $60^{\circ}$  in London and at Geldeston, and to  $58^{\circ}$  even as far north as Leith. As, however, the minima were nowhere very low, the total range was small in all districts, the largest being  $36^{\circ}$  at Hereford.

*Tension of Vapour* varied from between 0·28 in. and 0·30 in. at our extreme southern and south-western stations to about 0·24 in. on our north-eastern coasts, and over the north midland counties of England. *Relative Humidity* was high everywhere, especially over the inland parts of England, where it varied from 92 to 95 per cent. of saturation.

*Rainfall.*—This was irregularly distributed. It was large at most of the southern and south-western stations, and also on some parts of our north-eastern and north-western coasts, and in Wales. Over the midlands, however, it was rather small for the time of year, but even there some exceptional falls occurred. The amounts reported varied from, 8·96 inches at Laudale (Loch Sunart), 7·77 inches at Hawes Junction, 6·95 inches at Belmullet, and 6·81 inches at Arlington, to 1·56 inches at York, 1·26 inches at Bawtry, and 1·25 inches at Loughborough. Rainy days were numerous in the west—the numbers being as high as 28 at Belmullet, 27 at Sumburgh Head and Hawes Junction, 26 at Llandovery and Stornoway, and 25 each at Barrow-in-Furness, Holyhead, and Valencia.

*Bright Sunshine.*—This was very deficient in the south for the time of year, but not so in the north-east. Assuming that the total amount which could possibly be recorded at each station be represented by 100, the amounts actually recorded varied from 34 at Durham, 30 at Aberdeen, and 29 at Douglas (Isle of Man) and Dublin, to 19 at Bawtry, Churchstoke, and Glasgow, 17 at Stornoway, and 12 in London. Even at Jersey the percentage was as low as 26.

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



TABLE XXI.

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of				Absolute Extremes.		
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head	ins. 29°647	45°2	41°2	48°1	44°7	34	18th	53	20th
	Wick	29°697	43°4	37°8	48°9	43°4	31	14th, 15th	56	19th
	Stornoway	29°605	43°8	38°6	48°2	43°4	31	5th, 6th, 9th	53	19th, 23rd, 24th, 25th.
1. SCOTLAND, E.	Nairn	29°720	43°5	37°1	49°5	43°3	29	22nd	57	19th, 20th
	Aberdeen	29°750	41°8	37°7	47°9	42°8	32	19th	55	20th, 25th
	Leith	29°785	43°4	38°5	49°5	44°0	30	22nd	58	20th
2. ENGLAND, N.E.	Shields	29°809	43°1	38°7	49°2	44°0	32	22nd	56	20th
	York	29°860	40°9	36°5	48°3	42°4	28	22nd	55	1st, 2nd
	Spurn Head	29°858	44°2	40°9	48°2	44°6	36	8th, 9th, 27th	57	1st
3. ENGLAND, E.	Yarmouth	29°885	44°5	40°1	49°8	45°0	33	8th, 9th, 19th, 20th.	58	1st
	Cambridge	29°902	41°8	36°5	49°4	43°0	27	24th, 25th	58	1st
4. MIDLAND COUNTIES	Loughborough	29°883	41°7	38°3	48°9	43°6	29	8th, 22nd	59	1st
	Oxford	29°915	41°7	38°3	48°7	43°5	28	24th, 25th	59	1st
5. ENGLAND, S.	London	29°921	42°4	38°3	50°2	44°3	28	24th, 25th	60	2nd
	Dungeness	29°908	45°9	41°4	52°0	46°7	31	19th	59	1st
	Hurst Castle	29°924	46°0	41°0	51°1	46°1	30	8th	58	1st
6. SCOTLAND, W.	Ardrossan	29°792	45°3	41°5	50°0	45°8	35	8th	57	20th
7. ENGLAND, N.W.	Hawes Junction*	28°598	39°6	36°2	43°9	40°1	30	19th, 22nd, 26th	51	25th
	Barrow-in-Furness	29°832	44°9	42°2	48°3	45°3	38	8th, 25th, 26th	54	3rd
	Liverpool	29°852	44°5	42°2	49°2	45°7	39	3rd, 6th, 11th, 12th, 17th, 19th.	56	1st, 19th
	Holyhead	29°850	47°7	45°4	50°8	48°1	41	12th	56	3rd
8. ENGLAND, S.W.	Pembroke	29°892	48°3	45°8	51°0	48°4	41	6th, 9th, 10th	55	1st, 3rd
	Prawle Point	29°940	46°9	42°3	51°9	47°1	36	8th, 10th	58	2nd
9. IRELAND, N.	Malin Head	29°767	46°1	42°5	49°6	46°1	37	6th, 16th	54	19th
	Donaghadee	29°826	45°0	40°1	49°6	44°9	31	6th	54	3rd, 19th
	Mullaghmore	29°813	46°9	42°2	50°8	46°5	34	9th	57	23rd
	Belmullet	29°838	47°4	44°1	50°0	47°1	34	9th	55	2nd
10. IRELAND, S.	Parsonstown	29°890	45°0	38°2	49°4	43°8	29	10th, 27th	57	19th
	Valencia	29°917	48°3	44°9	52°7	48°8	37	9th, 10th	57	3rd
	Roche's Point	29°911	47°0	43°3	52°7	48°0	36	9th	58	24th
CHANNEL ISLANDS	Scilly (St. Mary's)	29°930	50°7	47°0	52°9	50°0	42	6th, 9th	58	1st
	Jersey (Noirmont)	29°954	48°6	45°5	52°6	49°1	41	24th, 25th	59	1st

\* 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 1886.

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 VACUUM.	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.
ins. 0.260	°/100 89	8.2	ins. 4.38	in. 0.82	3rd	27	2	0	0	1	17	1	4	1	0	5	4	5	7	1	3
247	88	6.1	2.80	0.45	30th	20	2	1	0	2	8	4	4	0	1	0	7	5	5	6	2
263	92	6.5	5.73	0.60	3rd	26	5	5	0	7	12	11	4	1	0	0	10	8	4	2	1
235	83	5.9	2.05	0.35	20th	18	0	0	0	6	6	1	2	1	0	0	2	9	6	3	7
235	89	4.7	2.14	0.38	6th	19	1	0	1	12	6	4	3	1	0	0	6	8	8	3	1
247	88	5.3	1.57	0.45	5th	14	0	0	0	12	9	2	2	2	0	1	3	5	13	4	0
239	85	6.4	2.74	1.28	5th	9	0	0	0	6	8	1	1	3	0	1	4	9	7	2	3
236	93	6.2	1.56	0.55	5th	16	0	0	0	9	13	0	3	1	2	2	10	3	4	4	1
265	92	4.9	1.73	0.79	11th	13	0	0	0	9	3	3	2	2	0	1	7	8	4	6	0
271	92	6.1	2.84	0.55	5th	21	1	0	0	7	10	3	1	1	1	1	4	7	8	6	1
251	96	6.3	2.27	0.65	11th	13	0	0	0	9	15	0	3	1	0	2	9	6	4	2	3
245	93	7.9	1.25	0.27	9th, 11th	15	0	0	0	1	18	1	1	1	0	7	3	6	7	4	1
245	93	7.4	2.54	0.55	5th	17	0	0	0	6	17	0	1	1	1	2	5	9	3	4	4
249	92	7.2	2.96	0.64	11th	15	0	0	0	6	15	2	0	0	2	4	7	6	8	1	2
298	97	7.8	4.47	0.86	5th	19	0	2	1	2	15	2	4	4	0	1	3	4	8	6	0
285	92	6.4	4.10	0.70	10th	20	0	0	0	4	8	4	3	6	1	1	1	6	7	5	0
272	90	6.1	3.22	0.85	3rd	18	0	0	0	10	14	2	4	2	3	3	4	4	2	6	2
239	99	8.9	7.77	1.38	5th	27	3	2	0	3	26	2	0	2	4	4	8	7	2	1	2
261	88	8.0	4.50	0.72	5th	25	0	1	0	1	17	4	3	7	3	7	2	3	2	3	0
257	88	7.5	3.18	1.64	5th	23	0	2	0	4	18	1	2	2	1	8	5	4	6	2	0
204	89	7.1	5.20	1.53	5th	25	0	0	0	1	10	3	3	5	1	0	5	7	6	2	1
316	94	8.1	4.27	0.71	5th	24	0	0	0	0	13	4	3	3	2	1	5	4	6	6	0
281	88	7.2	2.65	0.42	10th	20	0	0	0	2	12	5	4	4	2	0	1	5	8	6	0
279	90	7.7	4.59	0.76	14th	24	0	4	0	5	20	2	2	4	0	0	8	8	3	5	0
277	93	5.0	2.81	0.51	11th	23	0	0	0	8	6	6	1	7	0	1	0	10	9	2	0
276	87	7.4	4.48	0.60	3rd	22	0	2	1	2	11	10	6	1	1	0	4	12	1	3	2
291	90	8.0	6.95	1.00	14th	28	0	0	0	2	19	4	4	2	0	2	2	8	8	4	0
253	91	7.4	3.01	0.50	5th	19	0	0	0	3	14	0	2	0	0	0	4	7	2	3	12
304	90	7.3	4.91	0.60	14th	25	0	1	0	2	13	7	3	3	2	2	6	3	7	3	1
291	91	4.9	2.45	0.45	11th	21	1	0	0	12	8	2	3	2	0	1	2	7	9	5	1
304	83	8.7	2.80	0.36	5th	23	0	1	0	0	18	6	1	2	4	1	3	5	8	6	0
302	89	7.6	4.03	0.86	6th	20	0	3	0	0	15	3	1	4	3	3	2	6	6	5	0

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 1886.

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 -	.	.	.	.	.	.	.	.	.	.	.	39	17
ABERDEEN -	.	.	.	.	.	.	.	.	.	.	.	71	30
ALNWICK CASTLE -	37'9	47'0	42'5	30	21st	53	20th	16	4'37	1'98	6th	—	—
DURHAM -	36'2	48'2	42'2	28	22nd, 23rd	55	1st, 2nd, 20th, 24th.	15	3'58	1'53	5th	83	34
SCARBOROUGH -	39'6	45'3	44'0	34	8th, 9th	56	1st	12	2'25	1'04	5th	—	—
YORK -	.	.	.	.	.	.	.	.	.	.	.	68	27
HILLINGTON -	36'6	48'1	42'4	26	19th	57	1st	17	2'76	0'60	11th	65	26
GELDESTON -	38'9	50'3	44'6	30	8th, 19th	60	1st	18	2'92	0'47	5th	72	28
CAMBRIDGE -	.	.	.	.	.	.	.	.	.	.	.	63	25
ROTHAMSTED -	37'1	48'6	42'9	28	8th, 19th, 23rd	57	1st	21	2'62	0'51	5th	—	—
INGATESTONE -	38'6	49'4	44'0	31	19th	58	2nd	16	2'64	0'53	10th	—	—
BAWTRY -	37'1	47'8	42'5	29	22nd, 26th	57	1st	15	1'26	0'43	5th	†49	19
LEICESTER -	38'3	48'2	43'3	29	22nd	59	1st	18	1'97	0'43	10th	41	16
CHEADLE -	37'7	46'4	42'1	31	8th	54	1st	21	2'35	0'57	5th	—	—
CHURCHSTOKE -	38'8	48'8	43'8	28	8th	57	19th	19	2'46	0'54	9th	48	19
HEREFORD -	39'4	50'1	44'8	26	8th	62	18	18	2'16	0'74	9th	—	—
CIRENCESTER -	36'6	48'0	42'3	27	8th, 19th	56	1st	19	2'69	0'56	5th	51	20
OXFORD -	.	.	.	.	.	.	.	.	.	.	.	51	20
LONDON -	.	.	.	.	.	.	.	.	.	.	.	31	12
STRATHFIELD TURGIS -	36'0	49'6	43'3	25	23rd, 24th	59	1st	15	3'25	0'98	5th	—	—
HASTINGS -	42'0	51'5	46'8	35	19th	61	1st	23	5'21	0'85	9th	65	25
SOUTHAMPTON -	39'3	51'2	45'3	30	8th	61	1st	19	3'64	0'99	5th	64	24
STOWELL -	38'3	48'8	43'6	28	24th	56	1st	21	4'19	1'34	8th	—	—
LAUDALE -	40'0	48'7	44'4	33	14th	57	23rd	24	8'96	1'46	4th	—	—
GLASGOW -	39'9	48'2	44'4	32	14th	55	1st	18	5'41	0'99	3rd	45	19
DOUGLAS -	42'9	49'9	46'4	36	30th	55	3rd	22	4'73	1'15	5th	73	29
NEWTON REIGNY -	37'2	46'8	42'0	30	18th, 19th, 22nd	53	1st, 2nd, 20th	20	3'01	0'62	3rd	60	24
STONYHURST -	39'2	46'7	43'0	33	8th	53	1st	25	3'83	0'73	5th	56	22
BLACKPOOL -	41'2	48'6	44'9	35	22nd	55	1st	22	3'60	0'88	5th	59	24
MANCHESTER -	39'7	47'5	43'6	33	8th	56	1st	20	2'87	0'94	5th	—	—
LLANDUDNO -	43'3	50'5	46'9	39	16th, 20th, 30th	57	1st, 3rd	21	3'83	1'22	5th	50	20
LLANDOVERY -	37'5	50'1	43'8	28	6th, 7th	57	1st, 2nd	26	6'33	0'82	5th	—	—
PEMBROKE -	.	.	.	.	.	.	.	.	.	.	.	55	21
ARLINGTON -	40'3	48'9	44'6	33	8th	56	1st	23	6'81	1'29	5th	—	—
CULLOMPTON -	38'5	50'5	44'5	29	24th	59	1st	21	3'62	0'76	8th	37	14
FALMOUTH -	44'1	51'3	47'7	36	10th	56	3rd	22	5'38	1'75	6th	73	27
PLYMOUTH -	41'8	52'2	47'0	32	8th, 10th	58	1st	21	5'09	0'81	8th	64	24
JERSEY -	.	.	.	.	.	.	.	.	.	.	.	70	26
LONDONERRY -	40'0	50'2	45'1	33	9th, 21st	57	20th	23	4'50	0'68	14th	—	—
MARKREE CASTLE -	37'9	49'9	43'9	25	9th	55	1st, 3rd, 19th, 23rd.	23	4'14	0'64	11th	49	20
BROOKEBOROUGH -	37'5	49'4	43'5	29	9th, 26th	56	25th	13	3'46	0'59	14th	—	—
ARMAGH -	38'6	49'2	43'9	33	9th, 16th	57	20th	20	2'84	0'65	8th	71	28
EDGEWORTHSTOWN -	38'1	49'1	43'6	29	9th	56	19th	20	3'38	0'80	14th	—	—
DUBLIN -	42'5	50'2	46'4	34	7th	59	3rd	18	2'18	0'45	5th	74	30
PARSONSTOWN -	.	.	.	.	.	.	.	.	.	.	.	60	24
KILKENNY CASTLE -	39'2	51'1	45'2	30	8th	58	3rd	16	2'52	0'36	9th	—	—
WATERFORD -	40'2	50'8	45'5	29	8th	56	3rd	17	3'00	0'53	8th	—	—
VALENCIA -	.	.	.	.	.	.	.	.	.	.	.	66	26
KILLARNEY -	40'9	51'4	46'2	27	9th	59	23rd	21	5'30	1'16	2nd	—	—
FOYNES -	41'6	50'7	46'2	32	8th	57	2nd, 18th, 19th	21	4'45	0'53	2nd	—	—

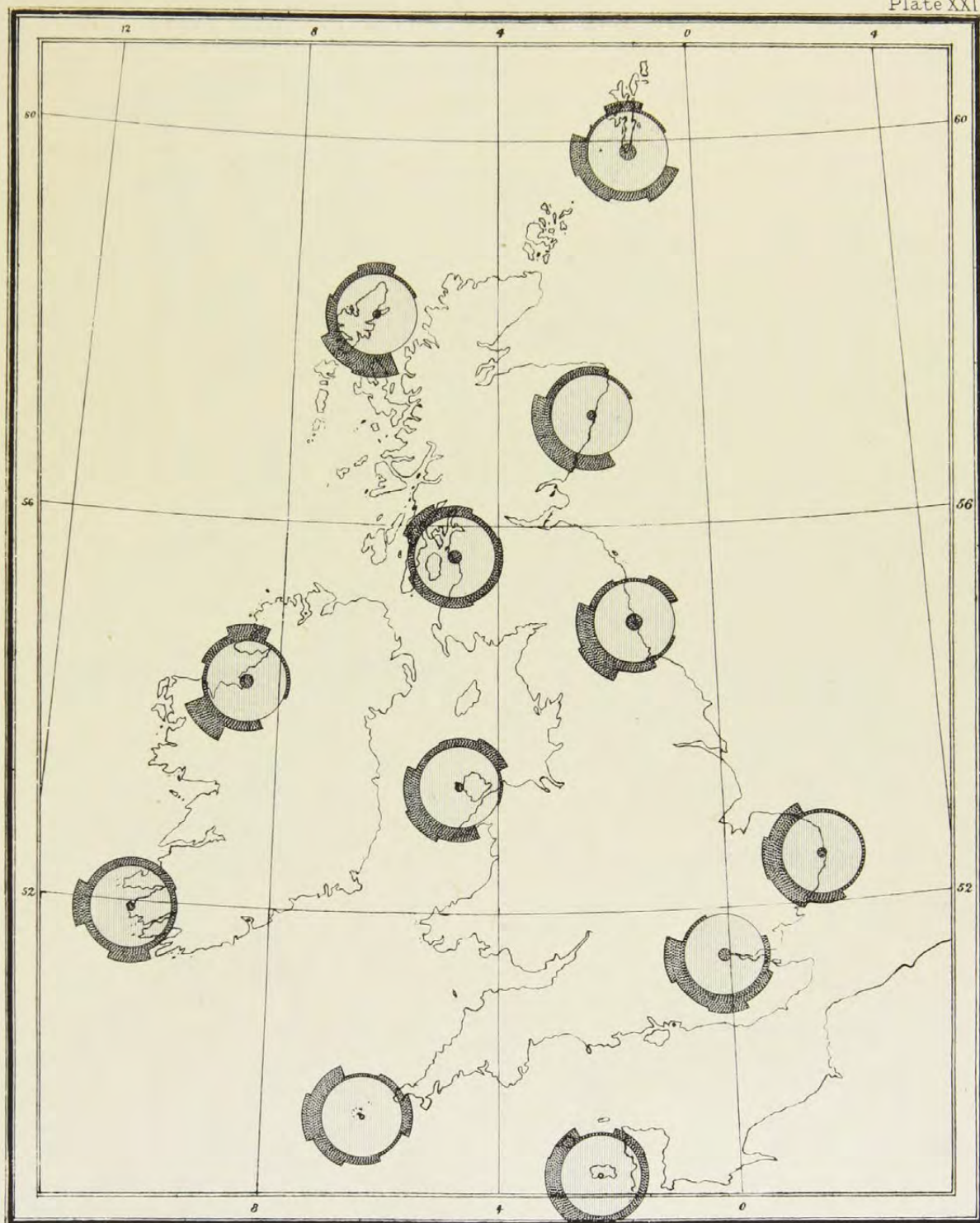
\* For information see Table XXI.

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



# MONTHLY WIND CHART FOR NOVEMBER, 1886.

Plate XXI.



To face p 128.

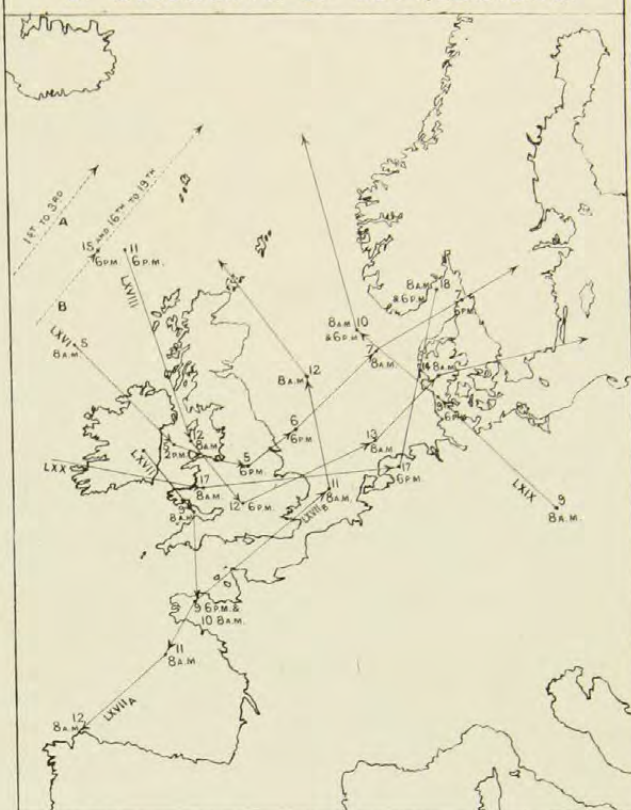
DANGERFIELD, LITH. 22, BEDFORD ST. COVENT GARDEN. 1886.



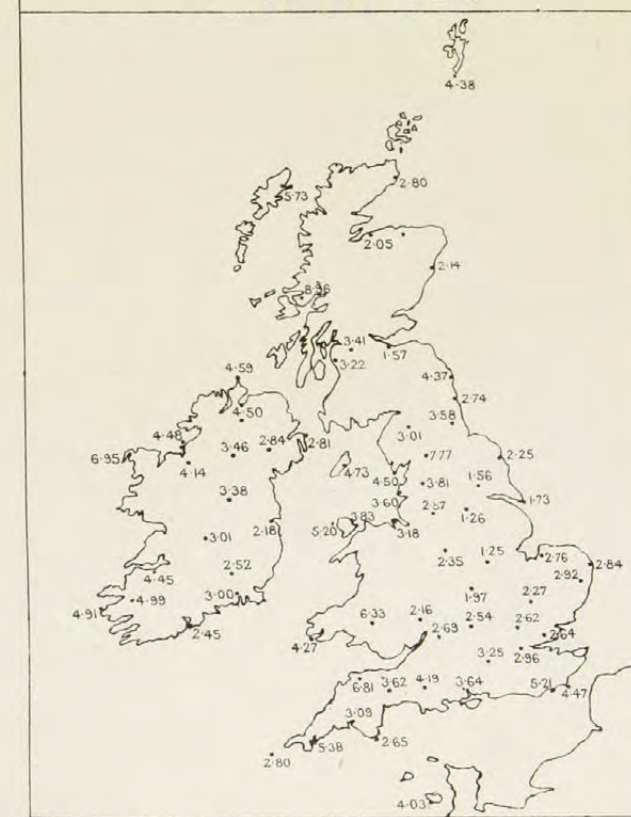




## 2. MOVEMENTS OF DEPRESSIONS.



#### 4. RAINFALL









# MONTHLY WEATHER REPORT.

DECEMBER 1886.

## SECTION I.

### GENERAL SUMMARY FOR THE MONTH.

THE weather of December was extremely changeable. Pressure was, on the whole, considerably below its normal value, but the great feature was its extraordinary range during the month, the readings varying from about 27·3 inches at some of our north-western stations on the 8th, to about 30·5 inches over England on the 31st, giving a range of about 3 inches. The depressions which passed over were very numerous, and in some cases (notably on the 8th) were exceedingly deep, while their movements (though generally north-easterly) were at times erratic in the extreme. Temperature was four to five degrees below its normal value, and its variations were frequent and large. The wind was South-westerly to North-westerly, its force high, while gales were both numerous and severe. The rainfall was large, and in the south-western and southern parts of the country the heaviest fall of snow experienced for several years occurred on the night of December 26-27.

December 1-7.—The general distribution of pressure during this week was cyclonic, and the gradients were, as a whole, favourable for the prevalence of Westerly (South-west to North-west) winds. At 8 a.m. on the 1st, pressure being then highest off our south-western coasts and the coast of Portugal, and lowest over the north of Scandinavia, a small depression (No. LXXI.\*) lay over the south-west of Sweden. North-westerly winds were consequently prevalent in the United Kingdom, and blew strongly except on our south and east coasts, accompanied by rather cold weather and passing showers of snow, sleet, hail, or cold rain in the north-west. At 2 p.m. a still smaller system (No. LXXIA.) subsidiary to the above appeared over the north of Scotland, and travelling rapidly in a South-easterly direction produced North-westerly gales in many places, and caused the snow, sleet, and rain to spread to almost all parts of the kingdom. On reaching the eastern shores of the North Sea its centre began to move north-eastwards, and finally passed out of our area on the 3rd in a track parallel and very near to that followed by its primary on the 1st and 2nd. The weather about this time was very disturbed, the chart for 8 a.m. on the 2nd showing a third system, which appeared very temporarily between Paris and Cherbourg, and apparently filled up there without advancing at all. By 8 a.m. on the 3rd all three disturbances had disappeared, and an anticyclonic ridge extended northwards from the Iberian Peninsula to Ireland and England. Temperature was very low and the weather fair. The barometer, however, was already falling in the west and north-west, and later in the day a large depression (No. LXXII.\*) advanced in a north-easterly direction outside our northern coasts to the north of Norway. Had this been alone its effect on the weather over the United Kingdom would have been slight, but it was followed immediately by a very large and elongated (or "V"-shaped) subsidiary system which passed across the British Islands on the 4th (see the Maps in the Daily and Weekly Weather Reports for this date). Temperature, which was very low on the night of the 3rd, rose fast as this system advanced, and showers of comparatively warm rain fell, accompanied by South-westerly winds; but as its central parts passed over the wind

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



shifted suddenly to North-west and North, some hail fell in places; the sky then cleared and the thermometer fell fast. Thus, while minima as low as  $19^{\circ}$  to  $22^{\circ}$  occurred in many parts of England late on the 3rd, the thermometer rose to between  $44^{\circ}$  to  $53^{\circ}$  on the following day, and fell again to several degrees below the freezing point during the succeeding night. The system soon passed off and pressure recovered, but the 6th found a new depression (No. LXXIII.\*) off the north-west of Norway, and this also was accompanied by a "V"-shaped secondary, which, however, did not extend over the United Kingdom nearly so much as that previously referred to, and consequently produced less extensive changes of temperature and wind. Its position at 8 a.m. on the 6th is shown on the Maps in the Daily and Weekly Reports for this date. Pressure was at this time highest (30.3 inches and more) over Spain and the south of France, and lowest (28.6 inches) near Christiansund, but although the subsidiary disturbance just mentioned was passing off, the barometer continued to fall generally, most in the west at first, but afterwards most in the east. Fresh to strong Westerly breezes blew in most parts of the Kingdom, with rather high temperatures, subsequently veering to North-west with colder weather. The depression off the west of Norway thus became much more extensive, but the steeper gradients about its centre spread southwards to our south-western coasts, the Bay of Biscay, and France. On the evening of the 7th the system had begun to fill up and pressure varied from 30.3 inches, and more, over the south-west of Spain to 28.5 inches off the north-west of Norway.

December 8-11.—During this period the dominant system of pressure, wind and weather was intensely cyclonic, owing to the advance directly over our area of probably the deepest depression (No. LXXIV.\*) which has ever been known to cross the British Isles. At 6 p.m. on the 7th there was no indication that the incoming disturbance would be deeper than the larger systems which commonly pass over our northern districts during the prevalence of rather steep westerly gradients. In the course of the night, however, the barometer fell with extreme rapidity, especially in the north-west, and the 8 a.m. chart of the 8th showed that pressure ranged from 30.2 inches and more over the south-west of Spain, and from 29.8 inches over the south of France, to 28.8 inches at Jersey, and to 27.5 inches off the north-west of Ireland. The barometer subsequently fell to somewhere about 27.3 inches in the north of Ireland. The centre had advanced very rapidly up to the present, but on its reaching our shores the pace of the depression slackened, and it soon showed some signs of beginning to fill up. The gradients on its southern and south-western sides were exceedingly steep (at 6 p.m. they were about 0.075 inch per 15 nautical miles over St. George's Channel), and the gales experienced were exceptionally severe. By 6 p.m. 8th the centre of the depression was not far from Kirkcudbright, and after this it began to move north-eastwards, and the indications that the system was filling up became more evident. The North-westerly gales felt on our western coasts during the afternoon of the 8th were, however, exceedingly severe, at the same time that South-westerly gales of great violence were being felt over Holland and Belgium. On the morning of the 9th the centre of the storm lay over the North Sea, some distance to the eastward of Scotland, and it was not till early on the 10th that it reached the south of Norway. At this time the barometric readings near the centre were not so low by about an inch as those observed when it first appeared over the north of Ireland, and the gradients in all directions were much reduced in steepness. Another change now took place in its movements, which became northerly, and the system finally filled up off the north-west coast of Norway during the 11th. Much cold rain fell as the storm advanced towards us, and thunderstorms occurred in several parts of the kingdom; these were followed by falls of sleet and hail as the wind veered, and subsequently by a temporary clearance of the sky and a decided decrease of temperature.

December 12-17.—The distribution of pressure over north-western Europe now became very complex, for while a new but shallow depression arrived off our north-western coasts a second high-pressure system was formed to the northward of our Islands and remained there for several days. Several depressions appeared during this interval, but as is usual under such

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



conditions, they were not so large as those previously noted, nor were their winds so strong, but the weather was very changeable and showery, and temperature very variable. The first depression (No. LXXV.\*) moved very little and irregularly, but the next one (No. LXXVA.\*), which appeared to be its secondary, showed itself first as a very shallow semi-cyclonic subsidiary, and subsequently grew into a complete and independent system, which at 8 a.m. on the 12th lay over the North Sea. (See Charts for 11th and 12th in the Weekly Weather Report.) The newly formed system then grew larger and deeper, and finally passed away to the Baltic, while the one which originally seemed to be its primary filled up over the north of Ireland. Another system then approached the mouth of the Channel from the South-westward early on the morning of the 13th, and at 6 p.m. its centre lay near the Eddystone, causing Westerly gales in France, while Easterly winds prevailed over Ireland and Wales. This system then filled up quickly, and it has not been deemed necessary to show its track on Map 2. It was, however, immediately succeeded by another disturbance which reached the south-west of Ireland early on the 14th; causing Easterly gales in Ireland north, while the Westerly winds on our south-western coasts were not so strong. Like its predecessor, however, the new depression filled up (over the west of Ireland), while yet another one (No. LXXVI.\*) came quickly towards the Scilly Islands on the same evening, and, moving briskly, reached the Bristol Channel and South Midland counties of England by the following morning (see Daily and Weekly Reports for the 15th). A great deal of rain fell, and lightning was seen on our south-western coasts. The centre then continued its movement in a north-easterly direction, reaching Denmark by the morning of the 16th and passing out of our area to Finland by the following morning. In its rear the barometer rose quickly, and some improvement occurred in the weather, which, however, remained in a very unsettled state. Two other small and shallow depressions appeared early on the 16th, one at the mouth of the Channel, and the other near Biarritz. Their movements were slight and erratic, and during that day and the 17th they dispersed. The high-pressure area in the north-west then began to move southwards down the Irish Coast, the distribution of pressure became simpler, temperature decreased, snow fell in the north and west, and an entirely new type of weather set in.

December 18-21.—The distribution of pressure now became mainly anticyclonic in the west; at first the type of gradient was northerly, and cold breezes from that quarter set in, accompanied by showers of sleet and snow. Gradually, however, the system spread more over us and the weather began to improve, first in the west, and afterwards in the east. At 8 a.m. on the 20th the form of the isobars had become distinctly anticyclonic over Scotland and Ireland, and during the ensuing 24 hours the anticyclonic system advanced over us from the westward. The wind lulled to a calm, temperature became very low, as the central area passed over, and a great deal of fog prevailed over England. South-westerly and Southerly breezes then appeared at the western stations, and these spread rapidly over the country, while the Northerly wind current (which had spread South-eastwards to France and Germany) gave way.

December 21-28.—The changes just referred to soon brought about a prevalence of cyclonic systems and south-westerly gradients; as usual, large depressions began to pass by our north-western and northern coasts in a north-easterly direction, while secondary disturbances travelled over the more southern parts of our area. Two of the depressions, however, deserve more than a passing notice. The first (No. LXXVII.) reached the north of Ireland early on the 22nd. It was an elongated system (see chart for 8 a.m. on that day, in the Daily and Weekly Reports) and was moving in the direction of its minor axis. This state of things continued apparently till about noon, when the system broke into two parts, one of which moved north-eastward, northwards, and north-westwards, and apparently filled up a little to the north-westward of the Shetlands, while the other travelled south-eastwards to Holland, and then moving north-eastwards dispersed near Wisby. The second disturbance (No. LXXVIII.) deserving special note appeared off our south-western coasts early on

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



December 26, and at that time appeared to be an ordinary system of moderate size and little depth. As it advanced to the eastward, however, it grew much deeper, so that at 6 p.m. (when its centre lay midway between Prawle Point and Cherbourg) its minimum pressures were about 29·0 inches, and South-easterly to North-easterly gales prevailed over the southern half of England. The South-easterly gales and strong winds brought with them rain, but as the wind backed round to North-east there occurred a fall of very adhesive snow, heavier than any which has been experienced over the same neighbourhood for very many years, not excepting the fall of 18th January 1881. Its effect, in combination with the gale from North-east, was to wreck completely the overhead telegraphic wires for several miles round London, as well as over the greater part of the south and south-west of England, while at the same time France was being visited by a severe Westerly gale and much rain. By 8 a.m. on the 27th, the centre of the storm had reached Holland, whence it moved north-eastwards to the mouth of the Elbe, and there filled up, while calms and a sharp frost occurred over England. The other disturbances presented no features worthy of special note, excepting the continued tendency to develop "V"-shaped subsidiaries on their southern or south-western side, and the prevalence of this type came to an end on the 29th by the advance of the anticyclonic system No. XXIX. from the south-westward.

December 29.—The conditions on this day were transitional. Moderate to slight gradients for North-westerly winds were general, and moderate breezes from that quarter, with some local showers of cold rain or sleet occurred in the west and north; in the latter region a bright aurora was observed. The barometer, however, rose fast, and as the gradients became more northerly, the wind veered, and temperature fell.

December 30, 1886, to January 2, 1887.—The distribution of pressure during this time was anticyclonic as the system No. XXIX. advanced over the kingdom in an easterly direction. The weather consequently became very quiet and cold, at first with Northerly winds, calms, and fogs, and afterwards with Southerly and South-westerly airs and fine weather. The frosts experienced at the inland stations on the nights of the 30th and 31st were very sharp, but after that time the thermometer rose a little and the South-westerly breeze became more general.

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## SECTION II.

## TABLE OF CYCLONIC SYSTEMS, DECEMBER 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. LXXI. December 1-2.	No. LXXII. December 3-4.	No. LXXIII. December 6.
Form - - -	Somewhat oval - - -	Uncertain, and variable -	Apparently about circular.
Size -	Moderate - - -	Large - - -	Large.
Depth - - -	Moderate - - -	Moderate - - -	Deep.
Where first Observed - -	Over the south of Scandinavia, near Christiania.	Off the west of Norway - - -	Off the west of Norway.
Direction of Motion - -	About north-north-east - -	Easterly, and variable (see remarks below).	North-easterly.
Rate of Motion - - -	Slow - - -	Slow - - -	Apparently moderate.
Regions passed over by Steepest Gradients.	North Sea, Denmark, the Sound, and south-western parts of the Baltic.	Scotland and the North Sea - -	The northern parts of the British Isles, the North Sea, and Denmark.
Termination - - -	Passed away to the North-eastward -	Apparently dispersed over Norway -	Travelled away to the northward.
Time under Observation -	About 24 hours - - -	About one day - - -	Less than one day.
Accompanying Winds - -	North-westerly to Northerly in our Islands and in the North Sea, strong to a gale (see remarks below).	South-westerly to North-westerly; moderate to strong.	Westerly over our Islands and the North Sea, Easterly in the north of Norway.
" Weather -	Squally and unsettled; showers of cold rain sleet and hail.	Squally, with rain and sleet showers. Temperature changing suddenly.	Mild, squally, and showery, in the north at first, and subsequently in the south also.
" Rainfall -	General, rather heavy in east of Scotland.	General - - -	General; not heavy.
REMARKS - - -	<p>This system appears to have been formed when pressure was highest off our south-western coasts, lowest over and to the northward of Lapland, and recovering generally.</p> <p>A deep subsidiary system (No. LXXIA. on Map 2), came towards Scotland during the 1st, and passing south-eastwards reached the neighbourhood of Fano early on the 2nd, after which it moved north-eastwards towards Stockholm and dispersed.</p> <p>Another shallow subsidiary appeared over the north of France on the 2nd, and dispersed over Brittany a few hours later.</p>	<p>This system was accompanied by an elongated "V"-shaped subsidiary which passed over the United Kingdom on the 4th, causing very sudden changes of temperature and sharp showers. Before the main disturbance appeared there seemed to be another depression approaching the south-west of Ireland from the south-westward (see Chart for 8 a.m. 3rd), but this dispersed in the course of the morning.</p> <p>Pressure remained (relatively) high over France throughout. Gradients were never steep.</p>	<p>This system appeared when pressure was highest over south-western Europe and lowest to the northward of our Islands. Its track lay very far to the northward, and its winds were consequently not severe in any part of the United Kingdom.</p>



## SECTION II.

TABLE OF CYCLONIC SYSTEMS.—DECEMBER 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. LXXIV. December 8-11.	No. LXXV. December 11-12.	No. LXXVa. December 11-13.
Form	Somewhat oval, but rather irregular	Somewhat circular, but irregular	Somewhat oval, but irregular
Size	Very large	Large to moderate	Very small to large
Depth	Exceptionally deep; lowest readings recorded were about 27·3 inches.	Shallow	Very shallow to deep
Where first Observed	Off the north-west of Ireland	Off our north-west coasts	Between Wales and the east of Ireland.
Direction of Motion	Easterly till centre reached the North Sea, then east-north-easterly, and finally northerly.	South-easterly	North-easterly and easterly
Rate of Motion	Moderate to slow and very slow	Very slow	Very variable. Moderate to very slow, then moderate again.
Regions passed over by Steepest Gradients.	Ireland and England, especially the south-western parts. Gradients about 0·075 in. per 15 nautical miles.	Ireland. Gradients never steep	England, Holland, and North Germany.
Termination	Passed away to northward, filling up it did so.	Dispersed over the North Channel	Travelled to the Baltic and filled up.
Time under Observation	About three days	Nearly two days	About three days
Accompanying Winds	South-easterly and Easterly gales to northward of its centre; violent South-westerly to North-westerly gales to the southward. Wind moderating slowly as system began to fill up.	Southerly and South-easterly over Great Britain; South-westerly to Westerly over greater part of Ireland.	Easterly; moderate on its northern side. Westerly; strong to a gale on its southern side.
Weather	Exceedingly rough and wild over Ireland, Wales, England, and the Channel. Much rain, snow, and hail.	Rainy, squally, unsettled	Rainy, squally, and very unsettled
Rainfall	General and heavy in many places	General; heavy in some places	General; heavy in some places
REMARKS	<p>This was the deepest system experienced for many years, in fact there is no authentic record of readings so low occurring in these Islands as those which were registered over our north-western districts as the centre advanced. The cyclonic circulation of the wind was complete, but the gradients and Easterly winds to the northward of its track were nothing like so severe as those to the southward.</p> <p>The storm seems to have advanced very quickly till it reached Great Britain, after which its movements slackened and the system began to fill up.</p> <p>This system appeared in the north-west, while the depression No. LXXIV. was dispersing off the north-west of Norway. It apparently advanced from the south-westward, but on reaching our neighbourhood its movements became very erratic and the system soon dispersed. While it lasted, however, a shallow secondary system was formed over St. George's Channel (see 6 p.m. chart of 11th in Weekly Weather Report). This moved eastwards, and on reaching the North Sea, grew into a well formed disturbance LXXVa., which subsequently moved eastwards to the Baltic.</p> <p>This system, in connexion with its primary, formed a kind of trough at 8 a.m. on the 12th (see Daily and Weekly Reports), and separated the high-pressure area over southern Europe from another which lay over the extreme north of our area. Such a distribution of pressure always produces much rain, changeable winds, a very unsettled appearance of the sky, and often local thunderstorms.</p> <p>See Section I, pp. 131, for an account of the disturbances which immediately followed this one.</p>		



SECTION II.—*continued.*

TABLE OF CYCLONIC SYSTEMS.—DECEMBER 1886.

No. LXXVI. December 15-17.	No. LXXVII. December 22-24.	No. LXXVIII. December 26-27.
Elongated, and at times nearly oval - - -	Elongated; major axis lying south to north -	Somewhat oval.
Moderate to large - - - - -	Moderate - - - - -	Large.
Moderate - - - - -	Moderate - - - - -	Moderate.
Approaching the Scilly Islands from the south-westward.	Over north of Ireland - - - - -	To the south-westward of the British Isles.
North-easterly, but varying at times - -	North-easterly till afternoon of 22nd, then very variable (see notes below under heads of "Termination" and "Remarks.")	Easterly and north-easterly.
Moderate to slow - - - - -	Moderate - - - - -	Moderate to slow.
British Isles, France, and North Sea - -	British Islands - - - - -	Southern part of the British Isles, the Channel, and north of France.
Travelled away to Gulf of Finland and northern Russia.	Broke into two portions: one filled up off north of Scotland, the other moved south-eastward to Holland, and then north-eastward to the Baltic.	Filled up near the mouth of the Elbe.
About three days - - - - -	About three days - - - - -	Two days.
North-easterly, fresh to a moderate gale on its northern side: South-westerly gales and strong winds in its south-eastern and southern segments.	Southerly (South-east to South-west), fresh to a gale at first, then Westerly gales to North-westerly, moderate.	South-easterly to North-easterly, strong to a strong gale over England; South-westerly to North-westerly strong gales in the south (i.e. over France).
Rainy and squally, hail in north, lightning in south-west.	Very rainy in west at first, then showery and changeable.	Exceedingly heavy snow with the North-easterly and Northerly gales. Much rain in France with the Westerly winds.
General and heavy in several places - -	Heaviest in west as the disturbance advanced -	(Chiefly snow.) Heaviest over the south-western and southern counties of England, where from 1'5 to 3'5 inches of water fell, as snow in a few hours.
This depression advanced towards our south-western coast just when another one was filling up off the west of Ireland, at which time there were two high-pressure systems, one over the northern, and the other over the southern parts of our area. The weather was consequently very unsettled, though the winds were less strong than might have been expected. Subsidiary systems appeared over the Bay of Biscay on the 16th, one of which moved northward. (See Daily and Weekly Reports for these dates.)	This system appeared to be (at first) subsidiary to another large depression, the centre of which moved north-eastwards at a great distance outside our extreme north-western coasts on the 21st. It subsequently moved entirely independently of any such system, and its breaking up over the N.W. of our Islands into two parts, which followed such widely divergent tracks, is somewhat remarkable.	This system apparently grew much deeper as it advanced towards the Channel. Its gales were strong, and together with the heavy fall of dense "clinging" snow, wrecked most of the telegraph wires over the southern half of England, especially those in London and for 30 miles round. The system finally dispersed near Cuxhaven on the night of the 27th.



SECTION II.—*continued.*

TABLE OF ANTICYCLONIC SYSTEMS.—DECEMBER 1886.

NATURE OF CHARACTERISTICS OBSERVED.	No. XXVII. December 3-5.	No. XXVIII. December 19-21.	No. XXIX. December 30—January 2.
Form . . . . .	Uncertain, somewhat oval about the centre.	Varying; very elongated on 21st	Elongated. Major axis lying from south-west to north-east.
Size . . . . .	Large . . . . .	Apparently small . . . . .	Small.
Height . . . . .	Small. Max. readings rather above 30°3 inches on 5th.	Small. Max. readings 30°4 inches on 21st.	Moderate. Max. readings 30°5 inches and upwards on 31st.
Where first Observed . . . . .	Over Spanish Peninsula . . . . .	Off the west of Ireland . . . . .	Off the west of Ireland.
Direction of Motion . . . . .	North-easterly at first; then very irregular, and finally southerly.	South-easterly till the system reached France, when it was dispersed by depression No. LXXVII.	Eastwards and south-eastwards.
Rate of Motion . . . . .	Very fitful and irregular . . . . .	Slow . . . . .	Slow.
Regions passed over . . . . .	Peninsula and France . . . . .	Ireland, England, and France . . . . .	British Isles, North Sea, and France.
Termination . . . . .	Travelled away to southward again. (See "Remarks" below.)	Broke up on 22nd . . . . .	Apparently broke up over the south-east of France.
Accompanying Wind . . . . .	Light and very variable . . . . .	Northerly and North-easterly as system approached, South-west in its rear.	North-westerly and Northerly as the system advanced, South-easterly and Southerly in its rear.
" Weather . . . . .	Fine and cold over France and Spain, but not settled owing to movements of centre.	Fine or foggy and very cold: temperature as low as 14° at Parsonstown and 18° at Cambridge on morning of 20th.	Fine generally, but cold and foggy. Hard frost each night.
REMARKS . . . . .	This system which on the night of the 3rd lay completely over France and Spain, was temporarily displaced by the "V"-shaped subsidiary which accompanied the depression No. LXXII. as it passed over, but was re-established in its rear. It then moved southwards and the cyclonic systems of the middle part of the month began to advance.	This system advanced from the westward in the rear of several small shallow depressions which had prevailed between the 17th and 20th. Its break up was very sudden and complete.	This system advanced immediately in the rear of the cyclonic systems which passed by our north-western coasts on the 28th. Its intensity was greatest on the 31st, when its central area lay completely over our Islands and the North Sea. On reaching the Continent two distinct minima were formed, and subsequently the whole system broke up.



## SECTION III.

REMARKS FOR DECEMBER 1886.

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

*Pressure.*—The mean pressure of the air, at 8 a.m., varied from a little above 29·75 inches at the mouth of the Channel and off the extreme south of Ireland, to 29·55 inches at Ardrossan and Shields, and to 29·40 inches at Sunburgh Head. The gradients were consequently favourable for winds of moderate average strength, coming mainly from the Westward. Compared with the values for the preceding month they show a general decrease, amounting to about 0·20 in. over the Channel, and to about 0·25 in. in the extreme north and north-east, while the gradients are favourable for winds from a more Westerly point than those in November. When compared with the averages for the 20 years 1861–80 the values for this month show a deficit of three to four tenths of an inch, the difference being rather greater at the northern and north-eastern stations than elsewhere. The highest readings occurred very generally on the 30th or 31st, at which time the anticyclone No. XXIX. was passing over the kingdom, and the maximum readings exceeded 30·5 inches in most places. The lowest readings were registered everywhere on the 8th, during the passage of the exceptionally deep depression No. LXXIV. Thus the range amounted to about 3 inches or more over the north of Ireland, and was remarkable, though less, over our southern and south-eastern counties, where it exceeded 2 inches.

*Movements of Depressions.*—These were on the whole north-easterly. Two of them passed in about a north-north-easterly direction at a considerable distance to the north-westward of the Hebrides, while one moved in a nearly easterly direction over the Channel and our south-eastern counties. The very deep depression (No. LXXIV.\*), which passed over the United Kingdom on the 8th, moved at first in an almost easterly direction, but afterwards travelled north-eastwards and northwards. One (No. LXXVII.\*) moved north-eastwards at first, but subsequently broke into two parts, one of which travelled northwards and north-westwards, and dispersed near the Orkneys, while the other travelled south-eastwards to Holland and then north-eastwards to the Baltic. Some of the disturbances filled up before passing out of our neighbourhood, while others were first formed within the same area and passed away as well-formed systems.

*Anticyclones.*—Only three of these systems advanced sufficiently within our area of observation for their characteristics to be tabulated in Section II., and even these were not of a very permanent type. It was evident, however, that during a large portion of the month one or more of such systems lay within a short distance of us. On one occasion (viz., just prior to the approach of the depression No. LXXVIII.\*) a very small and temporary anticyclonic system was developed off our extreme north-western coasts, but this dispersed rapidly as the cyclonic system came on.

*Winds.*—These were chiefly North-westerly (West to North), but at the southern stations there was a considerable intermingling of winds from South-west and on our western coasts from North-east. In force they were very variable, some of the gales being exceedingly severe, while on other occasions dead calms were prevalent, especially at Nairn and Parsonstown.

*Temperature.*—The mean (sea-level) temperature of the month varied from less than 34° over central Scotland, and a little below 35° over the northern part of Norfolk, and over the northern counties of England and the south of Scotland, and from rather below 36° over

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



the north midland counties of Ireland to between  $37^{\circ}$  and  $41^{\circ}$  off our extreme north-western coasts, nearly  $44^{\circ}$  off the south of Ireland and at the mouth of the English Channel, and to nearly  $46^{\circ}$  at the Scilly Isles. The winter type of distribution was very clearly defined, the values for the inland counties of England being about  $2^{\circ}$  lower than those on our north-east coasts, and from  $7^{\circ}$  to  $11^{\circ}$  lower than those in the west, while in Ireland the inland temperatures over the northern half of the country were about  $8^{\circ}$  lower than those for the south-western coasts, and more than  $3^{\circ}$  lower than those near Kingstown. The values for the present month when compared with those for November show a decrease during the month of no less than  $10^{\circ}$  over Scotland, of  $8^{\circ}$  to  $9^{\circ}$  over central Ireland, and of  $7^{\circ}$  to  $8^{\circ}$  over the inland parts of England, while on our south-western coasts the fall has been about  $6^{\circ}$ . When compared with the average values for December in the 20 years 1861-80, they show a deficit of about  $4^{\circ}$  over most of the inland districts, but of only  $2^{\circ}$  on our extreme south-western coasts. The highest readings were recorded very generally between the 4th and 6th, at which time gradients for Westerly winds were prevalent, and while large depressions were moving in an easterly or north-easterly direction outside our extreme north-western and northern coasts, "V"-shaped subsidiaries on their southern sides travelled across the United Kingdom. It was in the front of one of these that the maxima occurred. The lowest values were recorded in most places on or about the 20th or 21st when the anticyclone No. XXVIII. was advancing over the kingdom from the Atlantic. Neither of the extremes were very great over England, and the consequence was that the range for the month in that country was, as a rule, small. Over the central and northern parts of Ireland, however, the minima were very low ( $6^{\circ}$  to  $13^{\circ}$ ), and the range in those districts amounted to  $45^{\circ}$  in several places.

*Tension of Vapour.*—This varied from about 0.25 in. on our extreme south-western coasts, and from about 0.19 in. over central Ireland and 0.17 in. over central England, to 0.15 in. in the east of Scotland, where it was lowest. In the Hebrides the mean value was 0.19 in., and at Sumburgh Head 0.18 in. *Relative Humidity*, however, varied from rather above 90 per cent. over the central parts of Ireland and England, our eastern counties and the west of Scotland, to only 83 per cent. at Scilly and at Aberdeen, to 85 per cent. at Oxford and to 88 per cent. in London.

*Rainfall.*—This was in excess of the average at all stations, but less so at some of those over the north-eastern parts of the Kingdom and more so in the extreme north-west than elsewhere. The aggregate amounts measured varied from 9.47 inches at Laudale (Loch Sunart), 8.80 inches at Hawes Junction, 8.44 inches at Falmouth, and upwards of 7 inches at Valencia, Douglas (Isle of Man), Llandoverly, Falmouth, and Southampton, to 2.10 inches at Leith, 2.77 inches at Nairn, and 2.38 inches at Ardrossan. The greatest falls in one day were 2.88 inches at Southampton and 2.46 inches at Stowell, 1.87 inches at Plymouth, 1.85 inches at Falmouth, and 1.82 inches in London, all of which occurred during the memorable snowstorm of the 26th and 27th, while in numerous other places the amounts exceeded 1 inch. At many of the western stations, however, the gale of the 7th-8th brought with it rainfall exceeding an inch in depth, and these localities were not much affected by the snowstorm already referred to. The number of rainy days was very large, varying from 30 at Stornoway and Malin Head and Markree Castle, 29 at Wick, Belmullet, and Valencia, and 27 at Sumburgh Head and Scilly, to only 15 at Alnwick Castle, Shields, Strathfield Turgiss, and Edgeworthstown, 16 at Leith, Stonyhurst, and Churchstoke.

*Bright Sunshine* was deficient in some localities, but rather above its average value for the time of year in many others. Assuming that the total amount which could possibly have been recorded at each station during the month be represented by 100, then the amounts actually recorded varied from 37 at Durham, from between 34 and 36 along the south-western and southern coasts of England, and from 32 at Geldeston, 31 at York, Douglas, and Oxford, and 30 at Jersey, to 19 at Armagh, 18 at Glasgow, 16 at Markree and Stornoway, 15 at Leicester, and 14 in London.



**SUMMARY OF THE METEOROLOGICAL OBSERVATIONS**

MADE AT

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

**DURING THE MONTH OF DECEMBER 1886.**



TABLE XXIII. -

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

NAMES OF DISTRICTS.	NAMES OF STATIONS.	Mean Height of Barometer (at 32° Fahrenheit and Mean Sea Level) from Observations made at 8 a.m.	AIR TEMPERATURE.							
			At 8 a.m.	Means of			Absolute Extremes.			
				Minima.	Maxima.	Min. and Max. combined.	Minimum.	Date.	Maximum.	Date.
0. SCOTLAND, N.	Sumburgh Head - - -	ins. 29° 395	35° 9	31° 7	39° 9	35° 8	23	17th	46	5th
	Wick - - -	29° 473	33° 8	27° 3	38° 5	32° 9	16	20th	44	5th
	Stornoway - - -	29° 514	35° 9	30° 1	40° 0	35° 1	22	21st	48	4th
1. SCOTLAND, E.	Nairn - - -	29° 489	33° 6	27° 8	38° 6	33° 2	15	17th	54	5th
	Aberdeen - - -	29° 497	32° 4	27° 3	37° 4	32° 4	12	20th, 21st	43	5th, 6th
	Leith - - -	29° 538	35° 0	30° 8	40° 3	35° 6	22	21st	52	5th
2. ENGLAND, N.E.	Shields - - -	29° 552	34° 8	29° 9	40° 4	35° 2	19	21st	54	5th
	York - - -	29° 603	33° 5	29° 2	40° 1	34° 7	19	21st	52	5th
	Spurn Head - - -	29° 580	36° 9	32° 8	40° 6	36° 7	25	18th, 22nd	50	6th
3. ENGLAND, E.	Yarmouth - - -	29° 622	35° 4	30° 9	40° 0	35° 5	21	3rd, 4th, 22nd	51	6th
	Cambridge - - -	29° 668	34° 0	28° 8	41° 1	35° 0	18	20th	55	6th
4. MIDLAND COUNTIES	Loughborough - - -	29° 641	33° 4	29° 9	40° 8	35° 4	17	21st, 22nd	55	6th
	Oxford - - -	29° 693	35° 0	31° 5	41° 7	36° 6	20	20th	54	6th
5. ENGLAND, S.	London - - -	29° 690	35° 8	31° 4	43° 1	37° 3	19	22nd	54	6th
	Dungeness - - -	29° 686	38° 2	32° 8	45° 1	39° 0	19	4th	52	6th, 14th
	Hurst Castle - - -	29° 721	39° 0	33° 9	45° 5	39° 7	23	3rd	52	6th, 7th, 11th, 12th.
6. SCOTLAND, W.	Ardrossan - - -	29° 553	37° 7	32° 4	42° 5	37° 5	21	20th	51	5th
7. ENGLAND, N.W.	Hawes Junction* - - -	28° 338	31° 0	26° 6	35° 3	31° 0	13	18th	47	5th
	Barrow-in-Furness - - -	29° 594	37° 3	33° 3	41° 6	37° 5	23	21st	51	5th
	Liverpool - - -	29° 624	37° 2	33° 9	41° 9	37° 9	21	21st	54	5th
	Holyhead - - -	29° 634	41° 7	38° 2	45° 1	41° 7	32	18th, 21st, 31st.	53	5th
8. ENGLAND, S.W.	Pembroke - - -	29° 603	42° 5	38° 5	46° 0	42° 3	29	18th	53	5th
	Prawle Point - - -	29° 754	40° 3	35° 3	47° 3	41° 5	26	20th	53	4th
9. IRELAND, N.	Malin Head - - -	29° 564	38° 9	35° 4	42° 9	39° 2	31	2nd, 18th, 20th, 21st.	50	4th, 5th
	Donaghadee - - -	29° 598	37° 5	32° 4	42° 4	37° 4	24	18th, 21st	52	5th
	Mullaghmore - - -	29° 619	40° 0	34° 6	43° 4	39° 0	23	21st	52	5th
	Belmullet - - -	29° 649	41° 1	36° 6	44° 0	40° 3	30	18th	52	5th
10. IRELAND, S.	Parsonstown - - -	29° 691	34° 9	30° 2	41° 8	36° 0	13	21st	53	5th
	Valencia - - -	29° 743	42° 9	39° 2	48° 1	43° 7	24	20th	54	5th
	Roche's Point - - -	29° 739	40° 6	36° 0	46° 2	41° 1	26	21st	55	5th
CHANNEL ISLANDS	Seilly (St. Mary's) - - -	29° 748	46° 2	41° 6	48° 9	45° 3	32	20th	54	6th
	Jersey (Noirmont) - - -	29° 777	43° 2	39° 3	47° 2	43° 3	32	20th, 21st	53	5th

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



TABLE XXIII.

REPORTING STATIONS in the BRITISH ISLANDS, during the Month of December 1886.

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

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

TENSION OF VAPOUR.	RELATIVE HUMIDITY.		AMOUNT OF CLOUD.	RAINFALL.		WEATHER, No. of Days of							WIND, No. of Observations of									
				Total Fall in the Month.	Maximum Fall in One Day.	Date.	Rain.	Snow.	Hail.	Thunderstorms.	Clear Sky.	Overcast.	Gales.	North.	N.E.	East.	S.E.	South.	S.W.	West.	N.W.	Calms.
ins.	%		ins.	ins.																		
0'181	86	7'3	4'68	0'93	22nd	27	10	1	0	5	16	2	11	5	1	0	4	3	3	1	3	
'168	86	7'4	4'36	0'70	8th	29	12	2	0	1	13	4	6	2	3	1	3	3	7	6	0	
'190	90	6'6	8'84	0'95	8th	30	16	12	0	6	12	10	5	3	3	1	2	2	6	9	0	
'171	88	6'5	2'77	0'44	8th	22	9	0	1	4	12	1	3	0	1	0	1	7	5	3	11	
'153	83	4'7	4'23	0'89	22nd	20	12	3	0	13	8	3	5	0	0	1	1	6	9	8	1	
'182	89	6'0	2'10	0'54	11th	16	3	0	1	8	9	1	2	1	0	2	1	1	17	6	1	
'172	85	6'4	3'26	0'98	11th	15	6	1	0	6	12	5	2	1	1	0	3	9	11	3	1	
'172	90	5'5	3'16	0'50	12th	18	3	0	0	12	13	0	6	0	1	0	8	3	8	5	0	
'201	92	3'8	3'65	1'00	14th	23	3	0	0	11	3	7	2	0	1	2	4	5	9	8	0	
'186	90	4'1	3'22	0'92	26th	19	4	0	1	11	4	6	3	1	1	0	3	4	10	9	0	
'178	90	5'0	3'20	1'09	26th	18	4	0	0	14	10	1	4	1	0	0	6	7	6	7	0	
'175	92	6'4	3'52	0'65	14th	19	8	1	0	7	14	6	1	0	5	2	3	3	10	5	2	
'174	85	5'4	4'58	1'46	26th	18	3	1	0	13	11	1	2	1	0	2	2	7	10	3	4	
'184	88	6'0	4'72	1'82	26th	20	5	2	1	11	15	6	1	0	0	1	5	5	11	5	3	
'216	94	6'8	4'95	0'86	26th	20	6	1	2	4	13	5	6	1	1	0	1	4	11	7	0	
'222	94	5'2	5'71	1'64	26th	23	0	3	0	11	8	8	4	4	0	1	0	5	10	7	0	
'213	95	5'7	2'38	0'48	22nd	18	3	3	1	11	13	6	4	7	3	0	1	3	5	7	1	
'169	97	6'2	8'80	1'61	11th	24	12	2	0	10	17	1	3	3	1	3	4	7	7	2	1	
'195	87	6'0	4'88	0'65	11th	22	1	1	0	3	10	5	8	7	0	2	2	3	4	5	0	
'187	84	5'9	3'80	0'41	6th, 11th	24	5	8	2	10	12	3	2	2	2	4	2	5	7	7	0	
'224	86	6'3	5'13	0'77	21st	23	3	3	0	3	7	6	4	3	2	0	3	6	2	6	0	
'244	90	6'1	5'54	0'75	9th	22	3	0	0	3	7	8	1	5	5	1	1	4	4	10	0	
'227	92	5'6	5'39	1'04	13th	24	1	3	0	10	9	6	6	2	1	0	2	6	7	7	0	
'211	90	9'2	4'20	0'82	23rd	30	5	9	1	1	25	3	6	3	2	0	5	3	4	8	0	
'205	91	4'1	4'26	0'71	7th	24	5	0	0	13	4	7	2	4	2	0	0	4	15	4	0	
'213	86	7'1	6'70	0'69	7th	26	5	10	1	3	7	13	3	4	2	3	1	5	4	9	0	
'214	83	7'1	5'88	1'01	7th	29	6	1	0	5	17	4	6	2	2	2	1	4	6	8	0	
'185	91	5'9	4'86	0'98	7th	20	2	1	0	7	10	0	0	0	1	1	1	9	4	1	14	
'246	89	7'0	7'62	1'08	7th	29	3	3	0	3	11	5	4	3	3	2	0	4	5	7	3	
'223	89	5'2	5'78	0'95	21st	22	1	0	0	12	8	3	4	2	1	0	1	3	9	11	0	
'257	83	8'5	5'93	1'23	26th	27	0	6	2	0	17	13	6	1	2	3	2	4	5	8	0	
0'247	88	6'9	6'54	0'78	26th	28	7	12	3	4	13	8	4	4	2	2	2	7	5	5	0	

barometrical observations at this station are not reduced for altitude.



TABLE XXIV.

OBSERVATIONS of TEMPERATURE, RAINFALL, and BRIGHT SUNSHINE, obtained from the VALUES supplied for use in the WEEKLY WEATHER REPORT during the Month of December 1886.

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	*	*	*	*	*	*	*	*	*	*	*	31	16
ABERDEEN	*	*	*	*	*	*	*	*	*	*	*	56	28
ALNWICK CASTLE	30.7	38.2	34.5	18	20th	50	5th	15	3.45	1.03	11th	—	—
DURHAM	29.6	38.6	34.1	12	27th	52	6th	19	3.55	1.06	15th	79	37
SCARBOROUGH	32.4	39.9	36.2	23	18th	52	6th	22	4.07	0.79	11th	—	—
YORK	*	*	*	*	*	*	*	*	*	*	*	70	31
HILLINGTON	28.8	39.5	34.2	17	20th, 21st	51	6th	23	4.03	0.82	14th	60	26
GELDESTON	29.6	40.9	35.3	15	3rd	53	6th	20	3.36	1.00	26th	76	32
CAMBRIDGE	*	*	*	*	*	*	*	*	*	*	*	61	26
ROTHAMSTED	30.0	41.2	35.6	16	31st	53	6th, 7th	21	4.12	1.15	26th	—	—
INGATESTONE	30.0	40.8	35.4	15	20th	53	6th	21	3.65	1.01	26th	—	—
BAWTRY	30.0	39.6	34.8	18	21st	52	5th	17	3.77	0.80	14th	†61	27
LEICESTER	30.5	40.5	35.5	19	21st	54	6th	19	3.67	0.89	14th	35	15
CHIDDLE	29.5	39.3	34.4	20	18th	51	6th	20	3.97	0.56	14th	—	—
CHURCHSTOKE	30.6	42.0	36.3	16	21st	53	5th, 6th	22	5.55	1.01	8th	68	30
HEREFORD	30.7	43.0	36.9	17	21st	56	6th	20	3.76	0.82	26th	—	—
CIRENCESTER	29.2	42.2	35.7	13	31st	53	6th, 8th	16	4.22	1.33	26th	82	35
OXFORD	*	*	*	*	*	*	*	*	*	*	*	73	31
LONDON	*	*	*	*	*	*	*	*	*	*	*	34	14
STRATHFIELD TURGIS	30.0	42.4	36.2	17	20th, 31st	54	6th, 7th	15	4.14	1.18	26th	—	—
HASTINGS	33.0	43.3	38.2	21	22nd	53	6th	25	5.54	0.86	26th	87	36
SOUTHAMPTON	33.0	43.2	38.1	23	3rd, 19th	56	6th	21	7.08	2.88	26th	86	36
STOWELL	31.6	42.6	37.1	20	22nd	53	6th	23	6.76	2.46	26th	—	—
LAUDALE	30.6	40.6	35.6	19	20th	54	5th	24	9.47	1.21	21st	—	—
GLASGOW	30.4	38.0	34.2	19	20th	51	6th	16	3.33	0.47	22nd	37	18
DOUGLAS	33.3	43.3	38.3	22	21st	52	5th, 6th	23	7.46	1.24	21st	70	31
NEWTON REIGNY	27.7	38.0	32.9	11	21st	52	5th, 6th	23	4.99	1.23	11th	54	25
STONYHURST	30.0	39.4	34.7	16	20th	50	6th	22	6.48	1.07	11th	60	27
BLACKPOOL	31.5	41.4	36.5	15	21st	51	5th	21	4.35	0.83	11th	59	26
MANCHESTER	30.3	39.5	34.9	16	21st	51	6th	25	4.39	0.52	6th	—	—
LLANDUDNO	35.8	44.0	39.9	26	21st	53	5th, 6th	25	4.05	0.76	6th	‡26	‡11
LLANDOVERY	28.7	42.7	35.7	7	20th	52	6th	26	7.91	1.10	8th	—	—
PEMBROKE	*	*	*	*	*	*	*	*	*	*	*	82	35
ARLINGTON	32.2	44.0	38.1	20	21st	51	5th, 6th	23	7.08	1.03	26th	—	—
CULLOMPTON	30.7	44.5	37.6	13	21st	53	6th	22	5.50	1.22	26th	60	25
PALMOUTH	37.5	46.6	42.1	25	20th	53	6th, 7th	30	8.44	1.85	26th	82	34
PLYMOUTH	33.5	46.7	40.1	22	21st	54	6th, 11th	26	5.65	1.87	26th	82	34
JERSEY	*	*	*	*	*	*	*	*	*	*	*	74	30
LONDONDERY	31.2	41.8	36.5	18	20th	55	6th	29	6.15	0.52	18th	—	—
MARKREE CASTLE	30.7	41.5	36.1	9	20th	54	6th	30	6.68	0.80	21st	‡36	‡16
BROOKEBOROUGH	29.7	40.5	35.1	6	20th	52	5th, 6th	21	5.61	0.82	21st	—	—
ARMAGH	29.4	40.3	34.9	10	20th	53	5th	24	4.28	0.70	21st	42	19
EDGEWORTHSTOWN	29.1	40.3	34.7	15	21st	51	5th	15	4.52	1.10	21st	—	—
DUBLIN	33.1	42.6	37.9	22	21st	53	5th, 6th	20	3.35	0.73	14th	66	29
PARSONSTOWN	*	*	*	*	*	*	*	*	*	*	*	49	21
KILKENNY CASTLE	30.4	43.3	36.9	15	21st	53	5th, 11th	17	4.48	0.82	8th	—	—
WATERFORD	32.2	43.6	37.9	17	21st	55	5th	18	5.60	0.94	14th	—	—
VALENCIA	*	*	*	*	*	*	*	*	*	*	*	58	25
KILLARNEY	31.2	45.6	38.4	15	20th	56	6th	25	7.86	1.79	21st	—	—
FOYNES	‡34.4	‡44.6	‡39.5	23	20th	53	5th	23	6.15	1.01	21st	—	—

\* For information see Table XXIII.

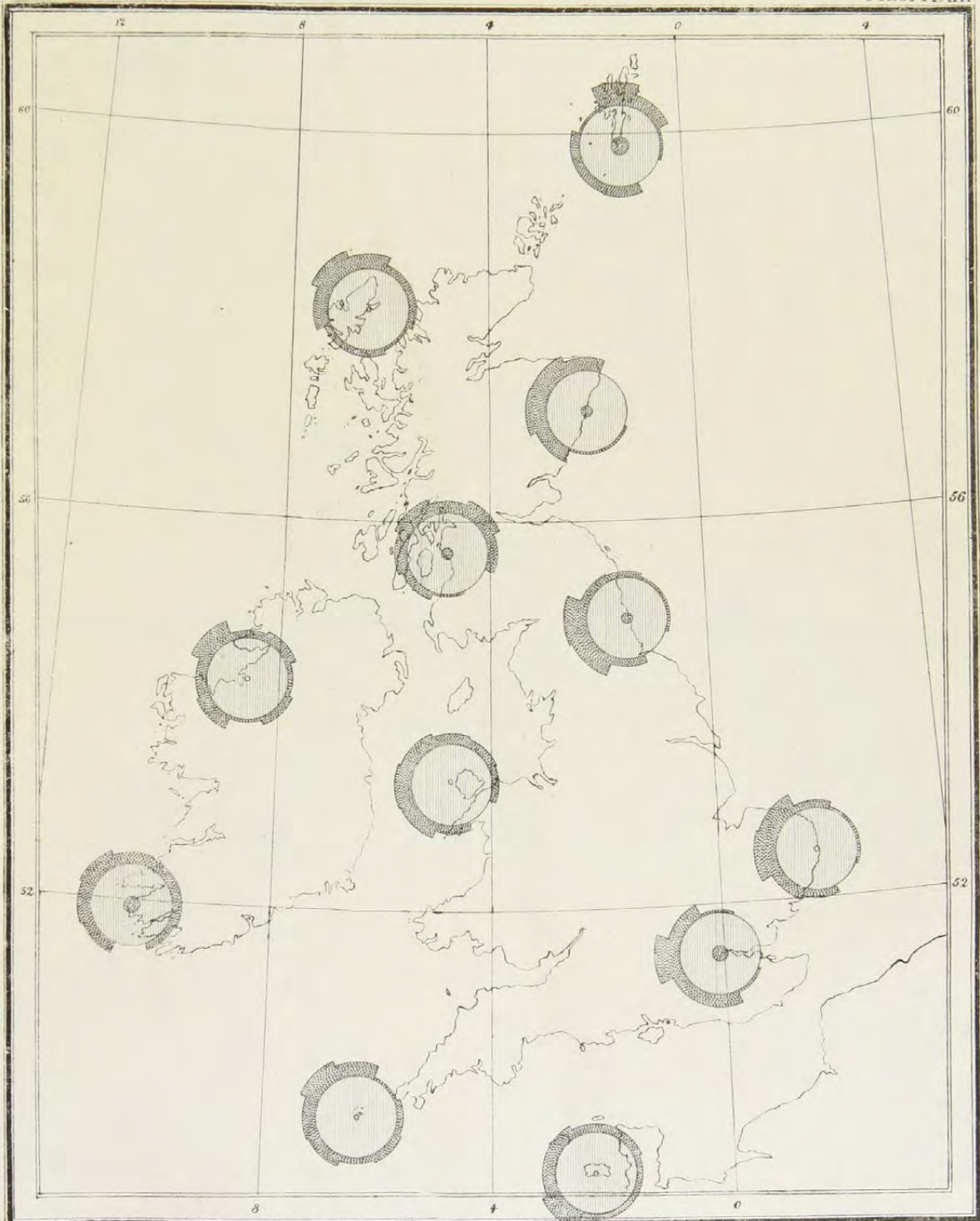
† The bright sunshine values given for Bawtry are recorded at Worksop.

‡ One day's value is estimated, the curve being lost.



# MONTHLY WIND CHART FOR DECEMBER, 1886.

Plate XXIII

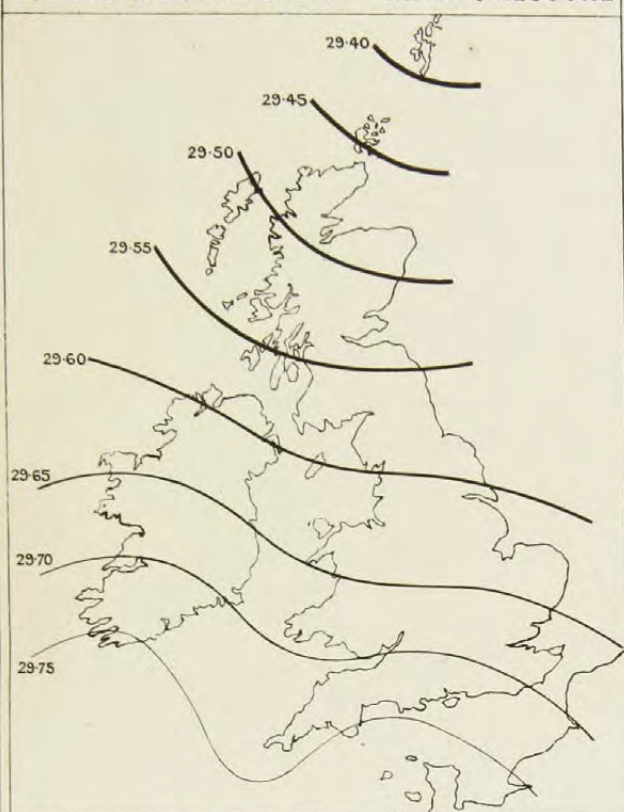








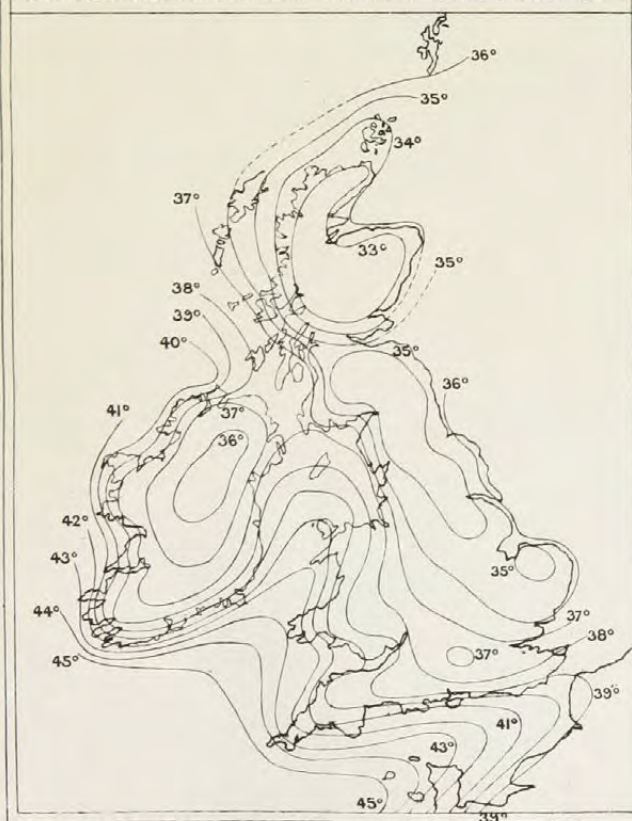
## 1. DISTRIBUTION OF MEAN PRESSURE



## 2. MOVEMENTS OF DEPRESSIONS.



## 3. DISTRIBUTION OF MEAN TEMPERATURE



## 4. RAINFALL

