

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° to 22° occurred in many parts of England late on the 3rd, the thermometer rose to between 44° to 53° 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.
