

## MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

(Supplement to Weekly Weather Report.)

SUMMARY OF OBSERVATIONS COMPILED FROM RETURNS OF OFFICIAL STATIONS AND VOLUNTEER OBSERVERS IN THE UNITED KINGDOM, WITH A CHART OF RAINFALL CONTRIBUTED BY THE BRITISH RAINFALL ORGANISATION.

ISSUED BY THE AUTHORITY OF THE METEOROLOGICAL COMMITTEE.

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## RAINY AND RATHER ROUGH.

## Cold Snap in the Third Week.

The anticyclonic type of pressure distribution from which had ensued the lengthy periods of partial or complete drought during every month since March with the exception of July, made but a brief appearance during the month under review, and the general character of the weather was unsettled; rain frequent, and often copious. Between the 17th and 24th, however, the barometrical distribution was mainly anticyclonic, and rain slight and local.

At the opening of the month a depression was centred off the coast of Cornwall. This system, marked A on the map on page 123, had appeared off the north-west coast of Ireland on October 28th and subsequently travelled to the south-west of France and back again to the mouth of the English Channel. It continued its irregular movement during the first two days of November and finally moved quickly away north-westward, and disappeared over that part of the Atlantic whence it had emerged. During this period pressure was highest in Scandinavia and Russia, and relatively high over the Azores region. In the south-west of England the barometer sank to 984 millibars, a point not reached again in that quarter until the 15th. The Easterly wind which was general over these Islands rarely rose to greater force than a strong breeze, but at Plymouth on the 1st a gust velocity of 21 m/s was reported. Rain, however, was very general, and in Dorsetshire and Wiltshire very heavy. At Shaftesbury on the 2nd the measurement was 1.2 in., at Marlborough 2.0 in., and at Wilton 2.1 in. Local thunderstorms occurred in England and Ireland either on the 1st or 2nd. The approach of a depression from the Bay of Biscay on the 5th caused the wind to increase somewhat and to become more Easterly. Falls of rain occurred in all parts of the country on the 4th, 5th, or 6th, but the quantity was not excessive, and a few isolated thunderstorms that were experienced were not of great violence.

From this time a gradual change in the pressure distribution reversed the wind current flowing over the British Islands. The barometer fell in northern Europe, rose over France and the Bay region and the wind shifted to the South-Westward, while depressions moving north-eastward with their centres off our north-west coast, soon caused the force to increase. On the 10th a South-Westerly gale sprang up in Scotland and the north of Ireland, and the weather until the 16th was very stormy. Depressions moving in an easterly direction followed each other in quick succession, and high winds and gales were reported daily. The depression of the 11th, track C, caused a Westerly gale in practically all parts of the Kingdom, and many parts of the coast recorded a gust velocity above 25 m/s; Dover and Carnforth 26 m/s, Pendennis and Paisley 27 m/s, Rosyth 29 m/s, and Southport 31 m/s. On the 12th there was little diminution in the force of the gale, and on the 13th the arrival of another depression, track E, caused a general recrudescence, followed by a veering to the Northward and an abrupt decrease of temperature. The highest gust velocities reported were 27 m/s at Eskdalemuir, 29 m/s at Holyhead, 30 m/s at Southport, and 36 m/s at Quilty. The Northerly current of the 14th was less violent generally, but at Scilly there was a gust velocity of 32 m/s. The disturbance, track G, afforded an excellent example of a depression moving directly over these Islands, with strong winds or gales prevailing from every point of the compass. As a whole the gale from the Westward on our southern coasts was of greater strength than that from the Eastward in the northern districts. At Dover on the 15th the gust velocity reached 28 m/s, at Pendennis Castle 29 m/s, and at the Scilly Isles 32 m/s.

Each of these depressions added a substantial amount to the rainfall, and falls of more than an inch within 24 hours were registered at numerous stations, while here and there thunderstorms occurred. With the lower temperature in the rear of the depression of the 13th, the precipitation assumed the form of snow—mostly in the northern and eastern districts—and on the few days following there were considerable patches of snow-clad country. At Fulbeck, Huddersfield, Harrogate, Garforth, Newton Rigg, and Dumfries the average depth of the freshly fallen snow was 4 in., and at West Witton 7 in.

During the night of the 16th, a high-pressure system extended over the United Kingdom from the northward. Until the 24th the maximum pressure was either over these Islands or Scandinavia, the barometer sometimes rising to 1035 millibars or above, and the wind mainly between North and East or variable, moderate, or light in force. On the 22nd, however, with a depression over the south-west of France, the Easterly wind became strong or high generally, and blew a gale on the coast of Norfolk. After the 23rd the depression moved away eastward, pressure again increased over the Bay of Biscay and the west of France, while depressions reappeared in the north and north-west, and a South-westerly type of conditions regained the ascendancy. The centres of the succeeding disturbances remained far from these Islands as they travelled in a general north-easterly direction, but the South-westerly wind increased greatly in strength and gales became common. On the 26th a gale was experienced on nearly all coasts, and on the 27th along the western and northern coasts, while on the 28th, 29th, and 30th the gale was almost general. On the 27th a gust of 27 m/s occurred at Quilty, on the 28th a similar velocity was recorded at Paisley, and on the

29th 29 m/s at Eskdalemuir. Further and general falls of rain occurred, although the quantity was not large until the 29th and 30th. Then, however, many places in the west and north and several elsewhere experienced falls of more than an inch. Ashburton had 1.7 in. on the 29th and 1.1 in. on the 30th; Matfield 1.4 in. on the 30th. At Killin 3 in. fell on the 29th, at Ambleside 2.9 in., following a measurement exceeding an inch on the four preceding days; at Fort William 2.6 in. fell on the 29th and 1.9 in. on the 30th; while the corresponding values at Fort Augustus were 1.5 in. and 1.2 in. In Snowdonia on the 29th 3.5 in. fell at Bungalow and Old Road, and 4.1 in. at Pen-y-Gwryd. There was also as much as 3.2 in. at Prince town. Thunderstorms of the winter type passed over several stations in the west and north on the 30th.

**Barometric pressure.**—In all parts of the United Kingdom except the extreme north the barometer reached its highest point on the 18th, when a large anticyclone had its centre directly over this country. In several districts the mercury touched 1038 millibars, and in the west of Scotland went to 1039 millibars. In England and Ireland the lowest pressure passed over with the storm centre of the 15th, the minimum value recorded being 972 millibars in Ireland South. In Scotland, however, pressure was relatively high during the passage of this depression, and the lowest value for the month did not occur until the arrival of the disturbance of the 30th, when a reading as low as 973 millibars was registered in the far north.

It will be seen from map 1, page 123, that while the general distribution of pressure was in close agreement with the normal, the mean level of the barometer was everywhere rather lower.

**Temperature** was generally high for the time of year until the 14th, especially during the first week. It then became low until the 25th, the divergence from the normal being very marked from the 15th till the 21st, and finally very high again. The warmest days were between the 3rd and 5th, the 8th, 9th, and 10th, and the 29th and 30th. During the mild weather of the first and last weeks the minimum readings of the night were less low than some of the daily maxima during the colder spell. On the 14th and 15th several stations in the north and east of the Kingdom had maxima no higher than 35°, 36°, or 37°, and similar values were reported over a much larger area on the 21st, 22nd, and 23rd. Even at some places on the coasts of Devon and Cornwall and in the Isle of Wight the maximum readings were below 40°. The frost was sometimes very sharp at night, and in many localities it held throughout the day on the ground. At Northwich, on the 17th, where fog prevailed all day, the highest shade reading was 30°, but at no other station did the thermometer fail to rise above 32°. The cold, quiet weather conditions brought occasional fog and mist both on the coast and inland, but nowhere was the visitation very persistent and seldom of great density. Patches of coastal fog also accompanied the high temperature of the end of the month in the west and south-west.

**Rainfall** exceeded the average in nearly all parts of the Kingdom, but the actual amount, owing to the incidence of heavy downpours, varied a good deal. Over the British Isles generally the total fall, expressed as a percentage of the average, was 130. In England and Wales and Scotland the value was 133, and in Ireland 124. As a rule the greatest divergence from the normal occurred in the northern and north-western districts, but locally it was very high in Wiltshire. In the Western Highlands a large area received more than 15 in., while at Loan there was as much as 27 in. In Snowdonia and the Cumberland Lake region some stations measured more than 20 in., while over a small area more than 30 ins. was reported; at Ambleside as much as 8.76 in. fell during the seven days 24th-30th. At several places in the south-west, south, and east the percentage of the average was below 90; at Roche's Point the value was 66 per cent., Donaghadee 74, Killarney 80, Falmouth 82, Guernsey and Berkhamsted 83, Cullompton 85, and Scarborough 88. At Wilton House the figure was 215 per cent., at Marlborough 161, Stonyhurst 184, Fort Augustus 183, Nairn 182, Newton Rigg 164, and Fort William 160.

At Kings Somborne the wells reached their lowest level between the 10th and 14th, and subsequently they rose and fell a few inches. Floods were experienced at Aberfeldy, on the Tay, and the 29th, and also in the neighbourhood of Pen-y-Gwryd.

**Bright Sunshine.**—In spite of the rainfall, fair or bright intervals were rather frequent for the time of year, and the duration of bright sunshine exceeded the normal over the Kingdom as a whole. Over considerable tracts in England and Ireland the mean daily amount was more than two hours, and at all but a few stations in the north it was above one hour. The excess was greatest on the south coast of England and on the Lancashire coast. At Westminster the percentage of the average was 152, at Brighton, Eastbourne, and Hastings 150, 144, and 136 respectively. At a few stations, however, there was a deficiency. At Cullompton the percentage was only 84, and at Marlborough 90. In the north the percentage was 90 at Marchmont, and 57 at Deerness.

Aurora was observed at Aberdeen on the 11th.