

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

BRITISH METEOROLOGICAL AND MAGNETIC YEARBOOK. PART II.

SUMMARY OF OBSERVATIONS COMPILED FROM RETURNS OF OFFICIAL STATIONS AND VOLUNTEER OBSERVERS.

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DECEMBER, 1921; Unsettled, Mild and Windy.

A westerly type of weather prevailed over the United Kingdom during the whole month with the exception of the first four days. It was uniformly mild for the time of year and rain fell on most days, though the total precipitation was only moderate in amount except in the north and west of Scotland.

During the opening hours of the month the British Isles lay between an anticyclone over Scandinavia and a depression over the north-west of Spain. This depression caused unsettled weather over the United Kingdom, with strong easterly winds, especially in the southern districts. On the 2nd day of the month it travelled across northern Spain to the Mediterranean where it produced heavy falls of rain. Of the depressions of any magnitude affecting the British Isles, it was the only one, the track of which lay to the south (see Map, track A). On the 4th and 5th the anticyclone withdrew towards the south and the whole of north-western Europe was open to the influence of the Atlantic depressions which formed an almost unbroken succession during the month. Under the influence of these depressions temperature rose considerably. At 7h. on the 5th it was as high as 28.6a at Valencia, whilst the temperature at Kew at the same hour was only 27.2a. On the succeeding day the warmer air current had affected all parts of the Kingdom and the weather was overcast and dull with rain in all districts. Temperature continued high but the amount of rainfall was generally not very large. At Aberdeen on the 8th the temperature rose to 28.7a (which was equal to the record value of December 15th, 1873.) At Eskdalemuir the maximum temperature on the same day was 28.5a. This was the highest December reading in the twelve years 1910-1921. A small secondary depression lay over the Channel on the morning of the 13th, but the amount of rain associated with it was generally small. After the middle of the month pressure became high in the region of Spitzbergen and depressions from Iceland travelled towards southern Scandinavia causing frequent gales over a large area including the British Isles, the North Sea, Denmark and the Baltic. Temperature continued high during this period. Throughout the night of the 18th-19th it did not fall below 28.3a in many parts of south-eastern and southern England, and remained considerably above in several districts. A depression which lay over Iceland on the morning of the 16th and was centred over southern Norway on the evening of the 17th was accompanied by gales which continued for many hours. A fresh depression passed over the south of Iceland on the 19th and caused a renewal of gales. The precipitation associated with these depressions was as a rule not very large. On Christmas eve under the influence of a north-westerly current in the rear of a depression situated over the Baltic temperature fell considerably over the British Isles and ground frost was general. On Christmas day, however, a fresh depression had caused a renewal of mild conditions and temperature exceeded 28.3a in southern England. A wedge of high pressure which subsequently spread over the English Channel and northern France was accompanied by sharp frost the following morning, but cyclonic conditions soon spread again to all districts. In the north and west heavy falls of rain were recorded. Renewed high winds and gales occurred during the last few days of the month. At 1h. on the 28th a gale of over 55 miles per hour was recorded at Plymouth. The passage of a depression to the north of Scotland on the 30th was accompanied by violent gales. Gusts between 55 and 60 miles per hour were recorded at Kew Observatory, between 60 and 70 miles per hour at Benson and Scilly, and over 75 miles per hour at Holyhead. Considerable damage was done to property. Heavy rain, snow, and hail fell in south-west Scotland during this period. About 25 mm. were recorded at Eskdalemuir on three days in succession.

The weather in Scotland reflected to a great extent the conditions prevailing over England, the month being generally mild and unsettled. Precipitation was however, much greater than in England especially in the west. The withdrawal of the Scandinavian anticyclone towards the south on the 4th and 5th was followed by a rapid rise of temperature which continued generally throughout the month although wintry conditions prevailed about the 21st and again on the 28th and 29th. The mean temperature of the

month was the mildest experienced during December since 1900. The lowest reading anywhere recorded was 26.7a at Bangour on the 4th, and at Eskdalemuir on the 5th. This is an abnormally high minimum for December. The maximum reading was 28.8a at Perth on the 7th, at Crathes on the 8th, and at Stirling on the 16th. Rainfall was generally deficient in the north-east and south-east. (At Aberdeen only about half the normal amount was recorded). Elsewhere there was a large excess. Unsettled weather was almost continuous in the western districts from the 4th of the month. A fall of more than 100mm. occurred at Kinlochquoich on the 4th and again on the 31st. High winds and gales were frequent during the latter half of the month. Thunderstorms with frequent hail showers were reported locally in the west between the 20th and 29th.

In Ireland the weather was generally mild and unsettled. Under the influence of a constant succession of depressions from the Atlantic there were strong and persistent westerly winds, a high temperature and frequent rain.

A noteworthy feature of the latter half of the month was the occurrence of frequent gales. Much structural damage was done and several casualties occurred both inland and on the coast. Transatlantic liners experienced very rough weather. An unprecedented high tide accompanied by strong gales caused serious flooding at Hull on the evening of the 17th. Much damage was done and many people rendered homeless. The following notes by observers illustrate the windy conditions which characterized the latter half of the month. Southport (Lancashire)—The month was abnormally mild and almost continuously of a westerly type. The latter half was very stormy. Newquay (Cornwall)—First ten days very quiet. Very rough towards end.

Air Pressure.—The general trend of the isobars on the map of mean pressure is somewhat abnormal. The usual south-westerly type of pressure distribution is replaced by a west-north-westerly type. The gradient was much steeper than usual, mean pressure varying from about 1003mb. in the north to 1021mb. in the south. The dominating circumstances were the large number of depressions passing north of the British Isles to southern Scandinavia, and the constant high pressure over France and the Bay of Biscay. At the telegraphic reporting stations the departure of the monthly means of pressure from the normal varied from +8.6mb. at Valencia and Scilly to -1.3mb. at Lerwick. The highest reading recorded during the month was 1035mb. at Valencia on the 13th and at Falmouth and Jersey on the 31st and the lowest 959mb. at Lerwick on the 20th.

Temperature.—The mean temperature of the month was above the normal in all districts. The excess ranged from 1.4a in England south-west to 2.6a in Ireland north.

Precipitation.—Precipitation was deficient over the greater part of the British Isles although there was an excess of rainy days. Less than half the average rainfall was recorded in the neighbourhood of London, in eastern Aberdeenshire, and in the south-east of Ireland. The total fall of 650 mm. at Glenquoich (Inverness) has only twice been exceeded in December during the last forty years. A large area in the Western Highlands of Scotland received more than 250 mm. As much as 1031 mm. were recorded at Loan (Inverness), a rare occurrence even in this remarkably rainy region. Less than 25mm. were recorded locally in the south-east of Ireland, but in the north-west more than 100mm. fell generally. The general rainfall for December expressed as a percentage of the average was: England and Wales 83; Scotland 133; Ireland 80; British Isles 101.

Optical Phenomena.—Solar and lunar halos were observed at various stations. The Zodiacal light was seen at Oxford on many occasions during the latter part of the month and a sun pillar on the 4th. A lunar corona of remarkable brilliance was observed at Valencia on the evening of December 9th. Aurora was observed at Aberdeen and Gordon Castle (Elgin) on the 22nd, and again at Aberdeen on the 28th. It was also observed on several occasions at Lerwick Observatory.

