

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

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

PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE. To be purchased directly from H.M. STATIONERY OFFICE at the following addresses: ADASTRAL HOUSE, KINGSWAY, LONDON, W.C.2; 120, GEORGE STREET, EDINBURGH; YORK STREET, MANCHESTER; 1, ST. ANDREW'S CRESCENT, CARDIFF; 15, DONEGALL SQUARE WEST, BELFAST; or through any Bookseller.

VOL. 48. No. 1.

ISSUED BY THE AUTHORITY OF THE METEOROLOGICAL COMMITTEE.

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JANUARY, 1931. Cold with much local fog at first; mild after the 15th with frequent strong winds. Considerable bright periods.

The first half of January was cold with much fog and generally light precipitation, the second half, mild, wet and windy with moderately heavy precipitation about the 23rd and during the last week. Bright periods, however, occurred frequently and a prominent feature of the weather of the month was the pronounced excess of sunshine recorded in most districts.

A complex low pressure system with various centres passing eastwards across the British Isles dominated conditions during the first four days. Thick fog occurred locally and in several places the maximum temperature on the 1st and 3rd was only a degree or two above freezing point. Showers of rain, hail and in the north of snow or sleet occurred widely but as a rule precipitation was slight apart from moderate falls in the south during the night of the 2nd to 3rd and on the 3rd. Good sunshine records were obtained on the 2nd. On the 4th the belt of high pressure to the west of Ireland moved eastwards and quiet, cold weather prevailed with much fog in the Clyde region and in several parts of England. Sunshine records were, however, good at places unaffected by the fog, from 5 to 7 hours' bright sunshine being recorded in several places from the 4th to the 7th inclusive. Day maxima were below the normal while severe frost occurred in the screen and on the ground from the 5th to the 9th. By the 11th the anticyclone had moved to the south of the British Isles and the mild conditions which were being experienced in Scotland on the 10th extended to other parts of the country, the maximum temperature reaching 50° F. in several places on the 11th.

From the 12th to the 14th northerly winds and wintry precipitation prevailed generally; in many parts of England however good sunshine records were obtained on the 14th.

From the 15th to the end of the month unsettled, mild and wet conditions with frequent strong winds were experienced generally. From the 15th to the 19th strong, westerly to north-westerly winds were prevalent with gales on the 16th and 17th and snow in the northern districts on the 18th and 19th. Maximum temperatures of 50° F. and over were recorded in several places on the 15th, 16th, 19th and 20th. Heavy rain during the night of the 22nd to 23rd and on the 23rd and strong winds from the 23rd to 25th were associated with a deep depression off the north-west of Scotland which moved eastwards. The period 24th to 27th was mainly sunny, over 7 hours bright sunshine being recorded in several places and on the 26th as much as 8 hours at Ross-on-Wye, a record at that station for a day in January. The last two days were rather cold except in the south-west and in Ireland and on the 31st there were further gales and heavy snow in the north and west.

Pressure and Wind.—In the southwest of Ireland the mean pressure was 1 mb. above the normal but elsewhere it was below the normal, the deficit ranging from 1 mb. at Birr Castle to 6 mb. at Yarmouth. The prevailing winds were between southwest and northwest and were frequently strong during the second half of the month. Gales occurred widely in exposed places on the 16th and 17th, during the period 22nd to 25th, in the west and northwest of England, Wales and Ireland on the 28th and in the west on the 31st. The highest wind velocities were recorded as a rule during the westerly gales on the 16th and 17th; amongst the highest velocities recorded were a mean hourly velocity of 48 miles per hour (83 miles per hour in a gust) at Butt of Lewis on the 16th and 41 miles per hour (85 miles per hour in a gust) at Bell Rock Lighthouse on the 17th. In some southern districts the highest velocities were recorded on the 23rd or 24th (69 miles per hour in a gust at Quilty and 64 miles per hour at Pendennis Castle on the 23rd). During the southerly gales on the 31st a mean hourly velocity of 61 miles per hour (83 miles per hour in a gust) was recorded at Bell Rock Lighthouse.

Temperature.—Monthly mean temperatures were mostly within 1° F. of the normal. Both day maxima and night minima were below the normal in most districts during the first nine days and on the 13th and 14th. Low temperatures by day were frequently associated with persistent fog during the first week; at Renfrew in foggy weather the temperature remained below the freezing point on the 5th, 6th and 7th, the maximum on the 6th (when the fog persisted throughout the day) being as low as 27° F. Minimum temperature in the screen of 25° F. or below were recorded in several places on the mornings of the 5th to the 9th; amongst the lowest readings were 6° F. at Braemar and 15° F. at West Linton on the 6th and 7th and 14° F. at Newport (Salop) on the 5th. Severe ground frost accompanied these low temperatures, grass minimum temperatures below 20° F. being widely recorded; at Braemar a

grass minimum temperature of 1° F. was recorded on the morning of the 7th. Subsequently mild conditions prevailed generally until the 30th, maximum temperatures in the neighbourhood of 50° F. being recorded in several districts on the 15th, 16th, 19th, 20th and 23rd. Except in the southwest and in Ireland the last two days were rather cold. Ground frost occurred at most inland stations on more than half the nights in the month; at Dundee (Mayfields) ground frost occurred on 28 nights. The extreme temperatures for the month were:—(England and Wales) 55° F. at Dover on the 16th, 14° F. at Newport (Salop) on the 5th; (Scotland) 55° F. at Cupar on the 16th, 6° F. at Braemar on the 6th and 7th; (Ireland) 56° F. at Blacksod Pt. on the 16th, 20° F. at Newtownforbes on the 3rd and at Lisburn on the 6th.

Precipitation.—Precipitation occurred frequently during the month; the falls were mostly light, the only falls of importance occurring about the 22nd and during the last week of the month. At Camden Square (London) where the month's total precipitation was 72 per cent. of the normal, measurable precipitation fell on 20 days or 5 more than the normal. The general precipitation over the British Isles expressed as a percentage of the normal for the period 1881–1915 was 107; the values for the constituent countries were:—England and Wales 103, Scotland 128, Ireland 88.

Over the northern, eastern and southwestern districts of Scotland precipitation was above the normal while a large area stretching from Central Scotland to the Border counties it was generally well below the normal. In parts of Sutherland almost twice the normal precipitation was recorded. Amongst the largest daily rainfall totals were 70 mm. at Garelochhead and 64 mm. at Ardtornish on the 31st, 58 mm. at Glenquoich on 15th, 54 mm. at Glenbranter on 31st, 54 mm. at Achfary on 10th and 51 mm. at Glen Etive on 16th. At Strathpeffer the month was the wettest January there since at least 1885.

In Ireland precipitation exceeded the normal in the northwest whilst in the east and south there was a deficiency which was most pronounced in the extreme south and southeast; Ballinacurra with 41 mm. had only 41 per cent. of the normal precipitation for January and Cahirciveen with 81 mm., 58 per cent.

Snow or sleet occurred in the Midlands and the east of England on the 3rd and 4th, in the southeast on the 9th, in northern districts on the 12th to 14th, 18th, 19th, 24th to 26th and 29th and widely on the 30th and 31st. The heaviest falls of snow were reported from Scotland on the 18th and 31st, on the former date over 6 in. lay at Kettins and 10 in. at Braemar while on the latter date about 6 in. lay at Dumfries, 9 in. at Braemar and 10 in. at Crieff. At Crieff 5 in. lay on the 19th. Hail occurred frequently in northern districts during the month.

Sunshine.—Although fog was very prevalent during the first eight days good sunshine records were reported from many places on the 2nd, about the 5th and on the 9th; Liverpool (Bidston) reported 8.0 hours bright sunshine on the 6th and Plymouth 7.0 hours on the 7th. Sunny periods on the 14th in the south were associated with an extension of an Atlantic anticyclone over the southern half of the British Isles (7.5 hours at Falmouth and 7.0 hours at Calshot). During the second half of the month the most outstanding records were obtained during a spell of westerly to northwesterly winds from the 24th to 26th and during the passage of a wedge of high pressure across England on the 27th; 8.0 hours bright sunshine were recorded at Winchester on the 25th, at Ross-on-Wye and Calshot on the 26th, and 7.5 hours at Felixstowe on the 27th. Representative totals for districts, expressed as a percentage of the normal for the period 1881–1915, ranged from 103 per cent. in Scotland N. and the Channel Islands to 158 per cent. in England N.E. The month was the sunniest January at Ross-on-Wye since 1914 and at Eskdalemuir since 1910.

Fog.—Fog occurred frequently in the Clyde area and in the central and eastern parts of England, especially in large industrial areas, during the first ten or eleven days, and on the 21st.

Miscellaneous Phenomena.—Aurora was observed in Scotland on the night of the 25th to 26th.