

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

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

ISSUED BY THE AUTHORITY OF THE METEOROLOGICAL COMMITTEE.

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Cold, Wintry, Much Snow in Many Places.

It will be seen from map 2, page 3, that nearly all the depressions affecting the British Isles appeared during the first eleven days, and that they all travelled east south-east or south-east. On January 1st the centre of a depression, marked A, lay far to the northward of this country. Another depression, track B, appeared off the Hebrides late on the 1st, travelled very quickly to Denmark by next morning and caused gales over a wide area in the north, a Westerly storm (force 11) at Malin Head, and gusts of 27 m/s at Paisley, Edinburgh and Shields. The next depression, track C, prolonged the gales on the northern and north-western coasts during the 3rd and 4th, and produced heavy rain in Scotland. The preceding disturbances had brought 44 mm. of rain to Cruachan (Argyll), 30 mm. to Glencarron, and 37 mm. to Stonyhurst, and on the 3rd 31 mm. fell at Deerness, 26 mm. at Reay (Caithness), 29 mm. at Fort William, and 48 mm. at Glencarron. With the departure of the depression of the 3rd and 4th the mild South and South-West winds which had continued for about a week were superseded by a much colder current from the West and North-West, and the only general gale of the month was a Northerly one caused by the depression of the 7th to 9th, marked E. This disturbance gathered additional energy as its centre moved in a southerly direction over eastern England, and gales from some Northerly point were felt over an extensive area. Force 9 or 10 occurred at many stations, with a velocity in the gusts of 29 m/s. at Holyhead, 28 m/s. at Scilly, and 27 m/s. at Pendennis Castle and Eskdalemuir. The arrival of another depression on the 11th, track G, caused the gale to continue until the 13th on various parts of the coast. This unsettled, rough period brought rain or snow to all districts, but the quantity was not large except in some northern and western localities.

From the 15th until the end of the month the United Kingdom was on the margin of an anticyclone centered at first over Scandinavia and moving gradually westward. Neither gales nor heavy precipitation of a general character were experienced, but the gradient for South-East winds was rather steep on the 25th and 26th. South-Easterly to Easterly gales, commencing in Ireland, subsequently extended to the south-west of England and the English Channel. The highest gust velocities recorded at the anemometrical stations were 31 m/s. at Cabirciveen (Valencia Obs.) on the 25th, and 31 m/s. at Scilly, 33 m/s. at Plymouth, and 37 m/s. at Pendennis Castle on the 27th. Large quantities of rain, sleet, and snow accompanied the South-Easterly gale in the South of Ireland. At Ballinacurra near Cork the measurement on the 24th was 52 mm., and on the 25th 19 mm., and at Seskin the total amount of snow on the 25th and 26th yielded, when melted, 47 mm. of water.

Temperature.—The high temperature that began with the strong South-West wind on December 28th continued with little interruption until January 4th, when a West to North-West wind sent the thermometer down to about the normal. Subsequently it fell very decidedly, and during the remainder of the month was low. The deviation from the normal increased steadily as the month advanced, but was due more to the low daily maxima than to very intense frost at night. The mean for the whole month was 2.8a below the normal in Ireland South and England South-West, and about 2a in some other districts. The least deviation was 1.5a below in Scotland North, England North-East and East.

The first two or three days furnished some unusually high maximum readings. At numerous stations the value was 28.6a, in several widely separated parts of England 28.7a to 28.75a, and at Kilkenny and Colwyn Bay as high as 28.8a. The minimum readings were correspondingly high, several stations recording 2.5a. Severe local frost occurred in Scotland on the nights of the 6th and 10th—a minimum of 26.3a at Balmoral and 26.15a at Rangor and the frost was almost as severe in Ireland and the Dartmoor region on the 17th and 18th. Over the Kingdom generally, however, the lowest minima were registered later in the month: at Nairn, Balmoral, and Stathpeffer on the 23rd and 24th the thermometer descended to about 26.5a, and a few days later readings between 26.6a and 26.8a occurred in many parts of England. Towards the close of the month a larger area experienced the severity of the frost. At Markree Castle (Shigo) and Roden (Shropshire) the minimum was 26.3a and at some stations in the Home Counties 26.45a. The lowest minimum readings reported on the grass were 25.85a at Southampton on the 29th, 25.9a at Wisley on the 30th, and 25.95a at Sheepstor on the 18th. After the 16th maximum shade readings a little

below 27.3a were of common occurrence. The coldest days were about the 26th, and the lowest maxima 27.0a in the south midlands. For several consecutive days after the 20th the mean temperature over a large area was below 27.3a. A marked feature of the month was the small mean range between the maximum and minimum temperatures. The observer at Meltham (W. Riding) comments:—"The range of temperature, 2.5a, is very exceptional. The least in my record 1879 to 1916 is 3.6a in January 1897 and February 1879." The comments of other observers are also worthy of note.—Sheepstor: "Most severe frost since 1881." Bude: "Canal and river frozen first time for 15 or 16 years." Tenbury: "Severn covered with ice—first time since 1895." Oundle: "River Nene frozen over from the 28th—first time since 1895."

At Belper the mean temperature of the water of the Derwent was 27.79a, and that of the air 27.43a.

In London and some other localities a glazed frost was experienced on the 22nd, rendering traffic by road extremely difficult and causing a temporary breakdown on the electric railways.

A comparison with the temperature values published in the Monthly Weather Report for 1895 shows that the January of that year was appreciably colder than that now under review.

The Temperature of the sea surface water was higher than that of the air, especially off the extreme north and south-west coasts. Coastal fogs occurred on some part of the seaboard almost every day, but were seldom experienced over a wide area; along the east coast they were very rare.

Precipitation.—The amount was less than the normal except in Scotland East, England East, and North-East. Over a large portion of the Kingdom it was only 43 per cent. of the normal; at Torquay and Ashburton 33 per cent., and at Clifton, Bristol, only 27 per cent. At some north-eastern stations the percentage exceeded 150; at Rounton it was 205, and at Scarborough 206. During the earlier days the fall, with few exceptions, came as rain, but before the middle of the month it was mainly snow in the northern districts, and this very soon extended to the south also. The greatest depth reported on level ground was 45 cm. at Bellingham (Northumberland) at the end of the month. At West Witton (West Riding) the depth was 31 cm. on the 16th, at Durham 15 cm. between the 15th and 16th, at Chopwellwood (north-west Durham) and Allans Green (west of Hexham) 20 cm., and over a wide area further south and west between 8 and 10 cm. The heavy snowstorm in Ireland on the 25th and 26th gave an average depth of about 30 cm. at Seskin, and caused drifts nearly 3 metres deep at that station and also at Templemore (Co. Tipperary). From the 14th onward snow in various depths covered the surface of the greater part of England and Scotland, but after the 15th no precipitation in measurable quantity was experienced over a large portion of the country. The stations with the longest dry period were Rousdon (Devonshire), and Creech Grange (Dorsetshire), where the last rain or snow was on the 13th. At Llandrindod Wells it was the driest January in the past 34 years except that of 1889, and at Broadford (Co. Clare) the driest in the past 32 years except that of 1896. The returns from stations measuring rain twice in 24 hours show that the hourly rate of fall was the same in the daytime as during the evening and night.

At Richmond (Kew Observatory) the level of the underground water varied from 349 cm. above mean sea level on the 1st to 304 cm. on the 31st.

Air Pressure.—The mean distribution of pressure was quite abnormal, the barometer being highest in the north and west and lowest in the south-east. No similar distribution in January has occurred since 1895. During that cold January, however, the mean level of the barometer was about 9 mb. lower than in the present case.

Bright Sunshine slightly exceeded the normal in Scotland North and England South-West, but was deficient elsewhere. Over the Midland Counties and England East the mean daily loss was as much as 0.85 hour. At Crathes (Aberdeen) and Hoylake (Cheshire) the percentage of the normal was only 29 and at Belvoir Castle 30.

An exceptionally brilliant **Aurora** was observed over a large portion of the British Isles on the evening of the 4th, the most southern station reporting the phenomenon being Oxford. It was again observed at Aberdeen and Seskin on the 12th and at Deerness on the 22nd. A **Moon Pillar** was seen from Aberdeen on the evening of the 9th.