

## 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, 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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**Often Wet and Stormy ; Sometimes Cold, but mostly Mild.**

The unsettled, stormy, cyclonic type of conditions which were so persistent in October continued with little interruption through November. The only general change to an anticyclonic pressure distribution occurred on the 12th and the few days following, when a well marked high pressure system travelled over these Islands from the southward and passed on to Scandinavia. The south-eastern counties of England, however, were again under the influence of a continental anticyclone towards the end of the month. As will be seen from map 2 numerous depressions again traversed the United Kingdom and its vicinity, and as in the preceding month, some of them passed off north-westward to the Atlantic instead of continuing the more usual north-easterly track.

The first disturbance, marked A on map 2, moved north north-eastward outside our western seaboard on the 3rd and 4th. The gradient for winds from some Southerly point became steep over this country generally, as well as off the west coast of Ireland, and gales were experienced over a wide area. At many stations in the west force 9 Beaufort Scale was reported, and at Pendennis Castle a gust attained the velocity of 35 m/s. Much damage was done along the beach at Bournemouth. The gales attending this depression had not subsided when another storm centre, marked B, arrived over the south-west of these Islands from the Bay of Biscay. This system brought a very general gale over the British Isles and the surrounding regions. On the 4th there was a gust velocity of 34 m/s. at Plymouth, and on the 5th 32 m/s. at Gorleston, 35 m/s. at Dover, 33 m/s. at Brighton, and 36 m/s. at Plymouth. By the morning of the 7th a secondary disturbance, C, had appeared over Ireland, causing a renewal of the gale in several parts of England ; at Dungeness the force of a whole gale was reported. The rain accompanying this series of depressions was heavy generally and very heavy in places. On the 3rd Gruline (Isle of Mull) measured 35 mm., and Crathes (Kincardine) 33 mm. ; on the 4th Gruline had 30 mm. more, Lisburn 33 mm., and Princetown 62 mm. On the 6th 33 mm. fell at Wilton (Salisbury), 44 mm. at Ashburton, and 51 mm. at Sheepstor ; and on the 7th 34 mm. at Tavistock, 35 mm. at Grayshott, 38 mm. at Warlingham, and 42 mm. at Dorchester. Brief thunderstorms were experienced daily in some parts of the Kingdom, and were especially widespread for the time of year on the 3rd, 7th, and 8th.

Following the departure of "C" there was a period of relative calm, although the pressure distribution continued cyclonic, and rain fell daily in the west and north, until the advent of the anticyclone noted above. On the 17th the high pressure area had become centred over Sweden, and a steady fall of the barometer heralding the approach of another depression had been in progress over these Islands for more than 48 hours. By 7 a.m. the depression centre had reached the south-west of Ireland, and a gale, which had set in during the night over our western districts, continued. This depression, track E, owing to its erratic trajectory and its leisurely movement, was the chief determining factor of the winds and weather in this country until after the 21st. Gales, mainly from South-East and East, raged in all exposed localities. Force 9 was reported over an extensive area, force 10 at Dungeness on the 17th, and at Lerwick on the 21st. The highest velocity in gusts was 31 m/s. at Scilly on the 17th and 30 m/s. at Aberdeen on the 18th. Considerable structural damage and coast shipping loss was caused by the storm, especially along the south-east and east coasts of Ireland on the 17th. Heavy rain occurred in Ireland in front of the depression on the 16th ; Killarney had 89 mm., Ballinacurra 48 mm., Cahir 50 mm., and Cahirciveen (Valencia Observatory) 55 mm. By the following day the heavy rain had extended to the east of Ireland and south-west of England, the largest measurements being 50 mm. at Ranelagh (Dublin), 31 mm. at Torquay, 46 mm. at Salcombe, and 57 mm. at Plymouth. On the 18th the fall exceeded 25 mm. over a wider area in England ; 35 mm. at Bellingham and Claypole, 38 mm. at Rauceby and Chopwellwood and 48 mm. at Fulbeck. Over more restricted areas further heavy falls occurred on the 19th ; 52 mm. at Lednathie in Forfarshire, 31 mm. at Canterbury, 28 mm. at Hastings, and 26 mm. at Eastbourne. At Eastbourne an additional 31 mm. fell on the succeeding day.

Owing to a depression centred far beyond the Hebrides the wind again increased to a gale on several parts of the coast on the 24th, and on the 25th a depression of a V-shaped character, track G, caused a gale in a few localities in the west.

**Air Pressure.**—The mean distribution of pressure was more in favour of Southerly winds than usual. The mean height of the barometer was considerably below the normal, and the gradient steeper. The lowest

readings were with the depression of the 3rd in Ireland, and with that of the 5th in most parts of Britain. In Ireland North and England South-West the readings were exceptionally low ; at Falmouth the minimum reading, 957.7 millibars, was the lowest recorded since December 4th, 1876. The highest readings were brought by the anticyclone towards the middle of the month except in the south-east.

**Temperature.**—Generally the thermometer ruled high for the time of year. Cold spells were few and brief, the only occasions being between the 16th and 20th and after the 26th. Except in England South-West and South-East and the English Channel the values were slightly above the normal. Maximum readings of 28.9a and above were unusually common. As a rule the absolute maxima were recorded on the 11th, 12th, or 13th, but there was one notable exception ; at Ardingley 28.97a occurred as late as the 25th. The highest points reached were 29.2a at Hodsock on the 11th, 29.14a at Welshpool on the 4th and at Halstead (Essex) on the 13th, 29.1a at Seskin on the 10th and at Whitby on the 13th. No temperature readings so high have been recorded in November for several years ; the maximum of 29.2a at Hodsock has not been equalled since 1906, when the thermometer rose to 29.3a at Lairg. During the earlier cold spell the maxima were low, especially in England. On the 17th or 18th many stations had no higher reading than 27.5a, and at a smaller number the diurnal upward movement stopped at 27.4a, while at Buxton, Grayshott, Midhurst, and Shaftesbury it was arrested at 27.35a. At Leadhills on the 18th the thermometer fell to 26.65a, but the most severe general frost occurred over England on the 28th. At Wokingham the minimum was 26.65a at Mayfield and Marlborough 26.7a, and over a large area the readings were between 26.8a and 27.0a. At Hampstead the minimum temperature on the grass on the 28th was as low as 26.15a. At Belper the mean temperature of the air was 27.92a, and that of the water of the river Derwent 28.02a. A good deal of fog developed over England from the 11th till the 14th. On the 13th the fog was particularly dense in London, and the central parts of the Metropolis had another visitation on the 21st.

The temperature of the sea water was considerably above that of the air, and coastal fog was prevalent on most days on some part of our west and south-west coast, more especially between the 10th and 15th, when it extended to the English Channel. Along the east coast fog was rarely experienced.

**Rainfall.**—Over the Kingdom generally the total was high, but in Scotland West and England North-West the fall was less than the normal. Most of the rain fell during the first week and about the 18th, while between the 8th and 18th a considerable number of stations were rainless or nearly so. At many individual stations the total fall was greatly in excess of the normal ; at Glasnevin the percentage was 237, Killarney 200, Markree 186, Wilton 199, Greenwich 189, and Fulbeck 182. At Broadford, Co. Clare, the aggregate rainfall for October and November, was 368 mm., the largest record in two consecutive months at that station in 32 years. There were few instances of exceptionally heavy downpours within a short space of time, but at Warlingham on the 7th two showers, "cloud bursts," their entire duration only 15 minutes, yielded at least 32 mm. of water. On the 17th, 18th, and a few subsequent days snow and sleet were experienced over a large portion of the Kingdom, but most of this melted as it fell or soon afterwards. Stations measuring rainfall twice in 24 hours showed that the hourly rate of fall during the night was about the same as that of the daytime. Much flooding occurred in the Thames valley after the heavy rains of the early part of the month. In the south-west and south of Ireland severe floods followed the storm of the 18th. At Kew the level of the underground water ranged from 208 cm. on the 1st to 312 cm. on the 28th. The water rose from the summer level of 208 cm. to 308 cm. in 13 days.

**Bright Sunshine** was less than the normal except in England East and South-East, where it was above, and in England North-East, where it just equalled the normal value. At Markree the percentage of the normal was 55, at Valencia 56, Woolacombe 64, and Douglas 65. At Birmingham and Greenwich it was 131, and at Westminster 172.

A display of aurora occurred on the 2nd, 5th, 7th, 12th, 18th, 25th, and 28th to 30th ; generally at various Scottish stations, but on the 7th at Donaghadee and Lisburn.

