

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

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

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NOVEMBER, 1928. Quiet and rather cold at first with occasional slight rain, from 10th onwards unusually mild and stormy.

The outstanding features of the weather of November were the unusual mildness, which lasted from the 10th to the 26th, and the widespread destructive gales during the second half of the month.

During the early part of the month, pressure was high to the north-west and relatively low over the British Isles; winds, in consequence, were from between north and east and the weather was cloudy and rather cold with occasional and, in general, slight precipitation. A remarkable exception, however, to the general slight precipitation occurred in the south-east of England, where heavy rain fell on the night of the 1st-2nd, on the 2nd and during the night of the 2nd-3rd; during the 40 hours ending 9h. on the 3rd, 96 mm. were measured at Deal and 78 mm. at Dover. Sunny periods were experienced in northern and western districts on the 1st and 2nd (8.2 hr. at Cahirciveen, 7.0 hr. at Renfrew on the 1st, 6.8 hr. at Pembroke on the 2nd) and in many districts on the 3rd, 4th, 5th and 6th. In northern districts, anticyclonic conditions prevailed on the 8th, and on the 9th extended to the whole of the British Isles. Excellent sunshine records were obtained in northern districts and in Ireland on the 8th and widely on the 9th. Much mist and fog occurred from the 4th to the 7th, notably on the 6th. Day temperatures during these nine days were mostly moderate to rather low and night minimum temperatures frequently well below the normal, unusually low screen and grass minimum temperatures being recorded widely on the mornings of the 4th, 5th, 9th and 10th.

The change to mild unsettled conditions began in the extreme north of Scotland on the 9th, when rain fell at Lerwick during the day, widely in Ireland and Scotland during the night of the 9th to 10th and in all districts on the 10th. Air temperature rose well above the normal and on the 12th maximum temperatures of 60° F. and above were recorded in several districts. Rain was widespread and frequent, heavy falls occurring in northern and western districts on the 10th and 11th, widely on the 14th, 15th and 16th, during the night of the 18th to 19th and on the 19th in many parts of Scotland and Ireland, and widely from the 21st to the 23rd. Strong winds with local gales at times were frequently experienced, the most notable gales being associated with the deep depressions which passed across England on the 16th, southern Scotland on the 23rd and northern Scotland on the 25th. These gales, in which wind speeds and gusts in the neighbourhood of 90 mi/hr. were recorded, occasioned much material damage and some loss of life.

In the rear of the depression of the 25th, northerly winds of polar origin flowed over the country and temperature fell considerably: the 27th and 28th were decidedly cold and on the 28th the day maximum temperature failed to exceed 37° F. at Aspatria and 39° F. at Nairn and Eskdalemuir. Showers of rain, hail and snow occurred locally. Temperature, however, quickly recovered and by the 30th was again above the normal. The unsettled weather was relieved by many bright periods, notably on the 13th, 14th, 17th, 18th, 20th and from the 26th to the 28th.

Pressure and Winds.—Conditions were cyclonic during the greater part of the month, the barometer frequently falling to low levels during the period of disturbed weather from about the 10th to the 26th; at all stations monthly means of atmospheric pressure were markedly below the normal, the deficiencies ranging from 2 to 8 millibars. At Edinburgh, pressure fell to 950.7 mb. on the 23rd, the lowest value noted there since December, 1886. There is a record of a pressure of 930 mb. at Edinburgh in January, 1884. Winds were mainly from between north and east and light to moderate in force during the first ten days; thereafter they varied from south-west to north-west and were generally strong in force with local gales at times. The most severe gales were those associated with the intense depressions which crossed the country on the 16th, 23rd and 25th. The first of these developed off south-west Ireland and moved north-east across England. Gusts exceeding 70 mi/hr. occurred on the 16th in many places in southern England and Ireland; 93 mi/hr. was recorded in a gust at Cardington (anemometer head 150 ft. above ground), 86 mi/hr. at Cahirciveen, 81 mi/hr. at Croydon and 79 mi/hr. at Lympne. These values are so far the highest recorded values at these stations, except at Cahirciveen, where the highest on record is 96 mi/hr. on February 7th, 1923. As a result of the gale numerous telephone lines were down. The second of these depressions crossed southern Scotland on the 23rd and was accompanied by gales over the entire country; amongst the highest recorded velocities in gusts were 87 mi/hr. at Eskdalemuir, South Shields and Southport, 84 mi/hr. at Aldergrove and 83 mi/hr. at St. Mary's, Scilly. The third of these depressions passed to the north of Scotland on the 25th. Gales were again widespread, the wind attaining a velocity in a gust of 88 mi/hr. at Sealand and 84 mi/hr. at Dunfanaghy. The gales caused much structural damage, some loss of life and much interference to cross-channel steamship services.

Temperature.—November, 1928, was on the whole unusually mild and at all stations in the British Isles the mean temperature for the month exceeded the normal. Rather low temperatures with severe ground frost occurred during the first ten days and on the 27th and 28th, but during the remaining days temperature both by day and by night was decidedly above the normal. The observer at Copdock reports that on the night of the 12th the thermometer failed to fall below 54° F., a minimum temperature which has only been equalled or exceeded in November once at that station in the last 55 years. The average minimum temperature was as much as 3.9° F. above the normal and

equals the previous highest in November, 1906. The observer at Totland Bay reports that the mean maximum temperature of 53.1° F. is the highest for November since 1899 and adds that raspberries were gathered in an open garden until November 28th. At Eastbourne the mean values of daily maximum and minimum temperature were the highest recorded in November since 1913. At Belper the month was the mildest November since 1921. Amongst the low temperature readings recorded during the cold period in the early part of the month were 28° F. in the screen and 14° F. on the grass at Birr on the morning of the 2nd, 21° F. in the screen and 15° F. on the grass at Eskdalemuir on the morning of the 9th, and 20° F. in the screen and 15° F. on the grass at South Farnborough on the morning of the 10th.

The extreme temperatures for the month were:—England and Wales, 66° F. at Wakefield on the 12th, 20° F. at Roden Wellington on the 9th, and at St. Albans and South Farnborough on the 10th. Scotland, 63° F. at Liberton on the 12th and 16° F. at Braemar on the 9th; Ireland, 64° F. at Dublin (Trinity College) on the 12th, 22° F. at Markree Castle on the 9th.

Precipitation.—Precipitation in nearly all districts was slight during the first 9 days, but thereafter was both heavy and frequent. The general precipitation for the British Isles expressed as a percentage of the normal for the period 1881-1915 was 132; the values for the constituent countries were:—England and Wales, 126; Scotland, 134; Ireland, 142.

In England and Wales rainfall totals were below the normal along the north-east coast of England and in Cornwall, and over a large area which included London, parts of Surrey and Kent, and the greater part of the eastern counties; in the remaining districts there was in general an excess which was most pronounced in the central districts and the north-west and in Wales. The month was the wettest November at Belper since 1914 and at Eastbourne since 1919; at Bradford more than twice the normal rainfall fell during the month, including a heavy fall of 48 mm. on the 23rd and at Dungeness the month's total amounted to nearly two and a half times the normal. Amongst notable heavy daily falls were 46 mm. at Princetown on the 23rd and 24th, and 40 mm. at Keswick on the 23rd.

In Scotland, precipitation was appreciably above the normal in nearly all districts, notably in the south and west, but here and there, as at Balmoral, Logie Coldstone, Perth, and Kelso, there was a trifling deficiency. At Rothesay, during the last 120 years, the aggregate of 233 mm. has been exceeded in November only in 1917, with 265 mm. From 1st-8th slight rain occurred in the east, but little or none in the west. On 9th rain commenced in west and north, with rain on every day thereafter in many districts, and some extremely wet periods notably from 21st to 24th. Amounts exceeding 25 mm. were recorded over limited or wide areas on each day from 9th to 14th and from 16th to 26th, and in the far north on 29th and 30th. On 23rd the whole of Scotland was involved in a considerable rainstorm, with more than 50 mm. at e.g. Carsphairn, Arrochar and Inveraray; and at Arrochar the aggregate rainfall from 21st to 24th exceeded 150 mm. At Cargen, near Dumfries, the wettest year on record is 1887 with 1,613 mm.: the aggregate for the first eleven months of 1928, 1,629 mm., exceeds that amount.

In Ireland, monthly totals of precipitation were everywhere well above the normal, amounting to or exceeding one and a half times the normal in some central and north-eastern districts.

Sleet or snow fell in the north-east of Scotland on a few days but in general there were no important falls. Hail showers occurred on several days in various parts and thunderstorms on a few days.

Sunshine.—Sunshine aggregates were in general above the normal in the central and eastern districts of Great Britain and in the west of Scotland, and below the normal elsewhere. Representative totals for districts expressed as a percentage of the normal, 1881-1915, varied from 118 per cent. in England N.E. to 77 per cent. in the Channel Isles. There were many sunny days on which excellent sunshine records were obtained, notably in the north-west on the 1st and 2nd (8.2 hr. at Cahirciveen and 7.0 hr. at Renfrew on the 1st, 6.8 hr. at Pembroke on the 2nd), in many scattered districts on the 3rd, in English districts on the 5th (8.2 hr. at Lympne), in Scotland, Ireland and northern districts of England on the 8th, widely on the 9th (8.2 hr. at South Farnborough and Calshot, 8.1 hr. at Winchester), 13th, 14th, 17th, 18th, 20th and from the 26th to the 28th. The observer at Copdock states that on the 18th, 7.4 hrs. sunshine were recorded, "an amount which eclipses anything in my record at a corresponding period of the year except in the wonderful November of 1920".

Fog.—Fog occurred in the early part of the month and on the 29th and was widespread from the 4th to the 7th. Dense fog occurred in the Clyde area on the 8th-9th.

Miscellaneous Phenomena.—Halo phenomena, mostly halos of 22°, were observed at a few stations. Aurora was frequently observed; at Lerwick on 13 nights and at Aberdeen on 9. A display on the 15th was observed as far south as Dublin. The Zodiacal light was observed at Deerness on the 6th, 26th and 27th and at Oxford on the 15th.