

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

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

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November, 1930 was generally wet, especially in England and Wales, where the general precipitation amounted to one and one-half times the normal. In spite, however, of its excessive wetness, monthly aggregates of bright sunshine were decidedly above the normal in the eastern half of Great Britain. In Scotland, the month on the whole was the coldest November since 1925; in the south-east of England it was generally mild.

The month opened with mild rainy conditions, accompanied locally by mist or fog. On the 2nd a violent squall line crossed southern England, its passage being accompanied by severe thunderstorms in places,* and gusts of 82 miles per hour at Cardington (150 ft.), 78 miles per hour at Scilly, and 77 miles per hour at Shoeburyness. Gales occurred in exposed places on the 2nd and during the night of the 2nd to 3rd and with the influx of northerly winds the temperature fell, snow and sleet being reported from parts of Scotland on the 3rd and 4th. Considerable sunny periods occurred on the 4th and in the east on the 5th. In northern districts severe ground frost occurred on the mornings of the 4th, 5th and 6th, the terrestrial radiation thermometer falling to 8° F. at Eskdalemuir on the 5th and at Balmoral on the 6th. Meanwhile, a depression off the south-west coast of Ireland on the morning of the 5th moved south-eastwards and in the extreme south there was much cloud and rain on the 5th (27 mm. at Plymouth). The 6th was generally sunny, more than 8 hr. bright sunshine being recorded in the south of England on that day. From the 7th to the 9th an unsettled westerly type of weather prevailed. Much rain fell in Scotland and Ireland on the 7th and widely during the night of the 7th to the 8th. Good sunshine records, however, were obtained in the south-east of England on the 7th. From the 10th to the 13th mainly dry, sunny weather associated with an anticyclone to the south of the British Isles prevailed in the south and east, but the north-west came under the influence of the Icelandic depression, and though there was not much rain the wind was frequently strong, gales occurring in exposed places on the 10th, 12th, and 13th.

On the 14th, places on the south coast again enjoyed over 8 hr. of sunshine. Maxima reached 60° F. at places as far apart as York, Nottingham and Ross-on-Wye on the 9th, while 64° F. was registered at Shaftesbury on that day. Behind a trough of low pressure, associated with a deep depression over Scandinavia which gave rain in Scotland on the 14th and general rain on the 15th, an anticyclone moved south-east across the country to the Continent, bringing cold weather to all districts. Snow occurred in many parts of Scotland and the English Midlands, and sharp frost prevailed at night, especially on the night of the 16th-17th, when a minimum of 17° F. occurred at Marlborough and of 18° F. at Rhayader and Eskdalemuir, while temperature on the ground fell to 7° F. at Rhayader. Day temperatures were correspondingly low with local fog. At Renfrew the maximum did not rise above 29° F. on the 17th. In northern England the 16th was a sunny day. A mainly rainy and generally dull period followed from the 18th to 26th, with depressions moving north-eastwards across the country; heavy rain fell in several districts on most days, except the 23rd, which was sunny, but during the night of the 23rd to 24th heavy falls occurred in the south-west. Gales were frequently reported on various parts of the coast between the 22nd and 25th and particularly in the English Channel. Snow occurred generally in Scotland on the 22nd, and there were local thunderstorms in southern England on the 21st to 22nd and 26th in England. From the 27th to 30th improved conditions with a considerable amount of sunshine and local fog at night were enjoyed in the north and west, but in the south, associated with a depression over the Bay of Biscay, there was still much rain at times. On the 30th a wedge of high pressure passed eastwards across the country and was accompanied generally by much mist or fog and drizzle.

Pressure and Winds.—Cyclonic conditions predominated during the month and in all districts monthly means of pressure were for the fifth consecutive month appreciably below the normal; the deviation from the normal at 7 hr. G.M.T. ranged from 5.7 mb. at Lerwick to 1.8 mb. at Scilly. Westerly winds predominated and were frequently strong, especially in exposed coastal regions in the south-west and north-west, and in the outer islands off the west and north of Scotland. Gales occurred widely on the 2nd and 3rd, in the south-west on the 5th to 8th, in places in Scotland on the 8th and 9th, in the extreme north of Scotland on the 10th, widely between the 22nd and 24th, and in the south-west on the 25th and 29th.

During the gales which occurred in the extreme north of Scotland on the 10th in the rear of a depression over Scandinavia, the wind reached a velocity in a gust of 84 miles per hour at Kirkwall and 79 miles per hour at the Butt of Lewis. During the stormy period, 22nd to 24th, gusts of 70 miles per hour and over were recorded in many districts; 78 miles per hour was recorded at Birmingham and 72 miles per hour at Sealand on the 22nd and 79 miles per hour at Pendennis Castle on the 24th.

Temperature.—In Scotland monthly mean temperatures were below the normal and over the country as a whole the month was the coldest November since 1925. In most parts of England and Wales, and Ireland monthly mean temperatures were within 1° F. of the normal; only locally in the southeast of England did the departures from normal appreciably exceed 1° F. The highest temperatures were recorded generally during the mild spells on the

8th and 9th, 13th to 15th and 20th to 22nd; on the 9th, maximum temperatures in the neighbourhood of 60° F. were widely recorded, Cannington (Somerset) reporting 63° F. in that day, 61° F. was recorded at Stonehaven on the 13th and 64° F. at Shaftesbury on the 14th. The mildness of the period 20th to 22nd was in sharp contrast to the coolness of the period 16th to 18th when under the influence of cold northerly winds maximum temperatures below 40° F. were recorded in several places and in some places were only a few degrees above freezing point on the 17th. There was a sharp rise in temperature on the 19th and under the influence of southerly winds of tropical origin maximum temperatures between 50° F. and 60° F. were recorded between the 20th and 22nd; 59° was recorded in London (Greenwich) on the 20th as compared with 37° F. on the 17th. Screen minimum temperatures were lowest in the mornings of the 5th, 6th, 7th, 16th, 17th, 18th, 28th and 30th; 14° F. was recorded at Balmoral, Braemar and Logie Coldstone on the 18th and 15° F. at West Linton on the 5th and at Usk on the 17th. Ground frosts occurred frequently inland and were severe locally on the mornings of the 4th to 7th, 16th to 18th and, in the north, the 27th to 30th. The extreme temperatures for the month were:—(England and Wales) 64° F. at Shaftesbury on the 14th and 13° F. at Rickmansworth on the 17th. (Scotland) 61° F. at Aberdeen and Stonehaven on the 13th, and 14° F. at Balmoral, Braemar and Logie Coldstone on the 18th. (Ireland) 62° F. at Waterford on the 9th, and 23° F. at Markree Castle and Birr Castle on the 17th, at Phoenix Park on the 17th and 28th, and at Foynes on the 29th.

Precipitation.—The general precipitation over the British Isles for November, expressed as a percentage of the normal for the period 1881-1915, was 138, thus exceeding the normal for the fifth consecutive month. The corresponding values for the constituent countries were:—England and Wales 152, Scotland 134, Ireland 110. Over England and Wales as a whole there have been only three wetter Novembers since at least 1881, viz., in 1888, 1926 and 1929.

In England and Wales monthly totals of precipitation exceeded the normal everywhere, the excess relative to the normal being most pronounced in the east and southeast of England where from 170 per cent. to 200 per cent. of the normal was recorded. Amongst the largest daily falls were 43 mm. at Princetown on the 5th and 23rd and 41 mm. at Dean Prior on the 19th.

Rainfall in Scotland was, with the exception of small areas in southern Perthshire, in the upper reaches of the Dee and very locally in Ross-shire, above the normal, the excess in the eastern and northern districts being generally greater than in the western. The largest individual daily falls were centred around the 8th, 12th and 14th; on the 8th 76 mm. fell at Kinlochquoich, 81 mm. at Ardgour and at Glenorchy Manse; on the 12th 76 mm. at Loch Carron and 84 mm. at Glenquoich; and on the 14th 95 mm. at Kinlochquoich. Of the five days with more than 25 mm. at Glenquoich four of them had more than 50 mm. At Baltasound in Shetland and at Gruline in Mull rain fell on each day of the month.

Precipitation varied irregularly in Ireland; some districts, including Dublin City, had a deficiency, but more places recorded an excess.

The most frequent reports of snow were from northern districts in Scotland between the 2nd and 5th and more generally from the 15th to 19th and again from the 21st to 23rd. The most widespread falls occurred on the 18th and again on the 22nd. At Deerness snow fell on as many as 14 days. On the 22nd the snow lay to a depth of 8 inches at Ardlarach and on the 23rd to a depth of 7 inches at Braemar.

Sunshine.—In spite of the excessive rainfall during the month sunshine aggregates were generally well above the normal, especially in the eastern half of Great Britain. Representative totals for districts, expressed as a percentage of the normal for the period 1881-1915, ranged from 93 per cent. in Ireland N. to 155 per cent. in England N.E. Sunny periods occurred frequently in most districts during the first half of the month and in the north and west during the last week; from about the 15th to the 22nd on the other hand, conditions were in most places dull, especially in the south and east. In parts of southern and eastern England 8 hours or more sunshine were recorded on the 4th, 5th, 6th, 11th and 14th; Leafield had 8.7 hr. on the 4th and 8.4 hr. on the 6th.

Fog.—Fog occurred locally on the 6th, 14th, about the 18th and during the last few days of the month. With a few exceptions the total number of days of fog reported was largest in the large towns and industrial centres; Manchester had 19 days of fog, Hull 16, Nottingham 13 and Glasgow, Huddersfield and London 10.

Miscellaneous Phenomena.—Aurora was observed in Scotland on the 3rd, 11th, 14th, 15th, 16th and between the 23rd and 27th. The displays on the 3rd, 14th, 23rd and 25th were most widely observed, being reported on the 3rd and 26th from as far south as Eskdalemuir. Solar halos were observed at Oxford on 12 days; on the 26th a halo of 22° with parhelia and upper contact arc was observed at times after 10.30 G.M.T. and also a portion of the halo of 46° at 1100 G.M.T. and 1200 G.M.T. At 1515 G.M.T. multiple parhelia separated by about 3°, the lower arc being very bright, were observed. On the 27th the solar halo of 22° was visible practically all day with contact arc about 1545 G.M.T.

* See Meteorological Magazine, December, 1930, page 249. † Thunderstorms of November 2nd. by F. H. Dight, B.Sc.