

## 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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## Plentiful Sunshine, Numerous Thunderstorms and Unprecedented Rainfall.

**Depressions, Thunderstorms, &c.**—Although during the first fortnight there was very little rain in England the general situation was at no time really settled, high pressure systems paying but transitory visits, while depressions were never far distant, and sometimes either made considerable encroachments on the Kingdom or passed directly over it. Some of these disturbances caused gusts of gale force at isolated anemometrical stations, but there was no sustained gale and rarely a strong breeze.

The first depressions, marked A and B on the map on page 63, affected chiefly the northern districts, and the largest rain amounts were 22mm. at Dunfanaghy, on the coast of Donegal, and 24mm. at Lancaster. At the same time, however, small irregularities in pressure provoked slight thunderstorms in many parts of England and in some Irish localities. Further rains were brought to the western districts by the depression "C" as the centre travelled northward on the Atlantic, and on the 5th, 6th, and 7th thunderstorms with little rain were again common in England, and occurred here and there in Ireland. This depression was succeeded by the most stable spell of the month. For a few days practically the whole Kingdom was within the influence of an anticyclone, and from the 8th till the 11th there was scarcely a shower, and even thunderstorms were almost entirely absent. On the 12th and 13th local thunderstorms—still without much rain—were experienced at a number of stations over a very wide area, and the depression "F," travelling northward beyond the west of Ireland, produced rain in its immediate neighbourhood.

After anticyclonic influence had reasserted itself for a brief space on the 15th, and temperature had risen to a very high figure, a very shallow thunderstorm-depression developed over England. Late on the 16th the storm was of great severity in many places over the southern half of England, but its greatest violence was experienced in the metropolis, where the rainfall was unprecedented. More than 75mm. fell over a very large area, more than 102mm. at Holland House, and as much as 118mm. at Campden Hill.\* Portions of the Tube and District Railways were flooded and traffic stopped, and in certain places house-basements were under water; much damage was done to wood pavements. The rain was accompanied by some exceptionally large hail, stones of 2cm. in diameter being numerous. In some of the southern and south-eastern parts of London, however, there was no precipitation. In the vicinity of Tenbury, where there was also a storm of unusual violence, much damage was wrought by lightning, the hail was very large. According to newspaper reports the stones were as large as golf balls, some measuring 5 to 6 in. in circumference, and the injury to fruit trees and vegetables was very considerable.

Further thunderstorms occurred on the 17th and the next few days over a more extensive area, but except very locally the accompanying rainfall was not exceptionally heavy, although many places recorded more than 25mm. By the evening of the 20th the centre of a depression, track G, had reached the north-west of England from Iceland, bringing rain to almost all places and more thunderstorms locally. At Wick the rain measured 47mm. and at Reay (Caithness) 62mm. As the depression passed away to Scandinavia the North-Westerly and Westerly winds in its rear brought a generally unsettled type of weather, with occasional showers and a few local thunderstorms. After another depression to the northward of Scotland had prolonged the unstable conditions the centre of another disturbance appeared off the south-west coast of England. It travelled slowly in a general easterly direction up the English Channel during the 28th and 29th, and as is not unusual in similar circumstances, the rainfall accompanying the East and North-East winds over southern and south-western England was extremely heavy. In the present case the amount of rain in Somerset exceeded all records not only for that county but for every part of the British Islands, whether at ordinary levels or in the mountainous regions of the west and north. At Bruton the fall in 24 hours amounted to 250mm., at Taunton and Butleigh to 178mm., and over a very large area to between 100 and 150mm.\* The rain was nearly everywhere accompanied by thunder and lightning, and measurements exceeding 25mm. were recorded over nearly all the south and south-west of England. At a large number of stations the value exceeded 30mm. and in places exceeded 50mm. In the metropolis it varied considerably; at Kew Observatory, Richmond, it was 30 mm., and at Greenwich 46mm.

By the morning of the 29th the centre of the depression lay over the south-east of England, where rain was still falling, but during the day it passed away quickly eastward, and an anticyclone extending over the Kingdom from the Atlantic, the general condition of the weather became

fair and dry. The prevailing Northerly wind, however, was very cool, and the general level of the thermometer uniformly low.

**Barometric Pressure.**—Unlike June of last year when the pressure distribution was quite unusual, the mean isobaric lines differed little from the normal, but as the actual level of the barometer was above the normal in the south of England and over the Channel the gradient over the United Kingdom was steeper than usual. In the south and south-east of England the maximum pressure of the month occurred on the 3rd, but in other parts of the Kingdom the maximum was brought by the anticyclone of the 30th. The lowest pressure was recorded on the 1st in Scotland East and over Ireland, but during the passage of the depression of the 20th in most other districts.

**Temperature.**—At the beginning of the month temperature was somewhat low for the time of year, but by the 3rd an increase set in and for many days the level of the thermometer was above normal in nearly all parts of the country. Maximum readings above 29.5a became common, and occasional maxima above 29.7a were recorded over central and southern England. By the 12th there were isolated maxima of about 30.0a. Henceforth high readings became increasingly numerous in England until the climax was reached on the 17th. Maxima above 30.2a was recorded over very extensive areas, above 30.4a over a considerable portion of eastern and south-eastern England, and about 30.6a over a more restricted area. The highest values reported were 30.6a at New Malden in Surrey and 30.7a at Reading and at Little Massingham (Norfolk). A general South-West to West wind that set in about this time reduced the day temperature very considerably, and during the remainder of the month there was no hot spell. There were daily fluctuations within a limited range, but the level of the thermometer became gradually lower until towards the end of the month it was much below the normal. In many localities the coldest day was the 30th; at several stations in the east of Scotland the minimum reading on that occasion was as low as 27.2a.

For the month as a whole the temperature exceeded the normal in Great Britain and just equalled it in Ireland South, but in Ireland North it was a little below it. The greatest divergence was 2.4a in England East and 1.8a in England South-East; in Scotland it was very slight and in England South-West and North-West no more than 0.7a.

The temperature of the sea-surface-water ranged from 28.7.5a at Plymouth and Eastbourne to 28.2a off the north-east and east of Scotland. On almost all parts of the coast the values were higher than during the corresponding period of last year. Coastal fog was more in evidence between the 6th and 18th than at any other time of the month, its prevalence being greater in the west and south than along the eastern coast.

**Rainfall.**—Owing to the incidence of the thunderstorms the amount differed widely in the various districts, and even at stations situated in the same district. As a whole precipitation was in excess in Scotland North and East, England South-East and South-West and in the English Channel, and normal in Ireland North. Elsewhere there was a deficit. In England South-East the excess was 19mm., in Scotland North 16 mm., while in Ireland South the deficit was 17mm. and in England North-East 16mm. No normals are available for the places with the record fall in Somerset. In various other parts of the Kingdom the total was about 200 per cent. of the normal; on the other hand at several stations it was less than 50 per cent. At Ventnor it was only 34 per cent. Some extremely heavy falls within a few minutes were experienced with the thunderstorms. At Ushaw (Durham) on the 13th 14mm. fell in 6 minutes, at York on the 17th 24mm. in 30 minutes, at Sheffield on the 20th 18mm. in 15 minutes, at South Kensington (London) on the 16th 7mm. in 10 minutes, and early on the 29th 26mm. in 40 minutes.

**Bright Sunshine.**—The most sunny period was the warmest week when there was a mean daily excess of 3 to 4 hours over a large portion of England. The dullest over England was the cold week ending on the 30th, when the deficiency in the east and south-east was about 4 hours per day. In Ireland and Scotland, however, although temperature was low, the sunshine greatly exceeded the normal; in Ireland North the excess was nearly 6 hours per day. For the month as a whole bright sunshine was above the normal, the greatest excess being 1.5 hour per day in Scotland East, and the least 0.2 hour in Ireland South.

\* See "Symons' Magazine," July, 1917.