

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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Much wind, but few storms; deficient rainfall; warm nights.

An exceedingly wet August has been followed by a month of nondescript weather, which it is not possible to adequately summarise in a few words, as will be gathered from the notes supplied by observers in various parts of the Kingdom:—"On the whole a seasonable month," Kenninghall (Norfolk); "A much better month for the country than August. The high winds have dried the corn, and the stooks have never remained wet for long together. All the corn is now in, safe and in good condition. The springs are now running full," Allans Green (Northumberland); "A fine month generally—good for harvest," Derravoher (Limerick); "Though finer than August the weather was of the same type and never really settled. Fog was so prevalent on the rainless days that there was very little drying. The month was, therefore, much wetter than the rainfall figures indicate. Temperature was warm, especially at night," Fethard (Wexford); "A cold, wet month, very slow for haymaking. Made first rick on the 27th, against August 22nd in 1916, and September 2nd in 1915," Mount Callan (Clare). Similar great variability was noticeable over Scotland.

Air Pressure.—The pressure conditions which were associated with the boisterous and very rainy weather of August underwent a notable modification with the advent of September. During the previous month the eastern spur of the mid-Atlantic anticyclone made only occasional visits to Western and Central Europe, so that nearly all the disturbances forming in the trough of low pressure on its northern margin crossed Ireland and England. During the period now under review, however, there was an almost constant eastward protrusion from the main anticyclone, sections of which broke off and formed separate areas. These wandered slowly about Western, Central, and Southern Europe and the Mediterranean, and occasionally drifted away northward to Scandinavia and Northern Russia. At the same time the Arctic anticyclone of August either took up a more northerly position or was dispersed. In these changed circumstances the cyclonic systems traversing the North Atlantic have had to advance eastward in considerably higher latitudes. The result is seen Map 2, p. 99, which shows only four depression-tracks crossing the British Isles, while many fall between Scotland and Greenland. There was not one depression which deserved to be described as deep, a feature which may be associated with the great width of the belt of low pressure. The greatest depth was attained on the 25th, when the barometer dropped slightly below 980 mb. in the east of Iceland and in the north of Norway. The pressure was nearly as low on the 27th in eastern Iceland, and next day between Norway and Spitzbergen. At our home stations, readings below 1,000 mb. were uncommon, the lowest records being 985 mb. at Stornoway and Lerwick on the 20th, and 991 mb. at Lerwick on the 27th. On the other hand, owing to the persistency of anticyclonic conditions in the south, readings as high as 1,025 mb. were registered on many days, 1,032 mb. at Valencia on the 12th, and 1,031 mb. from Roche's Point across to Jersey on the 29th.

The map of mean pressure for the month shows the British Isles situated between a well defined anticyclonic system including the Azores and Central Europe, with pressure from 1,020 to 1,023 mb., and an elongated cyclonic area with its central space in which pressure was below 1,000 mb. stretching from Western Iceland to Northern Norway. From the series of parallel, West to East, isobars on Map 1, p. 99, it will be seen that there was a regular increase from north to south, from 1,006 mb. in Shetland to 1,020 mb. along the English Channel. At Lerwick the result was $4\frac{1}{2}$ mb. below the normal, and at Jersey nearly 4 mb. in excess, the mean gradient in consequence being considerably more than double the normal. In no previous September back to 1888 was there so steep a gradient for Westerly winds.

It is obvious from the foregoing remarks that throughout the month the conditions favoured an almost unbroken Westerly type. An analysis of the wind observations shows that 82 per cent. were from points between South and West and North-West, and 5 per cent. were calms. However, notwithstanding the generally steeper gradients than usual, the period while very windy, was not a stormy one, the observers at the telegraphic reporting stations returning only seven days on which the wind reached a gale (force 8) at one or more stations. In addition to the seven days of gale force there were 20 days on which strong or high squally winds (forces 6 and 7) were felt.

A depression which crossed Scotland on the 1st produced a South-West gale at Dungeness, and thunderstorms in many parts of England, with a good deal of hail locally, but only moderate rains, the heaviest in the north of England, 27 mm. at Bellingham and 30 mm. at Scarborough. On the 5th a shallow depression visited our southern districts, attended by light breezes, but occasioning an extensive thunderstorm in the course of the night over southern England and locally in the south of Ireland and South Wales. In London and a few other places it was very severe, the lightning being described as of a remarkable character. As a rule the rainfall was unimportant, the only large measurements being 28 mm. at Gwernyfed Park (Brecon) and 29 mm. at Westminster, but at New Malden 12 mm. fell in 12 minutes.

Another thunderstorm occurred over the south-east quarter of England on the 11th, with hail in various places, but not much rain. The passage of a depression from Iceland to the North Sea on the 13th was marked by some heavy rainfalls in the northern districts, 28 mm. at Graythwaite, 20 mm. at Lancaster, 31 mm. at Carnforth, 39 mm. at Beddgelert, and 52 mm. to 67 mm. in Snowdonia. A strong or high wind was experienced in many districts, with gusts of gale velocity, ranging up to 24 m/s. at Eskdalemuir and 27 m/s. at Southport. There was no gale with the small disturbance of the 18th-19th in the south of England, but it produced the wettest day of the month, there being numerous records of 25 mm. and upwards on the 18th. The heaviest falls were near the Severn Estuary, 42 mm. at Pant-yr-Eos, 44 mm. at Glansychan, 45 mm. at Ilfracombe and 51 mm. at Newchurch. The few thunderstorms at this time were in the north of Ireland and of Scotland.

The only gale felt at a number of stations was that of the 20th and 21st, associated with the depression whose centre passed between Orkney and Shetland in the night. A gale from between West and South blew as far south as Holyhead and Nottingham, the strength being estimated at "Force 9" at Nairn and Malin Head. Most of the anemometers registered gusts of gale velocity, the highest being 25 m/s. at Eskdalemuir, 26 m/s. at Aberdeen, and 28 m/s. at Southport. On this occasion and during the remainder of the month the rainfall generally was insignificant, though on the 27th there was exceptional rain in Inverness-shire, when Glenquoich had 82 mm. and Kinlochquoich 102 mm.

Temperature.—In all districts the month's temperature results were in excess of the normal, slightly in the English Channel, but by more than 1a. in most parts of England. As was the case in August, this was accounted for by the persistent mildness of the nights. Between the 4th and 7th several stations in Britain registered afternoon maxima from 297a. to 298a., and on the 25th from 294a. to 296a., but there were many nights in which the minima were above 286a., there being a number of instances as high as 288a. to 289 $\frac{1}{2}$ a. There were no definite periods of cold, the lowest day maxima and night minima occurring at various dates at different stations. Minima below 277a. were few in number, but the freezing point was reached at Roden (Salop) on the 8th, West Linton (Pentland Hills) on the 10th and 18th, Balmoral on the 24th, and Aylesbury on the 30th. Balmoral also touched 271a. on the 10th. The marked constancy of the temperature is well illustrated in the fact that in many places the range of the maxima and of the minima was 5a. or less, the Ilfracombe minima varying by less than 3a.

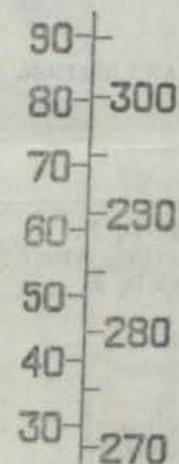
The temperature of the coastal sea water did not differ materially from that of the air on shore. Sea fogs were rather frequent in the west and south, but not after the 8th on the east coast.

Rainfall.—In Scotland North the precipitation was largely in excess of the normal, over the rest of the Kingdom there was a deficiency, Ireland South receiving only 58 per cent. of the normal, England North-East and the English Channel 57 per cent. At individual stations, however, there was a very wide range of conditions both in the actual amounts recorded and the relation of these to the normal. In Shetland it was the wettest September on record, Lerwick's 205 mm. being 270 per cent. of the normal. The 400 mm. at Glenquoich was the largest September total since 1892; while the aggregate at Kinlochquoich was as much as 490 mm. Yet there were numerous stations, some even in Scotland, which had very small amounts, ranging down to 11 mm. at Ampleforth (East Riding) and 10 mm. at Deighton Grove, York, these records being about 24 per cent. of the normal. Ireland had an entire absence of heavy rainstorms, 52 per cent. of the returns disclosing no falls of as much as 10 mm. on any one day, Mount Callan and Waterford College alone reporting falls of 21 mm.

The generalised results of the separated day and night records at 27 stations show no important difference in the hourly rate of fall, though in a few instances the day falls were much the heavier. **Dew** appears to have been unusually abundant.

Bright Sunshine.—With the exception of an excess of 0.6 hr. per day in England East the duration of insolation over eastern Britain was about normal, but in the west and far north there was a considerable deficiency, ranging up to more than an hour per day in Ireland South, and at individual stations up to 1 $\frac{1}{2}$ hr. at Aberystwyth.

An **Aurora** was witnessed in many parts of Scotland and Ireland on the 18th and was very brilliant at Blacksod. There were local manifestations on the 8th, 13th, 17th and 20th. **Visibility** was noted at several stations on various days.



Temperature Scales.