

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE.

(Supplement to the Weekly Weather Report.)

SUMMARY OF OBSERVATIONS COMPILED FROM RETURNS OF OFFICIAL STATIONS AND VOLUNTEER OBSERVERS IN THE UNITED KINGDOM, WITH A CHART OF RAINFALL CONTRIBUTED BY THE BRITISH RAINFALL ORGANISATION.

ISSUED BY THE AUTHORITY OF THE METEOROLOGICAL COMMITTEE.

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A COLD WET MONTH.

Pressure, Winds and Weather.—Some explanation of the causes which led to the abnormal weather of August may be gained by an examination of the chart of mean barometrical pressure given on the accompanying plate (Pl. LXXXV) and a clearer idea from a chart covering a much wider area which is prepared monthly in the Meteorological Office. The latter shows that the barometer was highest over the Azores and the neighbouring oceanic region, where the readings were in fair accordance with the average. A second high pressure system was however situated to the northward of Iceland, and over that island the mean readings were from 0.20 in. to 0.25 in. above the normal. Between these two regions a trough of low pressure extended from the eastern part of the Atlantic across the whole of North Western and Northern Europe, the minimum readings being found in a small area lying off the South of Norway. The appearance presented by the chart indicating the movement of depressions would be regarded as unusual even for a winter month. Throughout the period an almost ceaseless flow of cyclonic systems was observed, the centres moving as a rule from west to east, or from south-west to north-east, and as a result the mean pressure over the United Kingdom was considerably below the average, the deficit amounting to a little over 0.20 in. in England, Wales and Eastern and Central Ireland. On very few occasions did the barometer in any part of the United Kingdom rise as high as 30.0 in., but on the 11th the readings over the northern districts ranged between 30.10 in. and 30.15 in., while on the 22nd or 31st similar values were recorded in the south, the barometer in the Scilly and Channel Islands rising to about 30.25 in. In the east and south-east of England the lowest pressures occurred on the 26th, when the barometer fell below 29.2 in. in most places and below 28.9 in. on the Norfolk coast. Elsewhere the lowest readings were observed on the 29th, but it was only in the extreme north of Ireland that the barometer fell below 29.2 in.

Among the numerous depressions which visited these islands the following are deserving of special notice:—(a) A system which appears to have been originally developed over the Atlantic on the 1st in about Latitude 45° N. Longitude 35° W. The disturbance moved slowly eastwards to the Bay of Biscay and afterwards travelled in a northerly direction across the United Kingdom. During its passage extremely heavy falls of rain were experienced in all our western and northern districts. On the morning of the 4th considerably more than an inch and a half was measured at many of the south-western stations, 2.1 in. at Redruth and 2.3 in. at Ashburton. Next morning similarly large quantities were experienced in Ireland, Wales, the west of Scotland and the north-west of England, Donaghadee reporting as much as 2.2 in., Darwen 2.1 in., Crathes 1.7 in., and Glasnevin 1.6 in. Thunderstorms were experienced on the 4th over a large portion of Wales and the west and north of England, and in the neighbourhood of Greenock the heavy rainfall of the two days resulted in disastrous floods. (b) On the evening of the 5th, a small secondary disturbance was developed off the mouth of the Channel, and on the following day it travelled north-eastwards across England. Further heavy rains occurred in all our south-western districts; on the 5th as much as 2.0 in. fell at Scilly, 1.9 in. at Plymouth and 1.7 in. at Newquay and on the 6th 1.3 in. at Barnstaple and 1.2 in. at Rochford near Tenbury, Port Talbot and Arlington. During the passage of the disturbance a fresh to strong gale from between South-east and South-west was experienced on our south and east coasts, the wind rising in squalls to a velocity of 51 miles per hour at Gorleston, 53 miles at Brighton, 57 miles at Falmouth (Pendennis Castle), and 66 miles at Scilly. (c) A depression which was originally developed over the ocean in about latitude 43° N. 40° W. arrived off our south-west coasts on the night of the 11th and subsequently moved eastwards along the Channel to Belgium and the north-east of France. Heavy falls of rain were experienced in the Channel islands and the north of France, the morning measurements of the 13th amounting to 2.2 in. at Jersey, 1.3 in. at Guernsey and 1.0 in. at Salcombe. (d) On the 18th and 19th a large and complex depression was formed over the United Kingdom, the chief centre of disturbance appearing off our south-west coasts on the 19th and moving subsequently in a north north-easterly course directly across the country. During its progress an unusually widespread series of thunderstorms occurred, nearly all parts of the country being affected on the 19th. At Bristol as much as 1.3 in. of rain was collected and at Guernsey 1.2 in. (of which 0.66 in. fell in the space of 20 minutes).

In its effects upon the weather the most important depression of the month was undoubtedly that of the 25th and 26th. The first indications of this disturbance were shown early on the 25th over the Bay of Biscay. As a very shallow system the depression afterwards moved north-eastwards across the north of France, and at night heavy rain set in over the south and east of England. By 7 a.m. on the 26th, when the centre had reached the mouth of the Thames Estuary, the disturbance was beginning to increase in intensity, and in the course of the day, as it moved northwards, this process continued, the wind in the meantime rising to the force of a gale from the North-Eastward on the Norfolk coast. Shortly after 1 p.m., when the storm centre passed across Yarmouth, the barometer at that station fell to a

minimum of 28.87 in. and in the immediate rear of the depression the Westerly wind increased to a gale of sufficient strength to overthrow trees and to cause some amount of structural damage; at Gorleston the squalls reached a velocity of 60 miles per hour. During the evening and night of the 26th the disturbance travelled north-eastwards across the lower part of the North Sea and in the course of the next three days it passed gradually away to the neighbourhood of the White Sea. The most striking feature in its history was the phenomenally heavy fall of rain which occurred over East Anglia during its passage along our east coast. In the districts chiefly affected the fall appears to have commenced quite early on the 26th and to have continued for periods varying between 26 and 30 hours. During the 48 hours ended with the morning of the 27th the aggregate amount over a large portion of Norfolk and the neighbouring parts of Suffolk exceeded 4 in., over the eastern and central parts of Norfolk it exceeded 5 in., and in an oval area covering about 180 square miles and extending from the Broads to Wymondham it exceeded 7 in. At stations from which returns are received at the Meteorological Office the largest amounts in the 48 hours were 7.34 in. at Norwich (Eaton), 5.26 in. at Yarmouth and 4.68 in. at Thetford. From information collected by the observer at Eaton it appears that at two other stations in Norwich the falls amounted respectively to 7.36 in. and 7.51 in., and that at Brundall (about 6 miles to the south-eastward) it amounted to no less than 8.09 in. The fall of 6.31 in. collected at Norwich during the 24 hours ended 9 a.m. on the 26th was the largest amount ever recorded in the east of England on one "rainfall day." The excessively heavy rains occasioned floods of great severity, covering a wide area, and resulting in a temporary suspension of railway traffic, immense damage to the crops and to structures of various kinds, and some loss of life.

In addition to the instances already noted thunderstorms occurred in many parts of England and Ireland on the 7th, 8th and 10th, and in the east and south-east of England on the 30th. Heavy falls of rain were experienced over wide areas on the following dates:—In the south-west of England on the 16th and 17th; in Ireland on the 22nd, and in Wales and the south-west of England on the 23rd; and at many places in the western parts of Great Britain on the 28th.

The absence of summer warmth was remarkable. At a large number of stations in the west and north the thermometer at no time exceeded 65°, and it was only at a few scattered places in the southern parts of England that it ever passed beyond 70°. The highest shade reading reported was one of 73° on the 4th at Greenwich, Camden Square and Welshpool. On several days the maxima over a large portion of the country were below 60°; and on some occasions the thermometer at places in the west and north failed to reach 55°. In comparison with the average the night readings were nothing like so low as the daily maxima, but over the country as a whole the mean temperature of the month was the lowest recorded in August for at least 40 years past.

The temperature of the sea water differed but little from that of July, but was, as a rule, a trifle lower. On all but our east coasts it was higher than the air temperature at shore stations.

A waterspout was seen off Minehead on the morning of the 6th, and three waterspouts were observed from Southport over the Ribble estuary and Liverpool Bay on the morning of the 13th.

Rainfall.—At a few places in the west of Scotland and the west and south of Ireland the total amount was less than the average, but over the United Kingdom generally it was largely in excess, many places in the southern half of Great Britain recording at least twice as much as the normal quantity. In the Norwich district and at a number of stations in Wales and the south-west of England the fall exceeded 10 ins. the largest amounts reported being 19.1 in. at Princetown, 15.0 at Sheepstor, 12.5 in. (252 per cent. of the average) at Arlington, 12.8 in. at Seathwaite and 12.1 in. at Ilfracombe. At high level stations in Snowdonia the fall ranged between 17 in. and 25 in. The smallest totals were 2.7 in. at Balta Sound, 2.8 in. at Kingussie and 3.0 in. at Deerness, Fort William and Kilmarnock. At Fort William the fall amounted to less than half the average.

Bright Sunshine was very deficient, a large number of stations situated in nearly all parts of the kingdom recording considerably less than half the average amount. In the Channel Islands and at a few places in the extreme south-east of England the mean daily duration ranged between 4 and 4½ hours, and was equal to about 30 per cent. of the possible. Over Central and Southern Scotland and at a few places in the north-east of England the daily duration was less than 2 hours; at Crathes, Glasgow and Eskdalemuir it amounted to only 19 per cent. of the possible. Observers in various parts of the United Kingdom noticed that in the rare intervals of fine weather the sky seldom assumed its ordinary blue tint, but appeared to be covered with a hazy film "producing grey whiteness of the unclouded sky, and extreme weakness of all sunshine." A similar appearance was noted by several continental observers.