

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 VERY VARIABLE MONTH.

Pressure, Winds and Weather.—The period now under review was marked by rather variable conditions of atmospheric pressure, so that the British Isles experienced many types of wind and of weather. During the first twelve days the distribution of pressure was of a fairly constant character. There was a well-defined anticyclone covering the usual region of almost permanent high pressure along the middle belt of the Atlantic, sometimes expanding westward to Newfoundland and the United States, and eastward to the Spanish Peninsula. Another and equally well marked and extensive anticyclone occupied the northern regions, at first embracing the north-eastern and northern portions of Europe and thence across the Arctic Sea, then drifting gradually westward, and taking up a position between Norway, Iceland, and Greenland. Separating these two high pressure systems was a great belt of low pressure, at first extending from Southern Greenland across this country to Western, Central and Eastern or South-Eastern Europe, but as the northern anticyclone moved westward the valley of low barometer readings was driven from Greenland down to the neighbourhood of Newfoundland. Throughout the opening week of the month a cyclonic system of considerable extent lay all but motionless on the Upper Atlantic, having its central space in about 57° N., 25° W. On its eastern side two "V" shaped secondaries were developed. One moved across St. George's Channel on the 3rd, and formed a separate disturbance over South-Eastern England on the following day, the barometer sinking below 29.4 in. at some stations in that locality. The other secondary crossed the north of Ireland in the night of the 5th became detached and formed a separate area over the Irish Sea next morning, and dispersed in the evening of the same day. The parent system out on the ocean now began to advance slowly on a south-easterly path, its centre arriving near the Kerry coast on the morning of the 8th. Here its progress was arrested suddenly, and during the next four days the centre wandered about very irregularly between the 10th and 20th meridians, returning to the Kerry coast on the morning of the 12th, when it struck off to the south-eastward down the Bay of Biscay to Eastern Spain. This proved the deepest disturbance of the month, the barometer descending to 28.86 in. at Blacksod Point on the evening of the 8th.

As the depression was crossing the Bay, on the 13th, the Atlantic and the Arctic anticyclones expanded towards each other and became one vast system, and until the 16th a high pressure type of conditions ruled over these islands, the maximum pressure for the month, above 30.4 in., being attained over Scotland and the north of Ireland on the 14th. From the 17th to the 19th the anticyclone was a little to the westward, on the Atlantic, while low pressure areas occupied the North Sea region, in one well-developed system the barometer sinking to 29.19 in. at Lerwick on the 18th, the lowest reading registered over Scotland.

There was a considerable change in the distribution on the 20th, and during the remainder of the month an anticyclone was in the ascendant over Western Europe and most of the time over the British Isles or the greater part of them, while depressions existed about the northern portion of the Atlantic and thence north-eastward towards the Arctic Ocean, three systems passing up between Iceland and the Farøe between the 22nd and 29th, and one arriving over Ireland on the 30th, moving up to the Farøe next day.

For the entire month the mean pressure was everywhere below the normal, the deficiency ranging from 0.06 in. at Jersey, Yarmouth and Lerwick, and 0.07 in. at Dover to 0.15 in. at Castlebay and Malin Head, and 0.17 in. at Blacksod Point. The general distribution indicated a region of minimum pressure out on the Atlantic, the lowest mean values being 29.81 in. on the coast of Mayo, and 29.82 in. in the Hebrides. Thence the results increased to 29.84 in. off the south coast of Iceland on the one side, and to 29.95 in. at Jersey, on the other side, means a little above 30 in. being found only over Spain and the Baltic region. With as many as five distinct types of pressure distribution the winds were from every quarter of the compass.

Through the first three weeks the weather generally was of a breezy character, the wind exceeding the force of a strong breeze nearly every day at various stations. The unsettled type of conditions prevalent during the opening days produced strong or high winds, but no gales. The weather, however, was of a very disturbed character, thunderstorms visiting many parts of Ireland and a few isolated places in Britain on the 1st, no important fall of rain or hail being recorded. Next day thunderstorms occurred over the southern half of England, the precipitation being again inconsiderable, but over South-Western Ireland there was an inch of rain. With the advance of the "V"-shaped secondary of the 3rd rain was general throughout the kingdom, numerous stations in England registering $\frac{3}{4}$ in. and upwards, to 1.9 in. at Llanberis (Pen-y-Gwryd). On the 4th and 5th there were a few thunderstorms, mostly in Scotland, but there were very few instances of heavy rainfalls, 1.1 in. at Newcastle (Wicklow) and Cally on the latter date.

A more windy period set in on the 6th, lasting until the 11th, an Easterly gale (force 8) to a strong gale (force 9) setting in at Lerwick and

continuing through 31 hours, a Southerly to South-Easterly gale being felt at Wick. Squalls of 45 miles per hour were registered at Aberdeen, and of 51 miles at Pendennis Castle. Heavy rains were experienced in many districts, on the 6th up to 1.1 in. at Valencia Island, at Ford and Cruachan (Argyll), and on the Tyne, 1.6 in. at Alnwick Castle; and on the 7th exceeding an inch in Devon and Cornwall, as much as 2.1 in. at Princetown.

Under the influence of the deepest depression of the month a gale from between South and East blew at a number of stations, a gale to a strong gale being renewed at Lerwick on the 8th, and holding uninterruptedly through 64 hours. At Malin Head a whole gale (force 10) was reported. The anemometrical records show that gusts of 54 miles per hour occurred at Holyhead, 55 miles at Quilty, and 70 miles at Pendennis. On each of the next three days the force of a gale was reported locally. This more windy period was attended by numerous thunderstorms, especially on the 10th, when the northern half of Britain was affected, and there were many heavy falls of rain and hail. On the 9th the falls ranged up to 1.2 in. at Carnoustie, and 1.6 in. at Crathes; and next day to 1.6 in. at Dyce (Aberdeen), and 2.8 in. at Crathes. The rainstorm at Crathes, with an East wind, lasted continuously through more than 36 hours, the yield of water being 4.4 in.

Between the 15th and the 19th the conditions were again of a windy character, a gale from about North-East, North, and North-West blowing on various coasts, a strong gale at Portland Bill on the 15th, at Nairn on the 17th, and at Lerwick on the 19th. The Brighton anemometer registered gusts of 48 miles an hour on the 15th. There was, however, an important change in the type of weather. In some western districts rain continued frequently, but in small quantities, excepting for a fall of from 1 in. to $1\frac{1}{2}$ in. over Western Scotland on the 20th. Generally over the Eastern and Southern districts a dry spell set in between the 9th and 12th, no rain being measured for more than a fortnight in places, on as many as 19 consecutive days at Norwich and Temple Bruer. At a large number of stations the drought was interrupted by only one or two insignificant showers.

Until about the 22nd cold weather ruled, notably round the 6th and 7th, when low temperatures were common, frost in many localities, a minimum reading of 27° at Wokingham, and afternoon maxima below 45° in several districts, 42° at Balmoral and Crieff. Suddenly, unusual heat set in, and from the 25th to the 30th day readings of 80° and upwards were numerous over England, 84° on the 26th and 27th at some London stations. The nights also were very warm, with many minima above 55° , as high as 61° at Preston (Brighton), and 62° at Dover and Eye (Peterborough). With the heat came more or less severe thunderstorms to nearly all parts of England, from the 26th to the 31st, resulting in a number of casualties. But there were singularly few heavy rain and hail falls, generally less than $\frac{1}{2}$ in., Clacton and Felixstowe however exceeded an inch on the 27th. Of heavy falls in short periods, New Malden had 0.09 in. in 3 minutes on the 29th, Meltham 0.21 in. in $4\frac{1}{2}$ minutes on the 30th, and Leyland 0.21 in. in 10 minutes on the 31st. At Warlingham, on the 27th, there was a sudden drop of 13° in the temperature, on the breaking of a thunderstorm. The same storm at Southend was noted as the heaviest for ten years, the hailstones being $1\frac{1}{4}$ in. in diameter.

A brilliant meteor was observed at Tavistock on the 26th. It was visible for half a minute.

All round our coasts the temperature of the sea water was higher than during April, to the extent of 5° locally. Off the west of Ireland the water was little warmer than the air on shore, but elsewhere it was colder, by as much as 4° between the Tay and the Tyne.

There was a marked increase in the frequency of coastal fogs, in the east during the first fortnight, and in the south and west during the very warm weather at the end of the month, often dense, and leading to numerous casualties.

Rainfall.—While for the country generally precipitation was in excess of the normal, many individual stations in the east and south returned a deficiency. Cawdor had only 52 per cent., Dungeness 56 per cent., and Folkestone and Hastings 59 per cent., whereas at the other extreme Foynes had 199 per cent., Waterford 213, and Valencia 244 per cent. The aggregates for the month ranged from 0.5 in. at Fortrose, 0.7 in. at Dungeness and Bexhill, and 0.8 in. at Tenterden to 7.7 in. at Copper Mill (Snowdon) and Glenlyon, 7.8 in. at Valencia Island, and 11.1 in. at Loan, Loch Quoich. Many stations in the drier neighbourhoods had rain on seven to nine days only, but elsewhere the frequency was over 20 days at a considerable number of places, 25 at Oban, Cruachan, Glasgow, Cong and Markree Castle.

Bright Sunshine.—The duration of insolation was less than usual nearly everywhere. It was only 69 per cent. of the normal at Stonyhurst and Valencia, 71 at Southport, Markree Castle and Phoenix Park, Dublin, and 72 per cent. at Durham and Stornoway, but Kew Observatory returned 105 per cent., Cirencester and Rothamsted 106, Eastbourne 108, and Westminster 120 per cent.