

MONTHLY WEATHER REPORT OF THE METEOROLOGICAL OFFICE

(Supplement to the Weekly Weather Report.)

SUMMARY OF OBSERVATIONS COMPILED FROM THE 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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SUMMARY OF OBSERVATIONS.

Pressure, Winds and Weather.—The very unsettled type of atmospheric conditions which set in as far back as October 19th was maintained throughout December which proved to be the most disturbed, the wettest and the stormiest month of the whole year. Wireless reports from numerous steamers showed that exceedingly boisterous weather prevailed over the northern half of the Atlantic throughout this period, under the influence of cyclonic systems, many of them of great depth. Some of these appear to have remained for several days practically stationary between the 50th parallel and Iceland, one from the 8th to the 13th, another from the 16th to the 22nd, and a third from the 25th to the 31st. In addition to independent depressions which arrived on our coasts from various parts of the ocean, these great disturbances threw off many secondaries, which affected all parts of the British Isles, and did much to keep up the unusually rainy weather. Frequently the disturbances, primaries and secondaries, which visited this country were of considerable depth and intensity, the barometer sinking below 29 in. in several localities on as many as eight days. The lowest readings reported were on the 5th, 28.76 in. at Malin Head; on the 10th, 28.67 in. at Holyhead and Pembroke; on the 11th, 28.64 in. at Shields; on the 13th, 28.54 in. at Birr Castle, the minimum pressure of the month; on the 18th, 28.78 in. at Blacksod Point; on the 21st, 28.90 at Scilly; also on the 24th at Aberdeen, and on the 25th, 28.95 in. at Lerwick. On the other hand, the high pressure systems of the month were found over Continental countries, between Russia and the Spanish Peninsula, or stretching out over the Atlantic in the Madeira-Azores region. It was not until the last day of the year that the central space of one of these anticyclones approached these islands from the neighbourhood of the Baltic. There was a considerable increase of pressure in all districts, the barometer rising above 30 in. in Shetland, and 30.5 in. at Jersey.

With such a large preponderance of low readings it is obvious that the mean pressures for the entire month were very much lower than usual. The deficiency was smallest at Yarmouth, 0.17 in. It exceeded $\frac{1}{4}$ in. at the majority of stations, and amounting to 0.41 in. at Blacksod Point. Owing to the high readings on one day only the range of pressure was large, exceeding $1\frac{1}{2}$ in. in most localities, and reaching $1\frac{1}{2}$ in. at Birr Castle and Pembroke. The mean distribution of pressure was of a strongly marked South-Westerly type, with a steeper gradient than the normal, but it was very uniform, the values ranged from 29.93 in. at Paris, and 29.81 in. at Jersey to 29.41 in. at Blacksod Point, and 29.40 in. at Stornoway, the pressure minimum being out on the Atlantic, to the southward of Iceland, the barometer at Reykjavik averaging 29.03 in.

As a result of the almost uninterrupted succession of depressions the weather was in a boisterous state, and on every day from the 1st to the 26th the wind rose to the force of a gale (force 8) at one or more stations round our coasts, and on as many as nineteen of these days it reached a strong gale (force 9). Speaking broadly the gales were not of a very violent character, the only instances of more than a strong gale recorded at the telegraphic reporting stations being a whole gale (force 10) at Dungeness on the 10th, at Scilly on the 12th, and at Jersey on the 21st. A feature of these gales, however, was the great frequency of severe gusts, as registered by the automatic anemometers at many stations. Gusts equivalent in velocity to a strong gale (47–54 miles per hour) and a whole gale (55–63 miles) were too numerous to be referred to in detail. It will suffice to mention those of 70 miles per hour and upwards. On the 5th, gusts of 78 miles per hour were registered at Quilty; on the 6th, 71 miles at Dwyran (Anglesey), and 79 miles at Pendennis Castle; on the 10th and 12th, 77 miles at Pendennis; on the 13th, 73 miles at Scilly; on the 18th, 75 miles at Pendennis, and 88 miles at Roche's Point; and on the 25th, 70 miles at Scilly and Quilty. Occasionally the wind drew into the South-East quarter or a little to the north of West, but as a general rule the gales experienced were from points between South and West. At the end of the month much quieter conditions obtained, and from the 27th to the 31st there was no gale force felt anywhere.

More striking than the gales was the persistency of the rains brought by successive disturbances, so that in many localities precipitation was measured on every day of the month, while over an extensive region there were only two or three days on which no rain fell. Many observers note that both as regards frequency and quantity it was the wettest December in their experience, the records at Ross (Herefordshire) showing it to have been the wettest in 94 years. Locally there have been one or two Decembers with more rain. The rainstorm of the 6th affected practically the whole of the kingdom, falls of an inch or more being very numerous, up to 1.8 in. at Cruachan, 1.9 in. at Killarney, and 2 in. at Sheepstor. Consequent upon the heavy rain there was a flood at Uldale on

this occasion, and again after another downpour on the 10th, which was general, the amounts ranging up to 1.5 in. at Newton Rigg and Uldale, and 3.2 in. at Seathwaite. The 14th was another very wet day over the southern half of the kingdom, the Forest of Dean receiving $1\frac{1}{2}$ in., and Abersychan 2 in. On the following day 2 in. fell at Crathes. At this period large falls were common daily in the western districts, bringing about disastrous floods in South Wales; also in the Thames Valley and other districts. At Abersychan there were seven days during the month each with from 1 in. to 2 in. of rain. During the remainder of the month the largest rainfall on any one day was 2.1 in. at Gruline (Mull), on the 23rd. From time to time there was snow or hail in a few places, but the falls were insignificant, the largest snowfalls reported being nearly 2 in. at West Linton on the 9th, and an inch at Cally on the 10th.

Notwithstanding this abnormal wetness, observers again note, as in the preceding two months, that though the month was rainy, most of the rain fell in the night, many days being sunny, and free from fog. The observer at Bucklebury, Berks, remarks "It is singular that most of the heavy rainfall has taken place during the night, and however heavy the rain, it soon disappeared, and the roads and gardens became quite free from water. The roads at present are like April."

As would have been expected in a winter month marked by persistent South-Westerly breezes, and as persistently damp weather, there was scarcely a sign of the cold which is normal to the season. Many of the observers refer to the unusual mildness of the period, and this is reflected in the mean temperature, which was everywhere in excess of the normal, and generally higher than the values for the preceding month, November. For the whole country the excess was about 3°, but at individual stations it was in numerous cases more than 4°, while in the South of England it exceeded 5° in several places, and at Eastbourne and Westminster it was nearly 6°. These remarkable figures, however, were due not so much to high day readings as to the almost entire absence of night frosts. As a rule the range of temperature was small, there being few records of maxima above 55°, but 58° was reached at Trinity College, Dublin, on the 18th, and at Hawarden Bridge on the next day. There were also unusually few night minima below 27°, the lowest registered being 21° at Balmoral on the 8th, and 23° on the 10th. As against the unimportant frosts there were several exceedingly mild nights, with large numbers of records of 48° and upwards, 52° at Barnstaple, Penzance and Teignmouth on the morning of the 17th or of the 18th.

Thunderstorms occurred on several days, but they were of a local character and comparatively unimportant, the only one described as severe being at Carrigallen on the 16th.

Aurora was seen on the 6th, 11th, 12th (brilliant at Liverpool), 13th, 14th, 17th, 23rd, and 26th. At Isleworth, on the 7th, a meteor was observed travelling eastward.

Fog was uncommon inland and on the coasts until after Christmas Day, when it was noted daily at many places inland and on the eastern and western coasts, but not along the south coast of England.

On all coasts the temperature of the sea water was lower than during November, by as much as 5° locally in the east, but the water was nearly everywhere warmer than the air on shore, by 5° on the coast of County Down.

Rainfall.—Although the month was so abnormally wet over the country generally there were a few places in Scotland where the aggregate totals were less than the average, Strathpeffer and Cawdor returning 72 per cent., Wick 87 per cent., and Dunrobin Castle 88 per cent. In numerous instances, however, the figures showed more than double the usual records, up to 276 per cent. at Cheltenham, 277 at Reading, 285 at Worthing, 293 at Swarraton; 315 at Portsmouth, 332 at Hereford, and 351 at Wilton, Salisbury. Scores of stations, not only in the mountainous districts in the western regions, but in the low level parts of southern England, returned more than 10 in., the largest aggregates being 18 in. at Sheepstor, 18.1 in. at Burrator and Seward's Cross, Devon, 21.5 in. at Glenquoich, 24.2 in. at Treherbert, and 27 in. at Seathwaite. At Fortrose, Ross-shire, rain fell on 14 days, at Dursley, Gloucestershire, on 18 days, and at Tynemouth on 19 days, in all other localities on 20 or more days.

Bright Sunshine.—The duration of sunshine was variable, but in most places it exceeded the normal. Stornoway had 62 per cent., Stonyhurst 69 per cent., and Newcastle-on Tyne 71 per cent. against 152 per cent. at Deerness, 168 per cent. at Torquay, and 200 per cent. at Westminster. The totals ranged from 10 hours at Bunhill Row, 13 at Glasgow, and 15 at Fort Augustus and Stornoway to 65 at Paignton, 66 at Salcombe, 69 at Falmouth, and 89 at Torquay.