SUMMARY OF OBSERVATIONS.

DECEMBER, 1906.

General Summary.—The closing month of the year was marked by very variable atmospheric conditions in all parts of the British Isles. During the first week the weather was rather disturbed, rain being of frequent occurrence, varied in places by hail or sleet, while the wind was very brisk. In the night of the 5th–6th it blew hard from between West and North-West on the western and south-western coasts, attaining the force of a whole gale on the English Channel, and a storm off the north of Ireland. In all districts, however, this period was very mild. It was followed by a cold week, with sharp frost in many localities. Hail, sleet and snow were experienced in most places, and locally on the coasts of Norfolk and Suffolk there were unusually heavy falls of snow on the 9th and 10th. A very quiet anticyclonic week succeeded, as a rule cloudy or overcast, but there was little or no precipitation, although the atmosphere was soft and humid. The weather was exceedingly mild in Scotland and Ireland, the mean temperature over the north of Scotland being more than 7° in excess of the normal for the district, and slightly above the current value for the English Channel district. This gave way to a boisterous, winterly spell, the remainder of the month witnessing the most inclement weather experienced for many years, the whole kingdom being affected. On the afternoon of Christmas Day, the appearance of a small disturbance on the north coast of Ireland was attended by snow, and in the course of the evening and night the fall extended to practically all districts, and thenceforward to the close of the year snow or sleet was of almost daily occurrence. In some localities there were very heavy falls of snow, but as a general rule the yield of water was small, there being few instances of more than ½ in. on any one day. Owing, however, to the prevailing high wind many great snowdrifts were formed in various parts of the country, impeding road and railway traffic, and interrupting telegraphic communication. At Malin Head a strong gale was maintained continuously through three days (26th–28th). The lowest temperatures of the year were recorded in the closing days. The mean temperature for the fifty-second week was nearly 7° below the average over the country generally. In the eastern counties the divergence from the average was more than 8°. Thunderstorms occurred in many localities on several days, accompanying the heavy snowfalls of the 9th and 10th on the east coast, and the more general snowstorms on the 26th, 27th and 28th. An auroral display was witnessed in the north of Scotland on the evening of the 8th. For the month as a whole pressure was in excess over the greater part of the kingdom; the winds were mainly from between South, West, and North; temperature was nearly everywhere in defect; precipitation was unequally distributed; and bright sunshine was above the normal in most districts.

Pressure.—*Mean at 8 a.m.* ranged from 30·09 ins. at Valencia, and above 30 ins. generally over the south-western quarter of the kingdom to below 29·8 ins. over northern Scotland, and 29·64 ins. at Sumburgh Head. The values were a little below the average* in Shetland and the more eastern stations in England, by 0·03 in. at Yarmouth, but elsewhere they were above, the excess increasing decidedly westward, to as much as 0·22 in. at Valencia. The distribution of mean pressure, consequently, differed to some extent from the normal, and the gradient was rather more steep than usual. *Highest* readings were recorded on the 20th and 21st, when the barometer rose to from 30·6 ins. to 30·65 ins. in many places. *Lowest* values occurred on the 5th, 28·81 ins. at Sumburgh Head, and on the 26th, 28·80 ins. at Sumburgh Head, and 28·84 at Dungeness—separate depressions. *Range* was, therefore, considerable, from 1·1 in. at Valencia to more than 1·7 in. at Aberdeen, Shields, and Dungeness.

Depressions.—The disturbances of the month were rather numerous, and both their paths and their rate of translation were very varied. More of them passed down the North Sea than followed the more usual northerly course on the ocean beyond our western coasts.

Anticyclones.—During the night of the 6th and the first part of the 7th the central space of a high pressure system, with barometer readings above 30·4 ins. crossed the southern half of the kingdom from west to east. All the other anticyclones had their maxima of pressure somewhere on the Continent, between Spain and Russia. On the 20th and 21st, when the barometer was at its highest level in this country, the centre of the system, with readings above 30·9 ins., was over Eastern Europe.

Winds.—There was a great prevalence of Southerly to Westerly and Northerly winds over the country generally, but at the southern stations there was a fair proportion of South-Easterly to North-Easterly breezes. Days on which gale force was experienced numbered 13 at Deerness, 9 at Malin Head, and 5 or more at several other stations.

Temperature.—*Mean at sea level* ranged from slightly above 46° at Scilly, and above 42° at many south-western and western stations to below 38° over most of the northern and eastern districts, less than 36° in places. The general distribution agreed fairly with the normal, but the actual values were in nearly all cases below the average*, by more than 3° at St. Leonard's, Lowestoft, Llangammarch Wells, and Dungeness. *Highest* readings were registered in most places between the 2nd and the 5th—59° at Saltburn-by-the-Sea, 58° at Crathes, Ballinacurra, and Rhyl, but Clathick had 58° on the 19th, and Wick a similar reading on the 21st. *Lowest* values occurred between the 26th and the 31st—in England, 3° at Swarraton (28th); in Scotland, 4° at Crathes (30th); and in Ireland, 8° at Markree Castle (29th). *Range* was generally large, exceeding 40° at numerous stations, 50° at Swarraton, and 54° at Crathes. At Scilly it was 20°. *Vapour Pressure* ranged from 0·185 in. at Aberdeen (6 p.m.) to 0·263 in. at Blacksod Point (6 p.m.). *Relative Humidity* ranged from 77 per cent. at Jersey (6 p.m.) to 98 per cent. at Stornoway (8 a.m. and 6 p.m.). *Mean Earth Temperature* at 1 ft. depth ranged from 38° at Nottingham to 43° at Bath and Plymouth; and at 4 ft. depth from 43° at Aberdeen to 49° at Bath.

Rainfall.—The precipitation, which was frequently in the form of hail, sleet, or snow, varied considerably, being above the average* in many localities, below it in others. Glencarron returned an excess of 3·3 ins., while Killarney had a deficit of 3·5 ins., and Roche's Point of 3·8 ins. The largest aggregates were 13·7 ins. at Glencarron, and 8·7 ins. at Fort William and Laudale; the smallest 1·4 in. at Leith, and 1·3 in. at Portland Bill and Spurn Head. There were few instances of more than an inch in a day, but on the 2nd, Glencarron had 3·65 ins. The number of days on which any precipitation was measured ranged from 30 at Blacksod to 9 at Clathick.

Bright Sunshine.—The duration of bright sunshine was above the average* at the great majority of stations, to the extent of 23 hours at Southampton; the percentage of the possible duration ranging from 33 at Bournemouth, and 30 at Eastbourne and Totland Bay to 4 at Stornoway, and 2 at Fort Augustus.

Observations in the Upper Air.—Kite or pilot balloon observations were obtained on the 1st, 2nd, 4th, 5th, 6th (3), 8th, 11th–14th, 15th (2), 21st (2), 22nd (3), 25th, 26th, 27th (3), 29th (3), and 30th.

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* The averages employed are—*Pressure*, *Temperature* and *Rainfall* for the 35 years 1871–1905; and *Bright Sunshine* for the 25 years 1881–1905. The values will appear in Appendix III. to the Weekly Weather Report for 1906.

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