

river Dee immediately to the south of Loch Ken were surveyed on July 15, 1903—the day after Loch Ken had been sounded—when it was found that the water had risen to the extent of about 3 feet, the elevation being 144·9 feet above the sea. This was due to the fact that steady rain set in at 3 p.m. on July 14, and continued almost without intermission all night and all next day. The portion surveyed extends for 4 miles southward from the entrance of the Black Water of Dee, as far as Cross-michael, and consists of a series of widenings and narrowings of the river, the wider parts usually coinciding with an increase in the depth. The largest expansion is nearly half a mile in width, while the mean breadth of the entire part surveyed is only one-sixth of a mile. The portion surveyed covers an area of about 431 acres, or two-thirds of a square mile, the area draining into it including Loch Ken and all the other lochs previously dealt with, and extending to nearly 300 square miles. The maximum depth of 44 feet was observed in the most northerly expansion, but depths of 42 feet were recorded about $1\frac{1}{2}$ miles lower down, and in the most southerly expansion surveyed, called Kirkland Loop. There are seven areas where the depth exceeds 20 feet, including no fewer than eleven isolated areas where depths exceeding 25 feet were found. The large central expansion has a maximum depth of 27 feet, and the little off-shoot on the western shore called Long Loch varies from 9 to 18 feet in depth. Of the entire area surveyed about 81 per cent. is covered by less than 20 feet of water.

Temperature Observations.—The surface temperature during the time spent on the survey varied from $58^{\circ}\cdot3$ to $60^{\circ}\cdot6$ Fahr. A series taken in the northernmost deepest basin indicated a slight inversion of temperature, probably as a result of the rainstorm, the surface reading being $58^{\circ}\cdot3$, that at 20 feet $58^{\circ}\cdot6$, and that at 39 feet $58^{\circ}\cdot8$.

Carlingwark Loch (see Plate XLIV.).—Carlingwark Loch lies close to the town of Castle Douglas, and drains into the river Dee by a straight stream called Carlingwark Lane, $1\frac{1}{4}$ miles in length. The loch is sub-rectangular in outline, and trends nearly north and south, being three-quarters of a mile in length, and over one-third of a mile in maximum breadth. The superficial area is about 105 acres, and the drainage area over half a square mile. The maximum depth of 17 feet is centrally placed, and of the entire lake-floor about 74 per cent. is covered by less than 10 feet of water. The mean depth is estimated at 7 feet, and the volume of water at 31 million cubic feet. The loch was surveyed on July 17, 1903, when the elevation was 143·0 feet above the sea; the elevation as observed by the Ordnance Survey on April 23, 1894, was 142·3 feet.

Loch Whinyeon (see Plate XLIV.).—Loch Whinyeon is a little sub-circular loch about 5 miles north-east of Gatehouse of Fleet. When surveyed on July 22, 1903, the elevation could not be determined by