

LOCHS OF THE FORTH BASIN.

WITHIN this basin the following lochs were sounded by Sir John Murray and the late Mr. Fred. P. Pullar, viz., Lochs Katrine, Arklet, Achray, Vennachar, Drunkie, Voil, Doine, Lubnaig, Chon, Dubh, Ard, Menteith, and Leven. The eight first-mentioned lochs belong to the catchment-basin of the river Teith, and have a special interest from being directly or indirectly connected with the excellent water-supply to the city of Glasgow.* Loch Arklet belongs to the catchment-basin of Loch Lomond, but the Corporation of Glasgow has power to divert its waters into the catchment-basin of Loch Katrine.

Loch Katrine (see Plate IV.).—Loch Katrine is one of the best known and most beautiful of the Scottish lochs. The celebrated

* In the year 1855 the Corporation of Glasgow was empowered by Act of Parliament to raise Loch Katrine 4 feet above, and to draw it down 3 feet below, the previous summer level, thus giving a total available depth of 7 feet for the supply of water to the city, the quantity of water to be drawn from the loch being restricted to fifty million gallons in twenty-four hours. For the purpose of providing compensation water to the riparian owners on the river Teith, power was also given to raise Loch Vennachar 5 feet 9 inches above its previous summer level, and to draw it down 6 feet, and also to raise Loch Drunkie 25 feet. An aqueduct was built from the southern shore of Loch Katrine to Glasgow, 8 feet wide and 8 feet high throughout, with a semicircular top, and having a fall towards Glasgow of 10 inches per mile. At first only a portion of the available fifty million gallons per day was conveyed to Glasgow, but by the end of 1881, the whole of the works necessary to complete the original design were finished. In the year 1884 it was found necessary to provide a larger quantity of water in order to keep pace with the growth of the city, and it was then found that the roughness of the rock sides of the aqueduct had a very retarding influence upon the velocity of the water, and that the aqueduct could not be made to discharge more than forty-two million gallons per day. Power was subsequently obtained from Parliament to build a second aqueduct, to raise Loch Katrine an additional 5 feet, and to convert Loch Arklet, which flows into Loch Lomond, into a reservoir by raising it 25 feet in level. These works are now in progress, and when completed are estimated to give a supply of seventy-five millions of gallons of water per day to the city of Glasgow. Should a still greater supply be necessary in the future, it is believed this can be obtained by connecting Loch Doine with Loch Katrine by a tunnel through the intervening hills, and by constructing an embankment at the bottom of Loch Doine to raise the water-level 30 feet, and another at the bottom of Loch Voil to raise the water-level of that loch 10 feet, and if still more water were wanted, Loch Lubnaig could furnish it (see papers by James M. Gale, Esq., M. INST. C E, in the *Trans. Inst. Engineers in Scotland*, vols. vii., xii., xxvi., and xxxviii., and his Report on the proposed extension of the Glasgow Corporation Water Works, dated May 17, 1881).