

rocks. Both the Falloch Valley and the Strath Dubh Uisge are typical U-shaped valleys, and the former has been considerably over-deepened as the Strath Dubh Uisge is a hanging valley some 700 ft. above the level of the Falloch. Similar hanging valleys occur on the other side of the Falloch. It is very probable that a shallow moraine-dammed lake occupied the floor of Strath Dubh Uisge before the river had cut its way through the moraines.

REFERENCES.

- Geol. Surv. Maps. Sheets 38, 45, 46.
1892. DAKYNS and TEALL.
1913. WYLLIE and SCOTT.
1886 and 1913. CADELL.
1910 and 1915. GREGORY (and FIORDS, 1913).

X.—THE FALLS OF CLYDE.

BY JAMES STARK.

The terrain around the town of Lanark affords a classic example of certain changes in the physiography of a district occasioned by ice-action during the Glacial Period. Previous to that epoch the Clyde Valley above Lanark was wide and open, as it still is, a couple of miles below that town, where the 600-ft. contour lines are about four miles apart, and the bottom of the valley is some 400 ft. below that datum.

The glaciation of the district has been mainly from the Southern Uplands, as the vast majority of the stones in the drift have come from that direction; only a small proportion have come from the Highlands in the north-west. As this part of the old Clyde Valley lay across the glaciation of the district, it, as also the valleys of some of its tributaries, has been entirely filled up with drift, the upper portion of which consists of an immense accumulation of gravel and sand, covering an area of many square miles in extent.

At the close of the Glacial Period, the Clyde, in this part of its course, taking the lowest levels among the surface inequalities of the drift, appears to have begun the excavation of a new channel at the point where it encountered the rocky boundary of its ancient valley below Braxfield, there forming a waterfall, which, cutting its way backwards, has excavated the defile below New Lanark. At the same time another fall must have commenced a short distance below the present position of Corra Linn, where the river, in its new channel, traversed the margin of what may have been the pre-glacial valley of the Douglas Water, the present confluence of which with the Clyde is about two

miles farther to the south. This fall has now worn its way back about three-quarters of a mile, to its present position at Bonnington. Its height, of course, would be limited by the level of the river-bed below it, but as soon as the first-mentioned fall had cut the Braxfield gorge back to its coincidence with the ancient valley at New Lanark, the detritus in that valley would be speedily cleared out, and a new fall would be formed where the Bonnington one began, but on a lower level. This new fall is working in the line of the original Bonnington gorge, and has cut its way back to its present position at Corra Linn. Meantime the drift filling the old river valley has been so denuded as to give rise to the wide hollow in which New Lanark, with its mills, and the mansions of Bonnington and Corehouse are situated.

The Mousewater joins the Clyde about two miles below Corra Linn, and a large portion of its pre-glacial valley has also been completely filled with drift. On the melting of the ice-sheet the Mouse failed to find its ancient valley near its confluence with the Clyde, and has since cut out the gorge of Cartland Crag by means of a fall, or series of falls, which have long ago worn themselves out, leaving a romantic ravine, half a mile in length, and in places about 400 ft. in depth, below what must have been its immediately post-glacial level. Meantime the drift filling up the ancient valley has been so washed out as to plainly define its course through the grounds of Baronald, immediately to the east of the Crag.

REFERENCE.

1902. STARK.

XI.—THE KAMES OF CARSTAIRS. (See Plate 15.)

By J. W. GREGORY, D.Sc., F.R.S., F.G.S.

Below the Cartland gorge is the so-called "Roman bridge," respecting which the popular tradition of a Roman origin is most firmly established. It was certainly built before the development of wheeled traffic at the end of the seventeenth century. It, however, replaced a wooden bridge and was built about 1649. This bridge crosses the Mousewater, which also passes beside the Kames of Carstairs, the typical examples of Scottish kames. A walk along them shows many points of external resemblances to some Swedish eskers. They are, however, not esker-like in structure, for they show no seasonal banding. Sections of the main kame show that it consists of fluvioglacial gravel and sand, and that its materials have been derived from the north-west, south-west and south-east. Sands with striated boulders occur to the south of the kame. The superposition of the kames to