

## SCULPTURE OF THE MIDLAND VALLEY

Although an arbitrary line extending from the Firth of Forth to the Firth of Clyde was chosen as the boundary between the Central and Southern Blocks, we may here refer to the Midland Valley as a whole, as both sides have many features in common. This tract, measuring about 120 miles in length and about 50 miles in breadth, is bounded on the north-west by the Highland fault reaching from Stonehaven to the Firth of Clyde, and on the south-east by the fracture defining the northern margin of the Southern Uplands.

It has already been shown in the geological section that the sediments entering into the structure of the Midland Valley belong chiefly to the Old Red Sandstone and Carboniferous formations, with which are associated contemporaneous volcanic rocks. The strata are arranged in the form of a compound syncline with subsidiary minor folds, the longer axes of which are more or less parallel to the bounding faults, thus giving rise to a prominent grain of the rocks in a north-east and south-west direction. There is ground for maintaining that the Midland Valley was originally buried under Triassic and younger sediments, which, for the most part, have been removed by denudation.

As soon as the trunk system of drainage had been established at the time of greatest elevation, the weak sedimentary strata, attacked in flank, soonest gave way, and the system of drainage characterised by subsequent streams gained the ascendancy. The volcanic plateaux offered greater resistance to the denuding agents, and hence their outcrops assumed the form of intervening ridges, while the areas occupied by the sediments have been worn down into plains from which rise isolated hills and knobs representing major igneous intrusions and volcanic necks. These hills of circumdenudation are of extreme interest, as they are still breached by the old consequent rivers draining the Highland Plateau, and they contain wind-gaps indicating the deserted channels of some of these consequent streams.

Reference has already been made to the behaviour of the Tay, North Esk, and Bervie rivers in the north-east portion of the Midland Valley. The Forth above Stirling has had a similar history to that of the Tay during the period of greatest elevation. It seems to have formed an affluent that passed southwards close by St Abb's Head to join a stream that drained the Tees, the combined rivers flowing north-eastwards across the plain of the North Sea. The old buried channels of the Forth and of its tributaries the Bonny, the Devon, and the Almond plainly indicate the greater elevation of the land during the evolution of the present topographical features. Like