

In such abundantly volcanic districts as central Scotland, the necks or vents of eruption (p. 969) may frequently be detected around the lavas which proceeded from them. The thickness of an interbedded sheet varies for different kinds of lava. As a rule, the more acid rocks are in thicker beds than the more basic. Some of the thinnest and most persistent sheets may be observed among the basalts, where a thickness of not more than 12 or 15 feet for each sheet is not uncommon. Both individual sheets and groups of sheets possess a markedly lenticular character. They may be seen to thicken in a particular direction, probably that from which they flowed. Thus in Linlithgowshire a mass of lavas and tuffs, reaching a collective thickness of probably 2000 feet in the Carboniferous Limestone series, rapidly dies out, until within a distance of only ten miles it dwindles down to a single band less than fifty feet thick. On the other hand, beds of tolerably uniform thickness and flatness of surface may be found; among the basalts, more particularly, the same sheet may be traceable for miles, with re-



Fig. 303.—Four successive flows of porphyrite, Lower Carboniferous, East Linton.

markable regularity of thickness and parallelism between its upper and under surfaces (p. 385). The porphyrites (Fig. 303) and trachytic and felsitic lavas are more irregular in thickness and form of surface (p. 378).

Abundant examples of this type of volcanic extrusion may be studied among the Palæozoic and Tertiary formations of Western Europe, and nowhere on a larger scale than in the British Isles. The Cambrian lavas and tuffs of Pembrokeshire, and those of Arenig and Bala age in North Wales, the Lake District, the south of Scotland, and the southeast of Ireland, form a notable record of volcanic activity in older Palæozoic time. They were succeeded by the great outpourings of the Old Red Sandstone, Devonian, Carboniferous, and Permian volcanoes. But the volcanic energy gradually diminished until the last Carboniferous and Permian eruptions gave rise to *puy*s like those of Auvergne, never discharging such voluminous floods of lava as those of earlier periods, and probably in many