Piperhill

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An assemblage of glaciofluvial terraces, lateral moraines and ice-marginal drainage channels extends for a distance of c. 17 km along the south-eastern side of Strathnairn, between Castletown [NH 749 428] north-eastwards to Raitcastle [NH 890 528] (BGS, 1997). The features were largely formed when meltwaters flowing from the Findhorn Valley upstream of Tomatin [NH 802 288] drained north-westwards through Strathdearn ('Moy Gap') and into lower Strathnairn, where they have cut flights of ice-marginal channels into the north-facing slopes of the valley (Young, 1980; Fletcher et al., 1996). The features may be viewed conveniently around **Piperhill** [NH 866 512] (Fig. 71) and also in the vicinity of the **Clava** site. In both areas, there is a stepped profile to the valley-side, the steps taking the form of prominent north-eastward-trending benches. In the Clava area, the benches rise up to c. 265 m OD. They decline in elevation north-eastwards, to a maximum elevation of c 110 m OD, south of Raitcastle. The glaciofluvial terraces are generally capped by well stratified, cobbly sand and gravel, typically 2-3 m in thickness, resting with an essentially planar erosional contact on till; such a contact was well exposed in the bluff of the lowest glaciofluvial terrace c. 500 m south-west of Newton of Budgate [NH 827 499].

Unlike most suites of moraines in the area, in which mounds are primarily constructional features, those of along the south-eastern side of Strathnairn are intimately associated with ice-marginal drainage channels. These bench-like features were assigned to the 'Cantray Suite' of moraines by Fletcher et al. (1996), in which the topography is due partly to glaciofluvial erosion. The benches are underlain by poorly sorted cobbly and bouldery deposits that were laid down primarily by debris-flow and sheet-wash processes. Erratic boulders greater than 1 m in diameter are commonly present on their upper surfaces, especially on uncultivated ground.

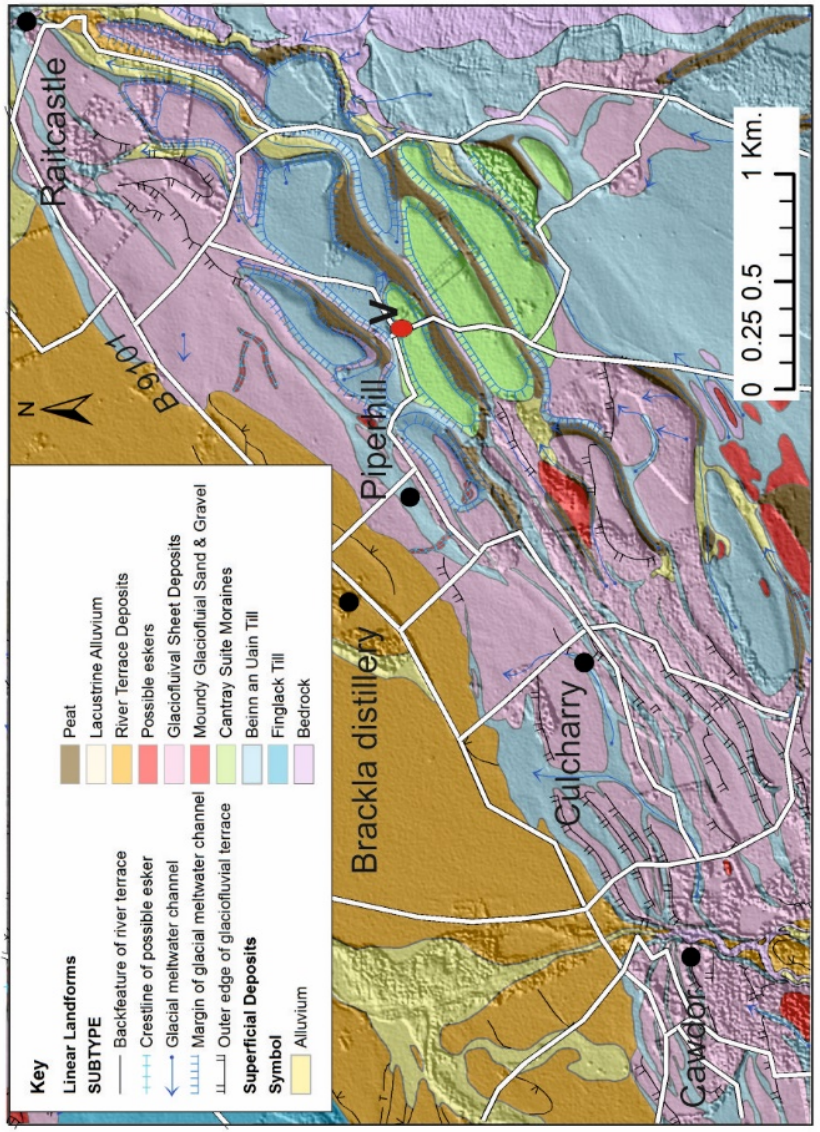

Figure 71. Lateral moraines, glaciofluvial terraces and ice-marginal glacial drainage channels around Piperhill, on the south-eastern side of Strathnairn; from simplified BGS mapping, draped on a surface model built from NEXTMap Britain 5 m topographic data. (V) viewpoint.

Although many of the glaciofluvial terraces form contiguous staircases, others are typically bound on their uphill sides by arcuate, steep-sided, glacial meltwater channels. They have essentially planar upper surfaces, which slope gently towards the valley axis. In contrast, the lateral moraines have gently rounded upper surfaces with steep escarpments facing the main valley that are essentially former ice-contact slopes (although many have been trimmed by the ice-marginal drainage). Around Piperhill the depth of the drainage channels increases in a north-easterly direction. To the south-west, near Cawdor, the channels between the glaciofluvial terraces are typically 5-10 m deep and floored by till. South and east of Piperhill they are typically greater than 15 m deep and floored by thin spreads of peat. Bedrock is seen in small exposures in the channel sides near to the base of several of the deeper channels south-east of Piperhill, suggesting that rockhead occurs only a few metres below the surface in the base of the deepest channel features.

The whole landform-sediment assemblage was formed during the final stages of deglaciation, as ice became restricted to progressively lower levels in Strathnairn with meltwater constrained to flow between the ice and the valley side. Staircases of terraces pass laterally into terraces with intervening channels. These, in turn, pass laterally into the lateral moraines with intervening ice-marginal drainage channels. Farther towards Raitcastle, the moraines pass laterally into sloping benches cut into till.

The ice-marginal channels formed once the highest ground in the area was free of ice, and meltwaters flowed between the ice-free uplands and ice that still occupied low ground (see Fig. 12). As the Moray Firth ice thinned and retreated westwards, channels formed at progressively lower altitudes. Such series of channels occur near and north-east of Lower Muckovie [NH 707 436] on the outskirts of Inverness (Fig. 14). A much more extensive system of deep ice-marginal channels occurs along the southern side of Strathnairn downstream of the gorge at Daviot [NH 728 398]. These channels are associated locally with morainic deposits of the ‘Cantray Suite’ of Fletcher et al. (1996). Unlike subglacially formed channels, in which meltwaters flowed uphill in places (as in a syphon) to

produce undulating profiles, the ice-marginal channels generally have regular long profiles, sloping gently towards the north-east. They cut across minor interfluves and typically are aligned at right angles to the modern drainage; they are locally occupied by 'misfit' streams.

Viewing the features at Piperhill: Access to the Piperhill area is good from a network of metalled narrow (single-track) public roads, but parking for vehicles (especially for multiple vehicles) is very limited without blocking traffic. There is space for a few vehicles, for a limited stop, at the viewpoint (Fig. 71 V) [NH 875 512], but an overview of the area is probably best achieved by driving through it on the public roads and then walking in, along the roads from farther away.