
Corrieshalloch Gorge, Highland

[NH 203 782]

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Highlights

The gorge at Corrieshalloch is an excellent example of a gorge formed by glacial meltwaters; its form closely reflects the effects of bedrock controls.

Introduction

Corrieshalloch Gorge occurs in the step of the valley profile where the Dirrie More glacial breach joins the Loch Broom glaciated trough. It is an impressive, steep-sided, slot gorge, cut by glacial meltwater streams, and represents a remarkable example of fluvial erosion into extremely resistant bedrock (Figure 2.6). The gorge and its formation have been described by Peach *et al.* (1913a), Kirk *et al.* (1966), Whittow (1977), Ferguson (1981) and Sutherland (1987).

Description

Corrieshalloch Gorge is exceptional in its length (c. 1.25 km), depth (60 m) and width (as narrow as 10 m at the lip). It is cut in undifferentiated Moine schists (psammite). Its form is determined by steeply dipping or vertical joints trending NW-SE and NE-SW (Peacock, unpublished data). The gorge can be subdivided into at least two parts, separated by major waterfalls at the Falls of Measach. In addition, there are several minor falls, for example, near Braemore junction. The modern channel is thus characterized by a stepped profile over these falls, which are interspersed with deep, boulder-filled pools. Ferguson (1981) observed that these are being progressively extended upstream by waterfall recession, at rates enhanced by the rock jointing.

Interpretation

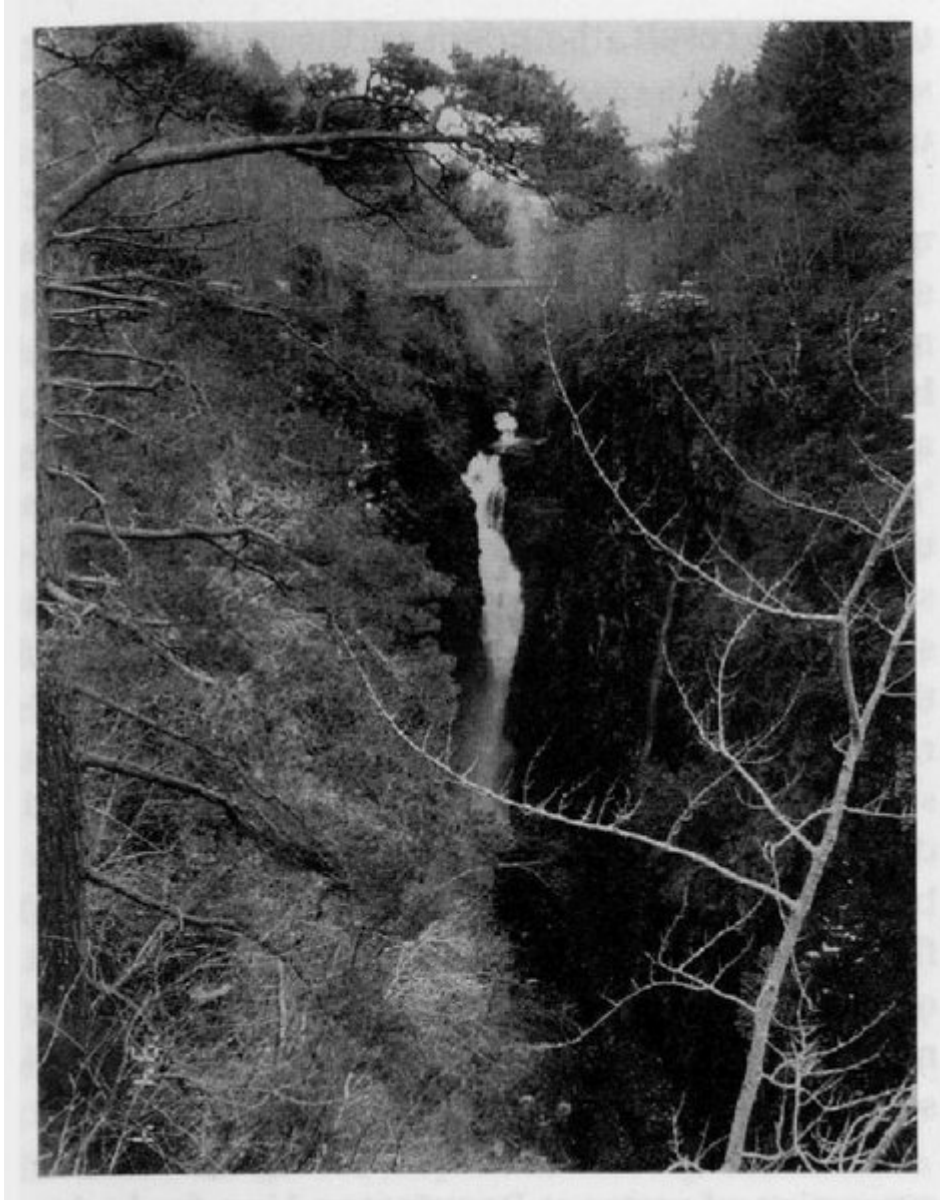
The present form of Corrieshalloch Gorge can only be explained by a past period of extreme erosive activity. Although Whittow (1977) cites an earlier theory that the gorge reflects postglacial entrenchment, he emphasizes that the scale of the feature makes this explanation unviable as a complete explanation. The currently favoured hypothesis is that the gorge was cut by meltwater streams from the direction of Dirrie More (Peach *et al.*, 1913a, Kirk *et al.*, 1966; Sutherland, 1987), although it is not established whether these were subglacial or proglacial. However, since the valley was probably a major meltwater discharge route during both ice-sheet deglaciation and the Loch Lomond Stadial, both may have contributed to the formation of the gorge (Sutherland, 1987). Although there is no evidence that the gorge was ever re-occupied by ice after its incision, it would not be surprising if the gorge was a polycyclic feature, and that a significant channel was already cut into the valley shoulder at this locality prior to the onset of the last glaciation. Due to its glacial legacy, the present River Droma thus undergoes a dramatic change in controls (increased slope, increased confinement and reduced sediment supply) as it enters the gorge.

Corrieshalloch Gorge is the most impressive of a number of gorges in this area (see, for example, the gorge along the lower Abhainn Cuileig), the form of which is determined by bedrock controls in the flaggy Moine schists (Peach *et al.*, 1913a). It is a classic landform and is recognized as the best-known example of a steep-sided slot gorge in Scotland. The gorge was cut by meltwaters during the last phases of glaciation of the area as well as, probably, during earlier glacial events. The scale of the feature is particularly impressive, and in terms of its size and the presence of waterfalls, it is a more striking and varied feature than the other gorges in the area and also the dramatic, but less well-known gorge at Black Rock of Novar in Easter Ross (Miller, 1887; Peach *et al.*, 1912).

Conclusion

Corrieshalloch Gorge is a classic example of a gorge formed by glacial meltwater streams. It is notable for its length and depth and showing, particularly well, the effects of geological controls on gorge formation by fluvial processes. The gorge affords striking evidence of the power of fluvial erosion by either subglacial or proglacial melt water streams during or immediately following several glacial episodes. The River Droma which flows through the gorge provides a striking example of a steep, highly confined and sediment starved bedrock channel immediately upstream of a sea loch in a glaciated trough.

References



(Figure 2.6) The Falls of Measach on the River Droma in Corrieshalloch Gorge. The character of the slot-gorge is evident from the near vertical walls, the very steep gradient and the cascading nature of the water flow. (Photo: L.J. McEwen.)