
Lydford Gorge, Devon

[SX 505 843]

Highlights

Lydford Gorge is a classic example of the effects of river capture in creating a characteristic gorge with numerous waterfalls and potholes. It is the deepest gorge in the West of England and now contains the River Lyd, which follows a shorter and steeper course than prior to capture. The gorge is still undergoing active erosion and displays a number of closely interrelated fluvial features.

Introduction

Lydford Gorge is a classic example of a gorge (Figure 6.34) and it is the deepest in the West of England. It contains characteristic examples of the most conspicuous features of gorges—numerous potholes. The gorge developed as a result of the diversion of the Lyd by river capture to a shorter course, and of the steeper slope, brought about by the breaching of the side of its original valley by another river. The gorge extends from near Kitt's Steps for a distance of 2 miles, and has lowered its bed so rapidly that a tributary now joins it as a waterfall (Figure 6.35) issuing from a hanging valley. The walls of the gorge are riddled with ancient potholes, best seen near Lydford Bridge, which have been isolated because of the rapid downcutting.

Description

Lydford Gorge is over 60 m deep and more than a mile long. It extends from a waterfall (Kitt's Steps) for a distance of 2 miles, and rests in an older, wider valley at 215 m OD. Below the road bridge at Lydford it has the appearance of a chasm, with vertical rock walls, formed by the coalescence of huge potholes, the fluted imprints of which are still preserved as much as 15 m above the present level of the river. At the elbow of capture a small stream, evidently a former left-bank tributary of the River Burn, flows into the River Lyd after falling freely 30 m down the steep side of the lower end of the gorge. In the Lyd valley below the elbow of capture there are a few remnants of possible terraces. The River Burn is a very small stream which appears underfit in its valley of considerable width and depth.

Morphologically, the gorge is merely a narrow cleft or chasm, in places only a few feet wide in the Culin Measures Shales. The most conspicuous features of these gorges are the numerous potholes (Figure 6.36), which are instrumental in drilling out the chasms through which the river now flows.

Interpretation

The clarity of evidence for river capture depends on the length of time that has elapsed since diversion took place. In many cases this has been sufficiently long for all evidence except the drainage pattern to have been removed. The capture of the headwaters of the River Burn by the River Lyd was first described by Dewey in 1916. The Lyd flows westwards from the western flanks of Dartmoor, across, and incised into, a series of levels usually described as high-level erosion surfaces. It falls from 500 m OD at its source to about 45 m OD where it joins the River Tamar. The river flows from its source on the granite, across the metamorphic aureole, and on to the unaltered Carboniferous slates before entering the spectacular Lydford Gorge in the section upstream from the elbow of capture. The River Burn flowed southwards, eventually joining the Tavy and the ria estuary at Plymouth.

The gorge was created by the diversion of the Lyd to a shorter course and a steeper gradient, brought about by the breaching of the side of its original valley by another river. The watershed divide between the Lyd and the Burn is near Lydford Junction station, and since its diversion the Lyd has cut a ravine exceeding 60 m in depth at this locality.

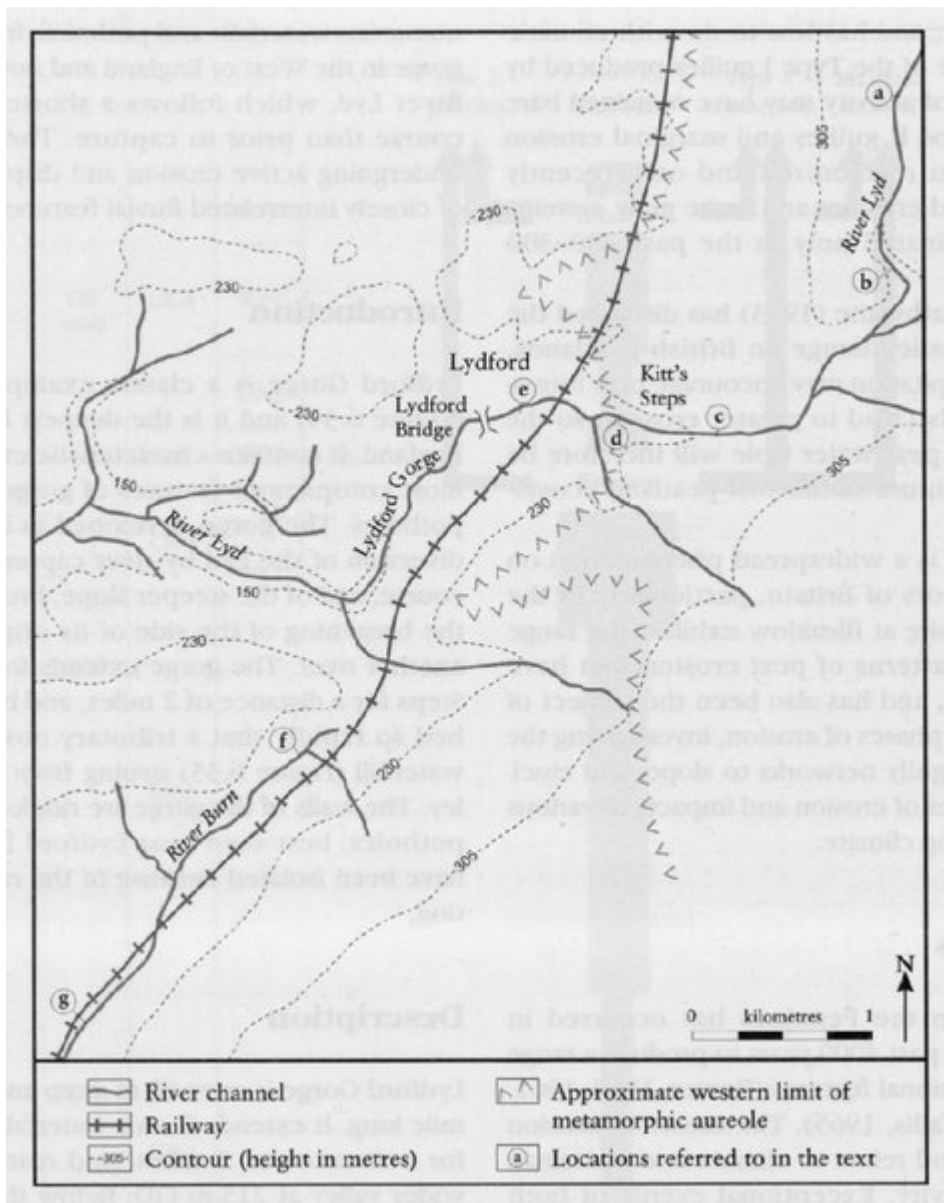
Sherlock in 1912 ascribed the gorge to the contrasting resistant powers of unaltered and metamorphosed rocks. Dewey (1916) regarded Kitt's Steps as being the head of the gorge, but whether e or d (Figure 6.34) be regarded as the true head, there is no doubt that it does lie in this zone and that it is quite distinct and removed from the knickpoint at b. The paradox then arises in which it seems possible that the gorge, apparently the most impressive evidence of capture, is in fact completely unrelated to it, being formed subsequently, since the knickpoint now at b had begun its retreat upstream from the elbow of capture. It is certain that the gorge is being actively deepened at the present time. The contours of the area lend support to the contention that the gorge rests in an older deeper valley which Dewey considered to have been eroded to a depth of about 15 m in what he described as the 750 ft (230 m) plateau. This raises the possibility that the thalweg of the River Burn before capture was represented by the line abcfg. Since c is at a higher level than f, there is no logical reason why this should not be so, in which case there is no evidence to demonstrate conclusively that the gorge is not the immediate outcome of capture.

The area is a classic example of a river gorge formed by river capture, and is of particular interest because it contains a number of closely interrelated fluvial features which can be interpreted in various ways. As evidence for the recession of the knickpoints and the stage at which capture took place, the Rivers Lyd and Burn can be studied in a wider context, in relation to the high-level erosion surfaces.

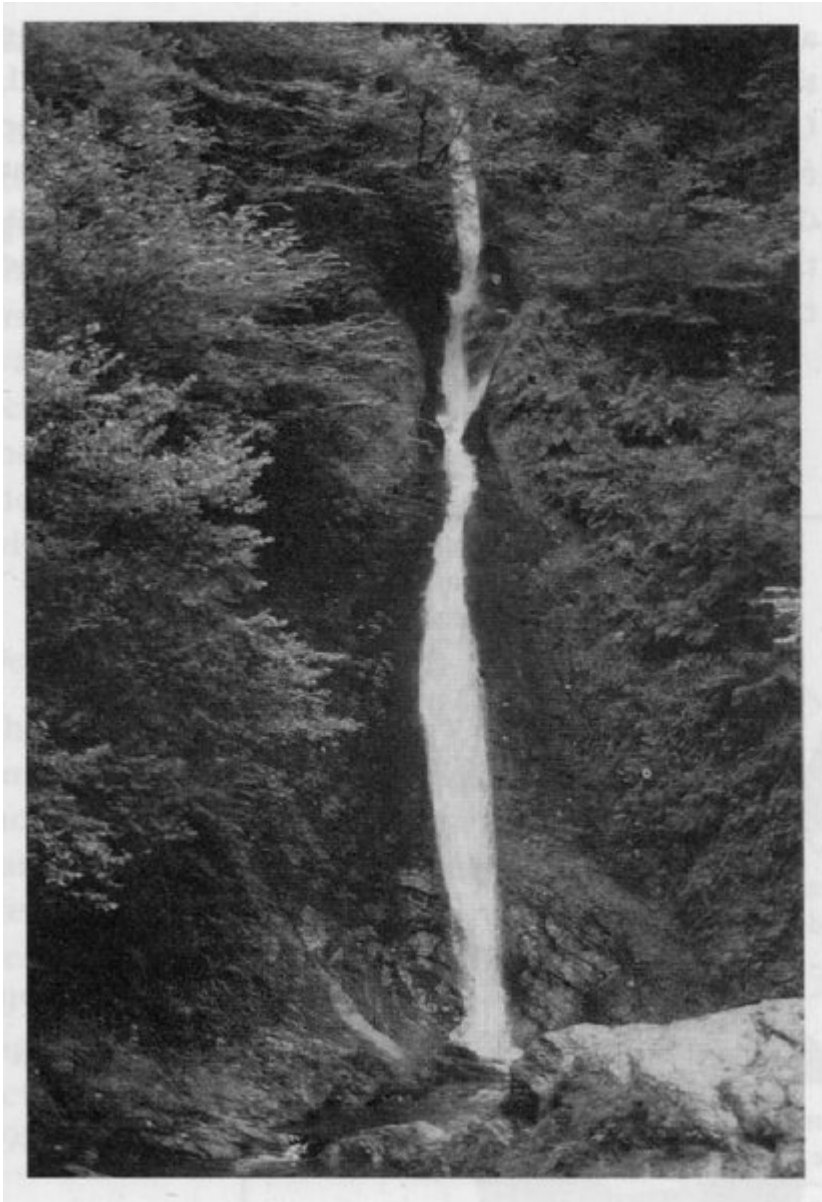
Conclusion

Lydford Gorge is the deepest gorge in the West of England and comprises spectacular examples of waterfalls, potholes and chasms. The gorge was formed by river capture, but shows evidence of the progressive development of the gorge and the relationship to the surrounding topography and drainage.

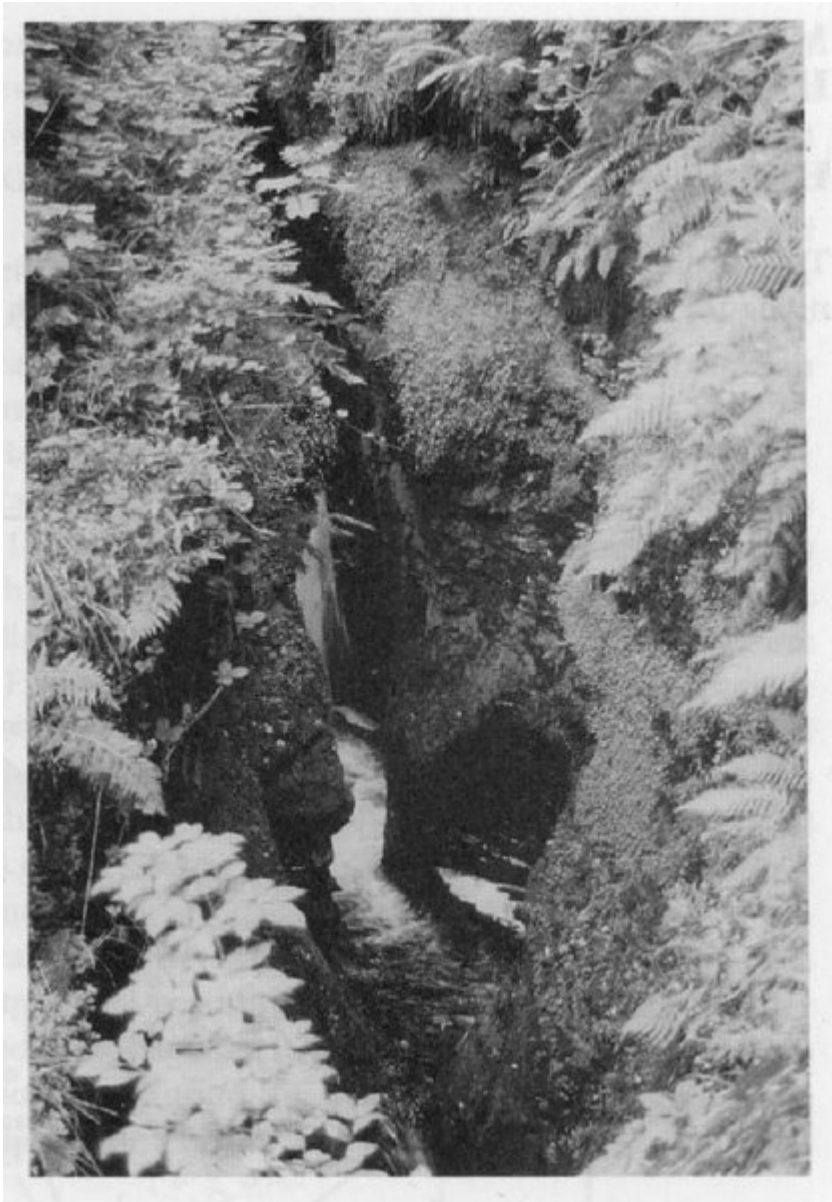
References



(Figure 6.34) Lydford Gorge: the site of the Lyd-Burn river capture.



(Figure 6.35) Lyd Gorge waterfall. (Photo: K.J. Gregory.)



(Figure 6.36) Potholes in Lydford Gorge. (Photo: K.J. Gregory.)