
Thrupe Lane Swallet

[ST 603 456]

Highlights

Thrupe Lane Swallet is the most extensive vertical cave system in Mendip, containing the deepest vadose shaft in southern England. It provides a striking contrast to the more gently inclined passages of other Mendip caves which are controlled by bedding planes and joints, and it demonstrates the overriding major influence which faults may have on cave development.

Introduction

Thrupe Lane Swallet is a major stream sink for water draining south off the Beacon Hill inlier in the eastern Mendips (Figure 5.1). The Old Red Sandstone and Lower Limestone Shales are faulted against the Black Rock Limestone to the south by the east–west Thrupe Fault. The water resurges at St Andrews Well in Wells. Descriptions of the cave are found in Barrington and Stanton (1977), Irwin and Jarratt (1992), and Meade-King (1984), but there are no geomorphological studies to date.

Description

The cave contains just over 1400 m of passages, descending to a depth of 120 m (Figure 5.19). It is entered through an excavated shaft in one of a line of dolines which engulf two streams. All the sinking water is encountered again in the cave, where it follows a complex branching route through steeply descending rifts and inclined bedding plane passages. The cave system comprises a series of both active and abandoned, sub-parallel rifts trending close to north-south, containing vertical shafts up to 60 m deep and linked by smaller inclined passages; the lowest point is a choked rift.

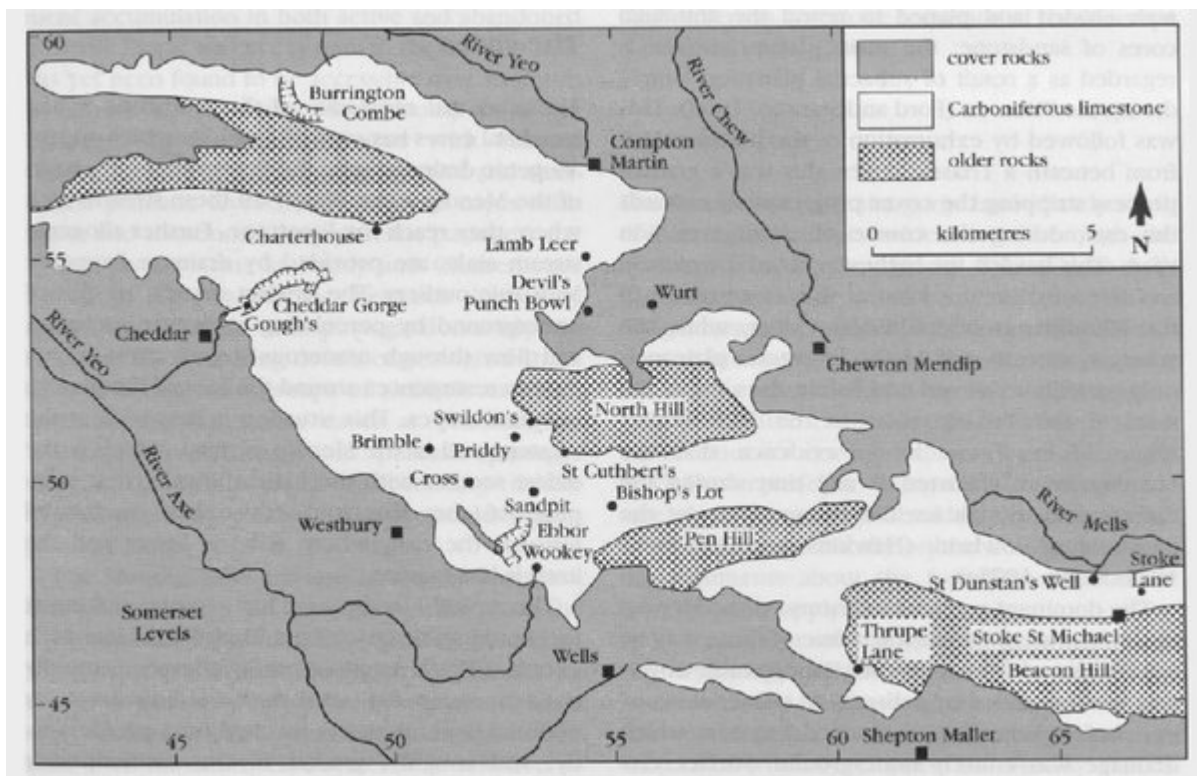
Interpretation

Thrupe Lane Swallet has developed by vadose invasion and enlargement of a series of rifts previously opened by phreatic solution. It is atypical of Mendip caves due to its dominantly vertical development. The sub-parallel rifts and vertical shafts have been developed within the influence of major fractures associated with the Thrupe Fault. The bedding dips at 30° south-west, and smaller downdip drains follow bedding-joint intersections to provide the links between the vertical rifts. At least six bedding planes have acted as inclined inception horizons, reflected in the pattern of cave development just updip of Atlas Pot (Figure 5.19). Only Reservoir Hole and Rhino Rift have comparable depth/length ratios in the Mendip karst, and Thrupe Lane Swallet is more akin to the vadose shaft systems in the Yorkshire Dales.

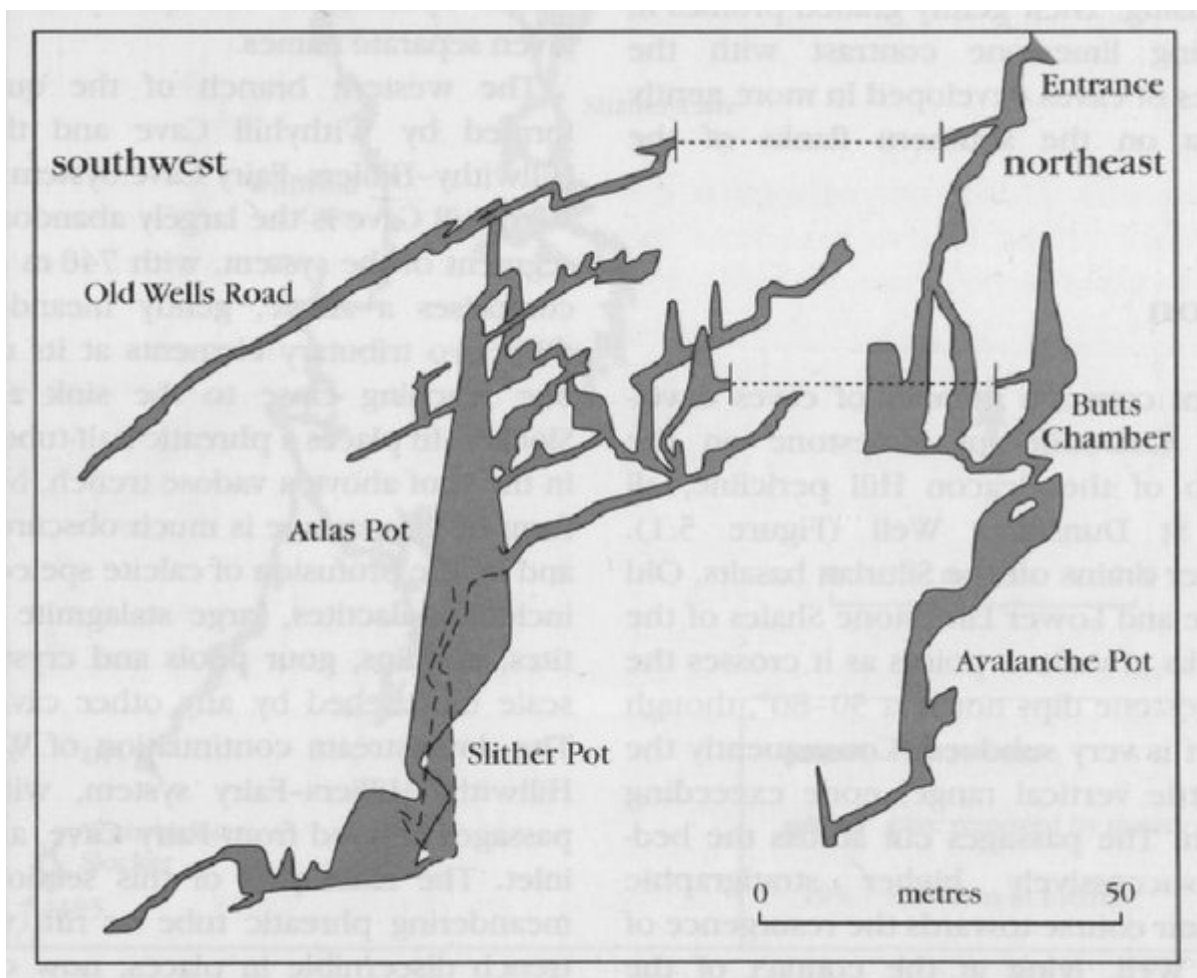
Conclusion

The cave is a complex vertical system of shafts and rifts developed in dipping limestone adjacent to a fault. Its vadose shafts demonstrate an unusual aspect of cave development in the dipping limestones of the Mendip Hills.

[References](#)



(Figure 5.1) Outline map of the Mendip Hills karst, with locations referred to in the text. Cover rocks are mostly the Triassic and Jurassic mudstones and limestones; Upper Carboniferous rocks form the thrustured outlier on the east side of Ebbor Gorge. The Triassic Dolomitic Conglomerate is included with the Carboniferous limestone where it is composed of blocks of the limestone and is an integral part of the karst. Older rocks are the Devonian Old Red Sandstone and the Dinantian Lower Limestone Shale.



(Figure 5.19) Projected profile through Thrupe Lane Swallet (from survey by Mendip Nature Research Committee).