Newton Gill – report on field excursion 20th Sept 2025, led by Peter del Strother and Brian Jeffery.

Seven intrepid members arrived at Newton Gill, in drizzle. Another seven apologised, which was very sensible as the forecast was truly awful. Fortunately, we managed a morning without getting wet through. You can usually walk up the bed of the Gill, but it had turned into a raging torrent, which prevented access to two exposures, now underwater. The farmer told us that it was the first time this year that the Gill had been more than a trickle. Most of the photographs below were taken during a recce.

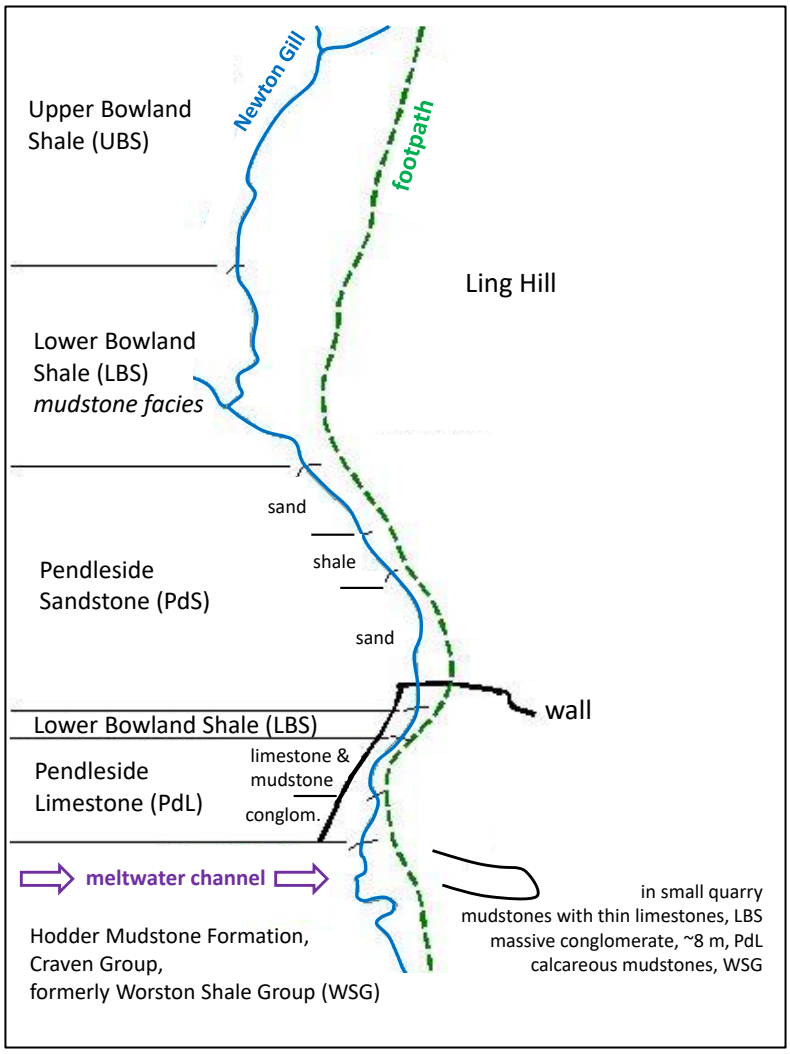
Newton Gill cuts through Carboniferous rocks deposited just to the south of the Craven Fault system. The Pendleside Limestone, which spans the Asbian / Brigantian boundary consists of fine grained and conglomeratic facies, both well-displayed in the banks of the Gill. Further down the sediment path it becomes turbiditic, dispersing at least as far as Pendle Hill, twelve kilometres to the SSW. The accepted interpretation is that it arose from shedding of sediment from the carbonate platform on the Askrigg Block high, north of the fault system, into the 'deepening' Craven Basin to the south. The fault system was active during deposition and it seems likely that the very coarse conglomerate in Newton Gill is a talus deposit at the base of the steep slope created by the downthrow on the basin side of the faults. Back arc extension in the early Carboniferous gave rise to a faulted block and basin system extending from the Midlands to the Scottish border. The Craven faults are part of that series. Even today, geophysical evidence reveals that the Pendle Fault, on the south side of the Craven Basin, extends to 4 km below the current ground surface.



Conglomeratic facies in the Pendleside Limestone

Extension was followed by thermal sag and all the blocks and basins were covered by siliciclastic sediment, transported from Himalayan scale mountains to the north. The Bowland Shales represent an early stage in the approach of that alluvial and deltaic system, which deposited sand and mud hundreds of metres thick, during the Namurian and Westphalian (Coal Measures).

The Lower Bowland Shales, immediately above the Pendleside Limestone, incorporate mud, sand and calcareous facies, including the Pendleside Sandstone. On this excursion we progressed no further than the wall in the plan below.



Simplified plan of stream section.

A small cliff on the east bank of the Gill exposes nice examples of turbidites in which the bases of the fine-grained sandy horizons contain abundant sole structures.



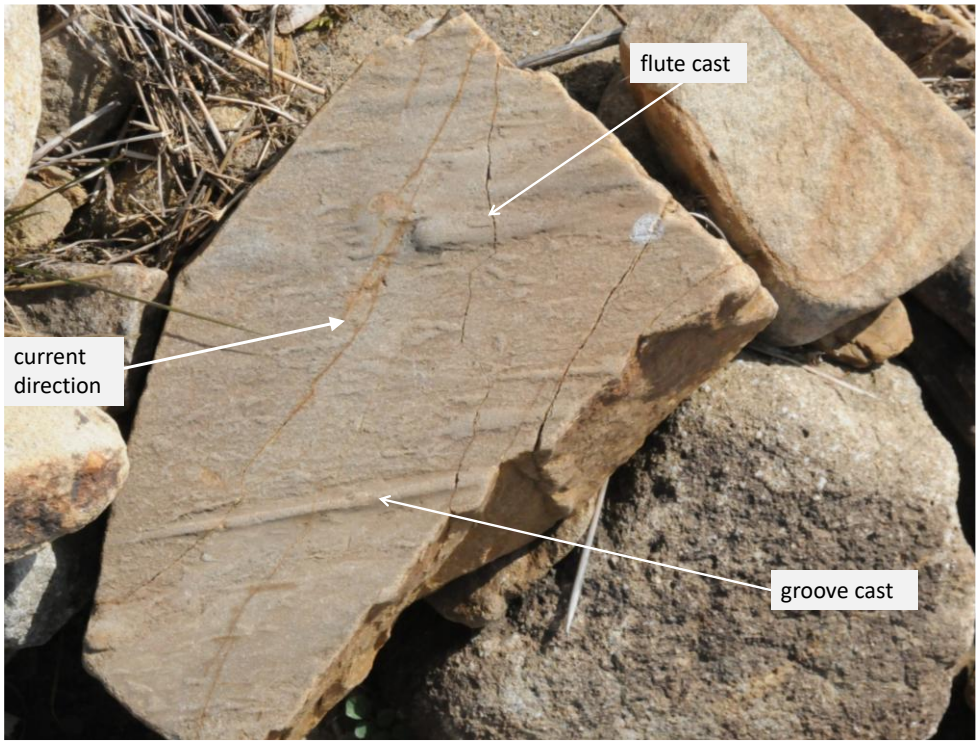
Small cliff, east of the Gill, consisting of sandstone mudstone couplets which, as the evidence demonstrates, are turbidites.



Underside of sandstone bed, with flute casts.



A multiplicity of small-scale sole structures in a loose block. Specimen 150 mm wide.



Loose block, with sole structures annotated.



Interpreted as a load structure, as the mudrock beneath has been deformed rather than eroded.

Further up the succession are mudrocks containing calcareous clasts, some fossiliferous.



Exposure in stream bed, underwater during our visit.

Despite the inclement weather, those present passed an interesting morning. After eating our sandwiches in our cars we all repaired to Settle Museum where we had hot drinks in the Folly Coffee House.

Peter del Strother