

Cumbria RIGS Group

Cumbria RIGS Group is a voluntary geological conservation group working to record and look after important geological sites.



DONKEY ROCK RIGS

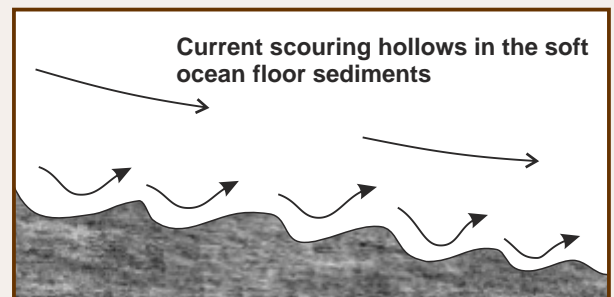
'Donkey Rock' or more correctly Eccle Riggs Bank Quarry exposes the underside of an ancient ocean floor sediment. The rocks in this quarry are in the Windermere Supergroup and were laid down in an ocean when the Lake District area was 30 degrees south of the Equator some 425 million years ago.



The near vertical quarry face has 1800 very large bulbous flute casts or sole structures. These structures are 10 to 20cm long and 5cm deep. The apex of each flute points up in the overturned quarry face, indicating the original current direction. The beds are rotated to a near horizontal axis, this implies a northwesterly source for the current and sediment that flowed into the ocean basin to the south.



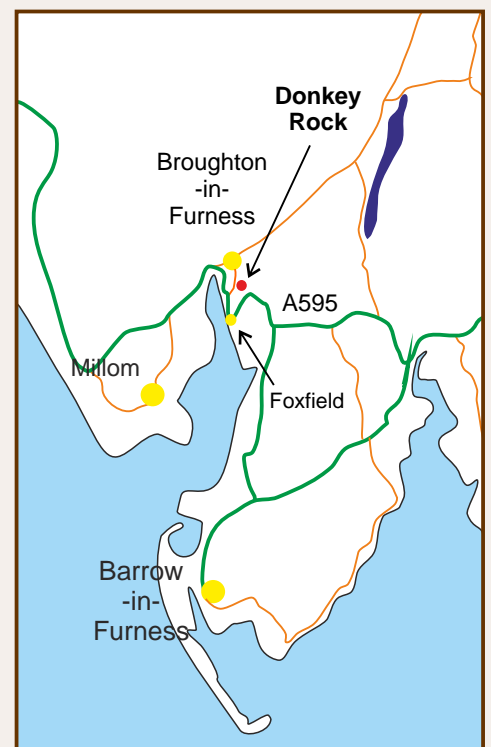
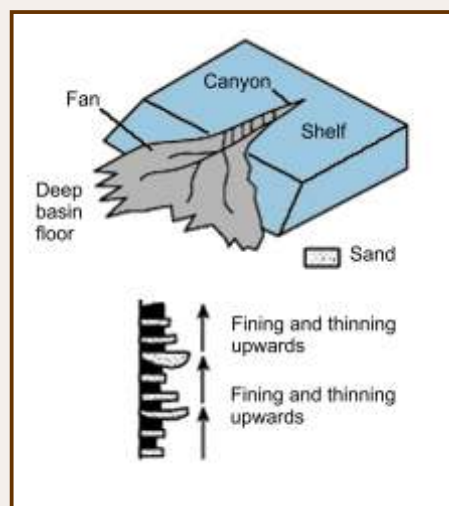
The face of 'Donkey Rock' is a deposit called a turbidite. Which is a deposit resulting from high-speed current flows downslope on the ocean floor. These current flows contain a suspended load of sediment and when the current begins to slacken, sand followed by silt and mud settle out. The deposits are characterised by an upwards fining sequence (see sketch on reverse side).





Donkey Rock exposes the Gawthwaite Formation it is up to 520 metres in thickness, it is the lowest formation in the Coniston Group. The apex of each flute points up the slightly overturned quarry face, thus indicating the original current direction. Assuming beds were rotated simply about a horizontal axis, implies a northwesterly source for the current and sediment, into the ocean basin to the south.

As sediments settle on the ocean floor the heavier sandy material is deposited first followed by finer, lighter silty and muddy deposits.



Donkey Rock is at grid reference SD 210868
100 metres off the A595 on the unclassified
road to Broughton-in-Furness.