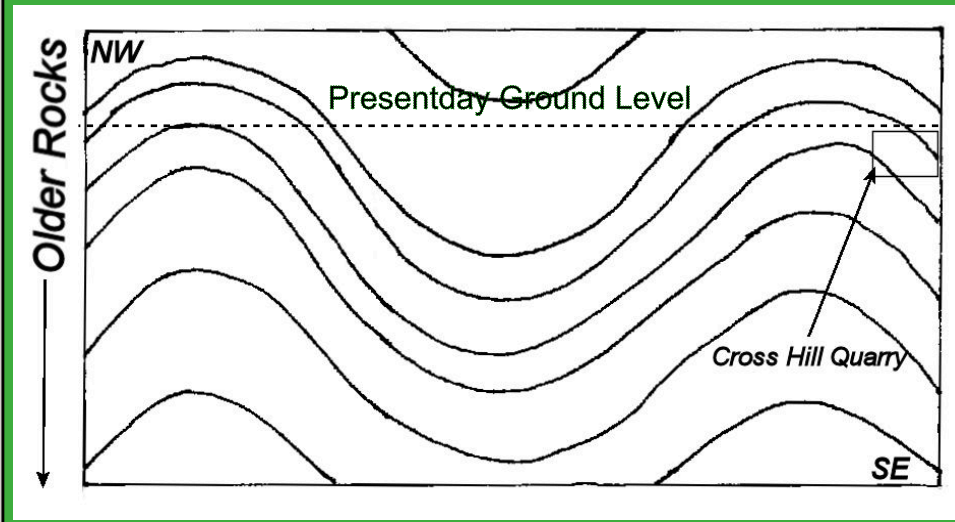


Taking it further . . .

How long did it take to deposit these rocks?

There are over 840m of Chatburn Limestone of which only about 40m can be seen here. Each metre of rock took *very roughly* ten thousand years to accumulate so it took about 400,000 years for the rocks visible in the complete quarry face to be made.



Folding

These rocks were folded at the end of the Carboniferous period by a plate moving from the SE. This created the Ribblesdale Fold Belt which was later eroded down to the level of the quarry. This now provides a window into one side of one of the folds - the Horrocksford Anticline or upfold.

Geological Time Line

PALAEOZOIC			MESOZOIC			CENOZOIC		
PRE-CAMBRIAN 4500 Cambrian 570 Ordovician 500 Silurian 430 Devonian 365 345	Carboniferous 280	Permian 225	Triassic 190	Jurassic 136	Cretaceous 65	Tertiary 2.3 Quaternary		
Evolution of reptiles Evolution of coniferous trees		Evolution of land plants Coal formation		Evolution of the dinosaurs		Evolution of flowering plants Extinction of flowering plants		Evolution of animals and birds Evolution of humans
British Isles near the south pole, moving north		British Isles north of Equator, hot desert conditions		Hot desert with salt lakes British Isles mainly covered by warm, shallow seas		British Isles still moving north - chalk rocks laid down in clear seas		British Isles above sea level - Alpine mountains formed

Why are there not many fossils?

Anywhere on Earth, the number of organisms that can survive depends on how much food there is. It was probably quite scarce in the sea where these rocks were made. Also, there was a food chain so many organisms were eaten by other animals which in turn were eaten by others leaving little to see.

Dating the rocks

Geologists approach the age of rocks in two different ways. One is to arrange the layers in order of their age - older ones at the bottom and younger ones at the top. This is a *relative* age scale. They use fossils which are widespread and have evolved rapidly to determine the relative age of rocks. The best fossils for this in the Chatburn Limestone are corals and brachiopods. When the fossils found in rock beds many miles apart are identical, geologists can infer that both beds of rocks are the same age. The other way to date rocks is to use radiometric methods, like Carbon14 dating, to fix the *absolute* age. The Chatburn Limestone rocks at Cross Hill are among the earliest rocks of Carboniferous age in Britain and are 340 to 350M years old.

Cross Hill Quarry