Dark Satanic Hills

Stone is fundamental to our way of life. Think of how many millions of tons of stone make up our everyday environment: the pavements we walk on, the buildings we live and work in, the roads we drive along, in hedges and in walls. All this stone has been quarried, shaped and moved over the last few hundred years.

Cornwall has a rich variety of high quality stone which has been widely exploited, both for local use and for export all over the world. There are three main types of quarry in Cornwall; building stone (unshaped material used in hedges and walls), aggregate (crushed stone used for road building and in concrete), and dimension stone (shaped and dressed stone used for civil engineering and fine masonry work).

The main rocks quarried are granite and slate, although stone such as greenstone, elvan and serpentine and soapstone are also exploited. Local variations in geology are a principal contributory factor in the diversity of local architecture and the industry has left a legacy of abandoned pits and quarries all over the county.

The quarrying industry once employed thousands of people and contributed to the development of a transport infrastructure; tramways, railways, river quays and industrial harbours for exporting Cornish stone. In places such as Delabole, Mabe and St Breward, new communities developed to serve the industry.

Delabole quarry and village. Delabole slates were shipped from Port Gaverne and Tintagel until 1899 when the railway (visible cutting across the middle of this photo) was built linking the site to Padstow in the west, and to Devon and beyond in the east. *Photo: Peter Trudgeon.*

Slate quarries

The main area of slate quarrying is centred on the north coast between Tintagel and Trebarwith. Slate quarrying in this area is recorded at least as far back as the

fourteenth century. The slate was used as building stone and for splitting into roofing slates and paving.

Coastal slate quarries at Bagalow, south of Tintagel. Each of the excavations in the cliff is a slate quarry where the cliff faces have been formed by workings. Horse whims, used for hauling the quarried stone up the cliff face, and dressing floors are situated on top of the cliffs. Only the most suitable slate was quarried. *Photo © Cornwall County Council Historic Environment Service*

Coastal slate quarries are a spectacular feature of this industry. These are confined to a small area of about five miles either side of Tintagel and little is known about their history. In order to work the vertical cliff face strong points were built from stone at the heads of the working areas. From these ropes were dropped down the working faces. The slate was hauled up the cliff face on these cables which were wound using horse whims – capstans powered by horses walking around a circular platform.

Waste was dumped into the sea or at the foot of the cliffs, and the stone was shaped and split on dressing floors on the cliff top. These were originally housed in sheds but now survive as level terraces and are marked by screes of waste rock on the cliff slope.

There are a number of conventional quarries in the area of which Delabole is the largest and most famous.

Granite Quarries

Cornwall has an important granite quarrying industry and its stone has been exported all round the world. The streets of London are paved with Cornish granite and the docks at Tilbury, Gibraltar and Singapore are made from it.

A dimension stone granite quarry at Goldiggings, Bodmin Moor. Dimension quarries are typically steep-sided because the quality of the stone improves the further it is below ground surface. Much of the stone shaping or dressing was done at the quarry. Only high quality, flawless granite could be used so there were large quantities of rejected stone. This was wheeled along tramways to form enormous 'finger dumps' of waste rock which characterise this type of quarry. *Photo © Cornwall County Council Historic Environment Service*

It is likely that the beginnings of the granite quarrying industry in Cornwall were much later than those of its principal rival Aberdeen, where quarrying began in the seventeenth century. This is partly because access to ports in Cornwall was poor; most quarrying was for local use until these were developed. And it is partly because of the abundance of moorstones in Cornwall. Moorstones are the loose boulders scattered around the granite tors and were for many centuries the principal source of raw granite. Stone-splitting pits (and the characteristic 'wedge and groove' marks of the stone masons) are very common in the granite districts. There was extensive moorstone cutting in the Carnmenellis area, where some tors were removed completely, and abandoned dressed moorstone for bridges, lighthouses and other structures can be found around Stowe's Hill on Bodmin Moor and elsewhere.

Industrial quarrying was made possible by developments in stone-splitting methods and controlled blasting techniques. Before 1800 a row of chiselled grooves would take iron wedges which were then hit with sledgehammers until the rock split. After this date plug-and-feather splitting was adopted; iron plugs were hammered into lines of hand-drilled holes, each flanked with a pair of hardened iron 'feathers', until the rock broke along the line.

Kit Hill

Kit Hill, Stoke Climsland. Stone was removed from the quarry on an inclined tramway running downslope to the East Cornwall Minerals Railway which opened in 1872. Within the quarry itself, the granite blocks were moved by cranes and tramways, traces of which are still visible (some of them now under water). The line of the incline can be seen on this photo; trucks were hauled up and down the tramway by means of cables attached to a drum. *Photo © Cornwall County Council Historic Environment Service*

The full development of the granite quarrying industry can be traced at Kit Hill in Calstock, east Cornwall. Nearly 5,000 stone-splitting pits are recorded from its slopes; these pits were dug around large moorstones which were then split into useable pieces to be made into arches, lintels, rollers, troughs and other artefacts.

Small quarries, no more than 10 metres across, cut into exposures of bedrock were developed in the early 1810s. There are many of these scattered over the higher slopes, each with a downhill entrance wide enough to admit a wagon. The introduction of the plug and feather splitting technique enabled the working of bedrock in this way.

On the southern slopes is a group of three small industrial quarries active in the later part of the nineteenth century but abandoned by 1872. These used black powder for blasting as well as plug and feather splitting techniques. Stone was transported from these quarries by a metalled track and large numbers of men would have been employed in this industry.

The quarries on the north side of the hill represent a radically different kind of industry. By the end of the nineteenth century the Kit Hill quarries were producing finished blocks for massive civil engineering projects. Stone from Kit Hill was used in the construction of six of London's bridges, the docks at Millwall and Devonport, and for the Bishop Rock lighthouse.

Aggregate Quarries
From the medieval period or earlier loose stone and rab (a form of subsoil granite commonly found in Cornwall) were quarried for infilling tracks and making roads. Alongside every old road shallow pits where material was dug to fill potholes can be found.

Large scale quarrying for roadstone and aggregate is essentially a twentieth century industry and there are a few quarries still at work. The crushed and graded stones are used not only for road making, but also for railway ballast and as aggregates in concrete. A range of stones are quarried for aggregates including greenstone, granite, gabbro and serpentine.

Porthoustock Quarries, St Keverne. Large scale quarrying on the coast of the Lizard Peninsula began in the early 1890s, exploiting gabbro and greenstone for use as aggregates. The crushed rock was carried by tramway to quays on either side of Porthoustock Cove. Fine waste from the quarries and from loading operations at the quays accumulated on the beaches. Beaches in the area have extended seawards by more than 100 metres as a result. *Photo © Cornwall County Council Historic Environment Service*

The rock was (and is) usually crushed on site and often there are no dumps of waste rock; everything but the overburden (soil stripped off the bedrock) was taken away and used. Aggregate quarries generally have little to tell of their working history although the remains of their crushing mills sometimes survive.