

## Information Sheet 3B: Quarrying - Limestone

### Meldon Pool (SX 564922)

Quarrying of limestone at Meldon was taking place as early as the 18<sup>th</sup> century when a number of small quarries were being worked on the east side of the river. These workings are linked to the general improvement in agriculture in the 18<sup>th</sup> and 19<sup>th</sup> century which led to an increased demand for locally obtainable fertilisers. Seaweed, sea sand with a high shell content and burned limestone were all used, but in districts around northern Dartmoor, distance from the coast meant that there was little chance of obtaining either sea sand or seaweed. As a result, the very limited deposits of limestone in the Lower Carboniferous rocks of the area suddenly assumed a great importance and Meldon lime which was of high quality, was much sought after. The burnt lime was spread onto fields to “sweeten” the ground by reducing the acidity of the local soils and increase their fertility.



'Meldon limestone quarry workers, c.1900' (Source: Museum of Dartmoor Life, Okehampton)

An estate map of Okehampton Park of 1790 shows a small lime kiln, used for burning the limestone, which is still visible today, built against the edge of what seems to be an even earlier quarry on the east side of the West Okement river. The quarried lime was taken to a *charging platform* at the top of the kiln and tipped down its circular shaft, sandwiched between layers of charcoal. A fire was ignited at the bottom of the kiln through a fire grate inside the arch at the back and the mixture of limestone and charcoal was burned slowly at high temperature. When cooled, the resulting *quick-lime* was shovelled out in lump form through the fire grate straight onto carts and taken away by local farmers.

Map and documentary evidence reveals that the eastern kiln was abandoned for a period in the early 1800s but was later to serve the large limestone quarry on the west side of the river. The extent of the older quarries in the eastern area is now difficult to determine as they have been infilled and obscured by later workings.

Workings on the west side of the river were very impressive and concentrated on a steeply dipping band of limestone, with the now flooded quarry forming Meldon Pool. The excavation was over 40 meters deep and occupies virtually the whole extent of the surface outcrop of the limestone. To extract limestone, a considerable quantity of overlying rocks of little economic value had to be removed and in doing a large amount of waste was created. Whilst the quarry on the west side was still fairly small, map evidence shows that buildings, including

more limekilns and a house clustered around its northern edge. As the quarry expanded these were destroyed and replaced by structures further to the north. Tipping of waste also encroached and destroyed some of these later 19<sup>th</sup> century buildings and continued beyond the viaduct.



Meldon Pool, the flooded Meldon limestone quarry (Photo: Kevin Page 2005)



The older, eastern lime kiln (Photo: Kevin Page 2005)

Only three structures have survived; the most impressive being the limekiln situated under the western embankment of the viaduct built between 1874 and 1885. Its single draw hole is strengthened by iron stays and the mixture of stone used in its construction reflects the variety and complexity of Meldon's geology. The kiln's charging platform was fed by an inclined tramway some 100m long using a winch system of haulage - the iron anchoring point and the chains at the kiln end still survive *in situ*.



The larger western limekiln (Photo: Kevin Page 2005)

To the south of the kiln are the ruins of the weigh-house building, fronted by its weighbridge with a cast iron bedplate showing the maker's name, *Bartlett and Son of Bristol*. The footings of a larger building lie to the south of the weigh-house.



The remains of the base plate of the weigh-house (Photo: Kevin Page 2005)

Lack of space created by the river on one side and the steeply rising ground on the other, meant that disposal of waste was a continual problem and was solved by the creation of linear waste heaps. Waste was removed by trucks running on temporary rails and dumped into well defined linear heaps on both sides of the river. On the west side of the river, the embankments were revetted and the sites of two former bridges over the trackways are marked by stone abutments. The finger shaped dumps on the eastern side are the most striking earthworks on the site, their history is complex and when the quarries were in full production their form would have changed on an almost hourly basis.



'Finger dumps' on the south side of the West Okement River (Photo: Kevin Page 2005)

Keeping the deep quarry workings dry was a considerable problem and the solution seems to have been to use pumps driven by waterwheels positioned on the east side of the river, immediately south of the footbridge. Two wheels, probably not operating in tandem, were served by a number of leats and reservoirs. The leats took water from both the West Okement and the Red-a-ven using a number of water channels following sinuous courses across the south western quadrant of the area.



Water wheel on the east side of the River Okement, late 19<sup>th</sup> century?  
(Source: Museum of Dartmoor Life, Okehampton)

The southern waterwheel was fed directly by a leat, whilst that to the north, near the modern footbridge, had a much more elaborate and impressive water system using initially one and then two reservoirs and a launder bank. The northern wheel, which had a diameter of about 5.5m, and the smaller reservoir are shown on the 1840 Tithe map.



Water wheel pit on the east side of the West Okement River – possible the site of the wheel in the previous photograph... (Photo: Kevin Page 2005)

By 1885 the higher West Okement leat was supplying a larger semi-circular reservoir east of the earlier one and powering the same wheel. The actual method of pumping is unclear though the waterwheels motion was transmitted by flat rods across the West Okement and transformed to a pumping action by some form of reciprocating gear in the vicinity of the small structures overlooking the quarry. Today the site of the wheel pits are marked by partially filled, stone-lined rectangular depressions, behind which are two smaller holes to hold the weights used in tensioning the flat rods powered by the wheels.

It is uncertain when limestone production finally ceased at Meldon but by 1885 it is seems clear that the emphasis of activity had moved to exploiting the aplite (see Information Sheet 3F).

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