

EXTRACT FROM ENGLISH HERITAGE'S RECORD OF SCHEDULED MONUMENTS

MONUMENT: Grinton ore hearth lead smelt mill, flue, fuel store and associated earthworks

PARISH: GRINTON

DISTRICT: RICHMONDSHIRE

COUNTY: NORTH YORKSHIRE

NATIONAL MONUMENT NO: 28239

NATIONAL GRID REFERENCE(S): SE04929639

DESCRIPTION OF THE MONUMENT

The monument includes the remains of Grinton smelt mill and flue, the adjacent fuel store, the earthwork remains of a further building and dams, leats, trackways and inclines. It lies in the narrow valley of Lemon Gill and is positioned so as to make use of a major spring in the bed of the beck 65m to the south. The mill site occupies two narrow terraces, 20m and 25m wide which are partly natural in origin but have also been modified by human action. The original mill complex dates to the mid-18th century although the current structures were rebuilt in 1820 on the site of earlier plant.

The smelt mill is a 'T' shaped stone rubble built structure consisting of a rectangular furnace house with a smaller bellows house abutting to the north. The whole is under a single stone flagged pitched roof with the central ridge running north to south. The furnace house measures 15m by 10m with doorways in the south wall and the south end of the west and east walls and originally held three ore hearth furnaces forming an arc along the north side of the room. The furnaces were 2m deep and although the front (south) walls and vaulted roof of the west and central ones no longer survive, the two walls which separated the furnaces from each other still stand for a length of 2m. The eastern furnace has been sealed using the original front wall and later blocking. Following the abandonment of the mill, the furnace room was partly modified for agricultural use which included the demolition of the furnaces, the insertion of a sheep wash with a concrete floor and the piercing of a narrow door through the back of the central furnace to give access to the redundant bellows house. The bellows house has doorways in the west and north walls and a narrow stone bench along the north wall and on the south side is a large arch leading to the rear of the furnaces. At a high level along the north wall runs a timber duct, entering by an opening in the eastern wall, which provided water for an overshot water wheel which powered the bellows. The bellows house is dominated by the massive timber frame which supported the machinery necessary to provide a draught for the furnaces.

Behind the back of the furnaces the flue runs west to east 2.85m above the furnace floor and takes the form of an arched passage 1.2m wide and 1.7m high leading east out of the building. The flue has collapsed to the east of the mill but its remains can be clearly identified extending eastwards past the rear of the peat store, where it forms the base of the south wall, and beneath a trackway to rise up the hillside for 290m to the remains of a chimney on the top of Sharrow Hill. The flue is an arched tunnel 1.8m high and 1.6m wide

internally, partly dug into the hillside and partly built above ground. At intervals along the arched flue there are openings to allow for access to clean and remove material condensed on the interior walls. Only the footings of the chimney, 2.75m square survive.

The peat store stands on the terrace east of the mill building. It is a stone built rectangular structure 22m east to west by 5m north to south, built of uncoursed rubble with a stone flagged roof. There is a series of four arches at the front (north) side although three of these have been blocked to allow reuse of the building for agricultural purposes.

South of the mill are the earthwork and rubble remains of a small two cell building on a north-south axis measuring 8m by 4m. This is represented on the 1895 OS map as a smithy and photographs of the building in 1963, prior to its demolition, show it to have been a two storey building. To the south of this an earth and stone bank crosses the valley floor and dams the beck to form a reservoir. This is also fed from a further reservoir located on the hillside 50m to the north east. The beck flowing north from the dam has been culverted with some sections barrel-roofed, and has been re-directed to the west side to create a level working area around the mill. Water had a number of uses in the smelting process including powering the water wheel in the smelt mill.

Elsewhere around the mill site are minor earthworks and tracks representing the remains of further ancillary activities. There are scatters of slag waste on the site particularly concentrated in the vegetation free areas north of the mill.

Lead has been exploited in the Grinton area for centuries, possibly from the second century BC. The first record of lead mining in the area dates to 1219 when a mandate was issued for the king's workmen in the manors of Swaledale and Wensleydale, and throughout the medieval period lead was exploited in the area. The history of the Grinton smelt mill is inextricably linked with the history of the mines in the surrounding area. It was established in the early 18th century probably by the Marriott family who held the crown lease for mines at Grinton and Harkerside in order to process ores from those and other mines. The mill appears to have remained in the Marriotts' Grinton estate until sold to Caleb Readshaw in 1756. By this time the mineral lease had passed to the Moore family and there is a record of disputes over smelting rights of these ores with the added complication of sub-lessees being involved. It would also appear that by the mid-1770s Readshaw was a shareholder of the mines and was leasing out the mill rather than working it himself. In 1791 Readshaw Morley, now owner, was declared bankrupt and the estate was purchased by Fenton and Wilkinson. They took little interest in the mill site and in 1803 sold it to the Whitelocks of Cogden Hall. From 1820 to 1822 the ore from Grinton mines was processed at other mills during which time the Grinton mill was rebuilt and the flue and chimney constructed. In 1876 the mineral rights to the moor were sold to Charlesworth who also purchased the mill. In 1888 and 1892 repairs and refurbishment of the mill took place but in 1895 the Grinton Mining and Smelting Co Ltd was officially dissolved and the mill was never used for smelting again. The smelt mill is Listed Grade II* and the flue and peat store are Listed Grade II.

ASSESSMENT OF IMPORTANCE

Ore hearth smelt mills were introduced in the 16th century and continued to develop until the late 19th century. They were the normal type of lead smelter until the 18th century, when they were partially replaced by the reverberatory smelt mill. The ore hearth itself consisted of a low open hearth, in which lead ore was mixed with fuel (initially dried wood, later a mixture of peat and coal). An air blast was supplied by bellows, normally operated by a waterwheel; more sophisticated arrangements were used at some 19th century sites. The slags from the ore hearth still contained some lead. This was extracted by resmelting the slags at a higher temperature using charcoal or (later) coke fuel, normally in a separate slag hearth. This was typically

within the ore hearth smelt mill, though separate slag mills are known. Early sites were typically small and simple buildings with one or two hearths, whereas late 18th and 19th century smelt mills were often large complexes containing several ore and slag hearths, roasting furnaces for preparing the ore, refining furnaces for extracting silver from the lead by a process known as cupellation, and reducing furnaces for recovering lead from the residue or litharge produced by cupellation, together with sometimes complex systems of flues, condensers and chimneys for recovering lead from the fumes given off by the various hearths and furnaces. The ore hearth smelt mill site will also contain fuel stores and other ancillary buildings. Ore hearth smelt mills have existed in and near all the lead mining fields of England, though late 18th and 19th century examples were virtually confined to the Pennines from Yorkshire northwards (and surviving evidence is strongly concentrated in North Yorkshire). It is believed that several hundred examples existed nationally. The sample identified as meriting protection includes: all sites with surviving evidence of hearths; sites with intact slag tips of importance for understanding the development of smelting technology; all 16th-17th century sites with appreciable standing structural remains; 16th-17th century sites with well preserved earthwork remains; and a more selective sample of 18th and 19th century sites to include the best surviving evidence for smelt mill structures, and flue/condenser/chimney systems.

The Grinton lead smelting complex is one of the best preserved in the Yorkshire Dales. The mill retains important remains of the smelting processes and the adjacent peat store and the well preserved remains of other features offer important scope for the understanding of the wider complex. Overall the complex preserves important archaeological remains which serve to illustrate the history and development of the lead industry throughout the region and the country.

SCHEDULING HISTORY

Monument included in the Schedule on 15th May 1974 as:
COUNTY/NUMBER: North Yorkshire 1166
NAME: Grinton Lead Smelting Mill, Fuel House and Flue

The reference of this monument is now:
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SCHEDULING REVISED ON 30th August 1996