Historic England

Borrowdale graphite mines and associated grinding mill, 660m north west of Seathwaite

Overview

Heritage Category: **Scheduled Monument**

List Entry Number: **1019941**

Date first listed: **09-May-2001**

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Location

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- **Scheduled monuments**
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Official list entry

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Location

The building or site itself may lie within the boundary of more than one authority.

District: **Cumberland (Unitary Authority)**

Parish: **Borrowdale**

National Park: **Lake District**

National Grid Reference: **NY 23136 12711**

Reasons for Designation

The mining of graphite was similar in technology to that of other non-ferrous minerals, except that the scattered and irregular nature of the mineral pipes necessitated an unusual amount of driving of levels and shafts through very hard country rock. Ore processing was limited to the removal of any adhering stone and sorting of lumps by size. Due to the commercial value of graphite this was performed in a guarded room in the mine guardhouse during the 19th century. Graphite in its pure form is carbon, less highly structured than diamond and composed of weakly bonded atomic layers. It is greasy to the touch which is due to tiny flakes or platelets rubbing off. These retain their crystalline structure and impart a metallic lustre to the deposit. Pure graphite can be machined, cut with a knife and sharpened to a point. The working of graphite deposits is thought to have been well established by the mid-13th century in central Europe. Over the next four centuries deposits were being exploited in New England, the East Indies, Spain, Mexico and many other places, but nowhere in the world have such large quantities of graphite of the purity of that mined at Borrowdale ever been found. For many years after its first discovery Borrowdale graphite was used for marking sheep, but gradually its properties began to be recognised and for a short period it found favour as a medicine for easing the pain of colic, gallstones and strangury when ground and mixed with wine or ale. Its main functions, however, saw it being used as an industrial lubricant, as a lubricant on ship's rigging, as a separating layer between iron moulds and castings, for polishing and protecting ironware, for glazing earthenware pots, and for the manufacture of pencils. The Borrowdale graphite mine increased in importance as demand grew, and the price of high quality graphite increasing from 18 pounds per ton in 1646 to 3920 pounds in 1804. This price rise led to considerable problems of theft,thus in 1752 an Act of Parliament was passed making unlawful entry into a graphite mine a crime. In about 1800

guardhouses began to be constructed over the entrance to mines and access into the level or shaft was by a trap door in the floor of the guardhouse. Graphite dressers worked in the guardhouse watched by a steward with two loaded blunderbusses and all miners were searched after work. From the early 17th century onwards the mine was deliberately worked for short periods only, at intervals of several years, in order to maintain the high price of the material of which it was a monopoly supplier. Exhaustion of the mining deposits led to abandonment of the mine towards the end of the 19th century. Borrowdale graphite mine is unique in being the sole representative of the graphite mining industry in England. Documentary sources indicate that it was worked periodically from the mid-16th to the late 19th centuries and the mine's longevity raises the potential for comparisons of native and Germanic mining technologies either side of 1607. Additionally the guardhouses have no known parallels in other mining industries and thus illustrate the lengths the mine owners went to in order to protect their monopoly.

Details

The monument includes Borrowdale graphite mines together with the remains of all associated features including a grinding mill, sawpit, guardhouses, spoil heaps, trackways and three boundary stones. It is located at the south western end of Borrowdale valley, above the hamlet of Seathwaite, on the north western side of the valley. The remains extend from the bottom of the valley to the top of the fellside and onto the moorland plateau of Seathwaite Common. The earliest date when graphite - also known as wad, plumbago, black-lead and calkstone - began to be mined here is unknown, however, there is indirect evidence to show that graphite was being extracted at the beginning of the 16th century and possibly even at the beginning of the 15th century. The earliest documentary sources for mining here are dated 1540-1 and refer to the profit from a mine of calkstone. After a visit by Commissioners of the Company of Mines Royal in 1555 the mining rights were leased out to a succession of different people including, in 1607, the Hochstetter brothers, German mining experts whose family had been involved in the Keswick copper mines for a number of years. In 1613 James I sold land in Borrowdale including the mines. The mines then became two separate entities consisting of the Upper and Lower Wadholes. From the outset the mines were worked sporadically; after a large find of graphite the mine would be closed for a number of years in order to keep the market price high. Such was the

profit to be made from graphite that armed attacks on the mine by robbers became a problem which resulted, in 1752, of the pasing of an act in Parliament making the stealing of graphite a felony. Expansion of the mines continued throughout the 18th and the first half of the 19th centuries but as the graphite gradually became worked out extraction declined and the mines were eventually abandoned in 1891. The remains are described in spatial order from the valley floor upwards. At NY23341226 there are the earthwork remains of a grinding mill built in 1887 to grind the graphite in order to produce pencil lead. These remains consist of a building platform which has been partially cut out of the natural slope. Stonework representing the eastern corner of the mill still survives as does part of the mill's concrete floor flagging. Adjacent is the mill's wheelpit with a cobble revetment wall on the side flanking the mill. A tail race runs 40m from the wheelpit to the River Derwent. Photographs taken shortly after the mill was built show a smithy adjacent to the mill. A relatively flat area west of the mill is considered to have been the site of this structure. At NY23411230 are the earthwork remains of a sawpit depicted on a map of 1891. The remains consist of a rectangular platform measuring 8.8m by 11.5m cut into the slope and revetted at the front by stone walling. Both ends of the sawpit are edged by large boulders and a rock outcrop. Another section of revetment wall lies a short distance north of the sawpit. Robson's Level is situated at NY23301238 and is the latest level driven in the mine. It was started in 1845 as a drainage adit but did not join up with any other levels before the mines were abandoned. The spoilheap has a finger-shaped platform on its summit and a map of 1868 shows that material from the mine was brought out by railway. At the north west end of the spoilheap are the remains of a stone-built mineshop or guardhouse. This was the last of several permanently-manned guardhouses at the mine which were constructed to prevent thieves gaining access to the mine and to allow miners to be searched upon leaving the mine. A photograph taken in about 1888 shows the guardhouse to have been a two-storey stone-built construction with a slate-covered gabled roof. The building covered the mine entrance and had a three-sided unroofed structure abutting its southern corner. A short distance north of the adit are the remains of a water blast shaft constructed to aid ventilation of Robson's Level. Gilbert's Stage is located at NY23301260. This adit has the largest spoil heap of all the graphite mines here. The adit was driven in 1798 and two years later a two-storey guardhouse was built around its entrance. Documentary sources indicate that in an attempt to increase security all graphite from whatever level was brought to the surface at Gilbert's Level, thus accounting for the large

spoilheap. On the summit of the spoilheap there is exposed red staining considered to be the rusted remains of a railway depicted on a plan of 1821. The surviving walls of the guardhouse still stand up to 2.1m high and there are traces of a smithy at the front of the building on the south west side of the adit. At NY23241265 there is a spoil heap on the summit of which is a corner of walling which survives to foundation level only. This spoilheap is thought to have been associated with Old Men's East Level, an adit marked on the plan of 1821 but now largely covered by spoil from above. At NY23211266 are the remains of Old Men's Level, one of the earliest workings driven in 1619. It consists of a spoil heap now largely covered with spoil from a higher level. Fragmentary remains of a peat storage house still survive. Forty metres to the west is New Level trial adit and spoilheap cut into the side of Newhouse Gill and considered to date to around the early to mid-19th century. At NY23171269 is Farey's Stage, an adit driven in 1819. The substantial spoil heap has an eroded central channel which represents the course of an old railway. Just above Farey's Stage is Bill's Shaft, documented as being worked in 1594. There are two adjacent small spoilheaps, one of which has a rectangular depression thought to mark the location of winding gear used to hoist ore up the shaft. At NY23101272 is Gill's Stage adit and spoilheap. The main adit is cut into rock outcrop in the side of Newhouse Gill, a trial adit lies nearby. About 30m to the east there is an unidentified spoilheap which has a number of stone walls extending from its edge and traces of two buildings. At NY23101276 is Harrison's Level and minehouse. The adit was cut in 1791 and the guardhouse built to cover the entrance. Plans show the structure to have been two-storey with six rooms. The present remains consist of two rooms either side of the central adit. A revetted terrace in front of the guardhouse survives intermittently as does a yard wall which has been partly destroyed by an adjacent spoilheap. Nearby in Newhouse Gill are other workings consisting of Jopson's Level, an adit cut into the stream bed about the middle of the 18th century, Thompson's Pipe, an adit cut into the side of the gill just below Gill's Stage, and an unnamed adit cut into the slope of the west side of the gill. The remains on Seatoller Common are characterised by a mass of small trials as opposed to the major levels dug on the lower slopes. An exception is the large crater of Upper Wadhole at NY23041282, thought to be the spot where graphite was first discovered and later recorded as flooded in 1555. Upper Wadhole was worked repeatedly throughout the mine's history and is surrounded by a complex of spoilheaps and trails. The workings continue in a north westerly direction for a further 350m and include Common Stage, driven in 1811, Moor's Stage and Higher Stage, each surrounded by an array of

shafts, trials, adits, prospecting trenches and spoilheaps. In 1752 five boundary stones were erected to warn trespassers and three of these are included within the scheduling. One has been placed in the track leading to Robson's Level and is a modern replica of the original which was destroyed by vandals, another replica is close to the sawpit, while an original slate slab 0.75m high stands above the track leading from Gilbert's Stage. All modern walls, fencepost, gateposts and the surface of the walker's path along the side of the River Derwent are excluded from the scheduling, althought the ground beneath all these features is included.

MAP EXTRACT The site of the monument is shown on the attached map extract.

Legacy

The contents of this record have been generated from a legacy data system.

Legacy System number: 32900

Legacy System: RSM

Sources

Books and journals

Cumbria Amenity Trust Mining History Society, , Beneath the Lakeland Fells, (1992), 43-54

Lax, A, Seathwaite Graphite Mines Archaeological Survey Report, (1995), 1-13

Lax, A, Seathwaite Graphite Mines Archaeological Survey Report, (1995), 12-13

Legal

This monument is scheduled under the Ancient Monuments and Archaeological Areas Act 1979 as amended as it appears to the Secretary of State to be of national importance. This entry is a

copy, the original is held by the Department for Culture, Media and Sport.

Map

This map is for quick reference purposes only and may not be to scale. This copy shows the entry on 08-Jun-2026 at 09:12:05.

End of official list entry