



Property in Care (PIC) ID: PIC128

Designations: Scheduled Monument (SM90310)

Taken into State care: 1972 (Guardianship)

Last reviewed: 2013

STATEMENT OF SIGNIFICANCE

WANLOCKHEAD BEAM ENGINE



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WANLOCKHEAD BEAM ENGINE

SYNOPSIS

Wanlockhead Beam Engine is situated in the former lead-mining village of Wanlockhead, high in the Lowther Hills 5 miles ENE of Sanquhar. The property comprises a water-powered beam engine, which pumped water from the Straitsteps lead mine beneath. It was probably erected there in the later 1800s. The remains of a horse-operated winding gin beside it were excavated and laid out in 1972, shortly after the property passed into state care. Since that time, the former mining village has been developed into a significant tourist attraction – The Museum of Scottish Lead Mining - of which the beam engine forms a prominent landmark.

CHARACTER OF THE MONUMENT

Historical Overview:

- **Iron Age/Roman era** – gold and other minerals, including lead, in the Lowther Hills are exploited, probably for the first time.
- **early 1200s** – mining is first recorded in a ‘perambulation’ of the Crawford-Lindsay estate.
- **1675** – the Straitsteps Lead Mine is opened by Sir James Stampfield. Hand rag-pumps are used to pump out water. It closes in 1684.
- **1710** – commercial lead mining gets underway in Wanlockhead in earnest, under the management of the London Quaker Company. They drive a drainage level up the Wanlock valley to cut the Straitsteps Vein at the site of the present beam engine and sink shafts to exploit the deeper parts of the vein. They erect two waterwheel-powered pumping engines (called ‘bab-gins’) to help drain the workings in the Straitsteps Mine; the first, known as the ‘Little Engine’, raises water from the workings to a drainage level some 28m below the surface, and the second larger ‘Black Engine’ helps drain the later, deeper workings. The village of Wanlockhead (‘Winlocke’) is established around the same time.
- **1756** – the mine lease passes to an Edinburgh company, Ronald Craufurd & Co., one of whose shareholders is a friend of James Watt, who is instrumental in erecting the second Boulton & Watt engine to operate in Scotland – on the Margaret Vein at Mennockhass, south (uphill) of Wanlockhead.
- **1775** – John Clerk of Eldin visits Wanlockhead and draws a scene of the Straitsteps Mine. He shows the two bab-gins, with the larger ‘Black Engine’ working where the present beam engine now stands. Clerk shows the water for powering the wheels being conveyed along an elevated wooden lade.
- **1780s** – the Bay Mine, in Whyte’s Cleuch, downhill from the Straitsteps Mine, opens, and the ‘Black Engine’ helps to drain these workings also.
- **1799** – on closure of the Bay Mine, the ‘Black Engine’ is moved to drain the re-opened Old Glencrieff Mine, west of the Straitsteps Mine. The horse-powered winding gin is subsequently built beside the vacated

shaft into the Straitsteps Mine, to haul men and ore up from the workings.

- **c.1850** – the Straitsteps Mine closes and the winding gin is removed.
- **later 1800s** – the 5th Duke of Buccleuch re-opens the Bay Mine, and in an attempt to deal with water seepage from the old Straitsteps Mine has the present beam engine erected over the former shaft.
- **1883** – a mine report mentions an ‘auxiliary pump’ in use at the south end of the Straitsteps vein, and this probably refers to the present beam engine.
- **c.1910** – the beam engine ceases to be used. A concrete cap is placed over the pumping shaft.
- **1928** – commercial lead mining ceases in Wanlockhead, except for a brief period of reworking during World War II and into the 1950s.
- **1972** – the beam engine and site of the horse-powered engine is taken into state care from the Buccleuch Estates. The site is archaeologically investigated that same year, prior to conservation works on the timber elements of the beam engine.
- **2003** – the main beam, by now badly decayed, is replaced.

Archaeological Overview:

Shortly after coming into state care in 1972, an archaeological investigation was carried out by Chris Tabraham, of the Ancient Monuments Inspectorate. This focused initially on examining the timber structure of the beam engine and the water-bucket pit, sufficient to enable a conservation strategy to be drawn up. The mine shaft itself, capped by a concrete slab, was not examined.

During the same operation, the area immediately in front of (ie, west of) the beam engine was examined. This revealed the existence of a horse-powered winding gin, including the iron foot-bearing of the winding drum and the circular horse-walk. No finds or other evidence was forthcoming from either operation to shed light on the dates of the two engines.

The potential for some archaeology remains. The mine shaft has not been adequately recorded, whilst the excavation of the horse-powered gin was by no means exhaustive. There may also be evidence remaining of the 18th-century ‘Black Engine’, whilst the wider area, including beyond the property formally in care, will undoubtedly contain much of industrial archaeological interest.

Architectural/Artistic Overview:

The beam engine itself has been described as ‘the monumental showpiece of Wanlockhead’. It is the only known water-powered beam pumping engine of its kind surviving in the United Kingdom to survive virtually intact, and helps demonstrate how the principle of ‘perpetual motion’ was applied to mechanical apparatus.

Every element of the engine survives – the wooden balance beam and stone column supporting it, the bucket arm, waste-water pit and drain outlet, and the pumping-rod arm and shaft. The only feature missing is the lead water-cistern, which held water drawn from the Wanlockhead Water to power the engine and

was formerly located on the far (east) side of the public road behind the engine. Although intended simply to pump water from the mine workings, the beam engine, particularly its stone supporting column and timber balance beam, is attractively designed and well crafted.

The beam, restored in 2003 and made up of two baulks of pitch pine, is 8m long and 280mm wide. Wrought-iron straps bind the two baulks together and there are carved reinforcing pads at the centre and ends. The beam is mounted on a pillar of dressed freestone 4.27m high and measuring 2m x 910mm at the base. It has a carved cornice and is not unlike a Victorian railway bridge pier in appearance. This, and the use of small lathe-turned locking screws, confirm the 19th-century date for its construction.

(Note: there is a similar stone pillar, but no timber beam or ironwork remaining with it, at the Bay Mine, further down the Wanlock Water. This is believed to be part of the atmospheric beam engine erected in 1789 and designed by William Symington, a native of Leadhills, who would later pioneer the use of steam for ship propulsion.)

Social Overview:

The Wanlockhead Beam Engine has become an important icon for Wanlockhead village. The 'Hidden Treasures' Museum of Lead Mining based there, for example, features it on its 'mast-head'. The Museum operates a number of heritage attractions and facilities in and around the village, including two close by the beam engine - the Straitsteps Cottages and the Lochnell Mine 'experience'. A working model of the Beam Engine is on display in their Visitor Centre. The beam engine itself is given a prominent place on the Museum's publications, including its website, and the property clearly benefits from the many visitors and educational parties that are drawn to the 'highest village in Scotland'.

Spiritual Overview:

Wanlockhead Beam Engine has never played a spiritual role.

Aesthetic Overview:

The beam engine is a surprisingly attractive feature in an otherwise somewhat sombre and brooding village landscape. Its immediate vicinity is semi-rural, with a number of white-washed former miners' cottages and the dull harled box that is the former village church for company.

The view out from the site, across and down the valley of the Wanlock Water, provides an interesting and varied prospect – of rusting iron rail wagons and grey slag-heaps framed by the green-brown slopes of the enveloping Lowther Hills. On clear days a fine view can be had of the 'golf ball' NATS radar tracking station on the summit of Lowther Hill.

What are the major gaps in understanding of the property?

- When precisely were the beam engine and the horse-powered gin constructed, and what was their history of use? There is a strong possibility that the beam

engine and pillar were brought from elsewhere. A detailed trawl through all available documentary sources may shed further light on this fascinating piece of industrial archaeology.

- What was the detailed arrangement in the shaft housing the pumping-rod arm? Old photographs show the existence of an iron ladder descending into the shaft, but removal of the concrete cap would enable a more thorough investigation.

ASSESSMENT OF SIGNIFICANCE

Key Points

- Wanlockhead Beam Engine is the only known water-powered beam pumping-engine of its kind in the U.K. to survive virtually intact, and showing the principles of 'perpetual motion'.
- The Beam Engine is an evocative reminder of the once-important and extensive lead-mining industry in the Lowther Hills, 'God's Treasure House in Scotland'.

Associated Properties:

(other lead-mining related features in Wanlockhead) – Bay Mine stone engine base and associated industrial remains; Loch Nell Mine; Miners Library; Pates Knowe smelter, including waste bings; Straitsteps Cottages

(other lead mine workings in Scotland) – Knockiebae (Dumfries & Galloway (D&G)); Pibble (D&G); Strontian (Highland); Woodhead (D&G)

Keywords:

lead; mine; water power; horse winding gin; Straitsteps

Selected Bibliography:

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