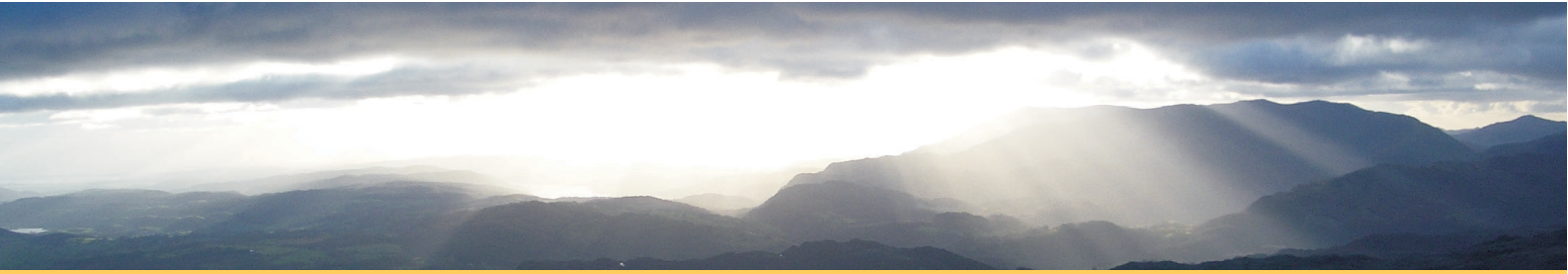


Discovering Industrial Sites in The Lake District

A history resource for Key Stage 3

Lake District National Park

Supported by The National Lottery® through the Heritage Lottery Fund

heritage lottery fund

FSC Bringing Environmental Understanding To All

CONTENTS

Introduction

Discovering Industrial Sites in the Lake District presents three case studies for use by Key Stage 3 history teachers in Cumbria.

The case studies will enable teachers to access the industrial heritage of the region and support delivery of the Key Stage 3 history programme of study. In addition the resources may serve as a springboard for further study beyond Key Stage 3, both within formal education and to support personal interest and research.

The aim of the booklet is to bring to life the industrialisation of Britain by giving students an insight into the lives of local workers and communities, with a particular focus on young people. The broader historical context of Lake District industries and their links with the wider world can also be developed using these resources.

Using local sites encourages students to take a fresh look at their surroundings, making links between the current landscape and its industrial past. Local relevance can help to engage students and spark the desire to enquire further into national, local and personal histories. Looking at sites closer to home also allows repeat visits.

Curriculum links

The material in this booklet links to the following areas of the Key Stage 3 programmes of study:

History	1.2a 1.4a 1.5a 1.6a 3b 3g 3h 4a 4b 4c
English	2.2a 2.2e 3.2b
Geography	1.1a 1.2a 1.2b 1.3a 1.3b 1.5a 3a
Science	1.2a 1.2b

Discovering Industrial Sites in the Lake District

Funded by	The Heritage Lottery Fund
Text	The Lake District National Park Authority
Images	'Ultramarine Blueworks, 1977' © Leven Valley History Society OS maps © Crown Copyright. All rights reserved LDNPA 100021698 2008. All other images © LDNPA
Editing and design	Content Educational Resources, www.content-resources.co.uk
Printed by	Oxford Greenprint, www.oxfordgreenprint.com

How to use this booklet

The three case studies in this booklet – Howk Bobbin Mill, the Leven Valley and Greenside Lead Mine – were selected to demonstrate the wealth of industrial archaeology within the Lake District.

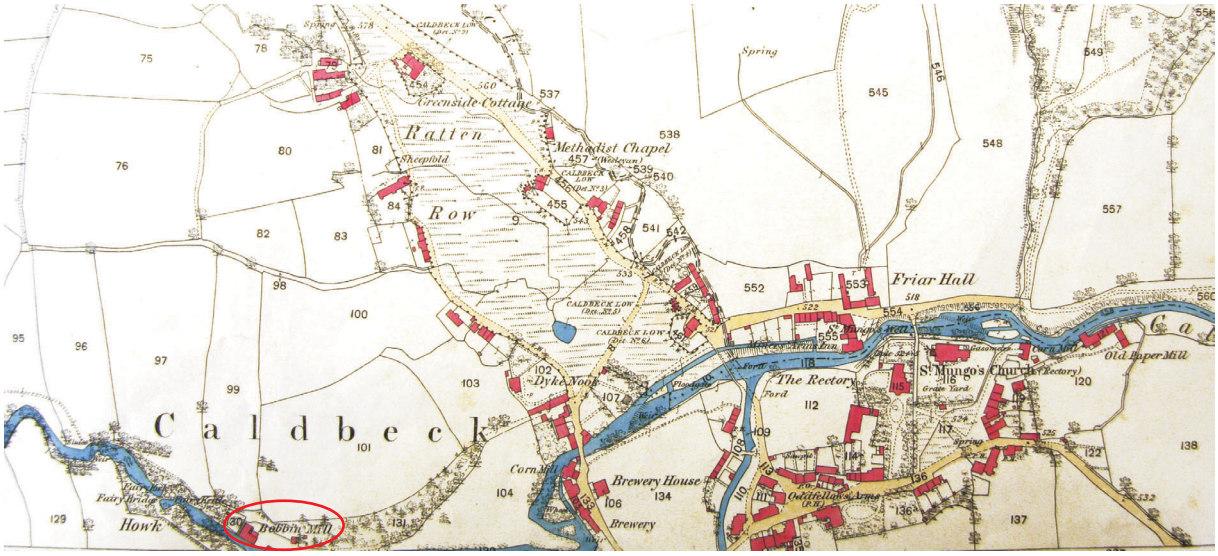
Greenside Lead Mine and Howk Bobbin Mill are examples of two highly significant industries within this locality. The Leven Valley case study demonstrates the wide range of industrial activity to be found within one Lakeland valley.

Locations of the sites described in this booklet

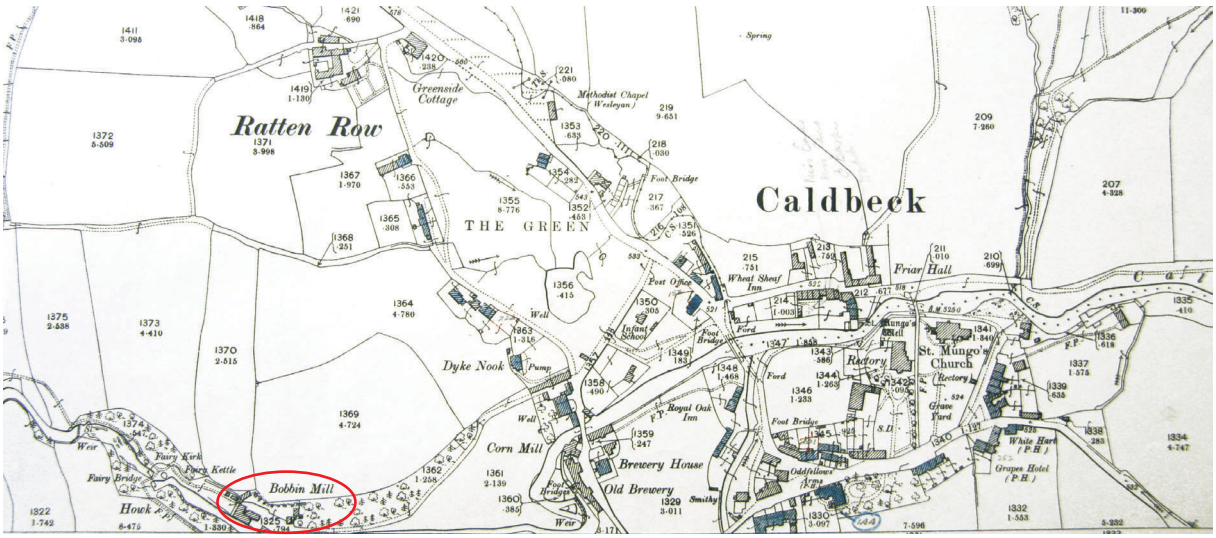
The presentation of the case studies is designed to support teaching and learning in several ways:

- They can be used as a student resource to supplement other sources of information.
- They may serve as an inspiration and guide to producing similar resources for industrial sites of your choice. They illustrate the potential for creating resources for local sites, without having to rely on existing educational material. Primary and secondary sources used include: photographs, OS map extracts, library books, census websites to research employee details, Local Record Office archives, Parliamentary papers (including commission reports) and online newspaper archives.
- The resources may inspire a field trip to one of the many standing industrial sites in the Lake District. Great care should be taken to only visit those which have been made safe for visitors. Some sites, including Stott Park Bobbin Mill and Honister Slate Mine, offer guided tours and educational resources.

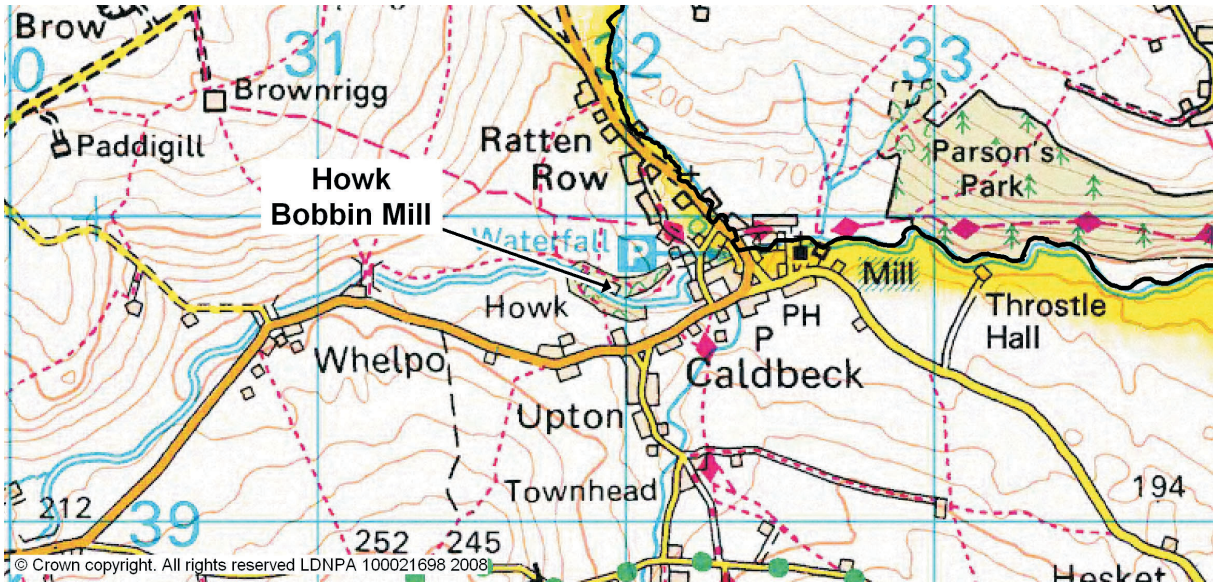
Maps: Howk Bobbin Mill



Howk Bobbin Mill and Caldbeck village, OS Sheet XXXVII, Cumberland, 1st edition c.1863



Howk Bobbin Mill and Caldbeck village, OS Sheet XXXVII, Cumberland, 2nd edition c.1900



Howk Bobbin Mill, OS Landranger 96, 2007

Background information

The Industrial Revolution in the Lake District

The Industrial Revolution began in the early eighteenth century. Its effects were felt in Britain and throughout the world. Steam-powered machinery replaced the need for manual labour, transport systems – canals, railways and improved roads – were created and the socio-economic situation changed forever.

The Industrial Revolution brought with it innovations and opportunities, which the Lake District was quick to benefit from. Natural resources were exploited on a massive scale, new jobs were created and settlements expanded to accommodate industrial workers.

Natural Resources

The Lake District is rich in natural resources.

Mineral resources

There are many types of rock in the Lake District, including slate, granite, sandstone and limestone, which were quarried for building purposes. Minerals such as copper, lead, zinc, iron ore, barytes, graphite, tungsten, arsenic and diatomite have also been mined in the last 400 years.

Woodlands

People have managed the Lake District woodlands for many centuries. Timber was very important for early industries as it could be turned into charcoal and used for smelting metal ores. It was also used to make bobbins for the cotton industry. To ensure a constant supply, people created sustainable woodlands by coppicing: cutting young tree stems to quicken and encourage growth.

Water

Water was readily available in the Lake District from the lakes, rivers and becks. It was a natural power source for corn mills and fulling mills (where wool was washed and processed and turned into woollen cloth). Later, mills were used for other industries including cotton, paper and flax, tanning, brewing, pencil making, iron manufacture, gunpowder, bobbin turning and sawmilling.

Modern traces of our industrial past

By the twentieth century, industrial maturity had been reached. New, improved and less expensive methods of manufacturing were developed. Some industrial activities moved to other parts of the world, while some raw materials were imported from cheaper sources. Industrial activity became centralised and was concentrated around urban centres like Manchester. This eventually lead to the closure of many of the important industrial sites in the Lake District. The remains of this once thriving industrial landscape can be seen all over the National Park.

Howk Bobbin Mill

Where is the mill?

The Howk Bobbin Mill is approximately 500m from the centre of Caldbeck village in the northern Lake District.

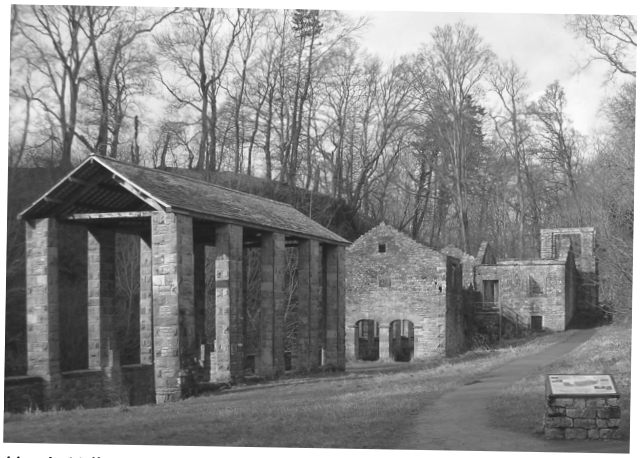
Find the mill on an OS map at grid reference NY319398

The mill was built in the Howk gorge. It was powered by the waters of the Cald Beck as they passed through the gorge.

Wood for the bobbins came from areas of ancient coppiced woodland in the valley and surrounding area. Raw materials and finished products would have been transported to and from the site by horse and cart.

A brief history of the mill

The Howk Bobbin Mill began production in 1857. Power was transferred from the beck to the mill by a huge water wheel, 42 feet 5 inches (13.1 m) in diameter. At the time this was said to be the second largest water wheel in the country.



Howk Mill today

Owners and managers

The mill was initially owned by John Jennings and leased to a Mr W. Helme who already owned Low Mill in Caldbeck.

The mill was later managed by a number of different people. John Wilkinson and his son took it over in 1908. The Wilkinsons managed the mill until it was forced to close in 1924.

What did the mill make?

The mill made many products in its time, mostly spinning and threading bobbins for the cotton industry, in Lancashire and beyond. The mill was part of a much bigger worldwide cotton manufacturing process. It also made items for local use such as axe and brush handles, mole traps, washing dollies (long poles used to turn and stir laundry) and clog soles.

Who worked at Howk Mill?

The bobbin mill employed between forty and sixty people, including boys as young as ten years old . Most of the workers lived in and around Caldbeck village, either in family cottages or lodgings.

Glossary

Lathe – a machine tool that spins to cut, sand, knurl or drill materials like wood

Knurl – create a knob or ridge

Bobbin turner – someone who makes bobbins by shaping wood on a lathe

JOHN PROCTOR, bobbin turner
My life in 1871

Age:	16
Place of work:	Howk Bobbin Mill
Address:	Cornhill Cottages, Ratten Row, Caldbeck
Family:	father – Anthony Proctor, bobbin turner
	mother – Elizabeth Proctor
	siblings – George (13), Mary (11), Fanny (1)

Work life

"When I first started at Howk Mill I had to drill the holes in the bobbin blocks. You had to push the blocks onto the drill. If you weren't careful you could catch your hand – I've still got the scars.

The younger lads peel logs so that there's no bark left on them. This makes a nice smooth surface for making a bobbin. It's a hard job, twelve hours a day, six days a week.

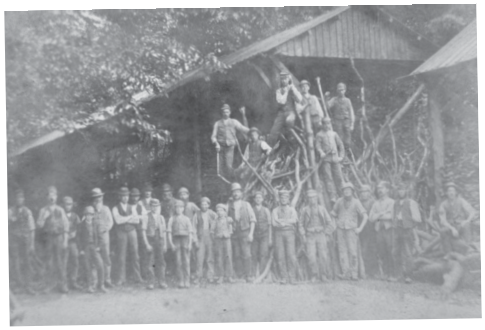
It's cosy in the mill because we burn all the shavings from the lathes in the stoves. We have to watch the stoves carefully, as there have been fires in the past.

Now I work on the lathes, turning the bobbins with my father. When the bobbins have been turned they go to be dipped and polished."

Home life

"I live with my family in one of the Cornhill Cottages. There are six of us Proctors and we have a lodger, Max Alexander, who works at the mill. It's a bit cramped but Mam keeps it tidy.

On Sunday we get the day off. I help my dad with the garden round the back of the cottage. We grow vegetables and keep some chickens."



Workers at Howk Mill, c.1900

Scandal!

On 1 July 1882, John Proctor and his father Anthony were involved in a fight at the bobbin mill. The fight resulted in the death of Alexander Aitken, another bobbin turner at the mill. Anthony Proctor was charged with manslaughter, but at his trial in November 1882 was found not guilty. All charges against John were dismissed.

The fight was reported in the *Maryport Advertiser* on Friday 21 July, 1882.

You could also investigate the history of
Stott Park Bobbin Mill & Staveley Mill Yard

The Leven Valley

Find the valley on an OS map at grid reference SD355845

Visiting the sites Only Stott Park Bobbin Mill and the Haverthwaite Railway are operational and open to the public. The other sites can be viewed from nearby paths and roads.

Recipe for Industrial Success

1. Select one valley offering natural transport routes, which also connect with the wider world's trade routes.
2. Ensure there is easy access to rich supplies of minerals such as iron.
3. Add in a plentiful supply of fast flowing water, like the river Leven running from the southern end of Windermere. This guarantees an essential power supply and provides water for manufacturing processes.
4. Mix together with extensive deciduous woodland, suitable for coppicing to provide wood for manufacturing, construction and fuel in the form of charcoal.
5. Sprinkle in a tradition of rural craftsmanship, a local supply of labour, and entrepreneurs with vision and money to invest.
6. Combine and allow the industries to complement one another. Leave to develop over time, adding in new ingredients such as rail transport when available. Remember to cream off the profits at frequent intervals!

Backbarrow Ironworks, 1711-1967

Backbarrow was one of the earliest blast furnaces established in the north of England and the most successful of its kind in the Lake District. Iron ore from Low Furness was burnt with charcoal to create pig iron (crude iron bars). This was used to produce cannons, cannon balls, anchors, plough blades, spades, hoes and household items like firebacks.

Did you know? The furnace had to be fed with iron ore and charcoal, day and night, for months on end.

Backbarrow ironworks in the 1920s

Low Wood Gunpowder Works, 1798-1935

The gunpowder produced at Low Wood was used for local mining and quarrying. Gunpowder from the Lake District supplied the whole country including the Army and Navy. The gunpowder was also traded through the port of Liverpool, mainly to Africa where it was exchanged for slaves.

Did you know?
Accidents were frequent. Cart horses had copper or brass shoes to prevent sparks which could cause an explosion.

Workers' cottages

The terraced housing at High Row, Backbarrow, was built in the late 1700s to house the growing industrial workforce in the valley.

Did you know?
Most houses built in the eighteenth century had no indoor toilets.

Stott Park Bobbin Mill, 1835-1971

This mill once produced 250,000 bobbins a week for the cotton industry. Many of the cotton industries were in Lancashire but some were further afield. Approximately 250 men and boys worked here throughout the mill's history. Some of the boys were orphans who came from workhouses. The mill is now a working museum run by English Heritage.

Did you know?
All the bark had to be peeled off the wood before it could be made into bobbins.This work was often done by orphan children who received no pay or education.

Haverthwaite Railway, 1869-1960s

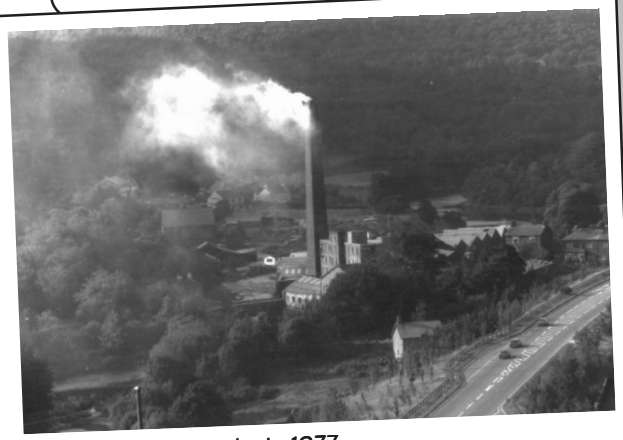
This railway formed a vital transport link for the Leven Valley, transporting freight and passengers from Lakeside to Ulverston, Barrow and Lancashire. The railway is still used for tourist trips to Lakeside today.

Did you know?
The steam locomotive Furness Railway No. 20 was built in 1863 and is still working today.

Ultramarine Blue Works, 1895-1981

Blue dyes and pigments used in paint and bleach were made here, as were the ingredients to whiten washing. Some of the ingredients – sulphur, soda ash, china clay, pitch and silica – came from as far away as Texas. Before the blue works, the site was home to corn, paper and cotton mills, which employed orphans from Liverpool, London and Brighton. There is now a hotel on the site.

Did you know?
In later years, workers from Ulverston had their own special bus service because they were so covered in blue!



Ultramarine Blueworks in 1977

Glossary

Blast furnace – a furnace used for smelting iron: iron ore and charcoal are supplied at the top and air is blown in at the bottom to create high temperatures

Coppicing – cutting young tree stems to quicken and encourage growth

Workhouse – a centre where very poor people were forced to live and work for their keep

You could also investigate the history of
Eskdale Valley & Duddon Valley

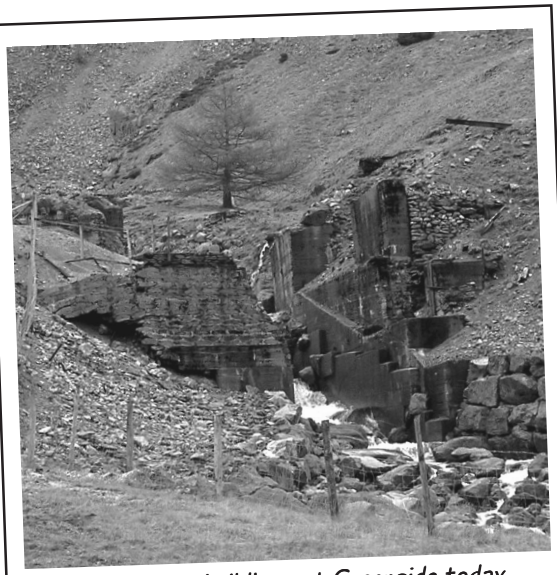
Greenside Lead Mine

Where is the mine?

Greenside Mine is located on the northeast side of Helvellyn, at the foot of Green Side ridge. It overlooks Ullswater and the village of Glenridding.

The water from Swart Beck was crucial to the functioning of the mine, as a power source and a means to wash the ore.

Find the mill on an OS map at grid reference NY364177



Remains of mine buildings at Greenside today

A brief history of the mine

Greenside was first mined in the late 1600s. The Greenside Mining Company was formed in 1825. During the 1850s Greenside became the largest lead mine in the Lake District with over 300 employees.

In the 1860s a railway line was built linking Penrith to Keswick. This made the moving of lead and heavy machinery much easier and cut transport costs.

In the 1890s Greenside became the first mine in Britain to use hydroelectric power.

The mine closed down in 1962 and most of the buildings were demolished.

What was mined here?

The lead ore galena was mined at Greenside. When smelted it produced over 80% lead, and 350g of silver per ton.

Underground, in the mine, a chisel and sledgehammer were used to make a hole in the rock, then gunpowder was used to blast the rock apart. The broken pieces were taken up to the surface, where they were dressed, washed and crushed before smelting.

Lead was used to make pipes, roofing, bullets and in the glass-making process. Much of the silver went to the Bank of England.

Who worked at Greenside?

The core employees were the miners. Other men were employed to dress and smelt the lead ore and refine the silver. There were also carpenters, woodsmen, blacksmiths, masons and washer boys. Many of the men came from Keswick, Penrith and Grasmere and lodged in the village, where relationships with locals were sometimes tense.

Over fifty-two miners' houses were built in the 1850s for the men and their families.

Glossary

Dressing – separating ore from waste material before it is smelted

Ore – a naturally material (often a rock) which can be processed to release a metal or valuable mineral

Smelt – extract metal from its ore by heating and melting

CHARLES EDDY, Washer boy
My life in 1833

Age:	17
Place of work:	Greenside Lead Mine
Hometown:	Penrith
Family:	father – William Eddy , miner
	mother – Margaret Eddy
	siblings – William (21), Joseph (18)

"My job is to wash the lead ore clean in the beck. It's exhausting, and bitterly cold in the winter with no shelter from the freezing rain.

Every Monday morning my brothers and I leave home at 4 o'clock in the morning and walk fifteen miles to the mine to start work. We walk back on Saturday and have Sunday at home with Mam and Dad.

I carry my food from home in my leather satchel. Breakfast is oatmeal porridge, lunch is bread and bacon, and dinner is potatoes, bacon and butter. Best of all is when someone has poached a bit of hare or pheasant!

During the week we live in the bunkhouses, with fifty men sharing sixteen beds. It's cold, filthy, smelly and full of fleas! We cook our dinner over the fire and then try to sleep. Luckily my bed doesn't have water dripping on it, like William's.

My brother Joseph is a washer boy too. When we're twenty-one we can be miners like William. Some washer boys are only ten and it's really hard for them working the long hours.

Many of the miners have back and hand injuries. One of the lads in the bunk above me is off with rheumatism. He had a bad fever last week and kept us all awake."

Living conditions improved over time...

From the 1860s, new bunkhouses, called 'shops', were built and conditions were more carefully regulated, with a rota system for cleaning and tidying. The washing floors were roofed over to keep the washer boys from the worst of the weather.

The miners also set up an informal school for the younger boys and gave them lessons between shifts, especially when the becks froze over and prevented the washing.

Workers' cottages near Greenside Mine

You could also investigate the history of
Coniston Copper Mines & Honister Slate Mine

Find out more

Books

David Alderton, *A Teacher's Guide to Using Industrial Sites* (English Heritage, 1995)

Mark Bowden, *Furness Iron: The physical remains of the iron industry and related woodland industries of Furness and Southern England* (English Heritage, 2000)

Gavin Weightman, *What the Industrial Revolution Did for Us* (BBC Books, 2003)

Maps

Old Ordnance Survey maps were sourced from Cumbria Record Offices at Kendal and Carlisle.

The internet

Websites used to research this booklet

The Leven Valley: **www.cumbriaslevenvalley.co.uk**

Stott Park Bobbin Mill:
www.britainexpress.com/History/stott-park.htm and **www.english-heritage.org.uk** (then use the search tool)

Lakeside and Haverthwaite Railway:
www.lakesiderailway.co.uk

An interactive about Backbarrow Ironworks:
www.heritage4schools.org/website/1/view_interactive/972

Cumberland & Westmorland Newspaper Transcripts:
www.cultrans.com

Story of the cotton industry:
www.spinningtheweb.org.uk

General census information search:
www.ancestry.co.uk (14-day free trial then a subscription service)

Catalogue of archives held in England and Wales:
www.nationalarchives.gov.uk

To search British Parliamentary Papers 1801-1995, including the Children's Employment Commission:
www.bopcris.ac.uk

Industrial sites in Cumbria

Honister Slate Mine:
www.honister-slate-mine.co.uk

Industrial history of Cumbria:
www.cumbria-industries.org.uk

Cumbria Amenity Trust Mining History Society:
www.catmhs.org.uk

Schools resources

For lots of useful industrial revolution links:
www.schoolhistory.co.uk/year9links/industrial9.shtml

Primary and secondary sources on the industrial revolution:
www.fordham.edu/halsall/mod/modsbook14.html

Interactives and case studies:
www.bbc.co.uk/history/british/victorians

Case studies of industries and individuals:
www.spartacus.schoolnet.co.uk/IndustrialRevolution.htm

Museums

These museums and visitor centres offer information, site visits and collections to supplement your teaching of the industrial history of Cumbria.

The Beacon

West Strand, Whitehaven, Cumbria CA28 7LY

Tel 01946 592302
Email thebeacon@copelandbc.gov.uk
www.copelandbc.gov.uk/ms/www/thebeacon

Keswick Mining Museum

Otley House, Otley Road, Keswick, Cumbria CA12 5LE

Tel 017687 80055
Email enquiries@keswickminingmuseum.co.uk
www.keswickminingmuseum.co.uk

The Dock Museum

North Road, Barrow-in-Furness, Cumbria LA14 2PW

Tel 01229 876400
Email dockmuseum@barrowbc.gov.uk
www.dockmuseum.org.uk

Nenthead Mines Heritage Centre

Nenthead, Alston, Cumbria CA9 3PD

Tel 01434 382726/382037
Email mines@npht.com
www.npht.com

Force Crag Mine, Borrowdale (NT)

Head of Coledale, Braithwaite, Keswick, Cumbria

Tel 017687 74649
Email forcecragmine@nationaltrust.org.uk
www.nationaltrust.org.uk (then use search engine)

Threlkeld Quarry and Mining Museum

Threlkeld, Nr. Keswick, Cumbria CA12 4TT

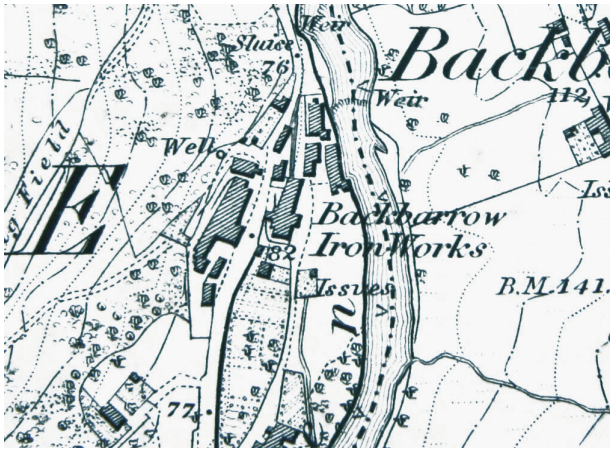
Tel 01768 779747
www.threlkeldminingmuseum.co.uk

Ruskin Museum

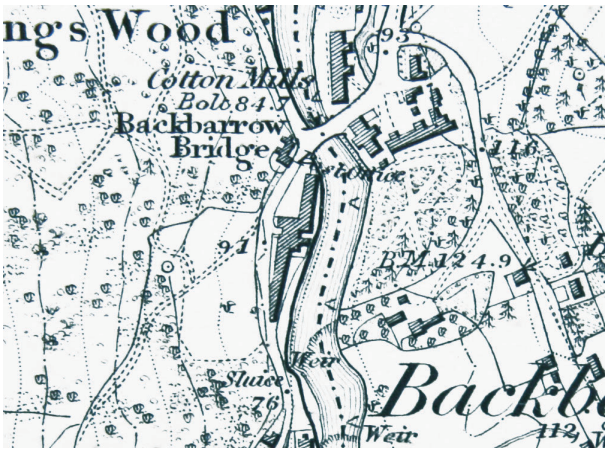
Coniston, Cumbria LA21 8DU

Tel 015394 41164
www.ruskinmuseum.com

Maps: The Leven Valley

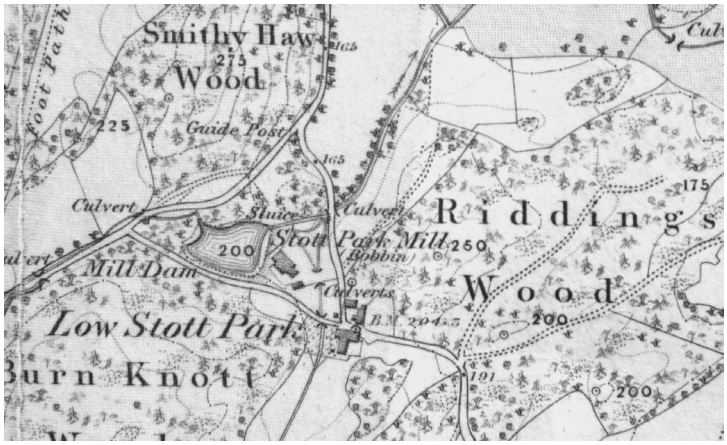


Backbarrow, OS Sheet VIII, Lancashire, c.1848

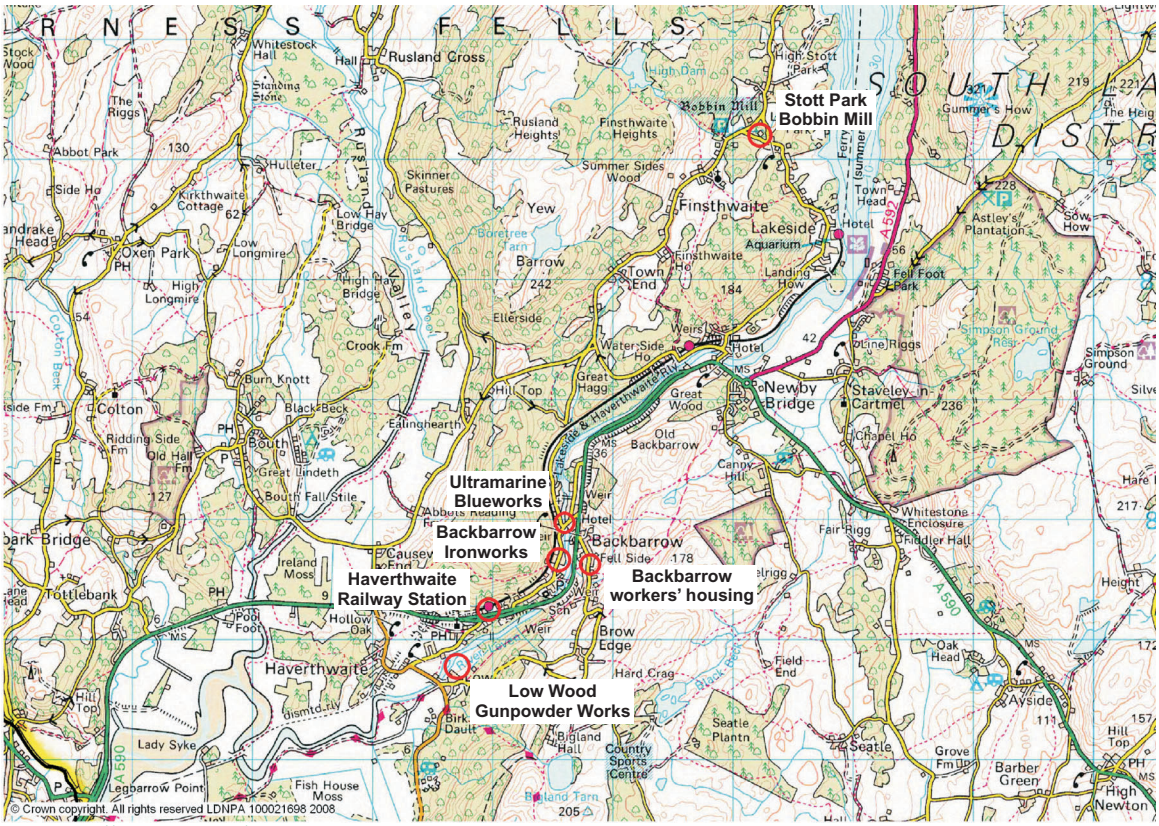


Blueworks site, OS Sheet VIII, Lancashire, c.1848

Low Wood Gunpowder Works,
OS Sheet VIII, Lancashire, c.1848



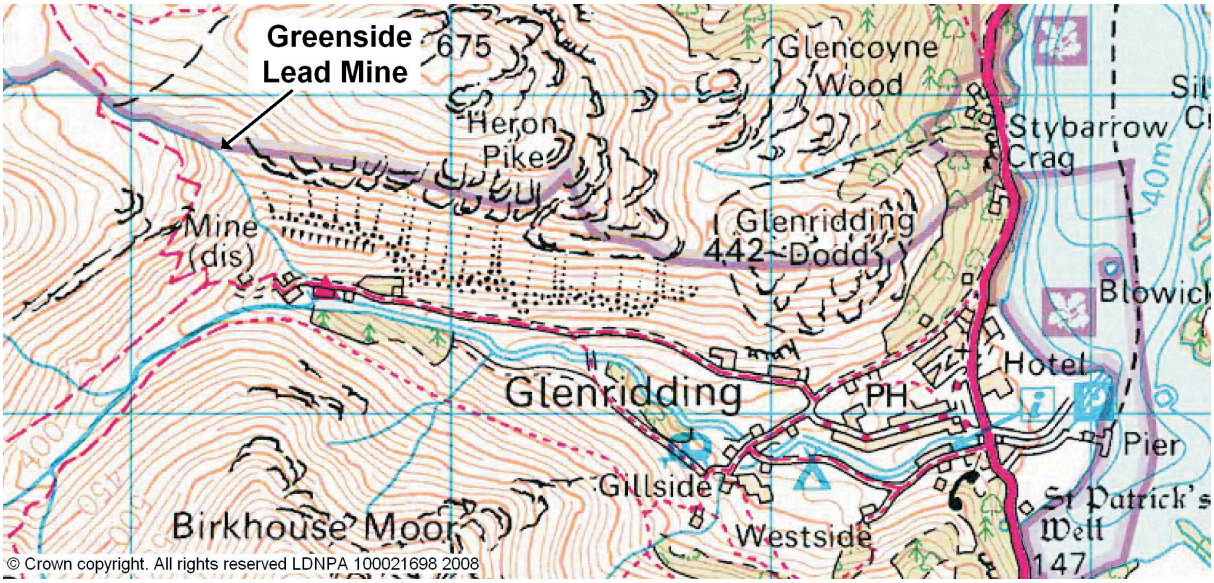
Stott Park Bobbin Mill, OS Sheet V, Lancashire, c.1848



Leven Valley, OS Landranger 96, 2007

Maps: Greenside Lead Mine

Greenside Lead Mine, OS Sheet XII, Westmorland, 1st edition c.1858



Greenside Lead Mine, OS Landranger 90, 2007

Resource CD

On the CD below you will find historical and contemporary Ordnance Survey maps and photographs to enhance your study and teaching of the industrial history of the Lake District. PDF versions of the three case studies in this booklet are also supplied. There is a full index of all the resources supplied on the CD.

All the resources are supplied as PDF documents, which can be printed for use by individuals or small groups, or projected via a whiteboard or digital projector for whole class discussion.

If you do not have suitable software for viewing PDFs you will find an internet link to a free download site on the CD.

Discovering Industrial Sites in the Lake District, part of the 'Access to Archaeology Project'

This booklet is the result of a partnership between the Field Studies Council and the Lake District National Park Authority (LDNPA). Funding came from a Heritage Lottery Fund grant awarded to the LDNPA for the implementation of the Access to Archaeology project.

The purpose of the project is to make the historic environment more accessible and understandable to a wider audience through a range of media. These include leaflets, a touring exhibition, education resources, online access to the Historic Environment Record, enhanced information on the LDNPA website and an outreach strategy.

If you would like further information on the project, please contact the LDNPA on 01539 724555 or visit our website, www.lake-district.gov.uk.

Discovering Industrial Sites in the Lake District