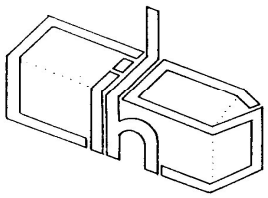
Cumbria Industrial History Society



BULLETIN

www. Cumbria-industries.org.uk

No. 66 **DECEMBER 2006**

CONTENTS

EDITORIAL

Well here we go for the start of another new year for the Society. The year just finishing appears to have been a very successful year for the Society. Two very well attended conferences, numerous fieldtrips and the Societies first weekend visit outside the county. Volume 6 of the Industrialist was published. I would like to take this opportunity to thank all the committee for their hard work over the year organising the events on behalf of you the membership.

A fairly varied and full programme is being planned already for the coming year details on page 2. Hopefully Volume 7 of the Industrialist will appear in the spring. This will be based on papers given at the joint conference we held with the Historic Metallurgy Society a few years back on Iron in Cumbria. I just have the production part left to do before publishing.

Membership appears to be increasing well and probably stands at the highest yet (certainly since I have been editing the Bulletin). Anybody who has ideas for visits or talks the committee would be very grateful to hear about them.

I would just like to wish you all a

MERRY CHRISTMAS AND HAPPY NEW YEAR

SOCIETY EVENTS

MEMBERS EVENING MONDAY 26TH FEBRUARY 2007

At the Penrith Conservative club 7.30pm (Near Southend Car Park.)
Talks so far include 2 short films about water powered forges one a spade mill near Tipperary (1950's) other a scythemill at Stourbridge (1995)

SPRING CONFERENCE SATURDAY 21ST APRIL 2007

See enclosed booking form for details.

CROPPERS PAPER MILL BURNESIDE

A weekday visit to be arranged numbers limited to 20. Details in spring Bulletin

THIRLMERE DAM

A visit to view the dam and associated water works to be arranged in June. Details in spring Bulletin.

HARTSIDE FELL WALK SATURDAY 28TH JULY 2007.

Meet at 10.30 am at NY 624 426 parking available in lane end. A walk up the fell on rough tracks to look at limekilns, barites mines and coal mining remains. Depending on time taken should reach café at top before return.

TRIP TO SHEFFIELD– 8th, 9th and 10th September 2007

Following the successful weekend trip to Ironbridge this year, we are arranging a trip to Sheffield for next September. We are combining with the Surrey Industrial History Group who have already started planning. Because many of the interesting sites are staffed by volunteers and are only open on Sundays, we plan to arrive on Saturday, and have a lecture in the evening, followed by a full day of site visits on Sunday. We hope that there will be another lecture on Sunday evening and further site visits on Monday.

We hope to base the visit on the University Conference Centre which also has accommodation. However, planning is at a very early stage – more details will follow!

AUTUMN CONFERENCE

Venue and subject to be related to west coast.

NON SOCIETY EVENTS

CUMBRIAN RAILWAY ASSOCIATION

Afield walk around part of the Furness haematitie orefield including Yarlside, Stank and Newton Sunday 18th March 2007 Details from Alan Postlethwaite 01229 468069

BOOK REVIEW

Two thousand five hundred Cumberland and Westmorland Folk
appearing in the stewards' accounts at Dalemain between 1739 and 1794

by Frances Wilkins Wyre Forest Press £25

As the title suggests, this handsomely bound book has been written largely with the family historian in mind. But there is much more to it than mere lists of estate employees, tenants and suppliers of goods and services, interesting though these are in this pre-census period. A database with 40,000 entries was created from the stewards' cash books, ledgers, rental books, tithing books etc. held in the Dalemain archives.

The steward was responsible for the employees who worked in the house, in the gardens and on the farms, and for purchasing goods and services. He received rents and approved repairs and rebuilding work, and all expenses, income and expenditure were carefully recorded and presented to the lady of the house. The 1740s & 50s were a time when Edward Hasell determined to rebuild many of the properties of the family estates, starting with Dalemain itself. The accounts of construction work are detailed and instructive, especially in relation to several corn mills, at Dalemain, Powley (Pooley Bridge), Thornthwaite (Bampton), Martindale and Haltley Bridge, and a lime kiln on Barton Fell..

The Hasell family owned a number of slate quarries near Keswick, in Mosedale, and on Place Fell from where high quality slate was used for their rebuilding programme. The lead mines at Greenside and Eagle Crag appear to have been causing the steward some concern in 1750 when he made several visits and sought expert advice. From 1752 they were leased to experienced Yorkshire miners.

The extensive woodlands at Brundholme, Naddle Forest etc were a major source of income. The records include considerable detail about the different skilled workers involved in the charcoal making at Thornthwaite. In 1750 the steward travelled to Ambleside several times to negotiate the sale of charcoal to Myles Sandys and Myles Postlethwaite, presumably for the Cunsey blast furnace. On one occasion he travelled from Haweswater over the fells to Kentmere and Bowness, then back via Kirkstone and Hartsop in order to decide which would be the better route to get the charcoal to the lake for further transport by boat. The contract was signed in 1751, but cancelled in 1755 when Myles Sandys wanted to cut the price. Other industries mentioned include snuff-making at Stainton, and an unsuccessful search for coal at Dacre.
The author has succeeded in turning these records into a fascinating and very readable book which can be obtained from:
The Dalemain Estate Office, Dalemain, Penrith CA11 0HB . Tel: 017684 86450

By Helen Caldwell

A GUIDE TO CUMBRIAN HISTORICAL SOURCES :
Michael Winstanley and Rob David. Centre for NW Regional Studies, 2006, 105pp.

A guide to the location of primary source material in the public domain rather than in private hands. Part One covers in turn Archive Services, County Library Services, Public Museums and Art Galleries, Higher Education Libraries, Specialist Archives and Collections, and Other Statutory Organisations; followed by pointers to locating relevant material elsewhere in the country, and what is currently available on-line. Part Two is a 10 page guide to 'Making the most of Cumbrian sources' – how the researcher can best to unlock the potential in these archives.

DALTON-IN-FURNESS. Medieval Capital to Mining Community :
Rock Battye. Cumbrian Railways Association, 2006, 70pp.

A useful introduction to the growth and decline of the local iron ore mining industry as much as a book on the railways through and around the town.

WORKHOUSES OF THE NORTH :
Peter Higginbotham, Tempus, 2006, 128pp.
An overview of before and after the introduction of a national system of workhouse provision as a result of the 1834 'New Poor Law'' is followed by a county by county guide to the workhouses in each Poor Law Union – the new administrative areas for poor relief – of which there were 9 in Cumberland, 3 in Westmorland, 1 then 2 in Furness, and 1 for the Sedbergh area of the West Riding. There is a short description and photograph for each entry, and more details can be found on the author's website at www.workhouses.org.uk.

BOOMTOWN . The story of Barrow in the 1980's.
ULVERSTON FACES AND PLACES.
Bill Myers, NW Evening Mail, 2006, 60pp each.

The latest two in the Memories Series compiled by CIHS member Bill Myers of photographs from the picture archive of the Barrow newspaper. Both are wide-ranging but include some industrial material e.g. the Ulverston volume includes the Canal, Ashleys, Glaxo, Oxleys and the Ironworks.

By Roger Baker

WEBSITES

You can now register on the Ambleside Oral History Archive's website at www.aohg.org.uk and read the full transcripts of over 300 interviews, including quite a number to do with local industries.

The Peak District Mines Historical Society include on their website a "List of Mines worked under the Metalliferous Mines Regulation Act, in (Detached part of) Lancashire, during the Year 1896". Go to www.projects.ex.ac.uk/mhn/1896-35.htm.

The GeoGraph British Isles project aims to collect "geographically representative" photos and information for every square kilometre of the UK and Eire. Anyone can contribute to

www.geograph.org.uk. Have a look around your patch – some images are of industrial subjects.

You can see the first Ordnance Survey 6" to a mile mapping series for the Cumbrian counties at British History Online. Visit www.british-history.ac.uk.

The Manorial Documents Register for Cumbria is now online at www.lancs.ac.uk/depts/hstory/cmr, providing details of the whereabouts of manorial records.

By Roger Baker

PAPERS DEPOSITED

John Gavin one of our original members died earlier this year. The Society has now been given copies of drafts of papers which he published on his main lines of interest including paper making in Cumbria, Early libraries etc.

ABSTRACTS.

Wlliam Lawson's water turbine at Mechi Farm Blennerhasset. By Alan Croker, Industrial Heritage, vol.31 issue 2 summer 2005 pages 21-30

Our member Alan describes the 20 hp Fourneyron water turbine which was installed in a purpose built pit to drive a variety of machinery and to pump liquid manure into the fields. He recorded the remains in 1994 and they are still present on site.

The Sandringham Waterworks. By David W Durst, Journal of the Norfolk Industrial Archaeology Society vol. 7 part 5 2005, pages 32-41

Why have I included a paper dealing with the water supply to Sandringham House in Norfolk installed in the 1870s in a newsletter about Cumbria? Well the steam pump to deliver the water supply was built by Pratchitt Brothers of Carlisle. The pump was converted to electric in 1937 and became redundant with the introduction of mains in 1947. The pump was donated by the Duke of Edinburgh to the Ironbridge Gorge Museum where it is now on display in the Enginuity gallery.

Windermere paupers 1749-1862 and the Undermillbeck workhouse (1829) By Blake Tyson Transactions of the CWAAS Third series Vol VI (2006) pages 113 – 137.

This article although dealing with the politics of paupers etc. in the Windermere area also looks in great detail at the costs etc. of the construction of the Undermillbeck workhouse and is a very useful source of building material prices in the early 19th Century.

Fast packet boats in Kendal By Andrew White Transactions of CWAAS Third Series Vol. VI (2006) pages 145-162

This article deals with the development of the Lancaster canal and the introduction of the fast packet service initially between Preston and Lancaster and eventually through to Kendal. It looks at the development of the boats and their means of operation and also the effect the

introduction of the railways had on the service and the means by which the company attempted to retain the business.

Millom: An industrial colony 1860-1875 By Ruth Hughes Transactions of CWAAS Third Series Vol.VI (2006) Pages 163-176

This article deals with the development of Millom on the back of the development of both the iron mining at Hodbarrow and also the opening of the Iron smelting works and the role each of these businesses played in the development and layout of the town.

CONFERENCE MATTERS – Ron Lyon, Conference Organiser (01768 88708)

Spring conference

The application form for the 2007 spring conference is enclosed with this edition of the Bulletin. You will see that times have not been included in the conference programme (detailed timings will be issued on the day of the conference). This is because I am hoping to include an extra talk on the building of the Haweswater dam, to complement Patricia Garside's paper on the Burnbanks Settlement which was built to house the workforce for the dam. However, at the time of writing (November 2006), I am still searching for a suitable speaker – anyone who can suggest somebody might like to contact me?

The Committee have taken on board the comments received through the feedback sheet and at the AGM in April 2006. The adverse comments about the lunch were put to the college who were somewhat taken aback and promised changes for this year. Accordingly we have decided to continue at St Martins but will monitor the situation and welcome Members' feedback.

The lunch break was considered too long by many members in their feedback replies. Historically an allowance for socialising in the bar has been included before lunch was served. However, the college no longer consider the demand to be sufficient to warrant staffing the bar and have proposed additional complications to the rather unsatisfactory alternative arrangements offered last year (of which we were not informed before the day). Accordingly the Committee have decided that there will not be a bar or other sale of alcoholic drinks in 2007 and the lunch break will be reduced.

Autumn conference 2007

This event will move to the West Coast in October 2007. Preliminary enquiries as to suitable venues in the Workington – Whitehaven area have been made but nothing is yet finalised. Whilst we have received some general suggestions for topics through the conference feedback system, the Committee welcomes further ideas specific to the West Coast, together with suggestions for suitable speakers and venues.

Conference equipment

I am planning to apply to the Lottery Fund for a grant to buy equipment such as a data projector, slide projector, large screen and PA system which would be used at conferences

and ordinary meetings of the society. At present we either hire the equipment or rely on the generosity of members to use their expensive projectors for the general good.

If there are any members with knowledge and/or contacts who might help me in selecting appropriate equipment and sources, perhaps having done something similar, I would be grateful if they could contact me.

CIHS FIELD TRIP TO CARROCK TUNGSTEN MINE and CARROCK END MINE and HALTCLIFF LEAD SMELTER and LINEN WORKING AREA 12 August 2006

The day was divided - 10:30: We met at the head of the motor road to Swineside from Mosedale. From there it was a short walk up the old track (now part of the Cumbrian Way) to the mine (NY323 330). There were 22 in the party including Glen Ratcliffe from Keswick who worked in the mine for some years until shortly before mining finished finally in 1981. And a few dogs.

Glen pointed out where various things were - crusher, generator, battery charging station, for the BEV locos and Eimcos - sort of shovels on rails which lifted their load overhead and deposited it in a tub behind. There are remnants of railway sleepers around and at the battery station a length of 2 ft. gauge track in set concrete. There are many ends of electric cable sticking out of the ground and bits of rusting switchgear. [There are earlier remains, but we did not study them.]

In Glen's time all the drilling, prior to shotfiring, was done with Ingersoll Rand pneumatic drills - similar to the jack-hammers used for road breaking. The drills had tungsten carbide tips and rotated. To start a hole someone had to hold the drill bit in the right place while the operator started drilling. Glen remembered being quite alarmed by this when first asked to do it. In fact it was quite easy. As the hole got deeper a longer bit was fitted - going up from say 2 ft. to 8 ft. Glancing down from the operating level, he noticed a drill bit lying, bent into a U shape. It was 2 metres long with four carbide tips (2 missing) to cut about 30 mm diameter. He said it had probably got jammed and had to be left to be blown out when the shots were eventually fired. The bits had a hollow centre through which water was blown to clear the chippings. This easily got blocked and was often impossible to clear. Glen reckoned they seemed to spend more on tungsten in the drills than they won from the mine. For stoping - ie drilling upwards - the drill had a leg which pressed on to the floor. The operator had to stand firm to prevent it turning. If he had a loose footing and the bit jammed, he would go round with the drill.

When the holes had been drilled, dynamite sticks were inserted and fuses fitted. These had numbers, say from 2 to 20 representing the milliseconds delay before going off. The array of charges had to go off in correct sequence when electrically fired.

There were probably between 20 and 30 workers there - some miners and some plant operators. Glen said he seldom went into the plant. The tungsten ore, mainly wolframite [$(Mn,Fe)WO_4$], was concentrated by typical methods, and sent to away for extraction of the tungsten.

In those days there was no gate on the mine. When the miners had gone home, anybody

could just walk in. Glen used to go up on Sundays to check all was well.

Many other ores are found in the mine including Scheelite ($CaWO_4$), arsenopyrite (FeAsS), apatite [$Ca_5(PO_4)_3(F,OH)$]. Glen brought specimens of some, now in the hands of several members, but not the big crystal of apatite he had found. All the miners had begged for it, so he had auctioned it.
Glen was full of anecdotes. He built some of the drystone wall beside Basenthwaite Lake near Thornthwaite - to stop the cars falling in. They ran out of stone and had to import whin from Scotland. He was interested in the ospreys and wondered where all the young ones went. (We didn't see an eagle, though one was around a few days before.)

Many more anecdotes and details about the older mine workings and photographs, and detail of minerals may be found in books detailed in the bibliography.

The weather was fine: some had lunch by the River Caldew near the mine, some sat in our garden at Croft House. Some went to the Quaker Meeting House (1702) next door where volunteers of the Northern Fells Group were dispensing various snacks. Many had a quick look at my collection of old tools in the long barn with 4 cruck trusses.

AFTER THE LUNCH BREAK.

Then we moved to where the high road fords Carrock Beck (NY 350,350). Here David Beale had devised a circular walk down Carrock Beck, across the lower road towards Linewath Farm where were signs of linen production and the site of the Carrock End copper mine's water wheel, back across the road to the mine itself, up the main hush, and finally up the leat which led water from Carrock Beck down to augment the sparse supply at the Carrock End Mine.

Ian Dunmur

David takes up the story:-

Sam Murphy led us on the first part of the afternoon, taking us down the track of the old leat to the site of the Carrock Smelt Mill. It had started life as a textile mill in the 18th century and was converted to a lead smelter sometime in the mid 1790s by William Roe. This appears to have been short lived as it seems to have become a cotton mill by the end of the 18th century. In 1814 the mill was again being converted into a lead smelter, with considerable new building taking place and it is the remains of this period which are most prominent on the ground. With the help of contemporary plans provided by Mike Davies-Shiel, and Sam's lucid explanations, we were able to make sense of various humps bumps and depressions on the surface. We examined some of the remaining slag, a few surviving bits of masonry, and the remains of a cobbled floor.

Striking off across the common in a south westerly direction took us behind a prominent esker to another smelt site, marked by a large non-vegetated area of dark slags. There is also a similar site at the foot of West Fell which Sam told us had been carbon dated to 1050AD.

From here we made our way to the "power house" of Carrock End Mine. We examined the various leats and discussed the site of the 40ft waterwheel which once stood there. With his experienced eye Mike D-S decided that the wheel would have been on the south side of the

beck. Close by is a well preserved example of a potash kiln probably associated with the linen industry: the name of nearby Linewath Farm gives a clue to what may have been happening. There is also a well marked depression fed by a leat from the beck; and there was a discussion about the possibility of this being the remains of a retting pond. Mike was sure it was the wrong shape and, judging from the vegetation, did not have the correct, uniform depth.

We followed the depression marking the route of the old flat rods from the waterwheel to the mineshaft, as far as the road, noting the rock, just to the south, which is thought to have been used as the floor of the powder house. Across the road at the foot of the fell we looked at the top of the Francis Shaft at Carrock End Mine, with water still flowing from the drain some feet below the top; and also the stone foot-bearing of the horse gin, originally used to wind and drain the mine prior to the installation of the waterwheel. The first adit, dating from about 1724, is just alongside and the cobbled dressing floor can clearly be seen a little to the north east. We then scrambled up the line of the old hush on the back of the vein to the well preserved hush dam, with water still flowing into it from a spring.

Back down the fell we reached the second adit driven about 1824, and picked up the line of the leat from which crosses just in front of the entrance. We followed this, which in some places is very clear, but in others is much less clear until we reached the ford again. By this time it was early evening and quite a number of people had to leave us, but congratulations to all those who stuck it out to the end!

In conclusion our thanks go to Glen Ratcliffe for his vivid descriptions of working life in Carrock Mine; to Sam Murphy for his clear and authoritative explanations of the remains and processes at the smelt mill and other smelt sites; to Mike Davies-Shiel for supplying plans and for his extensive knowledge of many aspects of the sites; to Ian Tyler *in absentia* for the chapters on Carrock and Carrock End Mines which were of so much help in supplying history and interpretation of the mines. Without their help the day would definitely have been very much the poorer, indeed it probably would not have happened at all!!

David Beale.

Bibliography

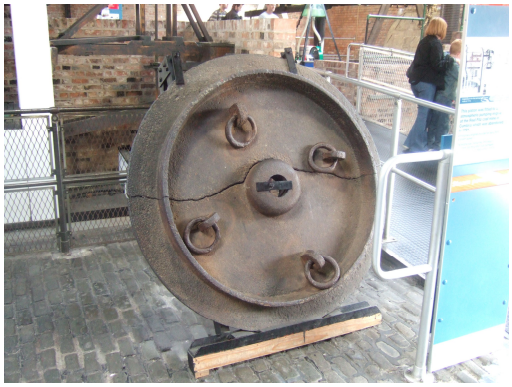
Carrock and the Mines of Skiddaw and Blencathra. by Ian Tyler, Blue Rock, 2003.

Minerals of the English Lake District- CALDBECK FELLS by M P Cooper and C J Stanley, Natural History Museum, London 1990.

CUMBRIAN EXHIBITS IN MANCHESTER MUSEUM OF SCIENCE AND TECHNOLOGY

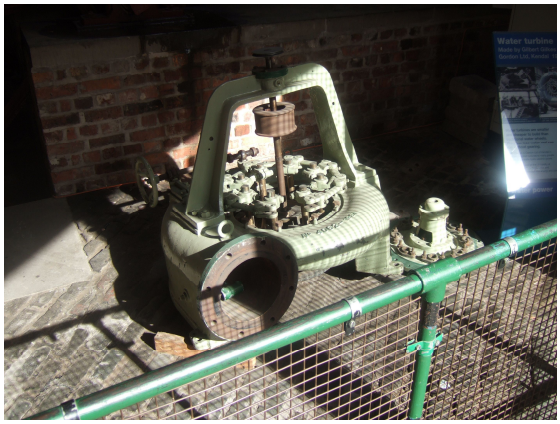
Whilst having to pass three hours in Manchester one Sunday afternoon this autumn I found my way to their excellent science and technology museum. I did not have time to visit it all but whilst viewing the various exhibits in the power house I did come across three items with Cumbrian connections.

1) Piston fitted to an atmospheric engine at the Reel Fitz coal mine Cumbria abandoned 1781.



2) A pelton wheel made by Gilbert Gilkes and Gordon, Kendal made 1955

3) A water turbine again from Gilbert, Gilkes and Gordon of Kendal, made 1934 Manufacturers number 4062



VISIT TO IRONBRIDGE GORGE MUSEUMS, SHROPSHIRE

15th - 17th September 2006

Twelve members stayed at the Lion Hotel, Broseley; two had their camper van; two stayed at Wilderhope Manor youth hostel. All met at the **Iron Bridge** on Saturday morning (16th Sep.) to begin a tour guided by Harold Grice, one of many museum volunteers. He told us about the bridge - World's first iron bridge, built 1779 by Abraham Darby III (1750-91) [in association with 16 other subscribers] to facilitate transport of materials to the various industries flourishing on both sides of the River Severn. They wanted an all-iron bridge. Darby enlarged the old blast furnace in Coalbrookdale in 1777 to produce more iron. [The total iron is 378.5 ton (385 Mg); span 100.5 ft (30.6 m). The longest ribs are 70 ft (21.3 m) long, 5 ton 15 cwt. (5.8 Mg). The bridge was erected in 3 months.] The somewhat spectacular design of the bridge was an advertisement not only for Darby but for the technical developments going on in this area of Shropshire. And it worked, for visitors came from all over the world.

1. The Iron Bridge.

The bridge was constructed with through mortice and tenon joints secured and tightened by wedges. Subsidence of the abutments had led to a rise in the centre of the bridge and fracture of some of the struts between the main members. A few not very noticeable clamps have been added and the movement arrested by building an upside down, concrete arch under the river.

2. Wedged joints.

Near the bridge, we noticed the hut where Eustace Rogers (1914-2003) had his workshop. He was the last of a family of coracle makers.

We walked along to the "Gothic Warehouse" now the **Museum of the Gorge**. Here is a splendid model of the gorge in the days when sailing boats called "trows" carried goods to and from the sea. Also a model of a trow; some Ironbridge coracles; and a wagon on part of the flanged plateway that ran into the warehouse.

3. Coal train leaving Buildwas power station; mill dam; furnace shed; fountain from 1851 Great Exhibition.

Then by car to **Coalbrookdale** to see the famous blast furnace where Abraham Darby demonstrated that coke could be used to make good iron instead of using charcoal which it was becoming difficult to get enough of. In converting coal to coke, many deleterious impurities, especially sulphur, are boiled off. The furnace was originally built by Sir Basil Brooke, industrialist and lord of the manor of Madeley. The tapping hole lintel bears his mark and date 1638 [but an old photo indicates '58]. Curved scoring in masonry indicates where the

waterwheel to drive the bellows was situated. Over the years, redevelopment of the site had buried the furnace. Eventually the company excavated and preserved the remains to celebrate their 250 years, 1959. It is now housed in a beautiful shed.

4.Tapping hole lintels

Abraham Darby (b. Sedgley, Dudley 1677 to a Quaker farmer-smith family; d. Madeley Court 1717, buried Broseley.) was apprenticed to a Birmingham malt-mill maker. Coke was used in malting - coal would have tainted the malt. In 1698 he went to Bristol and started brass founding. He went to Holland and returned with several Dutch brass founders who helped him establish the Baptist Mills brass foundry in Bristol. With the aid of an apprentice, John Thomas, a shepherd boy from Welshpool, he cast an iron pot in sand, instead of the usual "loam". This facilitated the use and reuse of patterns, making the product much cheaper. He received a patent for this in 1707and was made freeman of Bristol. He saw a future in iron as cheaper than brass and leased the old furnace at Coalbrookdale. The last lessee was Shadrach Fox who may have used mineral coal, c.1700. The mill dam burst and the furnace blew up in 1703. Darby repaired it and in 1709 successfully smelted iron with coke. He died young. Manager and son-in-law Richard Ford carried on until Abraham II (1711-63) was old enough to take over. Abraham II is supposed to have discovered how to make wrought iron by decarburizing cast iron, but left no detail. [i.e. the indirect method as distinct from converting ore directly to wrought iron in a bloomery. Henry Cort (1740-1800) patented a method for it in 1785.] Abraham II also died young and there was another gap, again filled by a son in law and manager, Richard Reynolds who introduced the wagon plateway system with flanged rails [1768]. Abraham III (1750-91) was the one to enlarge the furnace (Plate 4 shows his name and 1777 on the later lintels.) and make the bridge.

The Coalbrookdale Company with more of the Darby family continued to prosper, achieving a reputation for excellence, producing many cast iron boilers for Newcomen pump engines, and bridge members, moving into decorative items, large and small - such as the ceremonial entrance gates to the Great Exhibition of 1851 and the fountain from the same, now set up near the furnace.

We visited the Darby family houses which had been made into cottages - Rosehill, restored to something like it was for Quaker living, and Dale House, much altered and now being restored. Nearby we noticed some chimney pots and a mounting block made of cast iron. All around there are miles of iron kerbstones.

Some of the company's large warehouses now house the **Museum of Iron,** the Ironbridge Institute (for industrial archaeology etc) and **Enginuity,** where we went after lunch - a hands-on experience of old fashioned technology including a steam pump which you can turn by hand, and one of the only six locomotives built at Coalbrookdale, which you can move, with a display of energy used to do it; and lots of model machines to play with. A great place for children with grandparents.

[The Coalbrookdale Company became part of an alliance of companies - Light Castings Ltd. - then Allied Ironfounders Ltd. in 1929; taken over by Glynwed, the division now called Aga Foodservice.]

Then over the river to the **Clay Pipe Museum** in Broseley where several pipe makers flourished from the 17th century condensing eventually to the companies of Smitheson (closed at the time of the Great War) and Southorn. The last of the Southorn pipemakers, Ivor, died this year. The family stopped work in 1957 when Harry Southorn died. The factory, occupying a few small cottages, was left undisturbed to be reopened as a museum after some years. A young pipe collector Rex Key, encouraged by the remaining Southorns, learned the craft of pipe making and regularly makes them in the museum. Unfortunately for our visit he was away at a pipe collectors' conference. He does everything the old way except for an electric kiln instead of the small bottle kiln which stands in the yard. This was originally open topped but was altered so that the exhaust was drawn down again to an under floor flue leading to a stack, which used to be got going with a gallon of paraffin. The manufacturing method is very well explained by video incorporating an old, silent movie made by a visitor. It shows the wire being pushed through the floppy stem of the pipe before moulding and firing. The works contain a large collection of clay pipes.

5. Kiln - fire holes, vent between led to under floor flue.

Ivor Southorn kept a hotel where all food was served on Coalport china of which he had a great collection.

In the front yard of the pipeworks is a cemetery which was previously a Quaker burial ground where Abraham Darby lies.

Nearby is a shop whose front is covered with decorative tiles.

Then dinner for sixteen at the Lion. Excellent.

Sunday: **Blists Hill** "Victorian Village" where our guide, Brian Russell introduced the place and left us to wander among the various reconstructed buildings most of which were operating with products for sale. [This is in contrast to the situation at Beamish.] You could buy fresh bread, pies, boiled sweets, decorative plaster of Paris, tinplate, lead, saddlery, sun bonnets, cast iron items (name plates to order) all made on the premises and, no doubt, a few other things.

Brian showed us, especially, the rolling mill from Walmsley's Atlas Forge in Bolton which was the last wrought iron works in Britain (using the process patented by Cort and probably discovered by Abraham Darby II - See above.). This has been out of action for some time because of problems with the steam engine's boiler. A brand new boiler seems to have been installed.

Also the restored *trow*, a flat bottomed sailing barge which used to sail the Severn. This one was too big to come above Stourport but smaller ones came to Ironbridge and higher.

And the mine winding engine was in steam. The mine is real and at various stages produced coal, iron ore and fireclay. The original engine was bigger but, even so, the mine seems tiny. (Our member David Beale who arranged this trip for us, used to fire the boiler for this engine

when a volunteer many years ago.)

The half size, part model of the Iron Bridge spans the Shropshire Canal which passes close to the mine. (The canal is mostly derelict, not to be confused with the Shropshire Union.) The model was erected using castings made on site, for a Tony Robinson TV extravaganza by Royal Engineers using a method indicated by a contemporary painting, using poles and ropes.

6. Replica of Trevithick's first locomotive.

Fortunately, an American party had arranged to have working the replica of Richard Trevithick's (1771-1833) first steam locomotive (original 1802, model 1991 from contemporary sketches). He miniaturized the steam engine by working at high pressure - 50 psi (345 kPa) in this case - making it suitable for locomotion. Harold, our Saturday guide and a colleague were driving. It is the one locomotive that Fred Dibnah was not allowed to drive. It has no brake, being stopped by careful control of the steam.

In the afternoon we crossed the river again to the **Jackfield Tile Works and Museum**. In the old showroom are thousands of decorative tiles made by various methods, including antique ones and ones designed by such as William Morris and William de Morgan, plus some moulded roof tiles. There is a reassembled section of London Underground's Covent Garden station tilework, complete with train noises, and some large pictorials from butchers' shops and children's hospitals, and a magnificent bar front (pumps but no beer). The works were quiet but there are excellent video presentations of manufacture by various methods - slip, dust etc. The shop offers many beautiful items as does the one at the Museum of Iron. Unfortunately they were out of stock of iron cauldrons - for me to hang from a chimney crane.

At this point Ailsa and I left to squeeze in a visit to Wollerton Old Hall garden on the way home (Chris Beardshaw's favourite garden in Britain). We leave it to others to describe the finale - **Coalport China Works**.

This has been a few snippets from a very interesting trip. Others could add many things I forget or didn't even notice.

[Additional details have come mainly from A Raistrick "Dynasty of Ironfounders ..." 1953; and by Googling "Glynwed + Coalbrookdale" and "Broseley Pipe Works"]

Ian Dunmur.

CIHS Autumn Conference
Sunday October 15th at the Lantern House, Ulverston

On a beautifully warm sunny day 45 members of CIHS and 38 others gathered for a fact filled day of information about the history of Ulverston and nearby Newland.
Mike Davies-Shiel started by issuing A3 sized annotated maps showing the location of the Ulverston mills, breweries and tanneries and much more besides. Becks from the hills behind Ulverston were diverted to flow through the town to drive a number of water mills. A large mill pond stored enough water for one day's work, then filled during the night. Until the middle of the 19th Century, there were corn, cotton and flax mills, but the cotton mills were hit by the lack of raw materials from America during their Civil War, and new uses were found for many of the mills. Two very dry summers in the 1860s led to the conversion of some mills to steam power. At the height of the cotton milling era there were 3 – 4000 outworkers in the area making finished goods with the cotton thread produced in the town.

Dan Elsworth of Green Lane Archaeology told us how his professional work of recording buildings before demolition had led to concern about the number of warehouses being demolished or converted, so he had decided to record all he could find in Ulverston by means of a simple written record and digital photos. The most obvious ones had multiple floors with rows of centrally positioned loading doors. Others were much simpler affairs, perhaps attached to a shop and there were larger ones for the storage of bulky items such as coal, chiefly near the canal. He had identified 69 in total.

During the lunch break a number of the delegates took advantage of the sunshine and found some of the industrial buildings which had been mentioned during the morning.

In the afternoon John Helme talked about the history of Newland Iron Furnace and the work done by a group of enthusiasts to preserve it. It was built in 1747 and operated until 1891. Records show that in the 1880s Newland was using 56 tons of charcoal per week and it has been estimated that 10,000 acres of coppice woodland on a 15 – 20 year coppicing rotation would be needed to support this requirement. In 1989 Dr John Marshall called a site meeting with representatives of CWAAAS, CIHS and CATS. The Newland Trust was formed and grants obtained which have allowed the volunteers to make substantial progress in consolidating and repairing the buildings.
This included replacing a 16ft long, 6 inch square beam for which an oak tree was felled by Cumbria Broadleaves at a cost of £500 (including delivery).

South Ulverston was the subject of Rob McKeever's talk, including the history of the canal – the shortest, deepest and widest in the country. The first survey was in 1791 and the cost estimated at £2000. By the time it was completed in 1796 it had cost nearly £8,000. Its use peaked in the 1820s with 20,000 tons of imports, but problems with the changing channels in the estuary and the coming of the railway meant that by 1876 it was little used. In that year the North Lonsdale Iron and Steel Company's first two blast furnaces were 'blown in' on the site now occupied by Glaxo. Iron ore was available locally, as was limestone but coke was brought from Durham by rail. Associated industries included the Ulverston Wire Works at Sandhall where there was also a brickworks and a Tar Distillery later called Ulverston Chemical Works. This area has largely reverted to agricultural use, but the water-filled claypits and an isolated chimney mark the site of the brickworks and there are two rows of workers' cottages. Rob's book, The Industrial Archaeology of South Ulverston, which was

available on the day, contains a wealth of further information on these and other industries, with many illustrations.

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