Cumbria Industrial History Society

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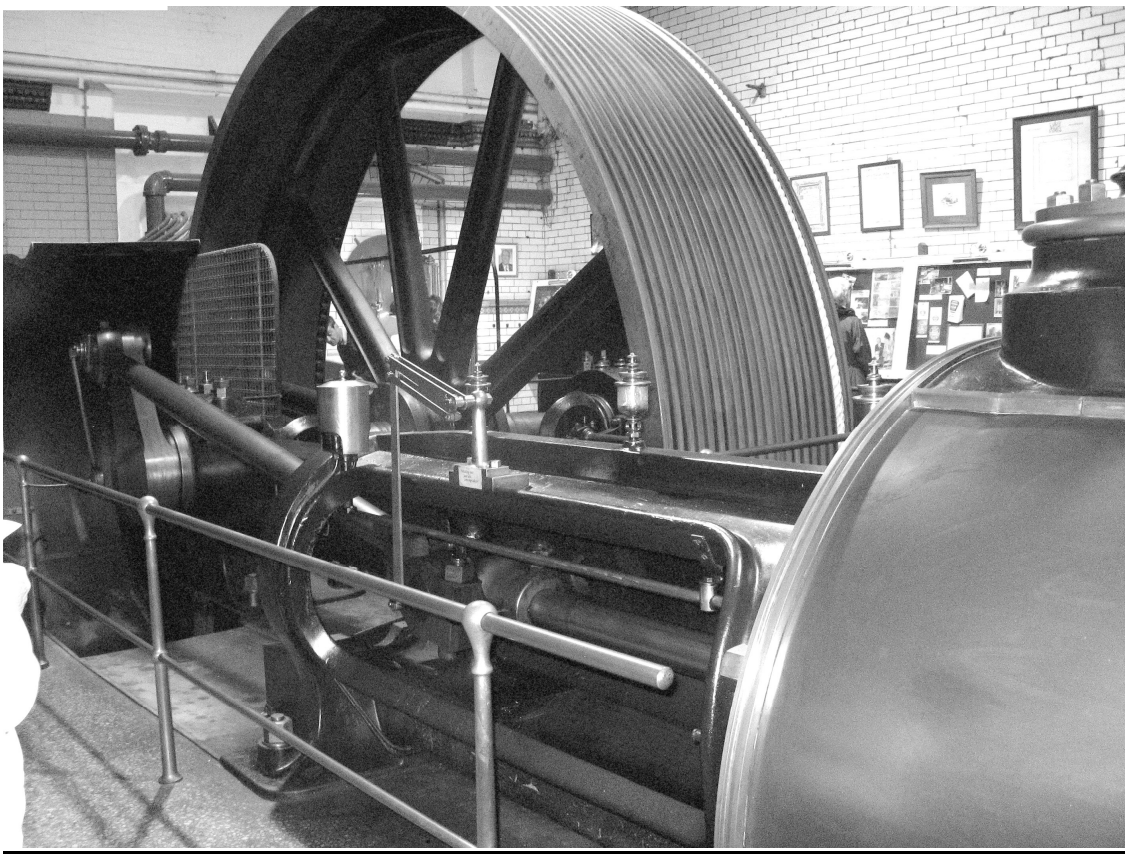

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EDITORIAL

I am sat here on another wet Saturday morning in Carlisle, this summer is not turning out to be any better for weather than the last two. Luckily we have had fine weather for two of the field trips, the Low Wood gun powder works and the Crake Valley. For those few hardy souls who ventured up to Nenthead the weather could have been worse and for those who did not attend you missed a very good day. It is a shame the Silloth trip did not materialise due to circumstances beyond our control. Has a taste of what was missed the cover picture shows the Carrs flour mill steam engine which is open to viewing along with their museum on various occasions.

Two of the outings have lead to offers for other activities. The Nenthead visit lead to an offer of an underground trip (those who attended were shown round the show mine) This would be an underground walking trip with no great technical requirements but will be liable to be wet (above welly deep water) all hats and lamps will be provided. If you are interested can you please contact the Editor so a time can be arranged. The gunpowder works trip was partly spoilt by the over growth of vegetation, it has been suggested the site is re-visited in winter when the vegetation is less. If you are interested in a repeat visit please contact Bill Myers (details at end of Bulletin).

The programme for next year is slowly taking shape but the committee is starting to get desperate for ideas for topics for conferences and especially speakers. So if you have heard any good talks in the recent past can you please let Helen know, or even if you have a topic you would like to speak on yourself.

The Society now has a Facebook page, we will be using this to keep people up to date with Society news and general topics from around the county. All you facebook fans sign up now.

SOCIETY EVENTS 2011

SATURDAY 10TH SEPTEMBER 2011 SHAP LIME WORKS

Meet 10.30 am. at Grid Ref. NY 581 130 on the side road from Junction 39 on the motorway to Harpendale. Stout footware required and outdoor clothing and packed lunch for a tour of the quarry and the associated kilns and plant.

OCTOBER CONFERENCE SATURDAY 29TH OCTOBER 2011 CASTLE GREEN HOTEL, KENDAL.

Programme and booking form enclosed.

NOVEMBER EVENING MEETING 7.30pm Greenodd Village Hall.

Peter Fleming will talk on the underground world of Coniston Copper Mines. The photograph is outstanding and worth attending for even if you are not interested in the mines.

BOOK REVIEW.

MINES OF THE WEST PENNINES BRITISH MINING No.91 By Richard Smith and Sam Murphy paperback pp.216. ISBN 978-0-901450-67-8 NMRS publications £15.00

This book deals with the metaliferous mines in the Cumbrian parishes that stretch up the Pennine escarpment. Starting in the north of the county at Tindale and finishing in the south at Mallerstang and Ravenstonedale. It deals mainly with the lead mines in the area with only passing comments on the numerous coal mines and the occasional iron ore workings that occur in this area. Compared to the Alston Moor area the area covered by this book has not been greatly researched in the past and in the case of the majority of the mines covered in the book this will be the first publication dealing with them other than Dunham's northern ore field books.

The London Lead company was generally rather late in entering this area and so the large archive of material that occurs for the Alston Moor area is not readily available for this area and this book must have taken many hours of painstaking research in archives across the country to research. In general these archives are very disjointed and this shows in the breaks in the history of many of the mines in the book. Not only are the archives for these mines difficult to trace a lot of the mines are also very remote with no obvious access to them.

Each mine does have a description of the workings, but in some cases it is not obvious if the description is taken from the mapped remains or if the authors have actually visited the sites and recorded the remains in situ. The authors do acknowledge that there is further field work required to understand some of the sites.

The final chapter of the book deals with the smelt mills in the area, however the Tindale zinc spelter is dealt with in the chapter on the mines in the area.

This book is a must for anyone who has an interest in mines of the Pennines and especially those who tramp those moors for leisure and want a background to the mines they are passing.

Graham Brooks

BAR 525 2011: **Liming and Agriculture in the Central Pennines** *The use if lime in land improvement from the late thirteenth century to c. 1900.* By David S Johnson. ISBN 9781407307381. £40.00. viii+190 pages; illustrated with colour and b/w.

Anyone who travels in the Pennine area of Cumbria will soon come across the remains of a limekiln and evidence of improvement of the upland area. Until the publication of this report, which is based on David's PhD thesis, it has been difficult to find published information on the role of limekilns and their product lime played in the improvement of these pastures.

David started by looking at what had been written on the subject of land improvement which gave an impression that the majority of liming had been carried out during the period of parliamentary enclosure (1750 -1850) and that it had been confined to the upland areas only. Also all lime was burned close to the geological outcrops of limestone and that overall this improvement had been driven by the aristocracy and gentry with little drive from the tenants.

Via an impressive amount of both historical research, consulting over papers in over 27 archive offices, 162 primary sources and a similar number of secondary sources, (All listed in an extensive bibliography) as well as field work recording over 1500 limekiln sites and leading archaeological digs at a number of sow kiln sites. David has been able to show that the use of lime dates back to at least the high medieval period and as a continuous process through to the middle of the 20th century. He also produces evidence that lime was used without the upland areas and also evidence for the burning of lime in areas with no limestone outcrops by collecting limestone cobbles either from river beds or out of the glacial till in the area.

Although the area covered by the work is the Central Pennines and looks mainly at the Yorkshire Dales from Craven to Swaledale. The book also covers that area of Cumbria around Sedbergh and Dent and a significant amount of the evidence presented in the report comes from this area. David also uses a number of references to the burning and use of lime in other parts of county to put the research area into a wider context. Despite the large number of sources consulted for this report David has still had to make a number of assumptions when no direct evidence was available for various parts of the process of lime burning and its use thereafter. Further research in other parts of Cumbria may shed further light on the use of lime in land improvement.

This report is a very welcomed addition to the subject of land improvement and sheds new light on the development of the Pennine landscape and will start to answer some of the questions which come to the mind of anyone who walks in the area. But, further work is certainly needed before a definitive answer can be given to when a specific piece of land was improved. David has shown that it is not just a matter of looking at the parliamentary enclosures for an answer.

Graham Brooks

Two Figures of Furness Industry

There was something serendipitous about an encounter in a Furness churchyard between a young Manchester evacuee and the gravestone of a London-born engineer. The recently published study of the life and work of John Barraclough Fell [1815-1902] by the late Keith Pearson is the result.

The branch of the Fell family to which John Barraclough belonged were yeoman stock with long associations with the Crake Valley. By the time of his return around 1830 to his father's native heath, Spark Bridge and Greenodd had become busy industrial communities. The Fell family's business interests centred on a timber yard in Greenodd with a tidal wharf near the confluence of the Crake and Leven rivers. Port facilities at Greenodd assumed significance only with the bridging of the Crake for the Ulverston to Lancaster turnpike road in 1820. Goods previously handled at Penny Bridge were now loaded and discharged at Greenodd. Fell's wharf dealt chiefly in timber and coal but was also a centre of manufacture. The Fell sawmill was steam powered and lit by gas. Its output was not just gates and agricultural fencing but pit props, railway sleepers, rail keys, wagons, barrows and carriages. The site included a slipway able to accommodate vessels of 100 tons. Fell was quick to spot the opportunities of catching the wind then blowing through Furness. The demand for local haematite ore was booming, better transport provision, additional labour and new housing were all required. Locally Fell was active in securing the future of the port of Greenodd and gaining it a railway connection but was soon becoming involved on a broader canvas of industrial developments. His business associations opened doors into shipping and railway building. His maritime interests led Fell to recognise the potential of a steamer service on Windermere and his paddleboat "Lady of the Lake" was launched at Newby Bridge in May 1845. Fell's name featured in schemes for railways to link Windermere and Ulverson via Greenodd and to extend the Kendal & Windermere line to Keswick. In 1847 he was part of the consortium that successfully tendered for the building of the railway from Whitehaven to Broughton and for extensions of the original Furness Railway to Lindal and to Broughton.

The fascinating story that Keith Pearson goes on to tell shows J B Fell to have been a splendid, if not always successful example of Victorian enterprise and innovation. The pioneering steamer service on Windermere was followed by Fell's involvement in a ferry service across Morecambe Bay to link Piel with Fleetwood. His first foray into railway construction, in partnership with C M Jopling, introduced him to several of the most

influential figures in that field - Thomas Brassey, Alexander Brogden and James Brunlees to name but three. When a breach with the Furness Railway in 1851 closed the door to further local contracts, Fell's growing reputation gave him and Jopling access to contracts being let by English railway engineers in Italy. In 1854 Fell and Jopling were Brassey's agents for the construction of the Central Italian Railway from Bologna to Pistoia in the (then) Papal States. The overland route for English travellers to the Italian States (and indeed the mail route from the UK to India) crossed the Alps by the Mont Cenis Pass between Chambery and Turin. Work on a Frejus Tunnel to carry a rail line through the massif had begun in 1857 but progress was hesitant due to technological limitations and political uncertainties. Fell's mind became focused on the possibility of providing a rail route over the Pass. Encouraged by Brassey, Fell developed a project that revived the concept of enhancing the vertical adhesion and braking force of a locomotive by the use of horizontal friction on a centre rail. The apparent simplicity of the notion disguised the difficulties encountered in the design of ective motive power. Pearson gives a detailed account supported by constructional drawings to indicate the process and experiments undertaken to achieve a workable solution. During 1866/7 construction of the Mont Cenis Railway was underway and the splendid collection of contemporary lithographs and photographs that support the text testify to the challenges presented by the terrain. The line operated until the base level railway tunnel was completed in 1871.

Fell returned from his Alpine exploits to concentrate on his thriving business at Greenodd. He now set about developing the concept of narrow gauge light railways. Twenty years earlier Fell had proposed the building of a railway from Broughton to Coniston with a gauge of 3ft 6in. Although not adopted this was for its time a novel idea. Now Fell and his son George saw an opportunity to expand their family enterprise by contracting to build light railways engineered to use their patented timber trestle viaducts. A prototype rope-worked 8in. gauge monorail on the trestle system was built in 1867 and operated at Parkhouse haematite mine on the outskirts of Barrow.

Fell, with characteristic verve, now approached the War Office to suggest that his design had advantages as an economic and adaptable system for moving military supplies. In 1872 Fell supplied a mile long 18in gauge trial line to the Army at Aldershot complete with a locomotive and rolling stock. After a series of trials which demonstrated many of Fell's claims for his system the War Department decided in 1875 to abandon further development of it for military use.

Other Fell contracts included a part in the reconstruction of the Pentewan Railway in Cornwall. Here the application of his trestle system was confined to quayside loading gantries though an unusual longwheelbased locomotive was designed and wagons were delivered from Greenodd. The patent trestle system was used extensively in another West Country contract - the building of the Torrington & Marland Light Railway in north Devon in which J B Fell was joined by his son, George Noble Fell. The best-remembered of J B Fell's railway patents is that for the centre rail to enhance adhesion and/or braking. Pearson's narrative details the employment of the centre rail concept on the Cantagallo line in Brazil using components made redundant from the Mont Cenis line and of 'Fell'

locomotives from several builders. Perhaps most famous of all applications of the Fell centre rail is that of the Rimutaka Incline on the North Island of New Zealand. Here the railway between Wellington and the Wairarapa district was taken over the 1141ft pass through the Rimutakas with the aid of a Fell rail that provided both adhesion and braking for trains on an incline of 1 in 15. The service was maintained from 1878 until the completion of a base-level rail tunnel in 1955. In the South Island of New Zealand two short length of railway from coal mines employed a Fell centre rail purely for braking purposes. Closer to home and still in operation is the Snaefell Mountain Railway on the Isle of Man. Opened in 1895 under the direction of J B Fell's son George, the line is 4.7 miles in length and runs from Laxey to the summit of Snaefell (2034ft), is electrically powered and uses the Fell centre rail for braking purposes only.

"Fell Mountain Railways" by Keith Pearson: Adam Gordon Books, Brora: £45
[ISBN 978-1-874422-83-9]

If J B Fell was an example of an individual entrepreneur of considerable inventive skill and determination working largely on his own account then Sir Leonard Redshaw [1911-1989] , our second figure of Furnessindustry, was the captain of a modern industrial complex - the Vickers shipyard at Barrow. Redshaw's life and professional career are assessed in a recent biography by Leslie Shore. A Barrovian by birth, Leonard was the son of J S Redshaw, Chief of the Ship Design Department of Vickers, Barrow Yard. Persuaded by his father against seeking university entry straight from grammar school, Len began in 1927 as a shipwright apprentice. In those days this threw young recruits in at the deep end, learning the ropes of working with timber, handling the tools of the trade - saws, chisels, adze, broad axe and jack plane. A year later came a move to the Ship Drawing Office followed in 1931 by the award of a Company scholarship to a degree course in engineering at Liverpool University. With a First Class Honours degree under his belt, Redshaw opted to pursue postgraduate research into welding technology and had an opportunity to spend time gaining an insight into the operation of two German shipyards, which he regarded as far more efficient than the Barrow yard. In 1936 Redshaw returned to Barrow as a junior shipbuilding manager. The Vickers Ltd operations at Barrow were divided, then as later, between the Naval Construction Works and the Engine Works. While the latter was relatively well engaged in armament work the shipbuilding side was running at about half capacity dealing mainly at that time with civilian orders.

Redshaw remained at Barrow for the next 40 years progressing from the lowest rung of a notably hierarchical managerial ladder in a shipyard with very traditional operating processes and tense labour relations to the position of Chairman of the Vickers Shipbuilding Group based in a yard with rich technical capabilities that was consistently delivering a profit. Much of the Barrow yard's success flowed from initiatives promoted by Len Redshaw - welded construction of hulls, prefabrication of structures, exploiting material technology such as the use of welded aluminium for passenger liner superstructures.

Perhaps his most significant contribution to the subsequent history of shipbuilding at Barrow was his role in making the town the centre for the construction of the British nuclear submarine fleet. Redshaw found himself in charge of the most technically complex project ever undertaken by the country's shipbuilding and engineering industries. Barrow became the location of a resource of personnel with advanced technical skills and knowledge making it the lead yard for a wide range of naval requirements for years to come.

At times some of Redshaw's decisions were questioned. With the delivery of the Methane Princess in 1963 he saw the potential for a growth in the transport of liquid petroleum gas. Yet having just handed over in 1965 the British Admiral - the largest European-built oil tanker - Redshaw saw no future in seeking more super-tanker orders because of the competitive advantage held by Far Eastern shipyards. Some of his initiatives at the time seemed off the wall. Vickers Oceanics was a submersible services company that grew from a Redshaw belief that there would be a market for underwater technologies. His purchase for Vickers in 1969 of an airframe builder seemed bizarre until it was seen that this gave the company access to experience in the use of glass and carbon fibres.

The description "master shipbuilder" truly reflects Redshaw's total commitment to marine construction at Barrow. This has been seen as also one of his shortcomings. The Engine Works, so long the solid partner to the shipbuilders, was allowed to decline and marine engine development at Barrow ended, leaving naval and land armament as its main source of revenue. A confrontational relationship with his labour force was also one of the less productive features of the Redshaw era. With some justice the word autocratic was often used to describe his approach. Len was convinced that the local leaders of the trade unions were obstructing progress by failing to adapt in the face of competition and preventing the workforce from giving of its best. A measure of the tensions that had been engendered came in 1969 with the Report of the Stamp Enquiry into industrial relations at the shipyard which recommended that Len Redshaw should in future have no direct responsibility for industrial relations.

Leslie Shore's book gathers an impressive collection of individual reminiscences and accounts from contemporary sources to flesh out the details of Redshaw's professional career and leisure activities. Some fascinating photographs from shipyard archives support the text. Here is a worthy account of a major figure of Cumbrian industry who, love him or loathe him (as some did), has left an indelible mark on Barrow.

"Vickers' Master Shipbuilder" by Leslie M Shore: Black Dwarf Publications: £24.99 [ISBN 978-1-903599-17-4]

AJP

VISITS TO THE PROVINCES. THE BARROW SHIPBUILDING COMPANY'S WORKS, BARROW-IN-FURNESS

From "The Engineer", June 25 1880

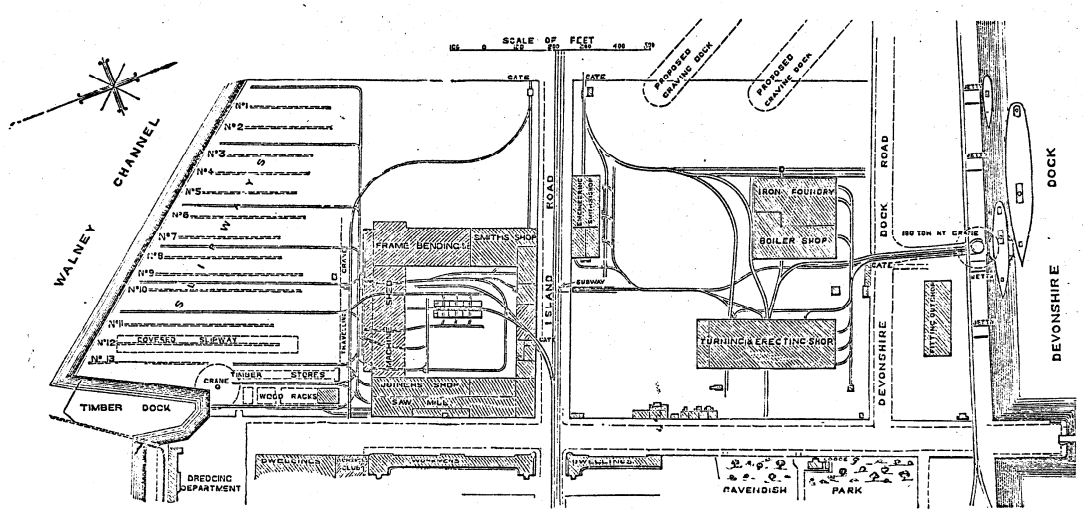
On an out-of-the-way corner of Lancashire has sprung up within the last twenty years a manufacturing town which has already attained a great importance, and which promises to play a very influential part in the future. Barrow-in-Furness owes it existence in the first place to the great deposits of rich hematite iron ore in its immediate neighbourhood, and in the second place to the energy of a few capitalists, who believed that money carefully laid out was alone wanted to call into existence a great port.

In a comparatively short time the hematite mines were supplying ore to blast furnaces built almost in a waste; and it was soon seen that facilities must be provided for carriage by sea to supplement carriage by rail. Barrow-in-Furness is well sheltered by a natural breakwater, Walney Island, so not much difficulty was experienced in providing a certain amount accommodation for ships. But it was felt that more was wanted, and that Barrow was capable of so much more; so under the auspices of the Duke of Devonshire, Mr Schneider, Sir James Ramsden and others , extensive docks were planned and begun, and at this moment Barrow possesses, largest and safest docks in the world – docks into which the Atlantic steamers of maximum tonnage can enter with ease, in which they can lie with safety, and discharge their cargo, cattle or goods, as the case may be, into splendid warehouses fitted with hydraulic cranes and every modern device for loading and unloading ships.

But where ships come and go, and where iron and steel are abundant, is just the place where ships should be built; and so some time before 1870 it was proposed that a company should be formed to undertake the building of ships and the construction of engines on the largest scale. The principal promoters were the Duke of Devonshire, Sir James Ramsden, Mr Schneider, and other capitalists, for the most part resident in the neighbourhood. The object they had in view was to work up the staple product of the district – steel – and to develop the manufacturing life of the community. Accordingly, early in 1871 the works which we are now about to describe were commenced; and by the last day of the same year they were in fair working order.

The success of the undertaking seemed to assured from the beginning, for the works opened with a contract for five ocean steamers, not one of them less than 3000 tons burthen, for the Eastern Steam Navigation Company. This was followed by other orders for still larger steamers, culminating in the gigantic "City of Rome" for the Inman Company; a ship with a gross tonnage of about 8300, and to be propelled by nearly 10,000 indicated horse-power.

The plan makes the arrangement of the works clear. As the company started quite untrammelled with old buildings it resolved that everything should be planned on the most modern principles. The works stand on 60 acres, situated on Barrow Island, which was separated at one time from the adjacent Lancashire coast by a channel which is now



GROUND PLAN OF THE BARROW SHIP BUILDING COMPANY'S WORKS.

closely spanned by bridge, and so modified by earthworks, that it now forms the Devonshire and Buccleuch Docks. The works span the island; on the outer or sea side is the shipbuilding yard, on the inner of Barrow side are the engine shops. The slipways in the building yard face Walney Channel, and Walney Island which is navigable for the largest of steamers and the distance of the Island from the shipyard is to great that a magnificent area of launching water is always available at high tide.

At the Devonshire Dock is a magnificent crane, by Sir William Armstrong and Co., able to lift 100 tons. This crane can got at by rail from all parts of the works, and is used for putting heavy machinery and boilers into steamers or taking them out of them. A new crane to lift 25 tons is in course of erection. At the time of our visit the "Duke of Buckingham", a new steamer for the Ducal Line, was lying in the Devonshire Dock, and constitutes the largest vessel in the plan. Under the crane, and behind her is the "Adelaide", paddle steamer, for the Great Eastern Railway Company, taking in her boilers, and further to the right it seen, at one of the fitting our jetties on the quay, a large steam yacht for Earl Ducie.

When in full operation the works employ 3500 men, and to accommodate them in a town of such recent growth it was necessary for the company to provide homes for the large proportion of them. The was down by building first a number of temporary dwellings consisting of a block of 350 single storey cottages in contiguity to the works, and in a healthy position on the coast of the Walney Channel. In 1876 this was supplemented by a very fine pile of houses, constructed in flats, and called Devonshire Buildings, shown in the plan as dwellings for workmen. This block accommodates ninety families, and a second nearly similar block has since been opened which will hold seventy families.

No pains, and we had almost said no money, have been spared by the company to make the works perfect in every respect; and the largest marine engines can be built in one place; while the largest Atlantic steamers are built in another. One great advantage is that

a large proportion of the work can be done while the ship is yet on the stocks, and the distance the ship has to be moved the get her engines and boilers put in is very small.

Leaving the railway station the visitor crosses the dock by a bridge just in front of the bows of a steamer lying at the 100-ton crane, and proceeding along a wide road he has the Devonshire Buildings on his left and the Barrow Shipbuilding Company's works on his right. These are divided into two portions by Island Road, down which runs a branch railway. There is a gateway at each side of the road, on giving access toe the shipyard, the other, on the right, to the engine works. The two sections are united by a subway under the road, in which is laid a line of rails, and by a railway of the usual gauge above. The principal offices are on the shipbuilding side, over the gateway, and are very handsome and complete. It will be seen from the plan that they look out on a large square or yard. The left hand side of this is occupied by he saw mill and the mould loft. The machinery is all by Messrs Robinson and Co., and driven by two 25-horse power coupled engines. The fly-wheel is toothed, and gears with a pinion on a lay shaft running under the floor, up through which all straps are led. The principal machinery consists of two powerful gang saw-frames, heavy planing and morticing machinery, and a very powerful band saw for cutting out knees and such like for wooden or composite ships – and last year the company built several gunboats for the Government, in which there was almost more wood than iron. Steam is supplied by two Cornish boilers, and iron fire-proof doors cut off the saw mill from the rest of the building. All through the offices iron doors have been freely used for the same purpose.

The drawing office, a room of quite unusual size, is in the main office building, and so is the model room, in which models are built up of the hull of every ship made. Each model is marked off, and show the shape of every plate, and each bears a number, so that it would be possible if a ship had half-a dozen plates spoiled while abroad, to have new plates sent out which would fit without further trouble.

The remaining sides of the square are occupied by the frame bending floors – in which there are four sets of "blocks" and four of "boards" – the furnaces, and various punching and shearing machines. In this place nearly every machine is driven by its own engine. Steam is supplied by three marine boilers, of the ordinary return-tube type, set in an iron house at the back of the machine shed. Such are the facilities for doing work here that the whole of the frames for a 5000-ton ship have been got out, bent, punched, and set up in place, in six weeks. Hydrants, supplied with water under high pressure, abound, and every precaution seems to have been taken to avoid loss by fire. A glance at the ground plan will show the arrangement of the building slips. When we say they are provided with everything which can be supposed to be likely to facilitate work, we have said all that need be said; because, as is will known, the appliances required and the aid lent by machinery in the actual building of a modern iron ship, are small as compared with hand work. At present the ships are nearly all completed, the "City of Rome" towering above her companions on each side.

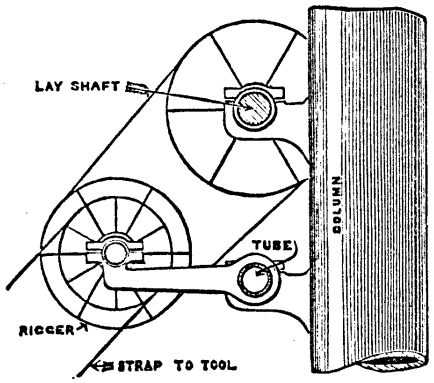
Returning from the shipyard we may pass through the timber-yard on the right of the main building, where are the sites of two proposed graving docks, and crossing the road

we enter the engine works. There are very few establishments in the country so complete. It will be remembered that ample room and plenty of money were available, and Mr Humphreys, the general manager, has shops of which he is fully justified in being proud. The boiler-shop is a large building provided with cranes, forges, and every possible appliance. The floor is spanned by powerful travellers driven by fly-ropes. The structure is divided into two bays, and there are two cranes in each bay, and which can be combined to lift one boiler if need be. The edges of all boiler plates are planed in a very large machine by Messrs Crawhall and Campbell. The most noteworthy tool is, however, a boiler drilling machine, by Messrs Campbell and Davis, Dolphin Foundry, Leeds. It was designed by Mr Humphreys. It may be described as a species of turntable on which the rings to be drilled rest. At each side, or rather at each end, of the machine is an upright pillar, and these pillars can be traversed on the bed of the machine; each carries two tool holders and their driving gear, and four holes can be drilled at once. The vertical seams are worked by fixing the rings on the turntable, and shifting the tools up and down the pillars. The horizontal seams are moved past the drills by causing the turntable to rotate with the ring standing on its edge on it. Of course it will be understood that in an ordinary marine boiler the seams which are horizontal in the machine would be vertical in the ship, and *vice versa*. The machine will take in a ring of plates 14 ft. in diameter.

In the foundry, which is of great dimensions, there are three large cupolas and a "baby." Casting weighing 25 tons are readily made; and the casting pits, stoves and cranes are all on a gigantic scale: if they were not, engines such as those for the "City of Rome" could not be made in Barrow. Our experience of foundries is somewhat extended, but we doubt we have ever been in one larger, better lighted, or more convenient for the turning out of very heavy work – for which, indeed it is specially adapted. The pattern rooms leave nothing to be desired. There are three bays to the foundry, and in each bay two powerful cranes, which between them command every inch of the floor.

The erecting shop is perhaps the finest of its kind in the kingdom, if we except certain Government shops. It is very similar in arrangement to the foundry, and is roofed like it in three bays. The floor space is laid out in plots, so to speak, and in each corner of a plot is a separate engine; thus all the machinery in one plot may be driven distinct from the rest. The tools are all driven from second motion shafts – that is to say, the engines drive long shafts running the length of each plot. Under each of these is a line of tubes or pipes, and on these pipes are arms or brackets, every two of which carry a short length of shafting with riggers to take the belts. The short shaft is driven from the long shaft, and thus instead of having to change riggers on the lay shaft to suit any particular tool to be drive, only the short length of shaft need be removed, fitted with new riggers, and replaced. The accompanying diagram shows the arrangement, which works very well.

The tools are all modern and of the best class; among them may be mentioned two tremendous vertical slotting, or rather planing machines, by Fairbairn, Kennedy and Naylor; a bed-plate can be put on end and planed in either of these – they have strokes of about 12 ft. – if necessary. There are vertical boring machines, with separate engines, crank turning lathes, and gigantic face plates.



We have done little else than give a general idea of what the works of the Barrow Shipbuilding Company are; want of space, did nothing else stand in the way, prevents us from doing more. After all, no description, however minute, can do much more than impart a general idea of the appearance, resources, and appliances of a gigantic manufacturing establishment. Not so much is known about the place we have described as it deserves, because of it being new; and if we have succeeded in enabling our readers to form some conception of its nature and capacity – of what, in a sentence, the words "Barrow Shipbuilding Company" imply – we shall rest well content.

Transcribed and slightly edited by Peter Robinson

MYSTERY AT CALDBECK

The Record Office in Carlisle has amongst its possessions a coloured copy of the First Edition OS 25" map of Caldbeck.

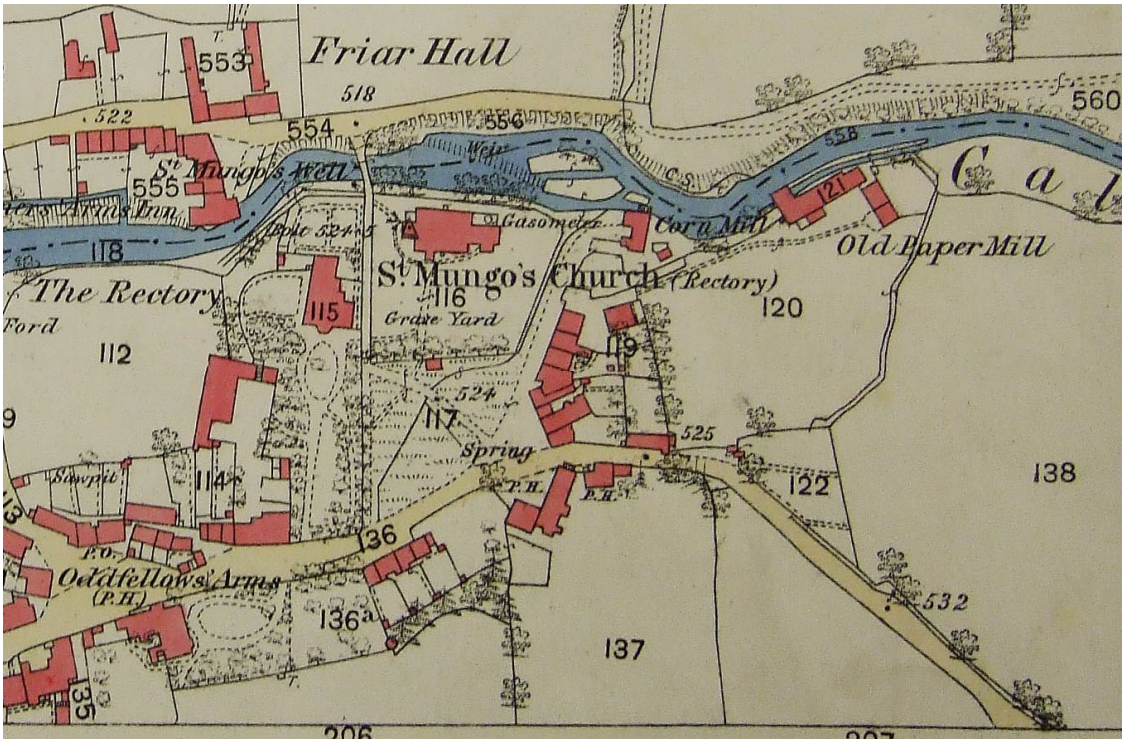
As you know, Caldbeck at that time – 1850s - was still a centre for a variety of industries which included a couple of corn mills, a brewery and "old paper mill" along the River Caldew. In between them on the map is St.Mungo's Church, and next to the rear of the church is a little round building identified as 'Gasometer'.

This is usually the only clue you get on old maps as to the location of a gasworks – i.e. a traditional coal gas plant which needed a gas holder to store gas in advance of when it was needed.

Anywhere in rural Cumbria outside the area supplied by the local town gasworks, the only way to benefit from gas lighting was to make your own. So quite a number of mills, hotels, country houses etc. invested in their own private gasworks – sometimes supplying the village as well. Like many places, Caldbeck never had a town gasworks, so you might expect somebody in the locality to invest in one. But the church? For one day a week?

There are plenty of references on the internet to churches in various parts of the country replacing their oil lamps with gas lighting. Most of them, however, would take their supply from the mains, and at a much later date than Caldbeck. Only a few look to be in rural areas where they would need to make their own gas, but none of them are on record as having done so.

So was St.Mungo's (now St.Kentigern's) a unique example of a church gasworks? Was it used more by the rectory next door – a gift from a local benefactor hidden out of site of the house? There seem to be no clues in the Record Office archives or in the parish records. Is anyone able to solve the mystery?



Roger Baker

ABSTRACTS

MELFORT GUNPOWDER MILLS, ARGYLL; A LETTER BOOK OF 1859-60.
Alan Croker. Scottish Business and Industrial History 26, Series 2, July 2011 pp49-76.

It may seem funny to include an abstract for a gunpowder mill in Argyll in the CIHS Bulletin. However this mill near Oban operated from 185 till 1874 was owned by Harrison Ainslie the Furness iron mining and smelting company. The book is also lodged in the Barrow record Office.

The article covers the running of the mill and its interaction both within the local community but also nationally and internationally and gives, even if only on a small scale, an overview of how a major company in the Furness area ran at least a small part of its business.

REPORT ON THE CRAKE VALLEY MEETING

On a glorious Sunday in July a large number of members and guests met at the village hall at Spark Bridge. Helen had set up a small display on the various sites that were to be visited during the day. The first site was a view from the bridge of the old bobbin mill, which we were unable to visit more closely. Then it was a walk up a quiet lane to view the now cleared site of the large cotton mill. After a short walk across fields we arrived at the site of one of the many tanneries in the area now converted to housing. We then diced with death on the main road whilst trying to determine the site of the reservoir that had supplied the mill just below the road at Lowick Green. Although there was very little structures left at these sites Helen had a supply of old photographs showing most of the sites whilst still working or before demolition. The return walk to Penny Bridge passed the villa Summer Hill which had been mentioned at the Spring conference. It was possible to view the remains of the battery house and also further down the road the turbine house.

Lunch was taken back at Spark Bridge in the glorious weather.

The afternoon consisted of a walk downstream to view the large leat with sluice gate still in place that supplied the furnace and later mill above Penny Bridge. Again arriving at the site of the mill there was no trace of any structure although Mike Davies-Shiels had photographed the site in the 1960's when the buildings were still intact. The final site visited was the remains of the quay just below Penny Bridge road bridge.

Despite the actual lack of buildings on some of the sites visited the general opinion of the day was an excellent day made even better by the weather.

The Turbine House for Summer Hill Villa

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