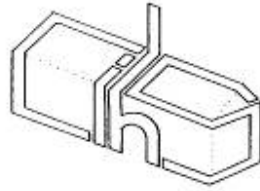


Cumbria Industrial History Society



BULLETIN

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EDITORIAL

The Society has had a number of very successful events so far this year and hopefully the remaining events will be just as successful. The call for new members for the committee at the AGM appears to have fallen on stony ground. Since then Hilary Corton our treasurer has informed us she will be leaving the committee as she is moving to Dorset to be near her family. Robin Yates has stepped into the breach and has taken on the role of treasurer as well as membership secretary. The committee is now starting to get very short of members and we do need new blood to help the running of what is a very successful Society.

As editor of the Bulletin I have had a relatively easy job for the last few years with a number of people submitting a series of papers for the Bulletin. However this issue sees the last of these articles and I would like to thank Brian Quayle for his excellent series of articles on Marchon. Now is your opportunity to get your research or reminiscences on the job you did or the company you worked for committed to paper for both this and future generations.

The Society does have insurance against disasters occurring at any of our meetings. As part of this year's renewal we have had to produce a risk assessment for our events and a copy of this is included in this Bulletin. Please read it. Also we will now be asking all people to sign in as they attend meetings and to provide an emergency contact number. The main point however is if you leave the meeting early can you please inform either the leader or another member of the committee.

Hopefully before Christmas we should have produced volume 11 of the Industrialist. Again this will empty my inbox so all contributions are gratefully accepted.

Front Cover Cowan Sheldon rail crane at a railway museum near Howrah Junction Railway Station, Kolkata, India. By David Beale.

SOCIETY EVENTS 2019

NOTE CHANGE OF DATE.

TARMAC SANDSIDE QUARRY AND ASPHALT PLANT, THURSDAY 5th SEPTEMBER 2.00 PM.

Meet at LA7 7HW road side parking for a tour of the quarry and plant. The site will probably be muddy so boots preferably safety should be worn, and bring your own hard hat and Hi Viz vest if you have one.

AUTUMN CONFERENCE INDUSTRIES OF WHITEHAVEN, WHITEHAVEN GOLF CLUB. SATURDAY 12TH OCTOBER 9.30 AM.

Booking form with this Bulletin OR available on the website.

NOVEMBER EVENING TALK GREENODD VILLAGE HALL. TUESDAY 19TH NOVEMBER, 7.30 P.M.

David Ellwood will talk about his family's Ropemaking business in Kendal.

MARCHON AND THE ENVIRONMENTALISTS

In many ways Environmental Pressure Groups have been a force for the good. However at times I believe that they have been somewhat misguided in both their aims and actions. On occasions they fail to think things through properly (diesel car any-one?) resulting in outcomes at odds with their original aims. At other times they carry out actions or pressurise regulatory bodies on nothing more than ill-informed comment and unsubstantiated assertions. They are very reluctant to admit that they have been in the wrong even when confronted with irrefutable evidence which confounds their case (eg Greenpeace claims about Shell's Brent Spar North Sea oil storage buoy and their website's inability to admit that their calculations about it were completely wrong).

In the late 1980s and early 1990s the operations of the Marchon Works of Albright & Wilson in Whitehaven attracted the interest of some of these groups, in particular Greenpeace. This led to considerable adverse publicity not all of which was merited and, ultimately, direct action by Greenpeace designed to garner extra publicity and to close down the operations at the Works. As I argued above such pressure groups, at times, are unable or unwilling to think through fully the consequences of their actions. Did Greenpeace really believe that the closure of Marchon Works with subsequent adverse consequences for the local economy was justified by causing the cessation of the environmental damage they supposed was taking place?

While researching the internet for material for a previous piece I have written about Marchon I happened across the web-site;
http://www.whatliesbeneathrattlechainlagoon.org.uk/?page_id=8065 and I invite the reader to access it if they wish. It seems to have been set up originally to examine the operation of an abandoned clay pit used by A&W's Oldbury (Birmingham) Works for the disposal of Controlled Waste. I am unable to comment either way on the claims made in the web-site unfamiliar as I am with that site's operations. At some point the anonymous author of the web-site seems to have become aware of Marchon and turned his ire towards those operations. The web-site makes various spurious allegations and also contains links to Greenpeace and to an article written in 1988 for 'The Guardian'. I wish to examine the claims made in these various places if only to set my own mind at rest; after all the Works closed completely in 2005.

Declaration of Interest

I was employed at Marchon for over 25 years making a good living in common with thousands of others both directly and indirectly. I worked in the R&D labs both trouble-shooting and developing new processes for the Phosphate operations and, for a time, worked in a supervisory role on one of those plants. I also spent several years as a Safety Adviser supporting all the site's operations and finished my career as one of the Site Shift Managers. While I do not claim to know every last detail of the site's operations I feel that I am reasonably well-placed to offer some insightful comment.

'rattlechainlagoon'	Comment
Their main concerns were liquid fertilisers and sodium laurel sulphate- a toothpaste foaming agent.	Liquid fertilisers were never made at Marchon. Technical grade phosphoric acid was, however, sold to manufacturers of such products. Low grade 'Underflow' phosphoric acid was shipped out to A&W's fertiliser plant at Barton-on Humber and other producers of Triple Superphosphate fertiliser - a solid. For a time quaternary filter cake (another solid), a by-product from Sodium tripolyphosphate manufacture was sold to local farmers. For information it was Sodium <i>Lauryl</i> Sulphate (SLS).
Pollution from this large site appeared like a sore pimple from an outpouring of froth associated with the phosphate manufacture into the Irish Sea.	The foam often seen near the outfall (between the low and high water marks) into the Irish Sea had nothing to do with the phosphate operations. It was actually from the detergent operations which manufactured SLS and other similar foaming agents. These were ingredients in many household cleaning products and made in much more concentrated form than appeared in the final products found on supermarket shelves. Spillages of these materials had to be washed away since attempts to reclaim them were both uneconomic (unlike environmentalists companies exist to make profits) and re-use would have given rise to issues of Product Quality. Even small amounts of these concentrated products produced copious volumes of foam which manifested itself at the sea outfall.
More dangerous were heavy metal laden	It is true that heavy metals in the form of their salts from the phosphate operations were discharged at the outfall. These elements occurred naturally in the phosphate rock and, later, phosphoric acid

<p>effluent from the phosphate rock impurities.</p>	<p>purchased from Morocco. The discharge of these metals was governed by the Regulator (firstly the National Rivers Authority (NRA) and its successor the Environment Agency(EA)). For them to be 'dangerous' to humans they would have to be ingested in some way. The author offers no evidence that this was the case.</p>
<p>One of the most infamous associations with this site is the ground breaking prosecution of the company. In 1990 they successfully took Albright and Wilson to court, winning a private prosecution brought under the new Water Act 1989. Whitehaven magistrates fined them a poultry £2000 and greenpeace costs awarded of £20,000.</p>	<p>It is important to appreciate that the consent levels for heavy metals permitted by the NRA were in two principal parts; total annual discharge and spot concentration limits. Greenpeace sampled the discharge and the analysis performed on their behalf indicated that the spot concentration limits were being breached. A&W argued in their defence that Greenpeace's sample was unrepresentative due to a phenomenon known as 'froth flotation'. This defence was supported by Expert Witness Prof. Hewitt of Imperial College. However the magistrates were unconvinced and fined the company the maximum amount open to them at that time (and the word is 'paltry'). In hindsight the magistrates probably took the least worst course of action. They were seen not to be cowed by one of the largest local employers. It was open to them to refer the case to the Crown Court if they so desired. However both parties in the case were probably relieved that this was not done. A&W could have faced a potentially unlimited fine while Greenpeace's evidence would probably have been subjected to even closer scrutiny. Anyway they had their day in court, had won and could be pleased with themselves. Ironically at the time of Greenpeace's sampling of the effluent efforts were also being made on site to reduce water usage (for both economic and ecological reasons) and so that might offer at least a partial explanation as to why the concentration limit was breached. One might have hoped that those concerned with the environment would have applauded such a move...</p>
<p>When Greenpeace later blocked the pipe discharging the grime into the sea, they were totally justified in doing so, and if I had been around then knowing what I do now about this firms activities, then I would have joined them to happily be arrested for taking a stand.</p>	<p>In September 1991 Greenpeace went a step further and fitted a collar around the discharge outfall located between the high and low water marks. This enabled them to slide a plate in place partially blocking the effluent discharge. I am not a lawyer but I believe that this may fall within the definition of Criminal Damage. One might not agree with other's legal activities but does this necessarily justify breaking the law? In any event site operations were not affected since when the effluent discharge 'backed up' it merely diverted down the standby discharge route - down an old adit in the cliff face. Another own goal? There is a video of this operation on Greenpeace's web-site. If you view it you may wonder why, as I did, if the effluent is so harmful so little personal protection is worn by the activists. I believe that, ultimately, Greenpeace wished to see the site closed down with no concern for the economic and social impact. The products made on-site would still have been required by the customers who would simply have bought them from other sources; for example the production of phosphates with which I am most familiar would have transferred to Morocco. I am unfamiliar with Moroccan Environmental standards (perhaps Greenpeace were) but</p>

	would be interested to know if they were superior to our own.
One can perhaps see why after the Greenpeace incident and concerns like this, Albright and Wilson attempted a charm PR offensive with "open days"	In the 80s and 90s the chemical industry was on the receiving end of much bad press little of which was deserved. In order to assuage public opinion the Chemical Industries Association (CIA) launched its 'Responsible Care' programme. One of the initiatives was for member companies (of which A&W was one) to hold Open Days in which members of the public were invited to tour the works thereby taking away some of the mystique. A&W held two series of such events which proved extremely popular with the general public.
Their mission was essentially to try to present themselves as always pursuing Health and Safety as their top priority, embracing enthusiastically new environmental legislation such as the Control of Industrial Major Hazard Regulations (CHIMAH) 1984, (which they would have had a hand in watering down),	Interested parties such as the CIA would be invited to comment on relevant draft regulations making comments and suggestions. Additionally interested parties such as Environmental pressure groups would also have the opportunity to submit comments. Once again our author is making yet another unsubstantiated assertion about the process. (I could assert that pressure groups had tightened up these regulations unnecessarily but in the absence of any such evidence...) Following the Seveso incident an EU directive addressed major industrial accidents which had off-site consequences. In the UK CIMAH imposed a duty on all sites within its scope to identify major accident hazards and take steps to prevent them. Depending on the substances involved, and their amounts, sites are categorised into two tiers, with the top-tier sites required to produce safety reports and emergency plans and to inform the public who may be affected by a major accident. Marchon was a top tier site and complied fully with CIMAH.

The above web-site also contains a link to a critical article which appeared in 'The Guardian' in 1988. Reading it some might wonder if the author had already made up his mind about the tone of the piece even before he ventured north. Anyway I propose to comment on some of this article in the same way as I did above.

Guardian	Comment
The black phosphate dust lies in heaps around the harbour, and is harmless until it is processed despite its odorous presence in, around, and over the town	This rather gives the impression that phosphate rock was simply off-loaded from boats and heaped on the dock side. In fact it was off-loaded by crane from the ship's hold and into hoppers which fed into the two large concrete silos via a series of conveyor belts. Undoubtedly there would inevitably be some spillage but this would comprise a very small proportion of the cargo.

<p>Marchon ... belching out fumes, smoke, and waste from its detergent processing plant. ... pumping out the daily dose of stomach-churning smells either into the air through its chimneys, or down the slope into the sea through a waste pipe where a frothy white slick laps the blackened rocks as it makes its way along the coast toward the bird sanctuary around the headland.</p>	<p>I simply don't recognise 'stomach-churning smells'. If it were that bad you can bet that there would have been complaints from Copeland Council - in addition to the workforce.</p> <p>Turning our attention to the 'blackened rocks' perhaps a journalist of a sufficiently enquiring mind would have discovered that the cause was more likely to have been from coal waste which had been tipped indiscriminately over the cliff tops nearby for many years. This is one charge on which Marchon is definitely Not Guilty.</p>
<p>Marchon is licensed by the North West Water Authority to pour 93 tonnes of uranium into the Irish Sea every year, as well as 27 tonnes of cadmium and 9.3 tonnes of arsenic.</p>	<p>The licensing authority in 1988 was actually the National Rivers Authority (NRA) but who's to worry about yet another factual inaccuracy? The key word here is '<i>licensed</i>'. I accept that many were unhappy about these discharges but it was perfectly legal. The figures quoted are the maximum annual permitted tonnages. For example in 1991 the figure for Cadmium discharged was actually 8 tons.</p> <p>Cadmium was on the UK's 'Red List' of substances selected for priority control and the NRA proposed that by 1992 Marchon would be limited to an annual Cadmium discharge of 6 tons. If nothing changed the site phosphate operations would have had to be scaled back, quite possibly, to becoming uneconomic leading to questions about the viability of all manufacturing.</p> <p>Fortunately a technical breakthrough lead to the opening in 1992 of the raffinate treatment plant in which the heavy metals such as cadmium were bound chemically into the crystal lattice of calcium sulphate and could be disposed of in the on-site landfill site (which required that the social club's football pitch be lost). The company's reward for this environmental improvement was to be hit with a landfill tax of some £2/ton! In this way all heavy metal discharges ceased.</p>
<p>Tests carried out by Greenpeace show that the composition of</p>	<p>Marchon was well aware that the phosphate rock contained several naturally occurring radionuclides of low activity. Most of these ended up being discharged in the discharge into the sea. Indeed the company paid for the National Radiological Protection Board (NRPB) to sample and analyse the mud in the harbours at Whitehaven and</p>

radioactivity found in Whitehaven harbour precludes it being from Sellafield. For five years now, scientists have claimed that cadmium has been a cause of genetic damage. Large doses can destroy cell manufacture and repair.	<p>Harrington.</p> <p>It was found that there was little possibility of harm to the general public due to the low activity levels found. (Incidentally having also worked at Sellafield I performed calculations that showed that the dose uptake from that source sustained by regular eaters of fish caught in the Solway was also minimal).</p> <p>Presumably lack of space prevented the author from pointing out that for each pack of cigarettes smoked a person could absorb 1-3µg of cadmium and that typically smokers have twice as much cadmium in their bodies as non-smokers. (verywellmind.com) Not to mention all of the other carcinogens present in cigarette smoke.</p>
In April over 100 parents and schoolchildren suffered nausea and coughing when a cloud of sulphur dioxide acid leaked from the factory and descended on them as they were leaving nearby Kells infant school.	<p>This regrettable incident also affected staff in the Technical Services Department at the north end of the site. A routine start-up of one of the sulphuric acid lines coincided with an Atmospheric Inversion. On start-up the Vanadium Pentoxide beds which catalyse the conversion of Sulphur dioxide (SO₂) gas to Sulphur trioxide (SO₃) are relatively cold and inefficient. Normally this did not cause a problem since discharges from the 460' Solway chimney were well-dispersed. However due to the temperature inversion some of the SO₂ gas came down to earth as described.</p> <p>Incidentally an independent study was carried out in the 1960s to determine the cause of SO₂ emissions noted on the Woodhouse estate adjoining the works. It was found that the primary causes were domestic coal fires - concessionary coal was a great perk enjoyed by the prevalent mining community.</p>
In July, 200 cars in the factory carpark were pitted and stripped of paint after a second acid leak.	<p>My car was one of them. The company paid for resprays. (The source was different to the one described above).</p>
Eric Hughes joins us for tea. His house ... two streets away is directly downwind of Marchon's fluoride chimneys. A sufferer from ME, which some doctors claim may be caused by industrial pollution, Mr Hughes's remaining energy is used to cultivate his	<p>The usual anonymous sources are quoted with an unproven link. The precise causes of ME remain unclear although it is suspected that a 'very few cases may be triggered by (unspecified) toxic substances' (actionforme web-site).</p> <p>The gaseous emissions of hydrogen fluoride from the phosphate plants represented the greatest environmental hazard from the site but since these were invisible didn't attract the same attention as the mostly harmless foam slicks which could be seen from afar.</p> <p>The fluoride originated in the phosphate rock processed on-site. The majority of it was either evolved during processing and scrubbed out of the off-gases or precipitated out; the scrub liquors and precipitate were discharged to drain. Inevitably the removal could not be 100% and so a small amount was discharged into the atmosphere. Even small concentrations could be detrimental to plants.</p> <p>Even so the company employed external gardeners to set out bedding</p>

<p>garden. Every spring he turns the soil and plants new shrubs. And every summer the day arrives when he wakes up to see his plants burnt to a cinder. 'You know that poem which talks about a host of golden daffodils, well mine were roasted. The plants turn brittle when the fluoride gets to them. There are never any flowers. I have tried planting apple trees, but they just wither. 'Have you noticed there aren't any trees on the estate? I planted a load of daffodil bulbs last year, but when they came up they were burnt by fluoride and died</p>	<p>plants in front of one of the office blocks to demonstrate that horticulture was possible despite everything. However I always sympathised with gardeners who, having raised plants from seeds or plugs, found that they had been killed off. A voucher for Tesco to buy some onions was hardly the same as enjoying some you had grown yourself.</p> <p>Maybe the fluoride emissions from the works were to blame. Maybe the high winds and saline atmosphere was not conducive to tree growth. Maybe no-one actually planted any.</p>
<p>One former employee said he found that childhood asthma returned when he began working in the factory's acid plant. He says the company never admitted that his work was the cause of his disease, but equally it did not insist he return to his job.</p>	<p>Marchon may have been guilty of some things but modern-day slavery was not one of them. No-one was forced to work there - and a generous ill-health retirement scheme was in place for individuals unable to continue working and not necessarily caused by adverse working conditions.</p>

<p>The medical profession has not been remarkably active in trying to identify the source of high asthma, foetal mortality, and genetic abnormality rates which have been found in and around the town. During the past five years rare syndromes have been found in babies born in Whitehaven and nearby Mirehouse. These diseases have led to either mental disorders, cleft palates, cysts, or facial abnormalities. There are also abnormal levels of severe spasticity, premature births, the transposition of body vessels, poor speech, and acute myloid leukaemia.</p>	<p>Association by insinuation? Once again assertions about various maladies are bandied about with no supporting evidence. Perhaps deprived social conditions may have had something to do with these terrible afflictions?</p>
<p>Dr John Platt, a consultant paediatrician at the West Cumberland Hospital in Whitehaven, said that it was necessary to establish whether the problems are caused by Marchon. He doubts that they are.</p>	<p>There you have it.</p>
<p>But another doctor's</p>	<p>And the evidence is? Perhaps there was a high incidence of smoking</p>

<p>exasperation has led him to become more public in his concerns. Dr Mike Acres a local GP, says: 'Respiratory disease and asthma are the most widespread concerns, but there have also been cases of metabolic problems and genetic damage. There is also a high miscarriage rate during the first three months of pregnancy. I am convinced there is a link between the respiratory disease and Marchon. 'I also suspect there's a connection with the biological detergents and miscarriages, as the detergents break up the proteins which break up the gene strands during pregnancy. There's also a possible link to leukaemia.</p>	<p>on the local estate which may be associated with respiratory disease?</p> <p>If Dr Acres is correct surely 'biological' washing products containing enzymes would have been banned long ago. Once again the precise cause of leukaemia is not fully understood (cancer.org web-site) although environmental factors may be one.</p>
<p>Sheila Smith, who runs the family advice centre in nearby Monkwear, said: 'It's the accountability which in some ways concerns me more than the pollution. The thing we have found quite amazing is</p>	<p>Totally closed? Hang on a minute. When the company ran 'Open days' it was derided - see above. And what does 'totally closed' actually mean? If some-one had a complaint all they had to do was phone in and the duty Site Shift Manager would be despatched in response. I should know.</p> <p>Many on the outside seemed to believe that the company was rolling</p>

that Albright and Wilson is a totally closed organisation. 'Trying to get the company involved in the community is impossible. You just meet with closed doors.	in money (the 'Land of Milk and Honey' as one Works Director described it to me) when in later years this most definitely not so. The company actually supported and made donations to numerous charitable activities in the local community but did not publicise them for fear of being swamped with similar requests for assistance that they could not afford.
Dr Jack Cunningham. Labour's environment spokesman whose Copeland constituency includes Whitehaven, has been a paid policy adviser to Marchon's owners, Albright and Wilson, since 1980. Among those who campaign for more information about the pollution, he enjoys little popularity.	He wasn't particularly popular among the workforce either but the simple act of wearing a red rosette at election time provided him with a meal ticket for many years. My own view was that it was inappropriate for him to take money from a local employer whom he might have to criticise on topics such as working conditions and environmental record.

Concluding Remarks

Have I been unfair to the environmentalists or are they the ones in the right; I will let the reader judge. There is much more content on the web-site and its associated links but this piece is already overly long.

The operations on the Marchon site began in the 1940s during wartime and when environmental standards were far removed from those we have come to expect today. However during the site's existence, in common with the rest of the chemical industry, it was making products which people wished to buy to maintain their standards of living. The way in which it operated, particularly in its early days might not gain approval today, but having been established these operations became tolerated, if not by all. Regulators had to tread a fine dividing line between enforcement of standards while accepting that the site operations were of economic benefit not only to the workforce but also to surrounding businesses.

It has to be acknowledged today that if the Marchon site were a greenfield site and Marzillier and Schon came along with a proposal to build a chemical factory on a hill

above Whitehaven it is very unlikely that they would get planning permission and even if they did extremely strict environmental standards and controls would be imposed.
Brian Quayle

FIND AT NEWLAND

At a recent work meet one of the Newland residents drew our attention to an object he had found while renovating his house. It had been a beam holding of a swill boiler when the building was part of the farm. We thought he meant pig swill but he went on to explain that he thought swill baskets were made on site. This would make sense as we know that Backbarrow continued to use swills well into the 20th century.

When we arrived we were shown a cast iron bar covered in mortar. After chipping and brushing, markings became evident which we read as “N F * 1809”. It is slightly tapered, and quite roughly textured, suggesting that it was sand cast.

This is the first evidence we have seen of cast iron work attributable to the furnace although it is said that cannon balls were cast here during the 18th century. Cast iron linings for forges have been found in recent alterations around the hamlet.

At the furnace we are still excavating the floor, hopefully to reveal the remains of the first blowing mechanism, which was a large pair of bellows. Come and join us on the last Saturday of any month at 1PM



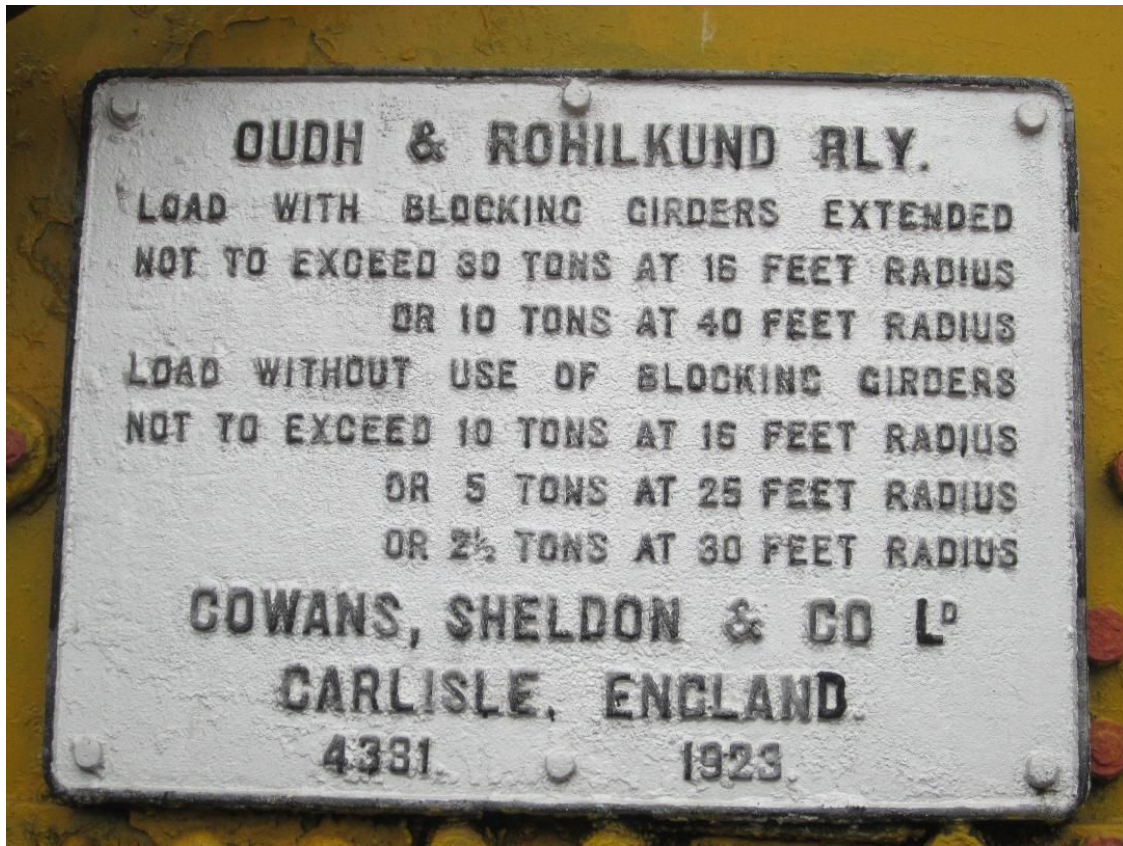


THREE VIEWS OF THE BEAM.

Peter Sandbach.

MADE IN CUMBRIA





Another view of the Cowan Sheldon rail crane and the makers plate as seen by David Beale at the railway museum near Howrah Junction railway station, Kolkata, India.

SOCIETY GENERAL RISK ASSESSMENT FOR VISITS.

GENERAL HAZARDS LIKELY TO BE ENCOUNTERED

- Rough, uneven ground, quarry edges etc leading to slips, trips or falls.
- Steep inclines/descents, steps
- Vehicles when crossing or walking on roads, in car parks etc
- Fast-flowing or deep water
- Machinery leading to cuts and bruises, catching on clothes etc.
- Falling trees, branches, masonry etc.
- Low beams and doorways etc in buildings.
- Excessive walking distance for the abilities of the group.

More specific hazards will be published in the Bulletin prior to the event.

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LIMEKILNS AT SANDSIDE QUARRY.