MANCHESTER REGION INDUSTRIAL ARCHAEOLOGY SOCIETY

NEWSLETTER No.134.

November 2010.

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Registered as a UK Charity No. 1113626

Editorial

We have started another programme of varied and interesting lectures - you can see details of the programme – but probably the most important matter for me to remind you of is the forthcoming Annual General Meeting on the 12th December in Room E0.05, John Dalton Building, MMU -our usual meeting room

Sadly, we have learnt of the recent deaths of two of our members – Joe Taylor (for whom there is a short obituary below) and David Clark (who we only learnt about as this was going to press so there will be an obituary in our next Newsletter).

Main Contents

Programme 2010/11

Friday 12th November – *1920's Multi-process textile mill, Eccles* – Glenn Atkinson

Friday 12th December – Society Annual General Meeting

Friday 8th January 2011 - New Year Party, Trafford Heritage Centre - speaker Kevin Flanagan

Friday 11th February - *I A in 'Time Team'* - Mike Nevell

Friday 11th March - *Underground Manchester* -Keith Warrender

Friday 8th April - *Liverpool Old Docks* - Jamie Quartermaine plus Site Visit (TBA)

Friday 13th May - *Kinder Railway* - Derek Brumhead Walk 21st May

Gift Aid

At the risk of becoming boring, I would, once again, in view of the financial benefits for the Society, strongly urge all of you who fit the category to complete the gift aid form, if you haven't already done so, and return it.

Membership

Membership Rates -

Single - £14

Joint - £18

Walter Payne

Joe Taylor

Joe Taylor died in August 2010 after valiantly living with a tumour. He was past chairman of The Friends of the Museum (now MOSI). A MRIAS member for several years, he gave us a talk entitled "IOM Railways" Joe qualified as an electrical engineer, with a post grad apprentice at Vickers, Barrow and then became a Merchant Navy Marine Electrical Officer. After his return, he worked on railways in Manchester and Crewe before becoming involved with the overhead electrification system for B.R. Then as an inspector of new works for the H&S executive, he held inquiries anywhere between Scotland and the Channel Tunnel. After retirement, he became inspector of railways for the I.O.M.
He attended Summer Schools and shared his considerable knowledge and experience with many enjoyable tales.

MRIAS Project Report

Summary

Project Lead Status

1 Mayfield Station - Tony Wright - Ongoing
2 Mount Sion Water Wheel - Peter Bone – Ongoing
3 Tank trap Site, Hazel Grove - request from GMAU, Gordon Brown Desk Research
4 Textile Finishing Survey - Peter Bone – Ongoing

Peter Bone

Hollingworth Lake and the Rochdale Canal Water Supplies

Following on from the recent, enjoyable and informative, walk around Hollingworth Lake led by Peter Bone I thought that a short article on the lake and its origins might be of interest.

The Rochdale Canal opened over its whole length from Manchester to Sowerby Bridge in 1804 making it the first canal canal to cross the Pennines - beating the Huddesfield Canal by 7 years and the Leeds and Liverpool canal by 12 years. Early routes for the canal had proposed a line up the Ryburn valley from Sowerby Bridge towards Rishworth with a tunnel under Blackstone Edge and then through Littleborough towards Rochdale. When the line along the Calder valley was adopted a 1⅔ mile tunnel between Walsden and Sladen. However, in the end, the tunnel was dropped and replaced by a large number of locks which took the canal over a summit level of 600 feet. Whilst the canal took advantage of the routes created by natural waterways, it was limited by the parliamentary Acts from interfering with or drawing water from existing rivers and streams. Jessop had piloted the Bill for the building of the Rochdale Canal through Parliament based on the idea of feeding it from reservoirs rather than using the rivers and streams of the Pennines, which local mill owners depended. Water for the canal was, therefore, largely provided by a series of seven canal company reservoirs - Blackstone Edge, Light Hazzles, Warland, White Holme, Upper Chelburn, Lower Chelburn and Hollingworth Lodge and, shortly afterwards, Gaddings East. Which were, in turn fed from a network (of some 42 miles) of 'catchwater' drains spread across the moors between Littleborough and Todmorden.

Unlike the picture we might have of reservoirs being constructed in deep, steep sided valleys a number of the canal company reservoirs posed some construction problems since there were no natural depressions on the moorland tops where they were to be sited. The normal method of reservoir construction, involving one dam across the mouth of a valley, would not work here so several dams might be required. Hollingworth Lake was formed by two earth embankments approximately 34 feet and 28 feet high, each about 200yards long, with a third earth embankment 25 feet high and 130yards long.

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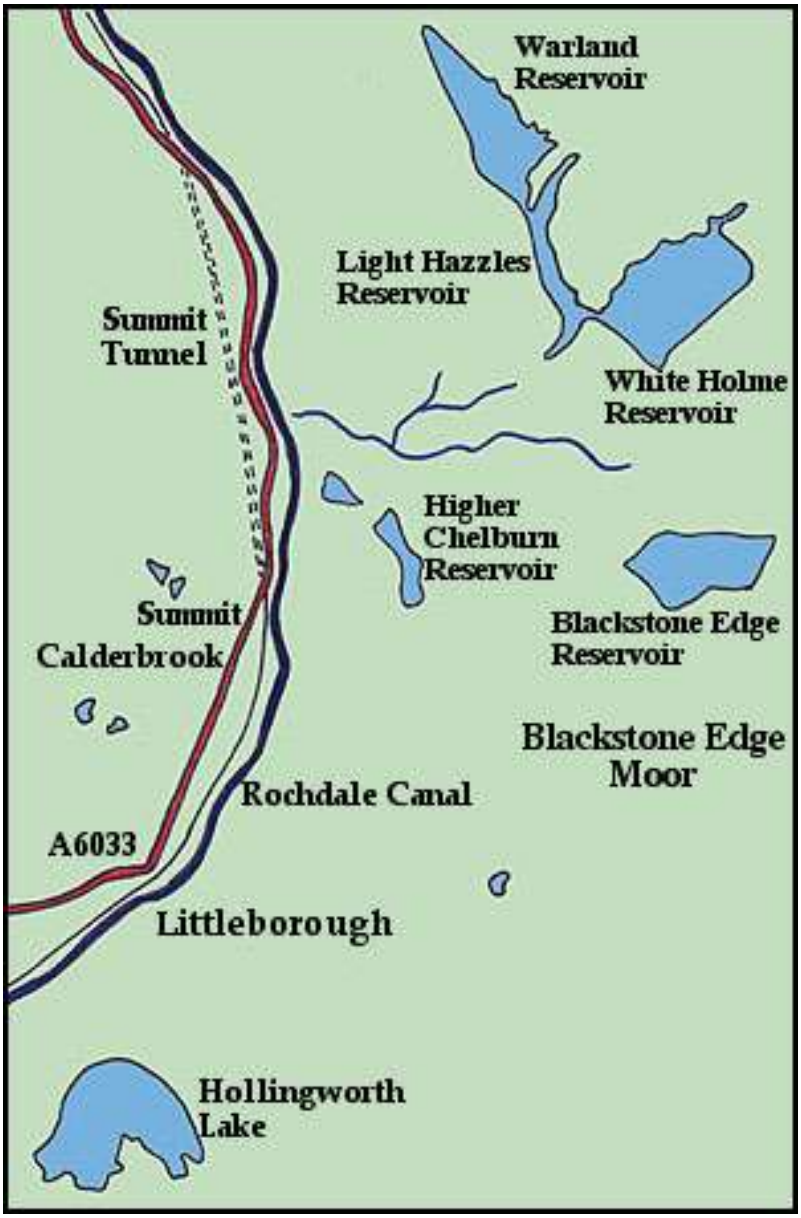


Fig 1 - Rochdale Canal – Feeder Reservoirs

The Hollingworth Bank (B) cut off the Ealees Valley which runs to Littleborough. The Fens Bank (A) runs across the northern shore. The third embankment was the Shaw Moss Bank (C) which marked the southern boundary of the lake.

Hollingworth Lodge, which lies a short distance from Littleborough, soon became the most well known.. The term “lodge” referred to the fact that this was a storage place for water. Hollingworth Lodge soon became known as Hollingworth Lake

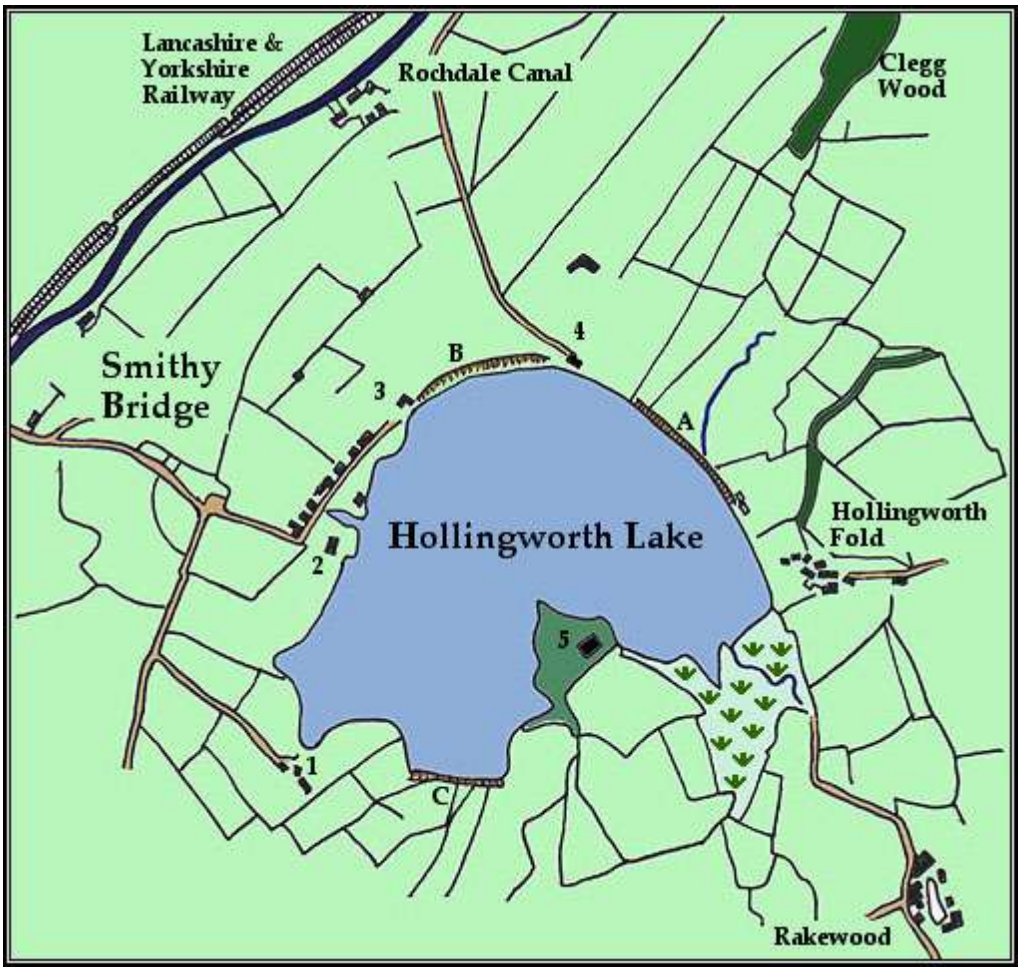


Fig 2 - Hollingworth Lake

The lake was completed in 1800 and four years later, the first water began to flow into the newly-opened canal. When first constructed, it was capable of holding 1,753,000 tons of water (about 400,000,000 gallons)..In all the lake covered 130 acres with a circumference of $2^1/_2$ miles, an average depth of 30 feet and a depth of 80 feet at the centre.
A note in an old canal engineer' notebook states that a drop of one inch in the surface level of the lake is the equivalent of 10 locks full of water.
A pumping engine raised water by steam power from the lake and fed it into a channel ("The Level Drain") which ran 4 miles from the lake to Summit. where it was fed into the canal to replace water lost in the operation of the locks. The pumping engine and the building which housed it were demolished in 1910 (the site of which Peter pointed out - at the back of Bear Hill, at Lower Hollingworth.)There is also a drain which takes water down the Ealees Valley. towards the canal at Littleborough.

Work by Steve Stockley has shewn that the "level drain" is not in fact level as was the commonly accepted idea .Water being able to flow in either direction along its length dependent upon whether there was surplus water in the canal's summit pound -so the excess would flow into the lake- or water was needed in the canal in which case water could be pumped from the lake along the drain to supply needs in the summit level and downwards. Steve shewed that there were slight slopes towards each end from a short level central section..

Fig 3 **- Rochdale Canal, Summit Level – left hand opening supply 'from moor top' reservoirs - right hand flow from "level drain" (Hollingworth Lake)**

The embankments were strengthened extensively, the outlet structures were rebuilt, and the overflow was lowered in 1985

The fame of the lake lies in the fact that, in the middle of the 19th century as the population grew rapidly in south east Lancashire, the Lake became a recreational resort "the Weighver's Sayport" offering "*a grand day out"* for visitors from near and far. The development of the lake and the land around it began when Henry Newell, the owner of Harehill Woollen Mills, and Mr. Staden, his engineer, acquired a lease for the use of the lake from the Rochdale Canal Company. Boating was one of the first developments and two small steamboats were put on it. The initiative was not successful. Several boating companies were founded and foundered in the next few years.

But, gradually, the lake became more and more popular. There were seven hotels with large ballrooms attached and on what became known as the New Brighton side - behind the then Lake Hotel - were pleasure grounds which, allegedly,rivalled Manchester's Belle Vue.
Three steamers plied the water and a lifeboat, *The Rochdale*, was launched and christened with a full crew from Blackpool in attendance.
The first Rowing Club was founded in 1860 and in 1872 Hollingworth Lake Rowing Club was established, prompting a local councillor to speculate 'it was not improbable' that the lake would one day be known as the 'Henley of the North'. The lake became well known as a

place for swimmers, among them was Captain Matthew Webb, the first man to swim the English Channel. But, the lake had its fair share of tragedies, as well - in 1861, when some 40 boats were on the water, two collided in the centre and capsized. Five of 13 people thrown into the water drowned.

The lake has frozen over several times. most recently in the severe winters of 1947 and 1963.In the 1850s several people drowned as a result of a mishap on ice.. In the winter of 1860/61 a cricket match was played between Littleborough and Rochdale, all the players being on skates. In 1879 a pony and trap was driven across the thick ice. The reservoirs, including the lake, were sold, in 1923, to the Oldham and Rochdale Joint Water Board for provision of drinking water though obligations to feed the canal and provide compensation water for industries remained. In 1950 Rochdale Council agreed to take over the boating rights from the Water Board which had acquired the lake from the canal company.

The site has been used extensively for recreation for over a century. United Utilities, the current owners, seem unclear as to whether the lake and the remainder of the reservoirs are currently being used to provide drinking water or could be used for their original purposes of supplying, much needed, water for the canal. In 1974 plans were approved to make the area a country park, a move vindicated by the news, 10 years later, that the park was one of the top 10 most popular country parks in Britain.

I have a memory of our having carried out some recording at Eva Forge in east Manchester and at the Todmorden Agricultural Show over the summer I took a picture of this vehicle(apparently a sort of hybrid between a ‘landrover’ and a

tractor) which according to the exhibitor's label was produced by Eva Brothers. The exhibitor wasn't around to talk to. Has anybody got any information?

Neil Davies

MRIAS Sales

The following items may be ordered through Roger Thwaite, 261 Grove Lane, Hale, Altrincham, WA 15 8PP, phone 0161 980 7174

	Price £ plus postage & package
Sweat shirt emblazoned with MRIAS logo	**12.00**
Tee shirt emblazoned with MRIAS logo	**9.50**
Polo shirt emblazoned with MRIAS logo	**9.50**
Day glow vest emblazoned with MRIAS logo	**6.50**

Prices are correct at the time of going to press.

Colours available, Maroon, Forest Green and Royal Blue

Manchester Region Industrial Archaeology Society

Notice of Annual General Meeting 2010

The Society AGM will be held on Friday 10th December 2010 commencing at 6.30pm in Room E0.05, John Dalton Building, Manchester Metropolitan University, Oxford Road, Manchester

AGENDA

1. Welcome
2. Apologies for Absence
3 Minutes of the Meeting of 11th December 2009
4. Matters arising from the Minutes
5. Chairman's Report TW
6. Hon. Treasurer's Report TW
7. Membership Secretary's Report WP
8 Project Officers Report PB
9 Hon. Archivist's report ND
10 Election of Committee Members
11 Any Other Business
12 Date of next Meeting - 9th December 2011
13. An illustrated Talk by Peter Bone on "Scottish Canals"

If you would like to join the committee contact the Society Secretary, Mrs Margaret Browne, 622 Wilmslow Road, Didsbury, Manchester. M20 3QX by 15th November 2010, please.

If you want to propose someone else, then a proposer and seconder are required (along with the permission of the nominee).

MANCHESTER REGION INDUSTRIAL ARCHAEOLOGY SOCIETY

New Year's Party

Friday 14th January 2011 6-30pm

Trafford Park Heritage Centre (map attached)

drinks and buffet ,quizzes (optional !)

A lively talk on "Trafford Park - Mystery or Fact" by Kevin Flanagan, Director of Trafford Park Heritage Centre.

As usual there will be a **small cover charge** for the evening of **£7.00 per head**

guests very welcome.

If you would like to come along please return the tear off slip below (by 15th December) to:

Gordon Browne, 622 Wilmslow Rd, Didsbury, Manchester. M20 3QX,

(please make cheques payable to MRIAS)

Cut here……

MRIAS New Year Party 14TH January 2011

Please reserve…….places @ £7-00 per person

Total £…….

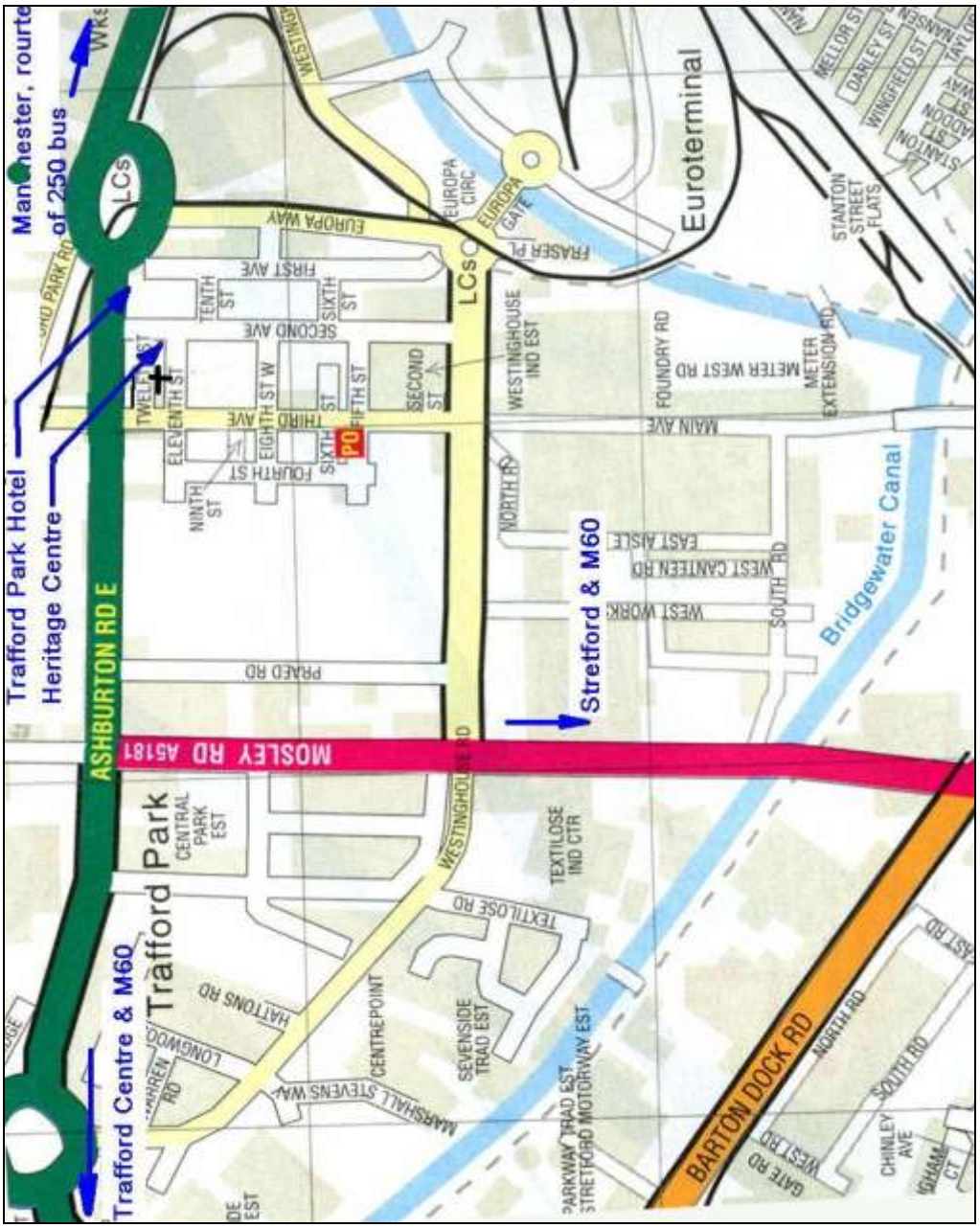
NAME(s) (please print) …. . ……

.....

……..

tel. number …….

e-mail address ……..



Trafford Park Heritage Centre

Eleventh Street, Trafford Park. M17 1JF

Closest Public Transport - bus number 250 (from Piccadilly Gardens to the Trafford Centre about every 15 mins) - stops about 2 minutes walk away on Ashburton Road.

Car parking at rear of premises

MRIAS MEMBERSHIP APPLICATION FORM

Manchester Region Industrial Archaeology Society ***www.mrias.co.uk***

'Are you interested in the Industrial History of the North West?....canals, mills, trains, machinery, transport etc....?.... If so, then come and join us!'

The Society aims to advance education of the public in the subject of industrial archaeology.

We are interested in:

Developing a greater understanding of the industrial archaeology of the Manchester region.

Recording, interpreting and where possible preserving the physical remains of industrial artefacts and sites in their social, cultural and historical contexts.

Promotion and research into the industrial archaeology of the Manchester region of England.

Our passions are the history of industry, technology and transport.

MRIAS (Registered Charity Number 1113626)
The Society's mailing address is
The Secretary (MRIAS)
C/O 622 Wilmslow Road Didsbury M/C M20 3QX
e-mail admin@mrias.co.uk

Activities include monthly lectures on topics of industrial archaeology and related interests, field visits, site surveys, a heritage week away and social events. Members receive a quarterly newsletter.

MRIAS APPLICATION FOR MEMBERSHIP FAO OF THE MEMBERSHIP SECRETARY Mr Walter Payne, 27 Brompton Road Poulton-le-Fylde FY6 8BW Tel: 01253 894150

I/We wish to join MRIAS.....
Address.....
Postcode.....
Telephone number.....email address.....

Enclosed cheque for £..... (*Annual Membership Fees Single £14 /Joint £18 payable to 'MRIAS')*

ROPE DRIVING

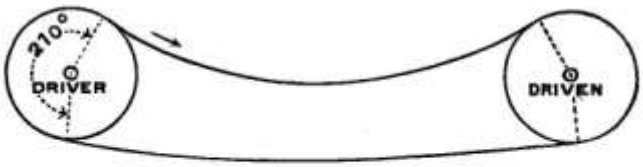
In cotton mills it was usual to employ one engine to power all the machinery in the mill. In the case of large mills, particularly those used for spinning, this demanded a very powerful engine and a means of distributing the power had to be devised. On each storey of the mill a lineshaft would run the whole length of the building. This long shaft was high up and was supported at frequent intervals by simple bearings. Machines were connected to this via flat leather belts running over flat pulleys. To allow individual machines to stop and start there was a fast and loose pulley arrangement. This consisted of two pulleys side by side, one fixed to the machine shaft and the other free to rotate on the shaft without turning it. The leather belt could easily be slid from one to the other whilst turning, hence coupling or uncoupling the drive.

The lineshafts from each floor had to be coupled to the engine. In smaller, particularly older, mills this was done with shafts and gearing but the commonest method was to fix pulleys to the ends of the lineshafts and to connect these to the engine flywheel by ropes. The ropes were made of cotton, typically between three quarters of an inch to two inches in diameter and as many as were required to transmit the power went to each multigrooved pulley. This is one reason for the popularity of rope driving: any amount of power could be transmitted simply by employing more ropes. This also improved reliability as should one rope fail the drive could continue on the remaining ropes until it was convenient to replace it. Note that ropes seldom failed suddenly, fraying or excessive slackness gave ample early warning.

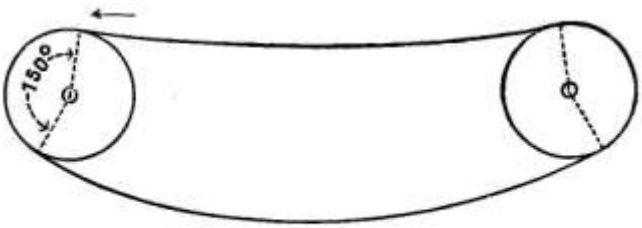
Other advantages include:
Flexibility in shaft layout - it was easy to arrange drives at any angle and any distance, even round corners!
Compactness - a rope one and a half inches wide transmitted as much power as a flat belt six inches wide.
Low first cost and inexpensive renewals - rope life was over ten years.
Quiet, vibration free running, particularly when compared with gear drives.
The natural elasticity of the rope could absorb shock loads without damage.

A given rope diameter will have a safe maximum working load, thus heavy loads suggest large diameter ropes. However, the frictional losses in bending the ropes round the pulleys increases with diameter and it is unusual to employ ropes in excess of two inches in diameter. To give extended rope life, bending was limited by using large diameter pulleys. The minimum recommended pulley diameter was 30 times the rope diameter for one inch ropes rising to 40 times the rope diameter for two inch ropes. As an example, at Ellenroad Mill (Newhey) the driving ropes were one and seven eighths inches in diameter and the minimum recommended pulley diameter was five foot six inches. The fastest running lineshafts in the mill were in the two ring rooms and these were fitted with six foot diameter pulleys.

To reduce the chances of rope slip it was usual to arrange for the driving side of the rope, i.e., the tight side, to be on the bottom of the pulleys. The sag due to the weight of the rope then being on the top gives a greatly increased contact area between the rope and the pulleys.



Showing Drive with slack side above and driving side below.



Showing Drive with slack side below and driving side above.

As a rope has a maximum recommended tension, the only way to transmit more power per rope appears to be by increasing the speed of the drive. Initially this is so, but centrifugal force also increases with rotational speed and the rope tends to lift from the pulleys at higher speeds. The net result is that the rope begins to slip until eventually an increase in speed gives a reduction in the power transmitted. Typically, maximum power is transmitted at a rope speed of 4800 feet per minute, whatever the rope size. At Ellenroad the rope speed was 5150 feet per minute, giving a transmitted power of 54 horsepower per rope using the recommended rope tension figure.

Five floors of machinery at Ellenroad were driven by the engine, together with the electrical generators for lighting. The top floor, the winding room, had the lightest loading with three ropes going to an eight foot six inch diameter pulley revolving at 194 rev/min transmitting about 160 horsepower. The distance between this pulley centre and the engine flywheel centre was 103 feet giving a rope loop length of 225 feet. One such rope would weigh 230 pounds.

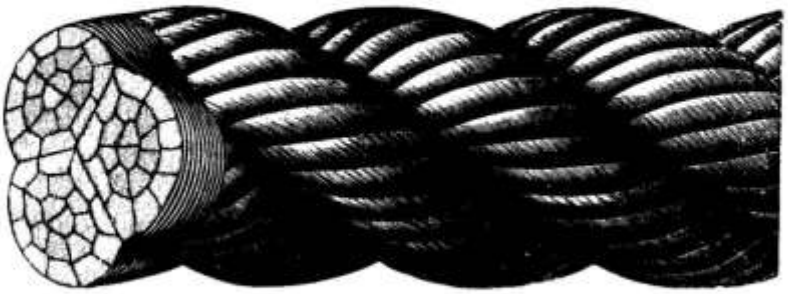
The next two floors down were the ring rooms, each with a six foot diameter pulley carrying 11 ropes. This revolved at 275 rev/min and transmitted around 600 horsepower. The first floor was a card room with a seven foot six inch pulley carrying 5 ropes revolving at 220 rev/min. The power transmitted was about 270 horsepower. The ground floor pulley arrangement was more complex. This floor was another card room with a seven foot six inch pulley revolving at 220 rev/min but the pulley carried 10 ropes. This was because this shaft was used as a countershaft carrying a second pulley from which a drive was taken to the electrical generators. Assuming that the card room loading was similar to that on the floor above, this leaves 270 horsepower available for electrical generation, i.e., about 200 kW.

The arrangements outlined above were those in place from 1922 until 1949 when the mill was re-equipped and fitted with individual electrical drives.

Lambeth Lay Thread

COTTON DRIVING ROPE

(THREE STRANDS).



Specially recommended to all firms with a preference for a Three-Strand Driving Rope.

Embodies all the good points of every other Three-Strand Rope with the additional advantage of the "Lambeth" principle.

Tension and friction accurately provided for.

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Bernard Halliwell

Fragments

- The Cheshire Archaeology Day is due to return April 2011 – Northwich Memorial Hall

- The November 2010 Railway Magazine pp38-46 'The Stationary Boiler Story' The register is shown on the Engine Shed Society's website http://www.abrail.co.uk/ess.htm

- 19th August issue Royal Mail Stamps – LMS Coronation Class, BR Class 9F, GWR King Class, LNER Class A1, LMS NCC Class WT, SR King Arthur Class (more details in the next Newsletter)

- Stuart Hylton's 'A History of Manchester' A new edition is being published in November 2011. Hardback, 108 black and white images, and 34 colour illustrations in 304 pages. www.phillimore.co.uk ISBN 978-1-86077-631-1 Meet the author at Waterstones 33-5 George Street Altrincham WA14 1RJ on Wednesday 8th December 2010 Tickets £2 which can be discounted from the price of the book on purchase (see also pp23 and 24 of this Newsletter)

- Cheshire History Number 48 2008-9 still available. Ten articles including *'Torr Vale Mill and the Cotton Industry on the River Goyt at New Mills' Derek Brumhead*

- Cheshire History Number 47 2007-8 still available. Ten articles including *'The Railways of Newtown, New Mills' Derek Brumhead*

- The gravestone in Eccles Parish Church belongs to George Stephenson's less-well-known brother, who was also called Robert. And, of course, the more-famous Robert Stephenson (the son) is buried in Westminster Abbey in London. He died on 12 October 1859 and was buried beside Thomas Telford in the nave of Westminster Abbey. A brass over his grave, designed by Sir Gilbert Scott, shows him in contemporary dress with his arms folded. The inscription reads "SACRED TO THE MEMORY OF ROBERT STEPHENSON M.P. D.C.L. F.R.S. etc. LATE PRESIDENT OF THE INSTITUTION OF CIVIL ENGINEERS WHO DIED 12th OCTOBER A.D. 1859 AGED 56 YEARS".

Tony Wright

Harland & Wolff---Belfast

My wife and I went on a recent tour of the Harland & Wolff Titanic Shipyard areas in Belfast.

Harland & Wolff no longer build large ships. They now build small functional working boats and blades for wind turbines. They do however still repair ships.

The main dockyard where Titanic was built is no longer there. The area is now dedicated to leisure, flats, cinemas and cafes. The Titanic slipway is now filled in. The dry dock where Titanic was fitted out is still visible. This dry dock held 250,000 gallons of water. The water was pumped out by steam pressure but has now been converted to electricity. It took 90 minutes to empty the dock the equivalent of 2 swimming pools every minute.

The old Harland & Wolff building which housed the drawing offices are now derelict and will be refurbished hopefully as a hotel to coincide with the centenary of the launching of the Titanic in 1912.

The Titanic walking tour takes over 2 hours and is well worth a visit. The photos on the next few pages may be of interest.

Roger Thwaite

SS TRAFFIC WAS USED TO CARRY 3RD CLASS PASSENGERS FROM THE QUAYSIDE TO TITANIC AT CHERBOURG

THE OLD H & W OFFICES

SS NOMADIC USED TO CARRY 1ST & 2ND CLASS PASSENGERS TO TITANIC

ONE OF THE 4 PREFABRICATED FUNNELS BEING DELIVERED TO THE SHIP

TITANIC BEING BUILT

TITANIC DRAWING OFFICE c.1912

ONE OF THE 2 GIANT CRANES - 800 TONNES LIFT

TITANIC DRAWING OFFICE 2010


HMS CAROLINE - 1ST WORLD WAR BATTLESHIP
NOW USED FOR SEA CADET TRAINING
TITANIC SLIPWAY - FILLED IN WITH THE
NEW EXHIBITION CENTRE BUILT
THE DRY DOCK WHERE TITANIC WAS FITTED OUT
AFTER THE LAUNCH - TITANIC BEING TOWED TO THE DRY DOCK

Pendrell Hall

Anne Mason and Margaret Hickson wrote in to say, when looking back through their photographs, how much they enjoyed the heritage week at Pendrell Hall.

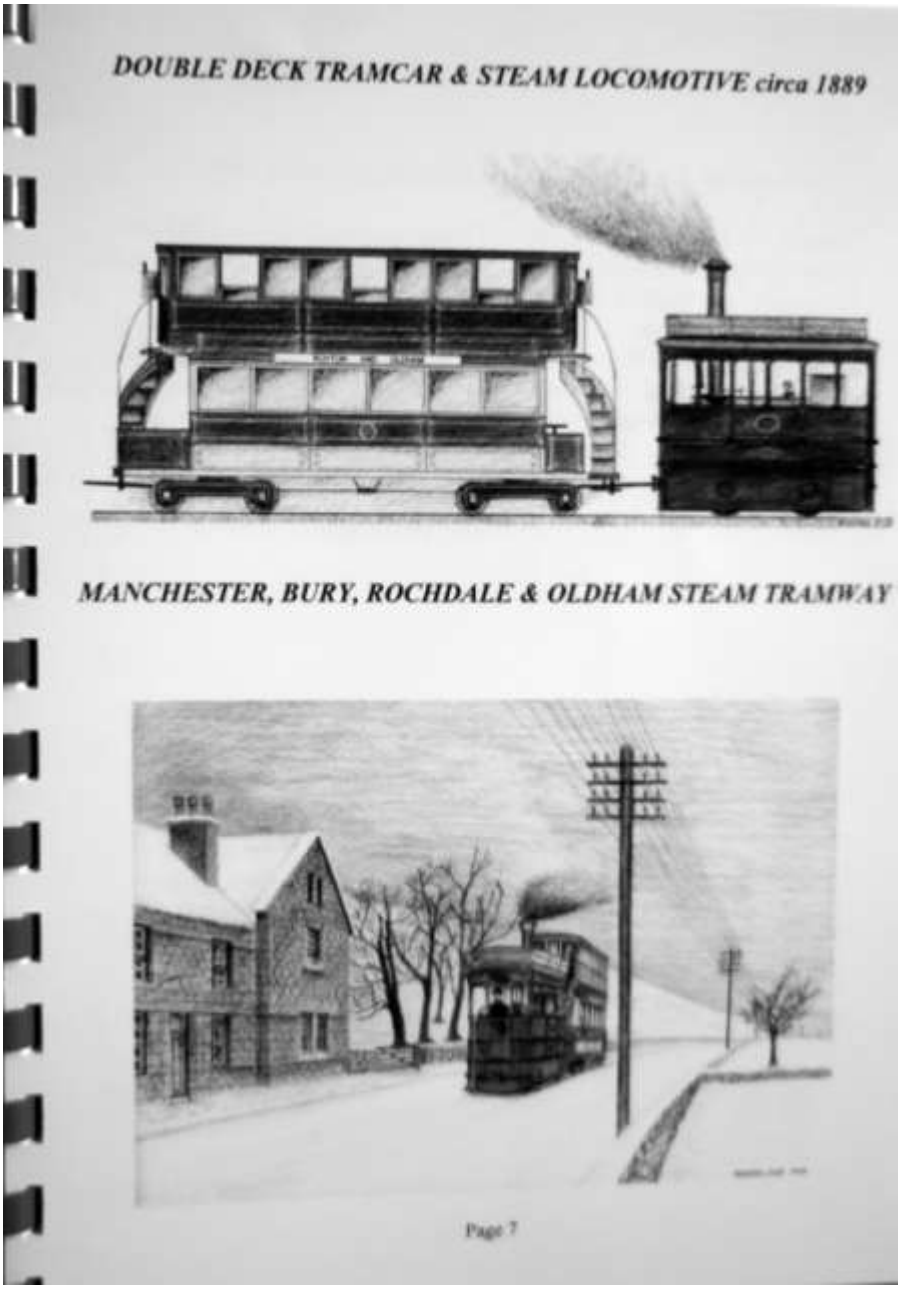
Their first photograph was taken at the lock museum – the discussion was how to get from A to B without getting lost.

"The best thing is to go out the back way and try and thumb a lift!"

New Website

Following on from Richard Pink's excellent lecture to the Society (on Friday March 12th) he has launched a new website **www.manchestertrams.com** (Manchester Trams 1880 to1949) The site contains (inter alia) a wide range of pictures and drawings charting the history of Manchester Corporation Trams with individual notes on each tram.. All tram pictures and drawings are available for purchase via download or post.

Books include 'Manchester's Trams 1880 – 1949 In Pictures' and 'Manchester's Trams 1880 – 1949 Development of the Tramcar'



MANCHESTER'S TRANSPORT
1880 – 1949

VOLUME 1

MANCHESTER'S TRAMWAYS

PICTURES AND DRAWINGS BY RICHARD PINK

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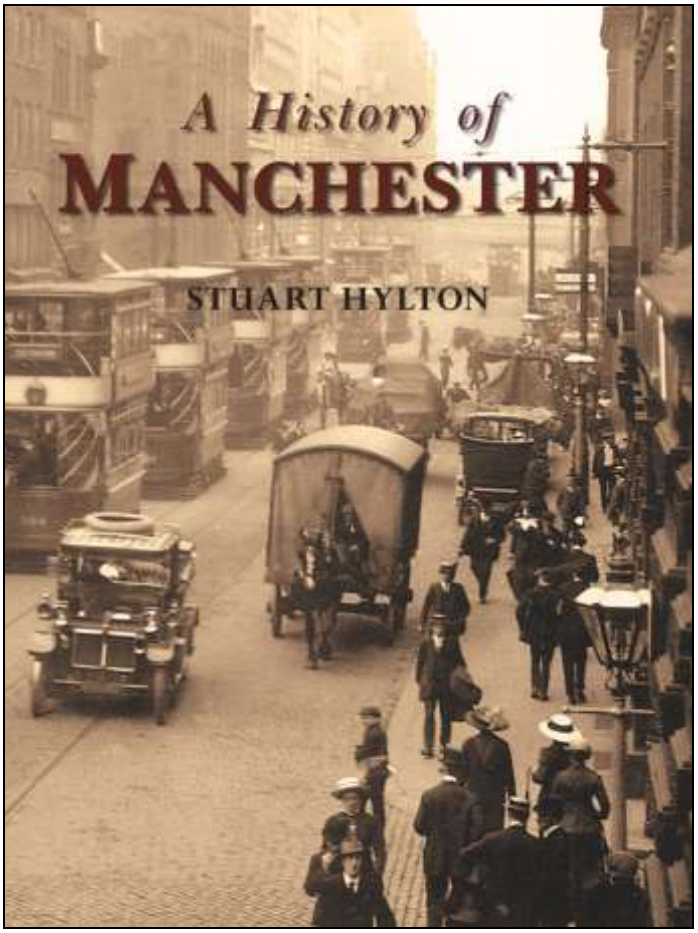
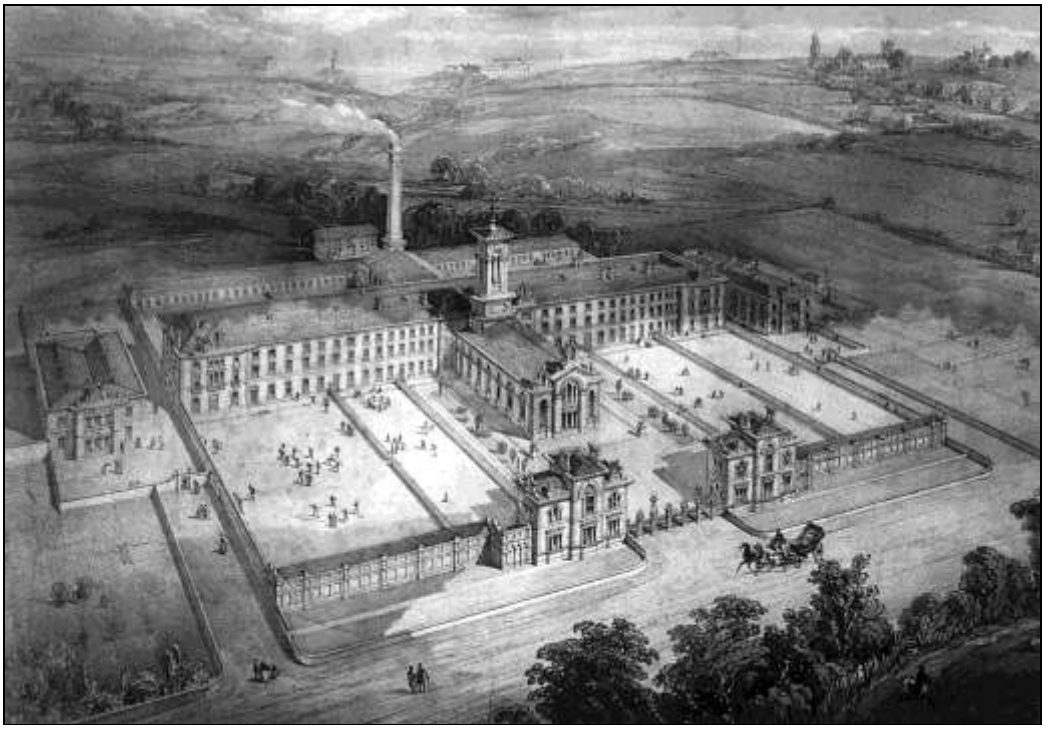
Cover from the 2010 edition of ‘A History of Manchester’



‘Trafford Park was the home to some of Britain’s heaviest industry. This picture, probably dating from the 1920s, shows a pair of steam road locomotives delivering a giant piece of electrical equipment from the Metropolitan Vickers factory.



'Poverty became big business in Manchester , as this 1856 picture of the Withington Workhouse shows'

'An early advertisement for Manchester's pioneer aviator, A V Roe'

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