

## Panel for Historical Engineering Works Newsletter

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### Liverpool and Manchester railway International Heritage plaque by Ian Weir

Following the success of our nomination to the American Society of Civil Engineers, an International Historic Civil and Mechanical Engineering Landmark plaque was dedicated on Wednesday 14th September 2016, at Rainhill Library, Merseyside. The latest of approximately some 250 world-wide similar plaques, it recognizes the international contribution to engineering the design, construction and operation of the first passenger train service between Liverpool and Manchester made when it was opened on 16th September 1830.



From left to right Derek Houghton of the Rainhill Railway and Heritage Society; Tim Broyd, ICE president-elect; Stuart Cameron, ASME Board of Governors nominee and former IMechE vice president; Larry Lee, past chair of the ASME History and Heritage

Committee; and Jerry Rogers, distinguished member of ASCE and past chair of its History and Heritage Committee.

To be located at Rainhill Station, the plaque has a temporary home at the Rainhill Library, The Library also hosts a permanent Rainhill Trials exhibition - staged in a British Railways Mark 1 carriage within its grounds. In addition to representatives of the St Helens Library Service, St Helens Council, Rainhill Parish Council and the Rainhill Railway and Heritage Society Committee, the gathered dedication party also included representatives from The American Society of Civil Engineers (ASCE), the American Society of Mechanical Engineers (ASME), the Institution of Civil Engineers and the Institution of Mechanical Engineers.

Following the plaque dedication the party travelled the line to Manchester to view (at speed) some of the infrastructure works that remain, such as the skew bridge and the Sankey Viaduct. We all then met up at the Museum of Science and Industry for a guided tour of the 1830's warehouse and the Liverpool Road station building, following a lunch hosted by the Head Curator of the museum, Georgina Young.

On the evening of Tuesday 13th September the representatives, with colleagues from Network Rail currently involved in the Ordsall Chord works at the Manchester end of the line and other regional Civil Engineers were treated to a reprise of Mike Chrimes Smeatonian Lecture on the Liverpool and Manchester Railway in Liverpool.

St Helens Council leader Barrie Grunewald said: "As both leader and a Rainhill councillor, I'm delighted that our place in history is being commemorated in this way.

The world owes much to the pioneering developments that took place in and around St Helens.

The economic and social impact of the railway across the globe was, without exaggeration, immense."

North West Regional Director of the Institution of Civil Engineers Darrell Matthews said: "George Stephenson came from very humble origins with no formal education and yet became one of the world's great pioneering engineers.

His son Robert went on to become president of the Institution of Civil Engineers, and their achievements literally helped create the modern world.

I feel this is a very fitting tribute to them and their work."

Further information and technical details:

This bridge, with a span of over 36 feet, is over two hundred years old, being built in 1811 by the Aberdare Canal Company to carry the 4ft 2in (1271mm) gauge tramroad on its way from Hirwaun to the canal head at Cwmbach.

The deck is 36ft 8in (11.1760m) long and made up of cast iron plates, each 9ft 11in (3.0226m) wide. Cast iron brackets are built into the stone abutments, and from these spring the four, trussed cast-iron beams which support the deck. These arched beams are only 3in (76.2mm) thick and rise from a depth of more than 5ft (1524mm) at the abutments to 1ft (304.8mm) at the bridge's centre.

## Friends of Bennerley Viaduct recognised

### By Peter Harris

The Friends of Bennerley Viaduct were recognised with Greenwood Community Awards on Monday 11th July at Swancar Farm in Trowell for their contribution to conserving the monument to Victorian railway engineering.

Greenwood Partnership Board Chair, Councillor John Knight presented the awards to community groups and individual volunteers, for outstanding contribution towards improving the environment. He praised volunteers in his welcome speech: "We are pleased to be able to recognise volunteers who work year in, year out to make ours such a beautiful county."

Nominations had been received from groups and organisations for environmental work carried out over the last year working towards the creation of Greenwood, Nottinghamshire's Community Forest.

One Hundred and forty guests enjoyed a review of achievements by volunteers and organisations presented by Friends of Gedling Country Park's Rod Fillingham, Chair of the Friends of Greenwood Community Forum.



Fourteen awards were presented on the night to volunteers from all areas of Greenwood and included awards for individuals and teams of all ages and abilities who take part in conservation tasks or work behind the scenes.

Rod Fillingham congratulated the award winners and said: "Congratulations to every one of the award winners. Tonight has shown how diverse volunteers can be, with many vital assets including vision, determination, knowledge, skill, experience, but above all humour."

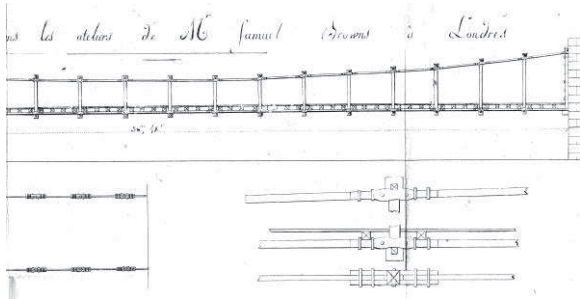
Sustrans plan to submit a bid to the Heritage Lottery Fund later this year with the view to securing further funding to bring this majestic structure back into public use.

## Captain Samuel Brown's Iron Chain Bridge at Netherbyres, Eyemouth By Roland Paxton

From 1813 to c.1840, Brown manufactured and erected at least 22 large iron spans, mostly to his own design, more than any of his contemporaries. These included chain piers at Trinity (Leith 3-span) 1821-1898 and Brighton (4-span) 1823-1896, and bridges at Warden 1826, Welney 1826, Hammersmith 1827, Marlow 1829, Montrose 1829, Stockton (railway) 1830, Fochabers 1831, Forres 1831, Aberdeen 1831, Kalemouth c.1835, Kenmare 1838 and 100 Foot River in the Fens. His many unexecuted bridge designs included three approaching the zenith of practicability for bar chains with spans of 780-1000 feet at Runcorn 1817, North and South Shields 1825 and Clifton 1829. [Drewry, 1832]. Brown also erected a bridge at his new home, Netherbyres, Eyemouth in 1834. [NSA, 1845]

Netherbyres Bridge over the Eye Water had a span of about 142 feet. It was exceptional in that it avoided the need for towers at its ends by resting a timber deck on, rather than suspended from, a pair of 1½ inch diameter eye-bar chains 12 feet apart anchored into below-roadway abutments. [These dimensions were measured recently from site remains by the author and Colonel Simon Furness who was born at Netherbyres and now resides in the Garden House. His father cut down the bridge in c.1930 by which time its deck had become dangerously unsafe].

Each chain would have had a breaking strength of about 25 tons and a probable working load of about 10 tons, much of which would have been used in achieving a shallow mid-catenary deflection to obtain user gradients at each end convenient for pedestrians and light carriages. No image of the bridge which served for nearly a century seems to have survived but, for some idea of its form and possible deck connection, see Dutens's 1819 drawing of Capt. Brown's Isle of Dogs works bridge below.



## Thomas Hawksley's works by Mike Chrimes



Having recently been asked to talk to the William Shipley group of the Royal Society of Arts about Thomas Hawksley I realised that despite his fame many of his works have been lost to posterity. Despite being credited with over 150 water supply schemes and various other works, probably less than half that number can be identified today. I would be grateful to hear from newsletter readers about any of his works, extant or not. Mike Chrimes [m.chrimes@ntlworld.com](mailto:m.chrimes@ntlworld.com)

### Architectural works

1832? Nottingham cholera hospital; 1836 Nottingham Savings Bank, Low Pavement

### Water supply

1830 – (1879) Nottingham Trent waterworks; 1837-? Northampton waterworks; 1844- Newcastle waterworks; 1846- Coventry; 1847-Blackburn

water supply; 1847 Bolton improvement Act; 1847- Leicester water supply; 1847?- Liverpool water supply; 1847- Lincoln water supply; 1847 - Sunderland and South Shields Water Co; 1849- Derby waterworks; -50 Darlington; 1851 Wolverhampton Waterworks Co; 1852?, Sheffield Water Co; 1855 Leeds (With E. Filliter) ;1856-1857 Weymouth Waterworks Co; 1856-1859 Lowestoft, in succession to A G Lynde; 1857-[1906] Great Yarmouth Water Co, in succession to A.G. Lynde; 1858-Brighton and Hove water supply; 1858- Norwich; 1858- Merthyr Tydfil; 1859-Stockton & Middleborough; 1860-1865 Blackburn water supply; 1860-Durham; 1863 Cheltenham water works; 1864 Banbury water supply; 1866-1872 Waskerley reservoir, co Durham; 1866- Rochdale water supply; 1867-1875 Sheffield, Dale Dyke reconstruction; -70 Ormskirk; 1872 Wakefield (With Filliter); 1873- Lichfield; 1875 Waterford waterworks; 1875 York waterworks; 1876 Bridgewater; 1877- Southport; 1877-78 Wexford Waterworks; 1878 Weardale & Shildon; 1886 Cambridge University & Town water supply; 1886 Newark; 1886 Plymouth water supply; -1885 Vyrnwy water works; 1888 Woburn Abbey; 1890 Bognor- aqueduct; 1890 Huddersfield; 1892 Lynton; 1893 Consett; 1893 Fylde; Oxford n.d.[1854-56 James Jones? Then 1872],,unclear dates: Worcester 1854-1857 extended 1868; Southend n.d. (1865? 1871); Gravity supply:- Barnsley, Boston n.d. 1849?, Haslingden n.d.? 1851-62,

### Overseas

Altona, Denmark\*, ? 1877; Cagliari\* [nd Gasworks]; Bridgetown, Barbados water supply; 185x-1861 Stockholm, Sweden

### Sewerage schemes

Aylesbury, Birmingham, Hertford\*, Whitehaven\*, Windsor, 1854- Worcester

### Flood protection

1881 Leicester

### Gas supply

1842 -1874 Nottingham gas supply; 1849 Derby Gas Light & Coke Co.; 1860 Sunderland Corporation Gas Co., 1870 Thirsk Gas Works; 1876 Bishop's Auckland Gas Supply; 1894 Ilfracombe; 1897 Yeovil gasworks

n.d., Barnsley, Bombay, Burton-on-Trent, Cambridge, Chesterfield, Folkestone, Gosport, Lowestoft, Newark, Normanton, Oxford.

## Chairman's Column by Gordon Masterton

The last few weeks have been particularly active and exciting for PHEW. Elsewhere in this Newsletter you'll read fuller accounts of three of the major events I was privileged to attend.

The unveiling of the ASCE/ICE/ASME/IMechE Civil and Mechanical Engineering Landmark at Rainhill Library was delightful, not least because of the enthusiasm of the local community in having their railway recognised alongside