Panel for Historical Engineering Works Newsletter

Institution of Civil Engineers

Number 118 June 2008

Contents

Peter Stephens – still supporting PHEW

by Mike Chrimes

Peter Stephens, Technical Secretary of PHEW from September 1992 until September 2006, has remained heavily involved with the Panel since his official 'retirement' in Bristol 2006. As well as working on recording Historical Engineering Works (HEWs) in the London area he continues to liaise between the Panel and other heritage bodies, notably the Association of British Transport and Engineering Museums of which he is Vice–President.

Peter's agreement to succeed Brian O'Loughlin as Technical Secretary was a major coup for the Panel. Peter's existing standing in the Heritage World, as Curator at the Science Museum, and original creator of the London Transport Museum gave the Panel additional credibility and recognition.

Peter served in the Royal Engineers 1948–1950 before studying civil engineering at Bristol University. He was trained on the British Railways, Western Region, working on modernisation works in the London District. This involved structures and bridge renewal – some associated with the early motorways. Peter then worked on the Victoria Line, as experience which undoubtedly helped him in his development of the London Transport Museum.

Brian Crossley paid a glowing tribute to Peter's work for the Panel at his retirement presentation from PHEW in Bristol. He made significant contributions to the *Civil Engineering Heritage* volume for 'London and the Thames Valley', produced a new edition of the PHEW Handbook, and managed the collection of 'Record Forms' – PHEW reports on Historical Engineering Works. While Technical Secretary the Panel's public face changed significantly, with closer relationships with English Heritage and similar agencies, and a more active role in commenting on Government policy and planning matters. An example was support given to Graham Tilly in producing the Highways Agency sponsored *Conservation of Bridges*.

© Carol Morgan (ICE Archivist)

Peter's kindly support continues to make him a popular visitor to the ICE Library. The Panel are fortunate he is still happy to be involved.

Editing a Biographical Dictionary

by Peter Cross–Rudkin

The concept of a biographical dictionary of civil engineers of Great Britain and Ireland first began to become reality in 1995, when an editorial team started work under the leadership of the late Sir Alec Skempton. The first volume, covering those whose career occurred before 1830, was published in 2002. After a short hiatus, work began on a second volume to cover the years 1830–1890, and Volume 2 was launched on 17 March this year.

Responsibility for commissioning the articles rested with the Editorial Board, which for Volume 2 had ten members – Michael Bailey, Peter Cross–Rudkin, Mike Chrimes, Michael Bailey, Ron Cox, Lawrance Hurst, Bob McWilliam, Bob Rennison, Ted Ruddock, James Sutherland and Tom Swailes. The Board was fortunate to have the benefit of several correspondents in South Africa and New Zealand, as well as Ian Kerr's extensive knowledge of the railways of India. In all, about 75 authors contributed.

As with Volume 1, individuals would be chosen for entry who were born or educated in Great Britain or Ireland, but who might subsequently have spent part or all of their career abroad. Compared with the previous volume, there was a much greater number of potential candidates for inclusion; the Institution of Civil Engineers records alone contain about 10,000 names during the period. In order to keep the book within a manageable size it was decided to aim for more or less the same number of articles as before,

about 800. Mainstream civil engineers would during their career have been responsible for at least two significant projects, but there would also be articles on people who made major contributions to the theory of the subject, the propagation of knowledge or the education of civil engineers. With the advent of photography and cartes de visite, there would be more portraits available; in the event 128 were chosen.

As a starting point, the obituaries published in the *Minutes of Proceedings* of the Institution provided at least an outline for many of the articles. This created its own problems, however, as there were conflicting claims of responsibility for some projects and considerable time had to be spent in some cases to sort out the respective roles. Partly this divergence arose from the occasional practice in those years to appoint both an Engineer–in–chief and a consulting engineer. The former would be the one who would design and manage the project, but the latter would be available to give advice on unusually difficult aspects and might have a more loosely defined accountability for the success of the project. At the other extreme, some railway companies, particularly in the early days, appointed a Resident Engineer who undertook many of the duties comparable to those of an Engineer–in–Chief. As nowadays a Resident Engineer would not hold ultimate responsibility for a project, and the Board's criterion for inclusion required the subject to have been that person, a proper investigation of the various job titles was required. Nor could historic material be relied upon entirely. A well–known photograph in ICE Archives and elsewhere of I K Brunel at the launch of the Great Eastern has the other three figures wrongly named – not just muddled up, but three entirely different people!

The *Minutes of Proceedings* also describe a wide range of projects – this was still an age when civil engineers would be involved in almost any kind of engineering other than military, and in some cases individuals even worked in both spheres – and the discussion often referred to other projects in which the participants had been involved. This was also the age in which a number of technical journals appeared, that credit the engineers responsible for the works they describe. Unfortunately, contractors' names appear less frequently. Fine volumes of drawings published by Weale and Humber, many of which are in the ICE Library, and both of whom have entries in the Dictionary, illustrate what was considered to be the best of modern practice at the time.

The Dictionary includes a short preface on the practice of civil engineering in 1830–1890. It describes the development of the Institution of Civil Engineers and also the emergence of other professional institutions alongside ICE. The Institution continued to see itself as the over–arching body and the others, such as the Mechanicals, the Electricals and the Naval Architects, were seen as complementary to ICE; dual membership was quite usual. There were also provincial bodies for people whose business did not take them to London and although a larger proportion of engineers now based themselves in the capital, there were still those who made significant contributions outside, particularly in some of the new municipal corporations. Because of the pressure of space, no individual who was solely what would now be recognised as a mechanical engineer was included. Entry to the profession was still commonly through pupilage with a senior engineer and, although these years saw the establishment of a limited number of civil engineering courses at universities, education to this level was seen as a bonus rather than an alternative to practical training. It is estimated that only one–quarter of civil engineers at the time had higher education.

The Victorian age is probably associated in most people's minds today with the advent of railways, but increased trade also required more and larger harbour accommodation. Over 30 years, the area of wet docks in Britain more than tripled. Hydraulic power was adopted widely in ports and dockyards. Civil engineers were in the forefront of the design of the new, iron–hulled ships. It was also the time when public health became a matter of national concern. The impetus for improvement came initially from outside the profession but better water supply and sanitation were introduced, rather belatedly, more widely. Some of the schemes were of a scale that would have been unimaginable a generation before. Another public utility that fell within the sphere of civil engineers was the production and distribution of gas. It became possible to construct a career within this speciality and some of the engineers who did so feature in the Dictionary.

One of the harder tasks in compiling the Dictionary was obtaining details about the contractors who built the great works of the Victorian age. It has been possible to draw up reasonably full lists of their works, but whereas it is possible by examining drawings and the works themselves to understand the designers' contributions, little information remains about the organisation of the labour forces and the provision of temporary works. The transition from the walking ganger / contractor of the early canal age in the 1760s to the men of the 1860s who were able to organise the survey, design, passage through Parliament and finance of complete railway lines was as remarkable in its way as the changes in the scale and design of civil engineering works. The leading contractors employed engineers capable of designing state–of–the–art temporary works, able to hold their own in discussions at ICE with the consulting engineers. The high praise by Sir John Hawkshaw in the preface to Thomas Walker's account of the construction of the Severn Tunnel appears unfeigned. Several contractors were hit badly by the Overend & Gurney crash in 1866, but some recovered, even from bankruptcy, to greater wealth than their consulting engineer colleagues.

A significant number of civil engineers made their careers overseas. About one–fifth of ICE members at the end of the period had addresses abroad. About half of them were in the Indian subcontinent, over a quarter were in other parts of the British Empire and a sizeable number were in South America, where British capital was significant in developing the infrastructure. The end of the period saw the establishment, in Buenos Aires, of the first branch office of a British–based consultancy. Engineers working in India tended to return home at the end of their careers but those elsewhere tended to commit to their countries of adoption. Almost 250 of the entries in the Dictionary are of people whose career was mainly spent outside Britain or Ireland. The death rates amongst expatriate engineers seem to have been quite high, and having had their careers cut short, many of these individuals do not appear in the Dictionary.

Because of the constraints of space, the articles in the Dictionary cannot be complete biographies. Although there has been in recent years a welcome increase in publication of civil engineering history, including several biographies, the amount of original research that was still necessary to produce the Dictionary is an indication of how much remains to be done. The deluge of books that marked the 200th anniversary of the birth of I K Brunel contrasts

strangely with the lack of anything on the equally important John Bateman, or Sir John Coode, Sir John Hawkshaw, Thomas Hawksley, or George Wythes, or full–length works on James Walker or Sir John Fowler. The Dictionary, containing as it does the biographies of the leading British and Irish civil engineers active in 1830–1890 and listing their major works, provides a chronology of the period. The editors made considerable efforts to show the links within the profession, but the format precluded the consideration of some of the wider issues. How did the profession act on and react with the larger world? A number of prominent civil engineers were Members of Parliament; what influence did they exert there? What were the inducements that took junior civil engineers to unhealthy parts of the world? Why were British civil engineers so reluctant to allow university education as an adequate training for the profession? Why, when technical advance was clearly highly regarded by engineers were some of them so reluctant to provide constant supply of water to households? Were 'contractor's lines' such a bad thing as they were portrayed in the contemporary press? Why, in the light of today's credit crunch, did banks continue to finance these lines to the extent that they and their contractors went under?

A significant number of articles were written that did not make the cut. Changes and additions to those that did continued to come in even while the Dictionary was about to go to press. It is intended to create a website where the unused articles and all future alterations could be placed. Readers with information to add are urged therefore to contact Mike Chrimes at the Institution of Civil Engineers.

Biographical Dictionary of Civil Engineers – Volume 1: 1500–1830. Edited by Sir A Skempton and others. Hardbound, 2002, 784 pages, price £95.00, ISBN 9780727729392.

Biographical Dictionary of Civil Engineers – Volume 2: 1830–1890. Edited by P S M Cross–Rudkin and M M Chrimes. Hardbound, 2008, 968 pages, price £120.00, ISBN 9780727735041.

Biographical Dictionary of Civil Engineers: Volume 1 and 2. £185.

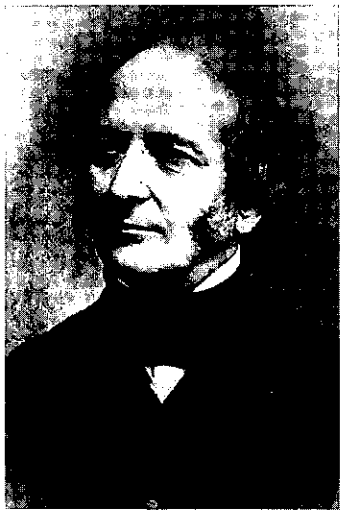
Order by telephone: +44 (0)1892 832299; email: orders@thomastelford.com; internet: www.thomastelford.com/books

John Scott Russell (1808–1882) – in the same league as Stephenson and Brunel?

by R McWilliam

This summer's featured engineer at the Institution of Civil Engineers is John Scott Russell. He is one of the most versatile and intriguing characters appearing in the *Biographical Dictionary of Civil Engineers – Volume 2: 1830 to 1890,* which was published earlier this year. Unlike many of his well–researched contemporaries there has only been one full–scale biography: 341 pages by the late George Emmerson *John Scott Russell: a Great Victorian Engineer and Naval Architect.* London: John Murray, 1977. The archival material within ICE itself suggests that much more could be added to his story.

Throughout the summer there will be an exhibition of archival material on the Lower Ground Floor 2 at Great George Street (open 1000–1700 Mondays–Fridays). There are eight display cases there and hence "John Scott Russell (1808–1882) – in the same league as Stephenson and Brunel?" has become "a life in eight (Great) parts".



John Scott Russell

1: *The Great Wave*

John Scott Russell was interim Professor of Natural Philosophy at the University of Edinburgh at the age of 23, but did not gain tenure. His academic background was to stay with him as his engineering career developed. His first major project was a fleet of steam carriages whose operations were sabotaged by road trustees. Hydrodynamics and naval architecture became his life–long interest. His introduction to shipbuilding began with experimental vessels for use on Scottish canals. By 1838 he was a pioneering project manager introducing steam power and iron hulls for ocean–going vessels at Caird's shipyard in Greenock. He published extensively about the novel technology of steamships. His experiments led to the discovery of the soliton, the great solitary wave.

2: *The Great Societies*

John Scott Russell's discovery of the soliton was one of a number of mechanical phenomena which he described at the meetings of the British Association. Others included wave motion, tidal phenomena and the design of sea–walls and embankments. He frequented the meetings of learned societies in Scotland, which he continued after moving to London. He was soon secretary of the Society of Arts and four years later was elected a Fellow of the Royal Society. In 1844 he began contributing to the weekly *Railway Chronicle* and became railway editor on Charles Dickens' new *Daily News* – until the railway boom ended in 1847. Throughout the later 1840s the Society of Arts proposed a national industrial exhibition, a project which interested its honorary president, Prince Albert.

3: *The Great Exhibition*

John Scott Russell was a promoter and the "indefatigable Secretary" to the Great Exhibition of 1851. Scott Russell recruited the ambitious Henry Cole to help with the venture. In October 1851 both Scott Russell and Henry Cole received letters hand–written by Prince Albert in appreciation of the incredible success of the Great Exhibition. Charles Dickens later featured Cole as the pugilistic Government Inspector of Industrial Schools in Hard Times (1854). Henry Cole went on to create the Victoria and Albert Museum, while Scott Russell returned to engineering and ship–building.

4: *The Great Ship*

John Scott Russell was invited to join a shipbuilding venture using the site vacated by William Fairbairn on the Isle of Dogs in 1847. In the following five years Scott Russell designed and supervised the building of small, but novel, iron–hulled vessels, including the schooner–yacht *Titania* for fellow ICE member Robert Stephenson. Scott Russell also worked with I K Brunel on two successful ocean mail steamers, *Victoria* and *Adelaide*, for the Australia run. Brunel then proposed a massive ship for the London–Calcutta run. Scott Russell was responsible for its hull form, structure and machinery. Brunel meddled in these details, but ignored Scott Russell's advice on launching the heavy hull. The strongly–built hull cost £562,000 and another £170,000 to launch. The *Great Eastern* project damaged both men and led to the Brunel family's continuing grievance against Russell.

5: *The Great Institutions*

John Scott Russell was elected to membership of the Institution of Civil Engineers in 1847 and was also elected a member of the newly formed Institution of Mechanical Engineers in the same year. He had attended the Tuesday meetings of the ICE from his arrival in London. For twenty years his contributions to over sixty papers are recorded in the *Minutes of Proceedings* exchanging views with Stephenson, Brunel, Rennie, Bidder and others. The Institution of Naval Architects was the third British engineering institution. Sir William White, a later President of both INA and ICE, credited its successful formation in 1860 to Scott Russell "as someone familiar with the working of another great technical association to bring such wishes to a living issue". Scott Russell was a Vice–President of the INA from its inception to his death. At the ICE he was elected a Member of Council in 1857 and was a Vice–President from 1862 to 1867.

6: *The Great Book*

John Scott Russell published widely on both naval and merchant shipping. His pedantic instinct and predilection for large ventures combined in one of the largest technical monographs ever published: *The Modern System of Naval Architecture*, its three volumes weigh over 25kg and in 1865 the author was offering it for sale at 30 guineas, the equivalent of over £2,500 today. Its beauty has ensured most copies have survived, but its cost limited both its sales and its public. By the time the Great Book was published Scott Russell's business was suffering from a slump and he began to use unsold copies as security for his outstanding debts.

7: *The Great Armourer*

John Scott Russell was well–connected with both sides in the American Civil War. The representative of the State of Massachusetts sought the heaviest guns available to defend Boston from Confederate raiders. The greatest armourer of all was Sir William Armstrong. George Bernard Shaw gave the following words to his fictional counterpart, Andrew Undershaft: *I am the government of your country. You will make war when it suits us, and keep peace when it doesn't. You will discover that my want is a national need.* Scott Russell steered the Massachusetts enquiry to Armstrong and was paid a commission. Armstrong failed to deliver the guns before the war was over and was not paid. He sought his fee back from Russell, who was also suffering from the slump following the war. Armstrong was offered the unsold copies of the Great Book, only to find that there was a lien on them from its bankrupt printer. This commercial dispute was used by Russell's rivals egged on by Brunel's family to oust him from ICE's Council shortly before he was due to become President. The resulting muddle found Sir John Fowler and Zerah Colburn's *Engineering* in support of Russell, while *The Engineer* kept on the right side of Lord Armstrong. All the principal personalities involved are described in the *Biographical Dictionary of Civil Engineers, Volume 2 – 1830 to 1890.*

8: *The Great Roof*

John Scott Russell's prestige was undamaged by the setback to his ambition to become President and he continued his subscription to ICE throughout his life. He resumed his career as an engineering consultant. He designed an innovative shallow draught train ferry for Lake Constance. In 1871 his suggestion for a riveted iron–plate cone stiffened by tapering radial ribs and concentric iron rings was chosen by the Imperial Commission of the 1873 International Exhibition of the Austrian Empire for the Vienna Rotunda – the largest roof in the world for a decade. By the mid–1870s he resumed contributing to the debates at the Institution of Civil Engineers. He was revising his ideas on waves for a book, which was published after his death. His obituary appeared in the principal engineering journals including 13 pages in the *Minutes of Proceedings* of the Institution of Civil Engineers. On the centenary of the Royal Institution of Naval Architects in 1960, its historian wrote: "It seems to have become a fashion to belittle and malign Scott Russell with the apparent object of increasing the fame of that very eccentric genius Isambard Brunel."

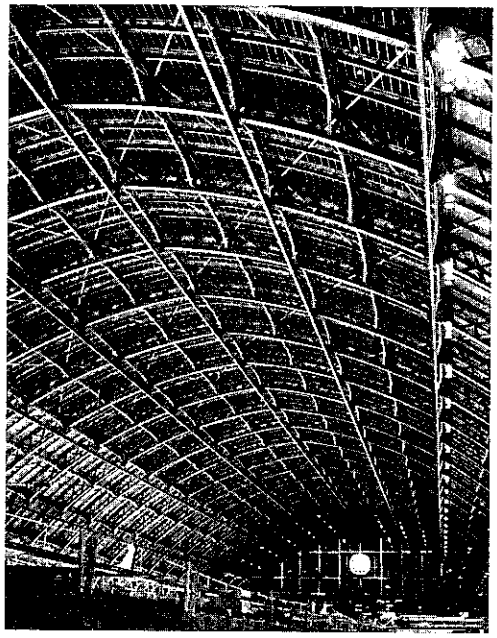
John Scott Russell (1808–1882) – Bi–Centenary Lectures

by The Editor

A number of lectures have been arranged to commemorate the bicentenary of Scott Russell's birth. The first was jointly organised by the University of Portsmouth, the ICE's Southern Branch and the Southern Branch of the Newcomen Society. The very well attended public lecture was held at the University on the evening of 6 March when Professor Andrew Lambert of the Department of War Studies at King's College London spoke on the subject 'Naval Architect, Engineer and Opportunist: the contentious career of John Scott Russell (1808–1882)'. The second was held on the evening of Wednesday 21 May at the ICE, Great George Street. Professors Eilbeck and Paxton concentrated on his engineering science including the discovery of the solitary wave and his less–publicised investigations into structural stability. It is hoped that this will be repeated in Edinburgh in the autumn. The third lecture, again at Great George Street on 15 July will be the annual Smeaton Lecture and will again be delivered by Professor Andrew Lambert on the subject 'John Scott Russell – ships, science and scandal in the age of transition'. This will also be a free, but ticketed event. Please contact Vince Elias at vince.elias@ice.org.uk for further details.

St Pancras Re–opens and CTRL becomes High Speed One

by R J M Carr



St Pancras Roof (March 2007 – the refurbished St Pancras station roof) © R J M Carr

Following completion of the railway works between Ebbsfleet and St Pancras, trial runs of Eurostar trains were made in September 2007. These trains carried special passengers only, to St Pancras. The first train to arrive from Paris was on 4 September and the first from Brussels on 20 September. With 400 specially–invited passengers on board and the train made up of just eighteen carriages for maximum speed, the run from Paris Gare du Nord to the new London terminus on the 4 took just 2 hours 3 minutes – a fresh record but not under two hours as had been hoped for. The drivers were Francis Queret (France) and Neil Meare (Britain) and on arrival the King's Hunting Jig was played in the great William Barlow train shed by a brass band.

The special run by twenty–coach Eurostar train from Brussels arrived at St Pancras at 1148 on 20. The 232 miles from Brussels Midi had taken just one hour 43 minutes. The SNCB driver was Luc Stocx and the British driver David Green, and again a brass band played at St Pancras. The drivers changed over while in the Tunnel which appears to be customary. It is understood that the two special trains described above ran non–stop from the Channel Tunnel. This will not be happening so much in service, many trains will stop in the UK to pick up passengers.

Now the new services from St Pancras International have started the journey to Brussels will be quicker than that to Manchester and take about the same time as former Midland Main Line trains currently need to get to Nottingham. Fastest service times from St Pancras are expected to be 2 hours 15 minutes to Paris and one hour 51 minutes to Brussels. It is claimed the journeys will be carbon neutral.

The new St Pancras station was officially re–opened by HM the Queen on Tuesday 6 November 2007. At the impressive Royal Ceremony an actor, Timothy West, played the part of William Barlow the Midland Railway's engineer who designed the original station in the 1860s. This was a very nice touch which should warm the hearts of all engineers.

Opening Night, St Pancras (the opening night St Pancras International Station, Wednesday 14 November 2007, looking north. Many people are drinking champagne.

© R J M Carr

For Eurostar every effort had to go into finishing the railway part of the project on time. This just had to be ready for the Royal opening and so the shops and the cafés had to wait. Apart from about two (Marks & Spencer and W H Smith) they were not ready for business when trains started on Wednesday 14.

On the Wednesday morning for the arrival of the first service train St Pancras was so crowded it was quite difficult to get into the station because of the crush. There was an orchestra to greet the train. The champagne bar was very popular and despite the price people were still queuing for champagne at the end of November.

It will be some time before the planned office accommodation on a massive scale has been built in the King's Cross – St Pancras area. South East Trains are presently not keen to run all the new Javelin commuter trains from Kent into St Pancras International. Many workers still need to get to their offices in the City and prefer somewhere south of the river like London Bridge and South East are asking for alternate Javelins to be allowed to terminate there.

The original structure of the St Pancras train shed had to be modified and this allowed the opening up of the undercroft – originally the store for barrels of beer from Burton–on–Trent. Towards the western side of the station 3–4 large holes have been cut into the floor at rail level, the treatment being faintly reminiscent of what was done at the London Docks when the 'Skin Floor' was transformed into the Tobacco Dock development.

However, structurally St Pancras and the Skin Floor are exact opposites. There are columns supporting the station floor, not brick vaulting. The feet of the great Barlow arches have a tendency to move outwards and this is restrained by tension in the floor supporting the rail tracks.

It is now necessary to support 25 ton axle loading on all railtracks in the trainshed and in order to achieve this a massive overall re–inforced concrete slab was installed just below rail level. Perhaps surprisingly it was found that the

original Barlow cast iron columns are sufficiently strong to support the increased loading.

The original booking office with its linen–fold woodwork has been in use as a VIP lounge but will be transferred to the Marriott Hotel shortly. What was the taxi road to the west of this is to become a winter garden for the Hotel. Taxis now make use of Midland Road which is one–way southbound. Passengers wishing to purchase Eurostar tickets at St Pancras now have to do this downstairs in the undercroft at the south end of the Barlow train shed, roughly beneath the old booking office. Tickets for the Midlands are sold at the north end of the station beneath the new extension by Norman Foster, at a ticket office labelled Domestic Departures.

The general consensus still is that the opening of the new St Pancras was the rail event of the year. What an exciting time it has been.

Severn Railway Tunnel Broadcast – BBC Radio Wales: Mike Chrimes

Readers might like to know that interviews with myself and Peter Cross–Rudkin, Editor of the second volume of the Biographical Dictionary of Civil Engineers, are likely to be broadcast on BBC Radio Wales on *Sunday 10 August at 1230.*

International Congress 'Archaeology of Bridges' Notice

Regensburg, Bavaria, Germany – 5–8 November 2009

The aim of this congress is to identify the locations, development and construction principles of bridges in different regions and countries, from prehistoric times up to the beginning of the nineteenth century, based on archaeological and historical research.

Lectures and posters should focus on methods and techniques of archaeological excavation, on land or under water, and conservation treatments.

Contact: Dr Marcus Prell, Secretary, Kreuter Weg 6, 86633 Neuburg an der Donau, Germany. Tel: +49 8431 539282; email: bridges2009@t–online.de; www.bgfu.de

Available Municipal Journals

From G Barker

Many years ago, when I was a member of the Institution of Municipal Engineers, I had some of the Proceedings of the Institution professionally bound in hardback (maroon rexine) by a firm in Reigate. Each volume contains the twelve monthly issues of the year in question. They are in excellent condition and I have the following volumes: Vol.LXXXIII 1956–1957; Vol.84, 1956–1957; Vol.85, 1958; Vol.86 1959; Vol.87, 1960; Vol.88, 1961.

I wish to get rid of them and it seems to be such a pity to dump them. Please contact me if you would like them: geoffrey.barker@tesco.net.

Book News

By Brian George

***Rolle Canal and North Devon Limestone Trade* by Barry D Hughes. Published by Edward Gaskell, Bideford, Devon, 113 pages. Price £14.99**

Variously known as the Torridge, Torrington or Rolle Canal, this canal of 1824 was overtaken by a railway in 1872. Parts of the original bed still remain, however, particularly the entrance lock, Beam bridge, the former aqueduct over the river Torridge (HEW 384) and the Town Mills at the upstream end, now used as a hotel.

The acidic soils of North Cornwall and North Devon were the reasons for the construction of the Bude Canal in 1819–1823 and the Rolle Canal, but whereas the Bude canal was used for the import of the offshore calcareous sand, north Devon relied on limestone and coal to provide the materials for the kilns to be used for quick lime for transport by pack horses inland.

Barry Hughes has described the limestone trade of the Bristol Channel and North Devon and its extension of water transport inland by the Rolle Canal and the construction, ownership and working of the canal company. Of particular interest is his diagrammatic representation of the mechanism of the waterwheel and chainage of the Ridd inclined plane and the profuse illustrations, including that of the 1850 Richmond dry dock at Appledore, the only dry dock on the north coast of Cornwall, Devon and Somerset.

HEWs in the News

by Brian George

In *Newsletter* No.114, I noted the prospect of re–opening the branch line from the Rhymney line to Cwm Bargoed to access the proposed Ffos–y–Ffran opencast coalfield. *Modern Railways* February tells us that the first train by English, Welsh and Scottish Railways was on 9 January when a train arrived to collect coal for Aberthaw power station. A daily pattern of trains is expected.

The Woodhead Tunnels (HEW 235) on the original Sheffield, Ashton–under–Lyme, Manchester Railway have been in the news in early February. There are three tunnels, lying at a minimum elevation of 960ft, falling by 80ft to the west portal with an average cover of 450ft but, at one point, the floor is 600ft below ground level. Two single–track tunnels were built in 1845 and 1852 and were superseded by a double–track tunnel, built between 1945 and 1953 for overhead electrification of the line. All the tunnels became disused, but the National Grid has been planning to install a 400kV power cable through the latest tunnel as the single tunnels are considered to require too much reconstruction for their use to be economic.

Unfortunately the Department of Transport have given permission for the new cable to be laid in the latest tunnel and so there has been a 'Save the Woodhead Tunnel' campaign to reverse this decision in the interest of providing for the expected increase in freight movement across the Pennines. *Rail* 13–26 February carried an article saying that Transport Minister Ruth Kelly has made a surprise announcement to the House of Commons Select Committee on 30 January that the railway alignment should be safeguarded after all. However, *Rail* 9–22 April notes that both the National Grid and Network Rail have said that they would not fund work to protect the two Victorian tunnels for future railway use and the government is still unclear whether it will provide any money for maintenance. It appears questionable whether the Victorian tunnels could ever be suitable for modern traffic.

In *Newsletter* No.115 I reported on progress to reopen the railway from Cardiff to Ebbw Vale to passenger traffic. *Rail* tells us that trains finally started to run on 6 February, now that safety issues have been resolved. The Welsh Assembly, which has financed the £30m project, has attributed the delay to the refusal by the Office of Rail Regulation's Railway Inspectorate to sign it off as issues have included gaps in the line–side fencing. The track has been realigned to allow line speeds to be increased to 50mph and an hourly service has been instituted. *Rail* 588 has noted the line to be very busy with 50 people alighting at Ebbw Vale in the middle of the day on a Wednesday in February!

A historic swing bridge built by Brunel (HEW 926) has remained hidden for 40 years. But it may soon get a new lease of life thanks to the very man who decommissioned it all those years ago. The *Bristol Evening Post,* 4 December, tells us that in 1968, chief Bristol docks engineer David Neale decided to decommission this bridge in the Cumberland Basin as it was surplus to requirements and costly to keep it open. He is now campaigning for the grade II* listed structure to be reopened and returned to its former glory as part of Bristol sustainable charity Sustrans' Connect2 scheme. A renewed swing bridge would link routes for people living in the city to Long Ashton, Nailsea and Backwell. The bridge was built by Brunel in 1849 and in 1873 it was moved the few hundred yards from Brunel Dock to its current location and had operated for almost a century. The swing bridge has a tubular construction favoured by its engineer.

The Forth Railway Bridge (HEW 0071) featured in the *Daily Telegraph* 19 February with an announcement that work on giving the bridge its last coat of paint for at least 20 to 30 years is being accelerated. Balfour Beatty has promised to try to complete the most famous painting job in Britain by 2012 and finally consign the familiar bon mot "like painting the Forth Bridge" to history. Its reputation was as a structure where painters and paintbrushes set to work again as soon as they had finished a five–year task. Balfour Beatty started work on stripping the bridge back to bare steel and repairing damaged parts of the structure in 2002. Now, using a different paint system Network Rail has extended the contract with the aim of completing the overhaul by 2012. A 200 strong team is carrying out the work at a cost of £134M.

A joint venture between Kilbride Group and Devon County Council to re–open the Bere Alston–Tavistock rail line (ex–LSWR Exeter to Plymouth) was agreed in committee on 18 March, the company's chairman has told *Rail* 9–22 April. Heads of terms have been agreed and these will now go to the legal stage. The scheme, including a new station at Tavistock, features in the Devon Structure Plan to 2016 and has strong local and political support.

Kilbride has said it will fund the £10 million cost of reopening the 9km branch, closed in 1968, if it can develop adjacent land and make a levy on each of 750 homes to cover the costs. An hourly service to Plymouth from Tavistock, taking 35 minutes, is the ultimate objective using the present Gunnislake line from Bere Alston. The line would run over the Shillamill viaduct (HEW 2351), a curved double track masonry structure, with twelve 50ft semi–circular arches of greatest height about 100ft and about 700ft long, constructed in 1890 by contractor Relf and Pethick, and listed Grade II.

Those of us who enjoyed the Panel visit to Blackpool, organised by Paul Dunkerley many years ago, will be interested to know from *Rail* 13–26 February that the Blackpool to Fleetwood Tramway (HEW 631) has been shut since the end of the 2007 illuminations on 5 November. The system has been closed for four months to allow contractors to undertake an extensive programme of track renewals and other enhancements to the ageing infrastructure. The track network, which opened in 1885 as the world's first electric tramway, is owned by Blackpool Council. The trams are owned and operated by Blackpool Transport Services and they pay a track access charge to the council for operating over the lines

Further to my note in *Newsletter* No.115, *NCE* 14 February tells us that Prescott Lock, the £18.9M tidal lock and flood control structure to the south of London's Olympic Park, is on track to allow freight barges to deliver construction materials to the 2012 site this summer. Dutch contractor Volker Stevin claimed so that week. Around 26,000t of soil have been excavated and 5000t of sheet piling have been driven by the Dutch firm, which is working with the consultant Tony Gee to deliver the project on behalf of British Waterways to revive the Bow Back rivers system.

ICE President, David Orr, was in Liverpool according to *NCE* 21 February and during his visit he opened the final section of the Leeds and Liverpool Canal Link. In *Newsletter* No.105 I reported on plans for the Pier Head section and this link is a £20M scheme to extend the canal through the disused Central Docks, across the Pier Head in front of the Three Graces, and into the South Dock. Works will continue until Autumn 2008.

The Spring edition of *Waterways* informs us that although Sustrans Contract2 was the winner of the Big Lottery Fund of £50M in December this was not a complete loss to waterways interests (their scheme was the Black Country Urban Park) as several of their projects are to improve access near to waterways. These include a replacement for Riversdale Swing Bridge on the Weaver; removal of the first blockage to the entrance on the Melton Mowbray Navigation with a new footbridge; towpath improvements and access points on the Bridgewater Canal; reopening the towpath of the former Shrewsbury Canal in Shrewsbury; Rochdale Canal towpath improvements; a new bridge over the Regent's Canal; a new bridge link over Diglis River Lock on the Severn; a new bridge over the Great Ouse at St Neots; and a new bridge connecting the towpath at Banbury on the Oxford Canal.

The *Bulletin* for February of the Inland Waterways Association reported that the UK Government formally made the nomination of the Pontcysyllte Aqueduct and the eleven miles adjacent canal for World Heritage Site status in January. If successful the 200–year old aqueduct (HEW 112) and part of the Llangollen Canal would join the other 27 UK Sites. UNESCO, the United Nations cultural organisation that is responsible for the scheme, is due to consider the nominations and make a decision in 2009.

The Nominated Site's boundaries have been drawn to include all those attributes that are a '*direct and tangible expression of its outstanding Universal Value: the canal and its engineering features together with remains associated with its construction and historical operation*'. It consists of 11 miles of continuous waterway, from Horseshoe Falls near Llangollen to Glenrid Bridge near Rhosweil.

The Wey and Arun Canal Trust has started the third and final phase of the project to restore the canal under the main road through Loxwood. A new bridge is being constructed with the new canal route and a walkway under the bridge and the complete project will cost £1,5M, all raised by the Wey and Arun Canal Trust including grants from IWA, together with a £50,000 grant recently awarded by Biffaward.

Ownership of the Thames and Severn Canal between Wallbridge and Brimscombe Lock was transferred from Gloucestershire County Council to British Waterways in December. British Waterways and Stroud District Council planners are currently discussing the possibility of submitting a single planning application for restoration of the Phase 1a of the Canal. This would exclude the County Council's proposed roadworks at Merrywalks (A46), which is due to start in autumn 2008, and work at Brimscombe Port, which is being undertaken by Stroud District Council as a separate project. The consultation for the Area Action Plan for Brimscombe Port is due to continue throughout 2008, with the intention of starting construction there in late 2009.

The Bude Sea Lock (HEW 1066) featured strongly on local television news on 11 and 12 March as a result of the storm force gales in the South West of England. This sea lock was constructed for the Bude Canal (HEW 1065) in 1819–1823 by James Green and protected by a stone and rubble breakwater built at the same time and further repaired by James Rendel PPICE in 1835. Remedial works of rock anchors, ties and a ring beam were provided to the North Pier and the nose of the structure grouted as designed by Donald Butler Associates and carried out by Miller Baird of Nottingham in 1977. This sea lock has only the two pairs of gates and unfortunately one of the gates was removed from its bearing by the heavy seas on 11. North Cornwall District Council, owners of the Sea Lock, and May Gurney, the Council's civil engineering contractor, took immediate action that day to remove the gate before it could be damaged any further, the other gates were opened, concrete blocks were placed to resist further surges and the canal basin allowed to drain temporarily until the damaged gate can be repaired. In the meantime, a temporary coffer dam has been built under the road bridge, just above lock and harbour.

The IWA *Bulletin* for April tells us that the Friends of the Cromford Canal (HEW 1778) have gained planning consent to turn a river diversion channel created during surface mining on the Smotherfly site, into a waterway just over one kilometre long to link with the existing Pinxton Arm of the Cromford Canal. The channel was to be filled in, but the Friends have lobbied to use the channel as part of a restored canal, and Derbyshire County Council allowed an extension to UK Coal's restoration plans so that the application could be determined. There are some sensitive environmental issued involved, but also some flood relief benefits expected from the scheme. It took 20 months to secure consent for the scheme which crosses local authority boundaries and varies a restoration plan agreed some years ago. The Friends of Cromford Canal aim to restore the whole canal from Langley Mill to Cromford including the arm from Ironville to Pinxton.

The use of railway and canal routes for cycleways continues to feature in Sustrans *The Hub*, this time the winter 2008 edition. A path 7 miles long from Whitstable to Canterbury along a disused railway route provides a direct route from the coast to the university. In Birmingham a 5.5 mile route along a canal towpath leads from Kings Norton to the city centre through the delightful Cannon Hill Park. A 13 mitre path from Bristol to Bath using the old Midland railway route is unfortunately threatened by a proposal for a guided bus route. In Devon a coast path alongside the existing railway from Exmouth to Lympstone, is a new development of the Devon coastal path.

Readers of this *Newsletter* are asked, whenever they read of something which they think might deserve mention here, to send it, or a copy, by about the week before the deadline, to:

Mr A B George BSc FICE, 8 Clevedon Close, EXETER, Devon EX4 6HQ

ICE Archives: Volunteers Required!

In recent months ICE have received a number of major donations. These include the NCE photographic archives, including thousands of photographs and negatives, and smaller donations of drawings and personal papers.

While brief cataloguing and sorting is done as a matter of course on receipt, to compile a detailed inventory takes many weeks. To assist Carol Morgan, the Archivist, in this task the Archives Panel has agreed to ask for 'volunteers' who could come in on a reliable basis to assist in sorting some of the collections. If you might be interested please contact: mike.chrimes@ice.org.uk

Editor's Note

May I repeat my regular appeal for suitable material for inclusion. Contributions, which are both informative and appeal for further information, or publicise forthcoming conferences or the availability of recent books, etc., are particularly welcome. Contributions should be sent to the Editor **as soon as possible after receipt of this *Newsletter*.**

Contributions on disk are acceptable (Word format). A printed copy will also be required. Diagrams or photographs and/or illustrations may be included.

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