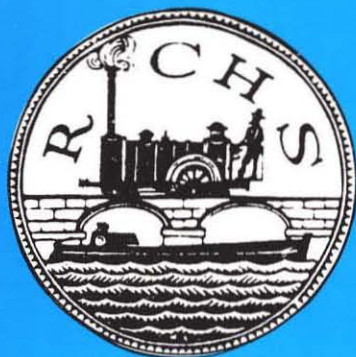




Journal

of the

**Railway & Canal
Historical Society**

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March 2008

The Railway & Canal Historical Society

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Vice-Presidents: G J Biddle, G A Boyes, Dr J V Gough,
AA Jackson, Dr M J T Lewis, K P Seaward
Chairman (Managing Committee): Roger Davies
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E-mail: secretary@rchs.org.uk
Hon Treasurer: R O Welton, Wynch House, Ashton-u-Hill, Evesham WR11 7SW
E-mail: treasurer@rchs.org.uk
Membership Secretary: R J Taylor, 16 Priory Court, Berkhamsted HP4 2PD
E-mail: membership@rchs.org.uk

Local Group Secretaries

East Midlands: K Bignall, Westbrecks Crossing, Cottam, Retford DN22 0ES
London: M Thomson, Flat 5, 28 Blakesley Avenue, London W5 2DW
North East: D B Slater, 8 Grainger Avenue, Acomb, York YO2 5LF
North West: G Leach, 5 Tabley Close, Knutsford, Cheshire WA16 0NP
South West (acting): A Richardson, 25 Boscombe Crescent, Downend, Bristol BS16 6QR
West Midlands: R M Shill, 100 Frederick Road, Stechford, Birmingham B33 8AE

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Air Transport: P L Scowcroft, 8 Rowan Mount, Doncaster DN2 5PJ
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Road Transport: P L Scowcroft, 8 Rowan Mount, Doncaster DN2 5PJ
Tramroads: Dr M J T Lewis, 60 Hardwick Street, Hull HU5 3PJ
Waterways History Research (including Docks & Shipping):
P E Jones, 27 Bexley Avenue, Denton Burn, Newcastle NE15 7DE

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RGHS Journal

Editor: Peter Cross-Rudkin, Durobrivae, The Green, Castor, Peterborough, PE5 7AR
E-mail: journal@rchs.org.uk
Reviews Editor: Dr M Barnes, Cornbrash House, Kirtlington, Oxfordshire OX5 3HF
E-mail: cornbrash@aol.com
(to whom all books etc for review should be sent)
Distribution Officers: D & J Grindrod, 47 Lark Hall Crescent, Macclesfield, SK10 1QU
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50 Years of the RCHS North West Group

Allan Brackenbury

The *RCHS Journal* for May 1957 advised that Peter Norton was willing to arrange a meeting in Warrington or Widnes for members interested in forming a local group. One person who contacted him was Alan Voce and he took over the initiative in setting up the group. Alan asked some Society officials for guidance: William J Skillern, a Council member living in Stockport, responded by hiring a room for ten shillings at the (unfortunately named) Oddfellows' Institute in Stockport, and by recommending as speaker Bertram Baxter, who was an RCHS founder member and a leading transport historian. The meeting took place at 6.30 pm on Saturday 22 March 1958 with the talk 'Early railways around Mow Cop'. 23 people were present, including the President, Charles Clinker, who explained the aims of the Society. After the talk the North West Group of the RCHS was officially formed, with Bertram Baxter as Chairman, Alan Voce Secretary, Peter Norton Treasurer and James Boyd as a committee member. Both Bertram and James were well known amongst Manchester's railway enthusiasts and their presence gave the RCHS an immediate acceptability that would have been difficult to achieve had the committee been composed entirely of young unknowns.

The inaugural meeting was followed by a visit to Mow Cop on 21 June, but it was a wet day and only six turned up. The next indoor meeting was on 4 October when Charles Clinker was the speaker and 27 attended. From the start the Group established a series of monthly meetings in winter, and two or three outdoor visits in summer. In addition there were national Society events within reach of North West members, such as a Buxton weekend in 1959 and one in the Potteries a year later. In the early days most speakers were Group members who were eager to tell us about their special interests, or national Society figures who were keen that RCHS local groups should succeed. One member was Alfred Hayman, manager of the Bridgewater Department of the Manchester Ship Canal, which celebrated its bicentenary in 1961: we had three well-attended talks on the canal and two visits.

Early in 1960 Alan Voce was asked to fill a vacancy as RCHS national Secretary. He accepted, but in consequence resigned a North West Group Secretary. There appeared to be an obvious successor, Anthony

Hall, who had just completed his National Service after university. But he did not have duplicating facilities, so he shared the Secretary's position with Peter Norton – but only for a few months, as he got a job in London. (Later he served for some years as London Group Secretary, and then Book Review Editor, and rejoined the North West committee when he returned to our area) Peter was not able to continue on his own, and I was flattered to be asked to take over, which I did for two years.

A highlight of 1961 was a trip, jointly with the North East Group, through Standedge canal tunnel on the maintenance boat. There was so much demand for places that each person was allowed only a single journey. At the time it was thought that this would probably be the last chance ever for members of the public to pass through this long tunnel, but there was a repeat visit in 1962. This canal was long closed; we dreamed of restoration, but we did not really think it would happen in our lifetime.

In 1963 our meetings moved to a new venue, as the previous building was to be demolished. The new location was not satisfactory, because meetings usually coincided with a Christian Youth group in a nearby room, and this tended to be noisy. Our membership was rising, but attendances at meetings were falling; the average for 1963-64 was only 12. So from 1965 we moved to Manchester and in the first year the average was 20. We were fortunate in being allowed to meet (free!) in Manchester Central Library, which is choosy about which societies use its facilities.

Bertram Baxter died suddenly in October 1966. Ian Moss succeeded him and Richard Dean took over from Ian as Secretary. Richard came from Chester and organised two memorable visits in that area. One was a boat trip from Ellesmere Port along a reedy stretch of canal then rarely disturbed by any craft. On being unexpectedly challenged about carrying excess passengers, we explained that the cruise needed a large number of 'crew'. The other trip was a coach tour of Flintshire that started, by special arrangement, with a rail journey from Chester Northgate to Hope Exchange High Level, a station without outside access and that had closed over ten years previously! Two other notable visits of this period were a trek along the long-abandoned Walton

Summit branch of the Lancaster Canal, prior to its destruction by the M61, and a walk within Manchester on Central and Exchange Stations' last day.

Our meeting place closed on Saturday evenings from 1971, so we moved to Friday evenings or Saturday afternoons, half each at first, but Friday meetings later declined. In 1982 the Library started to charge £5 for the room and as we could not afford this we changed to a room at Victoria Station, kindly arranged by one of our members who was on the BR staff. This room became unavailable in 1991 but we were able to transfer to the BR staff social club in a curious room below Victoria. Two years later this closed suddenly, so we moved to a similar club in the depths below Piccadilly Station. These clubs were not ideal premises for meetings and occasionally when we arrived the staff band practice had not finished, or the room had not been tidied up after a social event of the previous evening, but we were made very welcome, and it was cheap! Then in 2000 the social club moved to new premises which were unsuitable for our meetings, so we changed to the Friends' Meeting House, quite close to the Central Library. There is a charge for room hire, but it is a very nice meeting place, centrally located, and I hope that we can remain there for many years. At meetings we ask for voluntary donations of £1 per person and these make a significant contribution to the cost of the room. On occasions we have held meetings in other towns but these have not attracted newcomers, so we believe that Manchester remains the preferred location.

Inevitably over 50 years the Group has had its ups and downs. In early years the post of Secretary was occupied by a succession of men under 30 who had to give it up because of job moves, marriage, or promotion within RCHS. But for several years during the 1970s we were without a designated Secretary, and the Group lost momentum. In 1980 meeting attendances averaged only ten, and so few came on outdoor events that none were run in 1981 or 1982. As a result of illness and removals, the Group committee was reduced to two active members, so a crisis meeting was held at the end of 1982, with an appeal for fresh faces. Fortunately there was a response.

Despite living over 50 miles from Manchester, Roger Davies willingly took over as Group Secretary. John Miller, who had already made his name in the East Midlands Group and who had moved to the

North West, joined the committee as Publicity Officer. Their arrival was the impetus the Group needed for carrying on; gradually attendances improved and outdoor visits resumed. Ian Moss had held the Group together as Chairman and for nine years as Acting Secretary; in 1992 after 25 years he took a well-earned retirement, but remains a vital member of the Group committee. Roger eventually became Chairman of the RCHS Managing Committee and we are fortunate in having Gerald Leach to succeed him as an energetic Group Secretary.

Attendances on outdoor events have always suffered because of other attractions on summer Saturdays. In 1996 when I realised that we have many active retired members who would be available midweek, we began to arrange additional visits each month on Thursdays and these quickly attracted a good response. They are still going strong over ten years later and there is no shortage of places still to investigate.

When the Group was formed we had about 30 members, of varied ages. 50 years later the total has reached 130, but a high proportion is aged over 50. In 1958 few of us had cars and most worked on Saturday mornings. Our meetings were formal occasions where we called each other 'Mr' and often we wore suits on outdoor visits. Colour slides were novel and exciting; usually if a talk had illustrations they were black-and-white prints, shown with the aid of a borrowed epidiascope. In early days with evening meetings, speakers from distant places would need to stay overnight, usually with the Group Chairman. This happens less frequently nowadays, with earlier meeting times and because rail travel has become much easier. About 25 people have been in RCHS for more than 50 years. Two of them, Gordon Biddle and Edwin Shearing, lived in the North West for lengthy periods, but the person with the longest continuous membership of the Group is myself, who joined the Society later in 1958. Throughout the existence of the Group we have attracted members who have travelled long distances: in the early days there were regular attenders from Southport and Birkenhead, and now at most meetings we see members from Yorkshire, the Midlands and Wales.

Over the years we have been honoured that three active members of the Group – Pat White, Rex Christiansen and Ian Moss – have been appointed President of RCHS. In addition Alan Voce, John Bryant, Bertram Baxter, Anthony Hall, Richard Dean, Mark Bertinat, Pat McCarthy, John Searson, Pat

White, Roger Davies and Gerald Leach, and probably others who had been involved in North West Group events went on to serve the national Society in an official capacity. Several Group members have contributed articles to the *RGHS Journal* and Peter Norton and Jeffrey Wells have had books published by the Society.

Those of us who have been in RGHS for some years will have varied memories of events, ranging from the sense of occasion when we travelled underground at the Bridgewater Canal bicentenary in 1961, to sheer embarrassment when at a Presidential lecture our projector's magazine could not accommodate the President's slides. Other recollections are of a 1964 meeting being delayed for 20 minutes to enable several of us to travel on the last train from Glazebrook to Stockport Tiviot Dale; on a 1973 Liverpool cruise a motorist, amazed at seeing a boat at Litherland Lift Bridge, lost concentration and hit the car in front; the doorman at one of our meeting places who seemed eternally grumpy; a Sheffield supertram starting off with half our party inside while the rest were outside photographing it; crossing the Ship Canal by rowing

boat on a very wet day; walking beside the Ashton Canal a few days after a murder victim had been found in it; tracing the route of the Kinder Reservoir (Hayfield) railway at dusk; the meeting when only five turned up, but the speaker did not find out because a puncture prevented him from arriving in time; a well-supported visit to the Anderton Lift which was out of order; visiting Ulverston on a stormy day and getting muddy as well as soaked; climbing Pule Hill, Standedge after a storm and being rewarded with clear views almost from west coast to east coast.

50 years ago many canals were derelict, railway lines were closing and trams were almost extinct. In recent years we have observed several canals in course of restoration and a brand new one, the Ribble Link. We have also visited new tramways, railways and stations, as well as many historic sites. Like most voluntary societies we are concerned about the shortage of younger members, but we are also thankful that at present we have an enthusiastic and friendly membership. The interest in transport history is still vibrant in the North West. Long may it continue.



An RGHS North West Group party in 1962 at 'The Three Pigeons', Dallam, Warrington, reputed to have provided a booking office and waiting room for the Warrington & Newton Railway

Locomotives on the Railway Seals of the British Isles

Miles Macnair

The seals of the railway companies of the British Isles are an area of railway history that has not been well explored, yet in many cases they are the only surviving artefacts of early enterprises. Some of them are exquisite examples of the engraver's art, whether they have pictorial designs or incorporate heraldic devices. They also provide an insight into the ambitions of the original promoters.

Research by the author and John Clarke, a curator at the National Railway Museum, York, has unearthed the seal designs of over 1,000 track-work companies (including Ireland) and an additional 150 designs covering railway related subsidiaries, such as canals, docks and hotels, together with hand seals of individual stations and railway officials. In many cases the original steel dies no longer exist, but the designs can be deduced from impressions, often faint, on share certificates and mortgage deeds. With two exceptions — figs 3 and 9 — the illustrations with this article are only details from the complete seal.

It is not surprising that many designs (147) include depictions of locomotives themselves, either as single images or incorporated into heraldic devices as 'crests'. Locomotives also appear in seal designs representing pictorial landscapes, sometimes with bizarre perspective. This article examines the different ways that engravers tackled 'the iron horse' and illustrates a few of their successes - and failures. It also shows how little attention some sponsoring directors paid to the relevance of the outcome to their particular venture, and highlights some remarkably inappropriate assignments.

Table 1 lists all the seal designs depicting locomotives in one form or another, together with brief notes. The following categories are identified;

A Individual locomotive profiles (117)

- A 1, 2-2-2 wheel formula;
- A 2, 2-2-0 wheel formula;
- A 3, 'Colliery' type locomotives;
- A 4 Other wheel formulae.

B Head-on views (2)

C Locomotives/Trains in landscapes — profile (18)

D Perspective views (10)

Category A 1 (67 examples). By far the most common, being used from 1836 (Eastern Counties Railway) right up to 1890 (Cork & Fermoy & Waterford & Wexford Railway). Images range from the accurate and detailed, e.g. the Abbotsbury Railway (*fig 1*), to the crude and distorted — for example, the Wimbledon & Dorking Railway (*fig 2*) and the Rugby, Warwick & Worcester Railway (*fig 3*). In many cases, no attempt is made at verisimilitude, the simplest image being apparently accepted merely as a 'logo' to identify a railway undertaking. Anomalies abound. The seal of the Whitby, Redcar & Middlesbrough Union Railway (1866) is an accurate depiction, but surely of Great Western provenance? (*fig 4*)



Figures 1 - 4

Category A2 (11 examples). The earliest example was engraved in 1834, the last in 1847. Most illustrate a locomotive of the Stephenson 'Planet' type and the degree of accuracy is, on the whole, far greater than Category A 1. That used on the seal of the Newtyle & Coupar Angus Railway (1835) is delightfully allegorical, with an angel on the tender — and race-horses in vain pursuit. (*fig 5*)

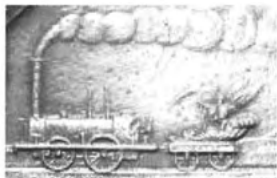


Figure 5



Figures 8 to 12

Category A3 (4 examples). Not surprisingly, these examples come from early railways with a coal mining background. That of the Monkland & Kirkintilloch Railway (1824) shows a typical Stephenson 'Killingworth' locomotive, though the tender has been omitted. (*fig 6*) More accurate is the Hedley type locomotive on the seal of the Scotswood, Newburn & Wylam Railway (incorporated 1871). (*fig 7*)

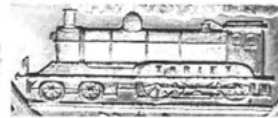


Figures 6 & 7

Category A4. This category provides a rich seam of delights. The seal of the Leicester & Swannington Railway (1830) only survives in printed form, but it shows a remarkably accurate representation of a Stephenson 'Rocket' type locomotive. (*fig 8*) (perhaps not surprising, since Robert Stephenson was the engineer appointed to build the line and his 'Comet' locomotive was used at the opening).

High marks for accuracy and interest go to

the Wigan Branch Railway (also 1830), with its engraving of Braithwaite & Ericsson's 'William IV'. (*fig 9*) The engraver for the L&NWR Horticultural Society doubtless had a toy 0-4-0 in front of him when he made their seal (*fig 10*); an amusing free-lance design is engraved on the seal of the Harrow & Stanmore Railway (1886). (*fig 11*) The Railway Clearing System and Superannuation Fund Corp. might have been expected to show impartiality towards all its 'clients', but 'Thrift' seems to show a strong Darlington influence. (*fig 12*)



Why the Knott End Railway (1898) should be saddled with an express 4-2-2 with marked Bromley/GER connections (*fig 13*) is a mystery; so is the seal of the Hundred of Manhood & Selsey Tramway (1896), which seems to show a Great Eastern Class C32 2-4-2T. (*fig 14*) And the Fletcher style 2-4-0 seems hardly appropriate for the Rhondda & Swansea Bay Railway (1882), which only ever used tank engines (*fig 15*), while the fine express 4-4-0 seems an odd choice for the little Lampeter, Aberayron & New Quay Light Railway (1906).



Figures 13 to 15

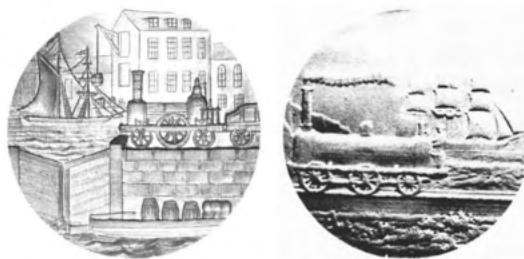
More appropriate choices are the Kitson tram-locomotive for the Tralee & Dingle Light Railway (1888) (*fig 16*) and the Fairlie locomotive for the Gorsedda Junction & Portmadoc Railway (1872). (*fig 17*)



Figures 16 to 18

Category B (2 examples). The Glasgow Central Railway (1888) chose a head on view of an outside cylindered locomotive with a strong Scottish accent. (*fig 18*) Since this was an underground railway, the choice of perspective — within a tunnel — was understandable.

Category C (18 examples). The Wakefield, Pontefract & Goole Railway (1845) seal provides a high quality engraving in this category, with an accurate depiction of a 2-2-2 locomotive and tender within a scene of dockland activity. (*fig 19*) The Kirkcudbright Railway (1861) may have wished to show the same link between steam and sail, but the engraver did not understand about tenders. (*fig 20*)



Figures 19 & 20

Category D (10 examples). Engravers working on a steel die, usually not larger than 50mm across, had, understandably, some problems with depicting a train in good perspective. The seal of the Parsonstown & Portumna Bridge Railway (1861) is a classic example — no wonder the cattle on the truck are looking anxious! (*fig 21*) For the Wellington & Severn Junction Railway (1853) the engraver has made a good effort with the locomotive but seems to have got bored with the tender and carriages. (*fig 22*)



Figures 21 & 22

This article has only been able to hint at the marvellous diversity of designs used in the railway seals of the British Isles. For about 450 early companies, the seal design is still unknown, and if any member thinks they might know of one that is not in the 'Register' this author would be delighted to hear from them.

TABLE 1

Company	Fig.	Date	Description
Abbotsbury Railway	1	1877	A 1 Good detail
Alva Railway		1861	A 1 Good detail
Arbroath & Forfar Railway		1836	A 2 With coal truck
Ballymena & Larne Railway		1874	A 1
Ballymena, Ballymoney, Coleraine & Portrush Junction Railway		1853	A 1
Ballymena, Cushendall & Red Bay Railway		1872	A 4 0-4-0 of strange proportions (sketch only)
Baltimore Extension Railway		1893	A 2 2-2-0 - crude
Banbridge Junction Railway		1853	A 1 Tiny image on bridge - sketch only
Banbury & Cheltenham Direct Railway		1873	C With goods train; beneath heraldic shields
Bideford Extension Railway		1853	C With passenger train on viaduct
Birkenhead Railway (1)		1859	C Plus dock scene
Birkenhead, Lancashire & Cheshire Junction Railway		1846	C Plus dock scene
Blaydon, Gateshead & Hepburn Railway		1834	A 2 'Planet' type
Brighton, Uckfield & Tunbridge Wells Railway		1861	A 1 As crest
Bristol & Exeter Railway (1)		1836	A 2 'Planet' type
Buckfastleigh, Totnes & South Devon Railway		1864	A 1 As crest
Buckley Railway		1860	D A 1 type hauling two trucks round impossible bend
Burry Port & Gwendreath Valley Railway		1866	C Crude 2-2-4 loco. on goods train
Callander & Oban Railway		1865	A 1 As crest
Cathcart District Railway		1880	A 1 Detailed
Chard Railway (1)		1860	A 1 As crest
Charing Cross Railway		1859	A 1 As crest
Cheltenham & Great Western Union Railway		1836	A 2 'Planet' type. Very detailed
Cleator & Workington Junction Railway		1876	D 2-2-2 loco. on goods train
Cleveland Railway		1858	A 1 Below attractive landscape
Cockermouth & Workington Railway		1845	A 1 In plaque
Cockermouth, Keswick & Penrith Railway		1861	A 1 In plaque
Conway & Llanrwst Railway		1860	A 1 Within heraldic shield
Cork & Fermoy & Waterford & Wexford Railway		1890	A 1 Stretched; semi perspective, but on cab only
Corwen & Bala Railway		1862	A 1 Good detail
Dare Valley Railway		1863	C A 1 type on goods train
Dartmouth & Torbay Railway		1857	C A 1 type at end of pier
Drayton Junction Railway		1864	A 1 As crest
Dublin, Rathmines, Rathgar, Roundtown, Rathfarnham & Rathcoole Railway		1864	A 1 On bridge
Dulas Valley Mineral Railway		1862	C Very crude goods train on viaduct
Dundee & Arbroath Railway		1836	A 2 Almost equal sized wheels; as crest
Dundee Suburban Railway		1884	A 1
Eastern Counties Railway		1836	A 1 As boss of multiple shield design

Eastern Counties, Stratford & Thames Junction Railway		xxxx	A 2 'Planet' type; crude
Eastern Union & Hadleigh Junction Railway		1846	A 1 Very detailed
Eastern Union Railway		1844	A 1 As boss of multiple shield design
Edgware, Highgate & London Railway		1862	B Crude; as crest
Ely & St Ives Railway		1876	A 1 Very distorted; possibly outside cylinders (?)
Ely, Haddenham & Sutton Railway		1864	A 1 Very distorted; oversized dome
Eyemouth Railway		1884	C 2-2-2 loco. plus truck on pier
General Terminus & Glasgow Harbour Railway		1846	A 4 0-4-2 loco. Earliest coupled example
Glasgow Central Railway	19	1888	B Accurate 'Modern' type with outside cylinders
Glasgow, Paisley & Greenock Railway		1837	A 2 Sketch only. Appears crude
Golden Valley Railway		1876	D Distorted 2-2-2 loco. on long passenger train
Gorsedda Junction & Portmadoc Railway	18	1872	A 4 Double Fairlie 0-4-4-0 (paper seal impression)
Great North of England Railway		1836	A 3 Stephenson colliery type 4 wheeler
Greenock & Ayrshire Railway		1865	A 4 0-4-2 loco.
Greenock & Wemyss Bay Railway		1862	A 1 Long wheel-base, plus crew
Greenock Railway Guaranteed Co.		1847	A 2 'Planet' type against harbour background
Harrow & Stanmore Railway	11	1886	A 4 2-2-4T loco. Imaginary design
Hayling Railway		1860	A 1 On pier
Hereford, Hay & Brecon Railway		1859	A 1 Plus 6 wheeled carriage; as crest
Home Railway Rolling Stock Co.			A 1/D Good perspective
Horsham & Guildford Direct Railway		1860	A 1 As crest. Elongated - to fit space
Hull & Holderness Railway		1853	A 1 Within quartered section of shield
Hull & Hornsea Railway		1862	A 1 As crest; with 2 four-wheeled carriages
Hull & Selby Railway		1836	A 3/C Colliery type with wagons (no tender)
Hundred of Manhood & Selsey Tramway	14	1896	A 4 'Modern' 2-4-2T based on GER Class C32 (!)
Hunstanton & West Norfolk Railway		1874	A 1 Crude; distorted dome
Idle & Shipley Railway		1867	A 4 2-2-2T - with crew
Isle of Wight Railway		1860	A 1 With crew
Kelvin Valley Railway		1873	A 1 More 'modern' appearance, with cab
Killin Railway		1883	A 4 Dumpy little 0-4-4T, within shield
Kilsyth & Bonnybridge Railway		1882	A 4 Accurate Caledonian 2-4-0 with o/s cylinders
Kirkcudbright Railway	21	1861	C 0-4-2 loco. In harbour landscape (no tender)
Knott End Railway	13	1898/ 1908	A 4 'Modern' 4-2-2 express loco. of GER appearance
Lampeter, Aberayron & New Quay Light Railway	16	1906	A 4 'Modern' 4-4-0 express loco. outside cylinders

Lanarkshire & Ayrshire Railway		1884	A 4 'Modern' 4-4-0; accurate G&SWR prototype
Lancashire Union Railways		1864	A 1 Very crude; within plaque
Lancashire, Derbyshire & East Coast Railway		1891	A 4 Accurate, but inappropriate, 2-4-0.
Leicester & Swannington Railway	8	1830	A 4 Super-accurate depiction of L&MR <i>Rocket</i>
Leominster & Bromyard Railway		1874	A 4 2-2-4T with crew
Llantrisant & Taff Vale Junction Railway		1861	C Crude 2-2-2 with coal train
London & North Western Railway Horticultural Society	10		A 4 'Hornby' type 0-4-0 on express (!)
London & North Eastern Railway (2)		1923	A 4 Accurate depiction of S&DR <i>Locomotion</i> No 1
Manchester, Bury & Rossendale Railway		1844	D 2-2-2 on train emerging from tunnel. (No buffer bar)
Manx Northern Railway		1878	D 2-2-2 within heraldic arms
Maybole & Girvan Railway		1856	A 4 Accurate 0-4-2
Merthyr, Tredegar & Abergavenny Railway		1859	A 1 As crest
Middlesbrough & Guisborough Railway		1852	C Crude 0-4-2 on coal train.
Middlesbrough & Redcar Railway		1845	C Crude 0-4-0 on passenger train.
Mid-Suffolk Light Railway	24	1900	D 0-4-2T of imaginary provenance. (distorted)
Monkland & Kirkintilloch Railway	6	1824	A 3/C 'Stephenson' colliery loco plus 2 coal wagons
Monmouthshire Railway & Canal Co.		1810	A 1 Within shield
Mountrath Tramway & Light Railway		1883?	A 1 Distorted by very low foot-plate; with cab
Much Wenlock & Severn Junction Railway		1859	A 1 Accurate depiction, with crew
Nantwich & Market Drayton Railway		1861	A 1 As crest
Neath & Brecon Railway		1863	A 1 As crest
Newry, Warrenport & Rostevor Railway		1846	A 1
Newtyle & Coupar Angus Railway	5	1835	A 2 'Planet' type - with angel on tender (!)
North Devon Railway & Dock		1851	A 4 Crude 0-6-0 (no coupling rods) with goods wagons
North Sunderland Railway		1892	A 4 2-2-4 loco. with cab
Oldbury Railway		1881	A 4 2-2-2T
Parsonstown & Portumna Bridge Railway	22	1861	D Goods train attempting to negotiate impossible curve
Penrith & Carlisle Railway		1839	A 4 Crude 0-4-2
Petersfield Railway		1860	A 1 As crest
Portpatrick & Wigtownshire Joint Railway		1885	A 1 Crude
Railway Clearing System & Superannuation Fund Corp.	12		A 4 'Modern' 4-4-0 of NER provenance
Rhondda & Swansea Bay Railway	15	1882	A 4 2-4-0 Inappropriate for a railway that only used tank engines
Rugby, Warwick & Worcester Railway	3	1846	A 1 Crude
Saffron Walden Railway		1861	A 1 As crest
Scarborough & Whitby Railway		1871	A 1 As crest

Scotswood, Newburn & Wylam Railway	7	1871/ 1876	A 3 'Hedley' type colliery loco. (NB Date of incorporation)
Shrewsbury & Hereford Railway		1846	A 1 Accurate GWR type. As crest
Solway Junction Railway		1864	A 1 As crest. On viaduct with one carriage
South Devon & Tavistock Railway		1854	A 4 2-4-0 Uncoupled
South Devon Railway		1844	A 1
South Wales Mineral Railway		1853	A 4 0-6-0 (uncoupled) as crest
South Yorkshire Railway & River Don Co.		1850	A 1 As crest
South Yorkshire, Doncaster & Goole Railway		1847	A 1 Crude, on viaduct
Southport & Cheshire Lines Extension Railway		1881	A 4 0-4-2T Inappropriate for this line
Stockton & Darlington Railway 1845		1845	C Tiny loco. and train in landscape
Strathendrick & Aberfoyle Railway		1880	A 1 With tender and crew
Surrey & Sussex Junction Railway		1865	A 1
Swansea Vale Railway		1845	A 1
Tamar, Kit Hill & Callington Railway		1862/ 1864	C Very tiny in landscape
Tenbury & Bewdley Railway		1860	A 1 Very distorted
Tenbury Railway		1859	A 1 Very distorted
Tendring Hundred Railway		1859	A 4 2-4-0
Thetford & Watton Railway		1866	A 1 Very distorted dome
Torbay & Brixham Railway		1864	C A 1 type with two trucks on pier
Tralee & Dingle Light Railway	17	1888	A 4 Kitson type 0-4-0T Tram engine
Ulverstone & Lancaster Railway		1851	C Tiny train on viaduct
Vale of Llangollen Railway		1859	C Tiny train in landscape
Wakefield, Pontefract & Goole Railway	20	1845	C A 1 type on pier
Wallingford & Watlington Railway		1864	A 4 2-2-4
Ware, Hadham & Buntingford Railway		1858	A 1 Reasonably accurate
Watton & Swaffham Railway		1869	A 1 Very distorted
Wear Valley Railway		1845	D Lifelike depiction of a train in a landscape
Wellington & Severn Junction Railway	23	1853	D Perspective fair on locomotive, but carriages flat
West Durham Railway		1839	A 4 0-4-0 as crest
West Somerset Mineral Railway		1855	D Goods train with distorted perspective
West Somerset Railway		1857	A 1 Tiny, as crest
West Wickham & Hayes Railway		1880	A 4 2-4-0 of strange proportions
Whitby, Redcar & Middlesbrough Union Railway	4	1866	A 1 Accurate depiction, but GWR provenance
Whitechapel & Bow Railway		1897	A 1 Tiny, within shield
Whitehaven Junction Railway		1844	A 2 'Planet' type on passenger train
Whitehaven, Cleator & Egremont Railway		1854	A 1 Within shield
Wigan Branch Railway	9	1830	A 4 Accurate depiction of Braithwaite & Ericsson <i>William IV</i>
Wimbledon & Dorking Railway	2	1857	A 1 Distorted by very low foot-plate
Witney Railway		1859	A 1/D Wheels not touching track and strange 'dome'

Rumours of Corruption: the Parliamentary passage of the Brighton Railway Bills

Adrian Gray

Having previously combed through many pages of Parliamentary committee evidence on the various Brighton railway bills of the 1830s, the author decided to look at the issue from a different perspective — contemporary national press coverage of the debates in the Commons and Lords. This gave a different view and, perhaps unsurprisingly, emphasised chicanery and implied corruption.

Proposals to link London and Brighton by railway first emerged seriously in 1823, with William James' scheme. After this, schemes were proposed at regular intervals by several leading engineers of the day. In 1832, Sir John Rennie's scheme got as far as approaching Parliament although it was noted at the time that there was 'strenuous opposition' from coachmakers.¹ By late 1833 a number of rival schemes were being proposed, Stephenson² having entered the scene much to the disgust of Rennie. Despite great excitement in 1834, none of the schemes were successful and by 1835 there was great animosity between Stephenson and another of the contenders, Nicholas Cundy, who plainly felt that Stephenson had borrowed his ideas.

In September 1835 a meeting was held in Brighton to vote on the preferred route from several contenders. The vote of the committee went to Stephenson, resulting in the first allegations of actual corruption. The *Brighton Gazette* felt that the committee produced a report 'of a very suspicious character, going as far as they could for their sinister purpose'. The following year the clerk to the Brighton Commissioners told Parliament that 'a considerable distribution of shares' had taken place to the committee members after they made their report.

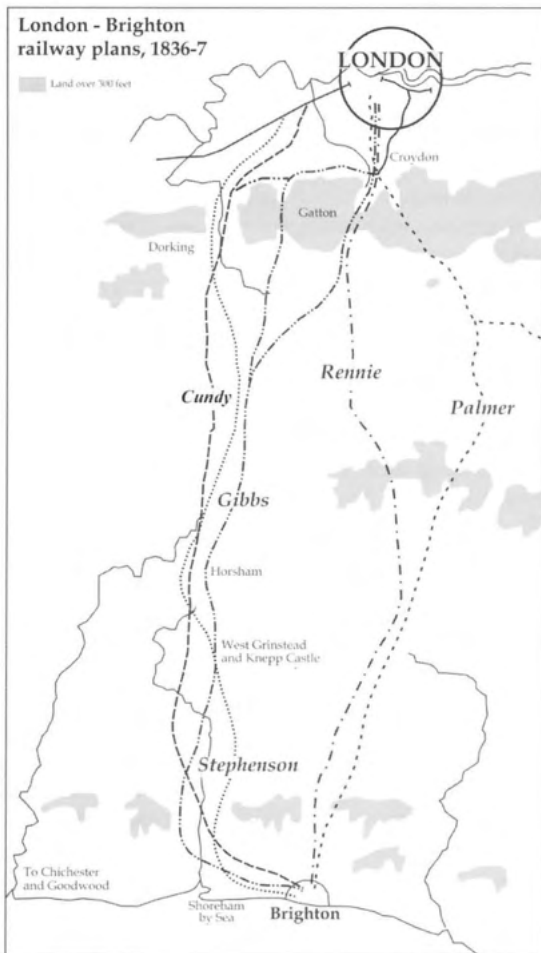
Nonetheless, the contenders remained in the field — principally Stephenson, Cundy and Rennie. Joseph Gibbs' line failed to comply with Standing Orders. This left Stephenson and Rennie with Bills before Parliament for 1835-36. In March 1836 the committee of the House of Commons decided that competing lines with similar termini should be referred to regional committees and set up a Sussex list; the Sussex committee was inevitably dominated by men

with Sussex political interests — which may have appeared a good thing. However, they also tended to have Sussex landed interests, thereby making it almost impossible to reach a decision that did not affect the interests of someone on the committee. It also opened the floodgates for later charges of corruption.

In June 1836 the Commons committee reported in favour of the Stephenson line and the Commons voted in favour by 101 votes to 61. In the debate on the third reading of the Stephenson Bill the following day, Lord George Lennox³ complained bitterly that the Commons had ignored the views of the people of Brighton but the Bill was passed to the Lords anyway. Lennox was one of two of his family sitting in the Commons — the other was Lord Arthur, who was MP for Chichester from 1831 to 1846. They were members of the same family as the Duke of Richmond, who dominated western Sussex and Chichester in particular from his estate at Goodwood, so that at least one of the Chichester MPs was almost invariably a Lennox. It is perhaps surprising therefore that Lennox appeared to be voicing opposition to Stephenson's western route at this stage, though he was certainly a supporter of it later.

Bad feelings erupted in the Lords. Lord Lyndhurst presented a petition of over 5,000 Brighton people claiming the Stephenson line — which was less direct than Rennie's — was 'extremely injurious' to the town's interests. At least Lyndhurst, a successful lawyer who rose to high office despite a very colourful private life, could claim to speak for the town since he kept a house at 16 Marine Square. Lord Monson, of Gatton near Reigate, presented a similar petition. The Duke of Richmond then claimed that several hundred signatures on Lyndhurst's petition were from people who did not live in Brighton at all; Richmond had more to gain from a westerly route.

As the debate continued, Nicholas Cundy was nursing a sense of grievance. His anger was directed against Stephenson and the members of the Commons committee who had voted for his line. One of these was Sir Charles Burrell, MP for the Sussex borough of New Shoreham, who was forced to defend himself



in the Commons against claims that he had been awarded £15,000 compensation for land that would be used by the Stephenson line 'not worth so many hundred pounds', although Cundy put an actual figure of only £200 on it. Burrell, who was MP for New Shoreham for 55 years from 1806, owned over 5,000 acres of Sussex and had estates at Knepp Castle and West Grinstead.⁴ Cundy complained to the MP for Wiltshire that the majority on the committee had been won over 'by unfair means'. Cundy was ordered to be brought before the bar of the House.

The Duke of Richmond, chairman of the Lords committee, tried to maintain some semblance of order in a contest where legal bills were estimated at £100,000, of which upwards of £30,000 was from the Stephenson party and perhaps £40,000 from Rennie's.⁵ On 2 August the Lords committee rejected the Stephenson Bill and its own chairman's views by 17 votes to 8, much to the joy of many Brighton

people. In the debate, the Marquis of Clanricarde made an interesting point that the Stephenson plan was the best prepared but not actually the best line. Richmond was upset by allegations from the Earl of Abingdon that he had supported Stephenson himself because he would benefit financially from that line, but it was clearly the case that property in West Sussex would benefit more greatly from a western line. In the ensuing row, the Duke of Cumberland felt he had suffered a 'personal attack' from Richmond. On 5 August, Richmond presented the report and moved that the Bill be recommitted; he lost the vote by two. Westmorland complained that the Lords 'had come to no decision at all', though in fact they had decided that they did not like the line the Commons had chosen.

This gave Rennie a chance to recover, and his Bill faced Stephenson again in the session of 1836-37, with Gibbs also a contender until the late depositing of plans ruled him out on Standing Orders. It was a dirty fight from the outset, with no limits. Six weeks after Stephenson's line had been approved as passing Standing Orders, the supporters of the 'Brighton Railway without a tunnel' persuaded Herbert Curteis to present a petition in March 1837 alleging the reverse. Curteis, whose family owned land in East Sussex including Eastbourne and Iden, later bought Hurstmonceux Castle and sat with a younger member of the Cavendish family for East Sussex from 1832 to 1837. In the Commons, Lord George Lennox drew attention to the fact that Mr Freshfield acted as agent for Mr Goldsmid (a supporter of Stephenson) before the Commons committee when his father — and partner in business — was MP for Penryn. Freshfield senior reported to the House that his firm's Parliamentary business was kept 'quite separate'.

In April, Curteis again called attention to the claims of the engineer, James Mills,⁶ who was acting for the Cundy line, that Stephenson's line had 'intentionally misrepresented' itself to the committee, deceived it, and tricked its chairman into reporting that Standing Orders had been complied with. He claimed there were 131 errors in the deposited plans. It was proposed that a Select Committee be set up to investigate the allegations, but Lennox retorted this was just a scheme to give Mills a chance of later success. The motion was defeated.

In early May attention switched to Rennie's Direct London and Brighton Railway; petitions complained about falsification of its subscription list, but they were cleared of this charge — although there was more

discussion later. It was at this time that C Barclay, the MP for West Surrey, complained that most of the committee on the Brighton railways had an interest in the outcome of their deliberations, which was clearly a weakness of the regional committee structure.

There were certainly geographical distinctions. Lennox and Sir Charles Burrell, the MP for New Shoreham, supported Stephenson who appeared to be losing favour in 1837. Curteis, the MP for East Sussex, preferred Rennie. When the Commons took a vote on the conduct of the committee, Sir S Whalley complained that many of those who voted were on the various subscription lists 'for considerable sums'. Most of those named, such as Joseph Pease, complained that Whalley was mistaken for reasons such as they had recently sold their shares or it was a relative with the same name.

At the end of May the Commons committee voted in favour of Rennie — effectively the opposite result compared to the previous year. Lennox then raised a motion to appoint a military engineer to report on the line — in essence a vote of little confidence in the committee. He won the vote by an extraordinary 164–157 with the Government benches packed — Mr Hume complained that the government had 'mustered all their strength to vote on a private Bill'.

Rennie's supporters then petitioned the Commons for their money back — since the Commons had ignored its own committee, money spent on the proceedings had been wasted, while there was also a question of who was paying for the military engineer. Curteis supported a new petition from the Mills side, complaining of the conduct of Stephenson and also of the government in openly favouring one line over others. He also observed that a military engineer would be 'quite incompetent' at assessing a railway scheme. Captain Pechell, a Whig MP sitting for Brighton, insinuated that the government had helped to delay a scheme that had strong local support.⁷ It was observed that the committee had effectively been overruled by the government after sitting for 35 days, though without examining Rennie, the latter a particular complaint of C Barclay, one of the Surrey members. However, Mr Gillon thought the government should have done what it had two years earlier — thereby saving £250,000 spent on legal battles.

An interesting result of this was the motion of Mr Fector,⁸ member for Dover and therefore with an interest in the South Eastern Railway, that the military

engineer should consider only one trunk route out of London to the south — this was a clear reference to the South Eastern Railway, which was of strategic significance to the nation. Fector's motion was passed 38–36, with support from Captain Pechell and Captain Alsager, the second Surrey MP; another motion to include Mills' line in the military engineer's deliberations was defeated 43–71, again with Pechell and Alsager supporting the motion. The 'packing' of the Commons vote thus set off a train of events that eventually led to the sharing of a route from London to Redhill by the Dover and Brighton railways; it proved to be the right route for Brighton, and the wrong route for Dover.

However the position of Parliament persuaded the promoters of all four Brighton lines to join into one company within days of this debate. The new mood of optimism could be detected in the reception to the report from Captain Alderson of the Royal Engineers: when Lord John Russell reported that the engineer favoured Rennie's direct route as likely to be the cheapest, Lennox said that he still preferred the Stephenson line but would support any. Pechell brought a petition of 8,000 in favour of any line recommended by the military engineer — this was a result that Brighton needed. Stephenson, though, rejected Alderson's conclusions. On 1 July 1837 the London & Brighton Railway Bill passed its third reading in the Commons though Alderson left his mark in alterations to the line at Balcombe, Clayton and Merstham.

This was, however, not the end of the acrimony. The Committee on Railway Subscription Lists had been presenting a series of reports on the subscription lists which were provided to show the strength of commitment to particular railway schemes — and their fifth report dealt with the Brighton schemes. Richard Lilly, secretary to the Stephenson scheme, had been particularly active in bringing up evidence about opponents' chicanery. Henry Cooke, by that stage an inmate of Whitecross Street prison, admitted that he had been paid £2 to sign up for shares actually belonging to others. It was reported that the Rennie subscription list progressed only slowly between February and 15 November 1836, at which stage it was moved to the company's office and jobbers began to get others to sign for shares so they could 'traffic' them. The Committee thought 3,545 shares were falsely subscribed for. Examples included Samuel Carr, who signed for shares worth £107,550 but had been unable to pay his own Stock Exchange subscription of £10–10s in 1836. George Walker, a

porter, signed for £2625 despite being on an annual income of only £34. However further action was not needed since the consolidation of the various subscription lists to form one new company allowed much fraud to be eliminated.

The final acrimony surrounded Cundy's line. Mills, who had been brought in to work on the project, sued as he believed he had not been paid, claiming that £1,000 had been voted for the purpose of which little of his alleged £738 share had got to him. The defence brought in two famous engineers, Bidder and Vignoles, to demonstrate the plans Mills delivered

were defective — and late. Among various errors, he had not included the datum line required by Standing Orders. The situation escalated until Mills himself was sued by Pearson, the solicitor of Cundy's line, for defamation: Mills had published a claim that Pearson had received £1,200 to pay the surveyors but had kept it for himself. For good measure, Mills had also made claims that Pearson had swindled the public over a £50,000 coal company and stolen title deeds. Mills lost, and had to pay out £150.

Notes and references

1. *The Times*, 18 September 1832
2. His name was usually spelt 'Stevenson' in reports in *The Times*
3. Lord (John) George Lennox was elected for the borough of Chichester in 1830 and was a supporter of parliamentary reform. In the 1831 election he was elected for Sussex, along with Herbert Curteis. When Sussex was split into two in 1832, Lord George stood for West Sussex along with the Earl of Surrey while Curteis stood in the East. Lord Arthur Lennox was elected for Chichester, while Lord William Lennox apparently had to be dissuaded from standing at Chichester as well (which still had two members) since having two members of the same family elected in the same borough might look overpowering — but it reflected the influence of the Richmond clan. Lord William was instead elected for King's Lynn where his father's great friend, Lord George Bentinck — of horse-racing renown and the inventor of the horsebox — was also elected
4. The Burrell family owned Deepdene at Dorking, later famous for its wartime role in railway history, until they sold it in 1807 to Sir Thomas Hope of the Hope Diamond family. John Thomas Hope was elected in 1830 as MP for Gatton, the rotten borough at Reigate, where Lord Monson had his seat. This is a good example of the interconnection of interests among the political class of the 1830s
5. *The Times*, 30 August 1837
6. For Mills' earlier career, see A W Skempton (2002) *Biographical Dictionary of Civil Engineers of Great Britain and Ireland, Volume 1, 1500-1830*
7. *The Times*, 7 June 1837
8. Fector was MP for Dover from 1834 and stood at Maidstone in 1838, although he was temporarily unseated after being found guilty of bribery. The fact that he was then able to stand again at a subsequent election caused some consternation

The Hackney Canal

Bill Crosbie-Hill

The Hackney Canal, also known as the Kingsteignton Canal, owed its existence to the south Devon ball clay industry.

Ball clay is a sedimentary kaolinitic clay which fires to a white colour and can easily be moulded 'in the green' before firing. Similar china clays found in west Devon and Cornwall lack this moulding quality and early factories producing porcelain in Plymouth and Bristol were short-lived.

The ball clay is extracted from pits in the Bovey Basin which lies north and west of the market town of Newton Abbot. The basin was formed by materials brought down in the streams which run off Dartmoor. Over the years the weight of this sediment caused subsidence and about 25 million years ago a lake was formed. On Dartmoor, steam forced up through fissures in the underlying granite broke down the minerals to form kaolinite which was itself eroded to form the ball clay which built up in deposits in the Bovey Lake. The finer clays were carried to the south and east of the lake in what is now the parish of Kingsteignton, a large village lying about 1½ miles north-east of Newton Abbot. The lake prevented the minerals from being carried out to sea, as could usually have been expected. Ball clay is also found in Purbeck, Dorset, where a similar circumstance stopped the minerals being taken into Poole Harbour. The ball clay began to be extracted in the Kingsteignton area at the end of the 17th century. The potter van Hamme had arrived in England from Delft in 1688 and with a group of similarly skilled tradesmen set up in Staffordshire the art of porcelain manufacture. To improve the quality of their products, the potters sourced their clay from pits which gave them the right kind of material and there was no finer clay than the ball clay found in the Kingsteignton seam.

Ball clay is so called because it is dug from pits in 9-inch lumps, or 'balls' which weigh 30–35 lbs. A spade with a 12-inch blade loosened the clay which was then levered out with a heavy mattock called a 'lumper'. A third man wielding a spike called a 'pog', lifted the balls into the panniers which were carried on the backs of pack-horses. The horses carried the lumps, about ten to each horse, across the Hackney marshes to stone built stores, or cellars, built at the head of the Teign estuary at Hackney. The local place name is familiar to Londoners but the Devon word

does not refer to an island but the word for the long nets used by the folk who have fished these tidal waters for centuries. Clay was purchased by the ton but as there were no scales or weighing machines it was the custom to call 70 balls a 'clay ton'. This ton was equal to 22½ cwt as clay was dug wet and would dry out before reaching the pottery.

Periodically, the clay would be taken from the cellars and loaded at Hackney Quay into lighters for the five-mile trip down the Teign estuary to sea-going vessels lying in Teignmouth Harbour. These ships were themselves quite small and sailing around the west coast, up St George's Channel, to the Mersey they went upstream as far as Runcorn. Here the clay was transferred to barges for shipment via the Bridgewater Canal and, from 1777, up the newly opened Trent & Mersey Canal to Stoke-on-Trent. This trade took off when, in 1791, Josiah Wedgwood visited nearby Chudleigh on his travels he purchased clay on behalf of a syndicate of potters from Stoke. He negotiated an annual flow of 1200 tons of clay from Lord Clifford at a price of £120 per ton. Any excess tonnage of clay was to be supplied at the lower price of 1s.6d. per ton.

In 1790 clay shipment from the western parts of the Bovey Basin took a big step forward. James Templar had acquired the Stover estate and built his Stover Canal from Ventiford to a sea lock near Newton Abbot, thus avoiding the 2- to 4-mile pack horse trip to Hackney Quay. He also built the famous Hay Tor granite tramway to the basin of his new canal and granite and clay would both be conveyed by barge to Teignmouth. This greatly increased the tonnage of clay carried through Teignmouth, which was at that time a creek of the Port of Exeter.

Difficulties in handling this greater volume of clay at Teignmouth led Lord Clifford with the Duke of Somerset, who had acquired the Stover Canal from Templar, to petition for improvements to the port. By an Act of 1836 the Teignmouth Harbour Commission was set up to improve the harbour and to improve navigation down the Teign by dredging and staking the channel. For these improvements, the Commissioners were entitled to charge 2d per ton on all cargoes brought down the estuary for shipping through Teignmouth. Stone was exempt from the charge.

For over 50 years since its opening, Lord Clifford had no road access to the Stover Canal, too distant for pack horses. So in 1841, following the example of James Templar, he instructed his agent, Henry Knight of Axminster, to dig a canal at his own expense from Newton Road, near Kingsteignton, to Hackney. For his pains, Knight would receive all the toll revenue which was set by Clifford in a 99-year lease at the rate of 1s. 6d. per ton. The canal was four furlongs in length and constructed across the Hackney marshes entirely on the Clifford Estate. As such, the canal required no Act of Parliament. It opened for traffic on 7 March 1843. Entry into the tidal Teign was controlled by a sea lock. The pack horses were dispensed with and both their stables and clay cellars at Hackney Quay were abandoned. Clay was now carted from the pits to the new cellars by the basin in Newton Road which became known as Higher Hackney. The carts were drawn by a single horse and held one 'clay ton' of clay. The cellars at Higher Hackney were added to until 7,000 tons of clay could be stored in 16 cellars.

The increase in shipment of clay through Teignmouth in the years following the opening of the Hackney Canal was remarkable. In 1838 19,090 tons was exported but by 1868 this had risen to 50,086 tons. The new canal was also partly responsible for Teignmouth obtaining custom port status in 1853, following a petition to 'free the port', so it no longer came under the jurisdiction of Exeter.

The Hackney Canal was held on a 99-year lease from the Clifford Estate by Henry Knight. The clay workings were leased in 1862 by Lord Clifford to Whiteway Watts & Co. with the covenant that all clay was to be carried by the Hackney Canal. At the same time the clay cellars at Higher Hackney were leased to J H Whiteway and W R Mortimer, at 6d. per ton of clay stored, or 6d. per cartload taken to the cellars.

In 1861, Edward Seymour, the 12th Duke of Somerset sold the Stover Canal to the newly formed Moretonhampstead & South Devon Railway. It was said that he had little interest in the canal and was happy to see the new railway, a branch from Newton Abbot, take responsibility for it. At the same time, Henry Knight enquired into the possibility of acquiring the Stover Canal for himself which would have given him a monopoly on all ball clay shipped through Teignmouth! His approaches were unsuccessful.

Despite their remit to make improvements and their

employment of a river gang under a river surveyor, complaints continued to be made by the clay companies to the Teignmouth Harbour Commissioners regarding the state of the navigable channel in the Teign. In 1883 the commissioner purchased a new steam dredger which seems to have improved navigation for the clay boats from both canals.

The Hackney Canal can be seen as an extension of the River Teign towards the clay fields. It was operated by men and their sons, as lightering was a family tradition, who had once worked the tideway from Hackney. The boats were poled, or punted, from the Newton Road basin the half mile to the sea lock. Although the 1890 map shows tow paths on both sides of the canal it is doubtful if horses were used for such a short distance. The sea lock could only be used when sufficient water lay in the channel beyond. If barges failed to leave the canal at the 'top of the ebb' they ran the risk of being stranded for five hours. This also applied to the Whitelake Canal which led from the Stover Canal which tended to dry out at low tide.

The Passage House Inn, first established about 1761, was much used by the lightermen who were said to be as strong at drinking as they were at working the heavy clay boats. Accidents were not unknown and sometimes fatal owing to the inebriated state of the workforce. Before 1900, the lightermen lived at Hackney in very small cottages built of stone and cob. With the closing of the Hackney clay cellars in 1843 some of these cellars were converted into dwellings. Both the cottages and the Passage House Inn drew their water supplies from a spring above the sea lock, the water being carried down by boat. In summer the Hackney Regatta would be held for the residents of Kingsteignton. Rowing races, duck chasing across the surrounding marshes and pillow fights on a pole over the canal all became annual sports.

A very good picture of the Hackney boats is contained in a drawing held at the Science Museum. The boat shown was built in 1900 by Gann of Teignmouth for the 'Hackney Canal Company'. It is 49 feet-6 inches long overall by 14 feet-6 inches wide with a hold of 8 feet-6 inches deep. Clay capacity would be about 30 tons.

The boats had a single sail in the rig similar to that used by the Vikings. This was ideal for the west to east journey down the estuary with the prevailing wind from astern. When the wind was not favourable

the sail could not be used, the vessels could not tack, and the crew of two had to use their poles to steer their craft carried by the ebbing tide clear of the sand banks. When new, each vessel was equipped with a rowing boat which could be used to tow the craft if it ran aground. The rowing boat was also used by the crew as a way of reaching shore once the barge had been tied up alongside the sea-going ships in Teignmouth Harbour.

By 1875, with the opening of the Anderton Lift, most of the clay bound for the Staffordshire Potteries was using the Weaver Navigation to gain the Trent & Mersey en route to the pottery firm's private wharves. Most of the clay from Kingsteignton still went to the Potteries but some went up the Severn to Bewdley for transfer to barges for Coalport. Some clay went to Hull. By 1896, the annual tonnage of clay through Teignmouth reached 86,693. Not all



6-inch OS map 1890, rescaled, of the Hackney Canal

These sea ships would anchor in the harbour with the Hackney barges alongside, two on each side discharging clay simultaneously. Two men, known as 'lumpers' used pitch forks to lift the clay balls and throw them up into chutes which fed the ship's holds. As a development, they used baskets each filled with several lumps which were loaded into the ships by means of rope and pulley. The lumpers climbed up on to the ship's deck, grabbed the free end of the pulley rope and jumped down on to the deck of the barge below. They used their own weight to raise the baskets. It is nice to think of these men as jumpers but it is doubtful they were so-called.

ships returned to Teignmouth in ballast as coal for the South Devon area continued to be shipped through the port long after the railways were built and this gave a return cargo, particularly from Hull.

A full description of the Hackney Canal is given in a notice of sale of the canal in 1901, a sale on behalf of Henry Knight, then deceased.¹

The canal is described as being 7 feet deep and 5 furlongs in length, the bottom furlong lying outside the sea lock. The lock is built of granite (probably similar to the locks on the Stover Canal), has two pairs of double gates and raised the water level by 3 feet-9 inches. The lock chamber is 100 feet long so

was capable of holding two lighters in tandem. The sale included 8 lighters of 33 tons displacement. The canal was said to cover an area of 8 acres and 13 rods. The cut was supplied with water from springs in the Rydon area of Kingsteignton parish, from the underlying limestone. Water levels were also topped up by spring tides through the sea lock. The traffic was said to average 300 tons per week although the canal, could, at suitable tides take seven barges a day. The canal tolls ranged from 1s.4d. to 1s.6d. per ton for manure, clay, bricks and tiles, although the bulk of the traffic must have been clay. The annual profit is given as £800, which seems a lot, and the annual rent for the lease was £15, which seems very little. The lessors are named as Lord Clifford of Chudleigh and his son the Hon. Charles Hugh Clifford. Henry Knight's widow is named in the lease and described, perhaps significantly, as being aged 79! According to Bradshaw's Guide to the Canals of 1904, the canal was leased to one Henry Barnes Knight of Hilary House, Axminster, so the sale of Hackney Canal seems to have kept it in the family.

In 1900, the average clay shipments at Teignmouth was 224 tons per vessel and as this was equal to 75% of the total weekly tonnage of all materials said to be carried by the Hackney Canal, the arrival and departure of the sea-going vessels must have determined the operation of the canal. Henry Barnes Knight and his family no doubt enjoyed their canal tolls for some years but, following road improvements at nearby Bishopsteignton, motor lorries could easily run the eight miles or so from the clay pits direct to Teignmouth Quay. The Hackney Canal finally closed in 1928.

The remains of the canal were described in 1964 by M C Ewans.² What is there to see of this singular waterway today? A photo taken in 1955, showing the derelict canal flanked by clay cellars at Higher Hackney appears in Charles Hadfield's *Canals of South West England* (1967). They cannot be seen now as the cut has long been filled in and much of it lies under an extension of Newton Abbot racecourse. One clay cellar remains at Higher Hackney as it is a Grade II listed building. It now forms part of the Swanson Motors undertaking.

The sea lock is intact but the upper gates are gone and the lower gates have been replaced by a reinforced concrete wall with non-return flaps as part of the Newton Abbot flood defence scheme. The lock is not accessible as it lies on land occupied by the racecourse which is securely fenced off from the

adjoining marshes. The Hackney Marshes are now a wetland nature reserve maintained by Teignbridge District Council with full access to the public. The footpath passing under the railway bridge of 1846 runs alongside the Hackney Canal below the sea lock and the Hackney Quay wall is intact. The buildings that once housed men and horses survive as overgrown ruins. The remains of a pair of two-storey cottages and the old stables for the pre-canal use of pack horses can be seen as well as fragments of a pair of dwellings converted from earlier clay cellars. The other cellars were demolished when the Passage House Hotel was rebuilt and enlarged. That too was demolished and replaced by a handsome building about 1905, itself no longer used as a hotel. The present inn buildings are modern although the original 1761 building still survives at the rear.

Few pleasure boats seem to reach the head of the tideway and the quiet ebb and flow of the river Teign and the Hackney Canal bring a surprising tranquillity to the place.

Notes and references

The principal sources for this article are L T C Rolt (1974) *The Potters Field*, based on an unpublished typescript of research carried out by R C F Whiteway-Wilkinson whose original sources are not given by Rolt, nor referenced in the text; Richard Harris (1977) *King's Teignton – a parish history*, where sources are given but not referenced to the text; A R Pye (1991) *An Archaeological Assessment of the Stover and Hackney Canals and Hackney Quay*

1. Pye (1991), quoting Devon Record Office, Ref. 62/9/2
2. M C Ewans (1964) *The Haytor Granite Tramway and Stover Canal*, 59-60

Railway Companies as Road Carriers

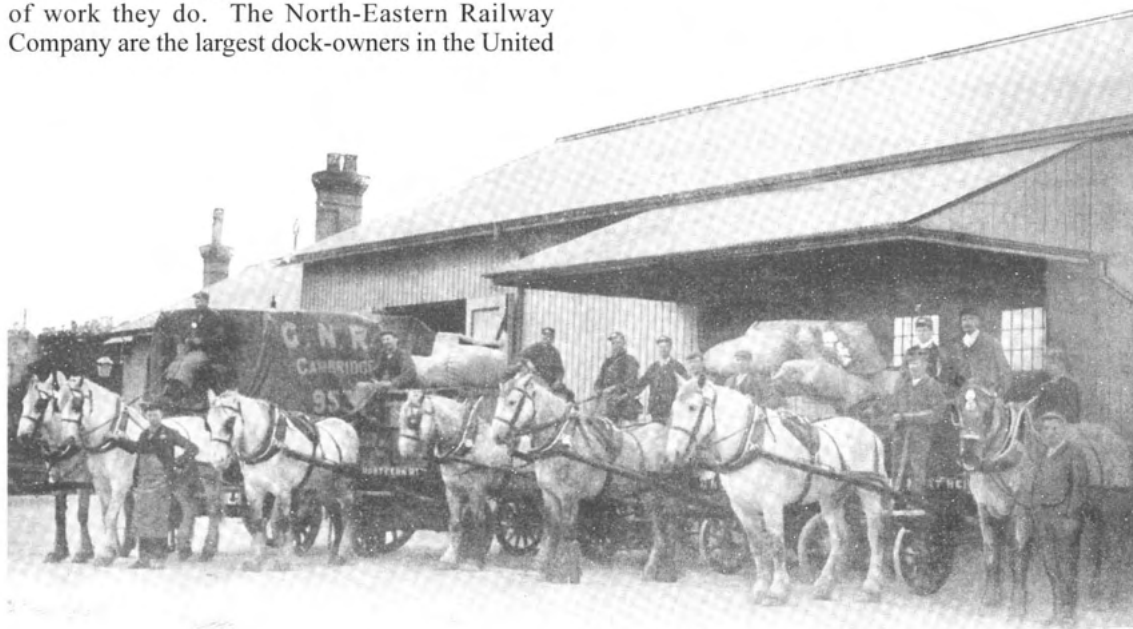
Charles H Grinling

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The first railway companies in the United Kingdom were formed with the intention simply of providing tracks, over which coach proprietors, carriers, and traders and travellers generally would conduct the business of transport in much the same way as over a highway, a navigable river, or a canal. Almost before the lines were opened, it became evident that, in the interests both of safety and efficiency, the railway company must supply the motive-power as well as the permanent way; and the exclusion of passenger carriages, other than those owned or hired by the companies, soon followed. But to this day a large proportion of the mineral and goods traffic carried over our railways is conveyed in what are known as 'private owners' wagons'; and yet, on the other hand, the companies have gradually, step by step, become the owners of a most extensive and varied equipment for carrying on work as carriers and caterers for travel and traffic, off the rails, both on land and by sea. If the London and North-Western, for example, were not world-famous as a railway company, we might think of it more often than we do as the owner of a fleet of Channel steamers second to none for the kind of work they do. The North-Eastern Railway Company are the largest dock-owners in the United

Kingdom, and, perhaps, in the world. The Midland, as a hotel company, takes rank with the 'Gordon' or the 'Frederick'; and the Great Western has done more within the last year or two to develop the use of motor vehicles as public conveyances than any other corporation, company, or individual. The subject of railway companies' 'side-shows' is, indeed, a fascinating one, to which I hope to have an opportunity of returning on a future occasion. My present object is to endeavour to give my readers an insight into an auxiliary business carried on by our railway companies which is not so much a 'side-show' as an essential addition to their activities dating from the time, now many years ago, when they ceased to be railway companies in the original narrow sense of the term, and became common carriers.

It will probably surprise a good many of my readers to learn that there is no legal obligation upon the railway companies of the United Kingdom to act as carriers, nor, indeed, to do anything more than to provide the track for the conveyance of traffic. The Railway Clauses Consolidation Act of 1845 provides



Teams loading up at a small goods station, GNR

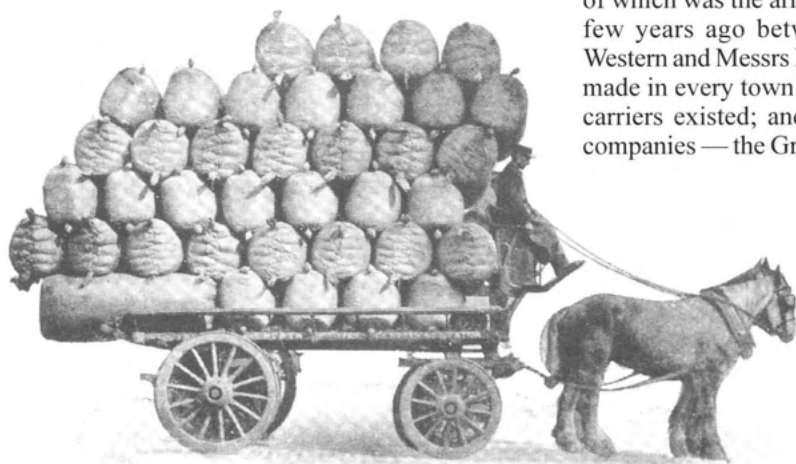
that it shall be lawful for a railway company to employ engines and carriages and convey passengers and goods, but it does not say that they shall do so. As for the collection and delivery of goods at the stations, that is absolutely a voluntary service, undertaken by the companies from purely commercial considerations. It is a service, moreover, which is not performed to the same extent by the Continental railways, and not at all by the railways of America. The class of traffic which our railway companies collect and deliver, as well as carry by rail, is in America handled almost entirely by the express companies, who in many cases not only perform the street cartage at either end of the railway journey, but furnish their own trucks, send their own servants over the lines in charge of the freight, do the loading and unloading, and in some places provide their own station accommodation. In a word, their relation to the railway companies of America is analogous to that existing between the Post Office and our railway companies in respect to the Parcel Post traffic; except that the express companies there do a good deal more than the postal authorities do here.

With such exceptions as the Parcel Post, and the business done by private firms of 'packed parcels' agents, or by forwarding agents who deal with oversea traffic, the 'express' system does not exist in England. Even firms like Messrs Pickford, and



A load of fish empties, L&NWR

Messrs Chaplin and Horne, who were in business as carriers in England long before the advent of railways, have become content to act merely as cartage agents to the railway companies. These old firms, however, did not give up their former priority without a struggle. For some years after the introduction of the railway system, they tried to keep the railway companies in a secondary position as sub-carriers, responsible only to them, and having directly no contact with the customers; and the control they had obtained over the business in the days of the canal-barge and pack-horse made it dangerous for the railway authorities too hastily to supersede the old firms. By way of compromise, a sort of partnership was in many cases formed between the railway company and the carrier, the most prominent instance of which was the arrangement which existed until a few years ago between the London and North-Western and Messrs Pickford. Similar alliances were made in every town where influential firms of road carriers existed; and some of the leading railway companies — the Great Western, for example — did



A load of hops, L&NWR



Carting a big boiler, L&NWR

rivals, it became necessary for the companies to organise their own equipment for collection and delivery. Having once established a horse-and-cartage department, the railway authorities naturally began to ask themselves whether it would not be more economical to supersede some of their cartage agents by employing their own teams elsewhere.

The agency system is by no means dead yet, but in process of time it seems doomed to extinction — so far, at least, as the more prosperous railway companies are concerned. Some of the poorer ones are glad to keep it on, and even to extend it, because it saves them from the necessity of large capital expenditure on horses, carts, stables, receiving-offices, etc. Broadly speaking, it is no doubt better in the interests both of customers and shareholders that the railway company should undertake the whole responsibility and do the whole work of conveyance between sender and consignee. The intervention of a middleman means that the charges must cover a second profit, with no off-setting economy except in the few cases where larger loads can be made up. Were the railway companies of the United Kingdom to combine to hand over the whole of their general goods and parcels traffic to a single firm or corporation of carrying agents, undoubtedly immense economies might be effected; but such a monopoly would not be tolerated by public opinion, unless it were under the strictest Government supervision or in the hands of a State department like the Post Office. As an alternative to the complete nationalisation of our railways, there is, I think, a good deal to be said in favour of an arrangement whereby a national organisation analogous to the Post Office, should take charge of the class of traffic which is handled by the express companies in America; but the financial details of the change would be enormously difficult

to work out.

Sir George Findlay once said in a lecture that the staff of men and horses which the London and North-Western Railway Company employed in the collection and delivery of goods in London exceeded, he believed, the number required to work all the coaches and vans that ran in former days to and from the North. If this was true in the days of his general managership, when at least a third of the North-Western's cartage in London was done by Pickford, it must fall far short of the truth of to-day, when a very largely increased business is carried almost exclusively by the company's own teams. Certain it is that, including not only the railway companies' own studs, but the auxiliary teams employed by the cartage agents, the number of horses employed in the transport of goods throughout the United Kingdom at the present day is far in excess of the total at work before railways came in 'to ruin the English breed of horses' — as croakers averred — and 'reduce the equine genus to the level of a museum exhibit'. The London and North-Western and the Midland each own over 5,000 horses — the North-Western nearly 6,000 — exclusive of the number they employ through agents in various towns; the Great Northern has 2,782; the Great Western 2,668; the Lancashire and Yorkshire 1,867; and the Great Eastern 1,745. If we compare these figures with the locomotive returns of the same companies, we find that in every case the number of horses owned is considerably in excess of the total of the iron steeds. In the cases of the Midland and the Great Northern, the horses outnumber the locomotives in no less a proportion than two to one. The fears of some of the old-fashioned opponents of the railway would surely have been allayed could they have foreseen that after seventy years of steam locomotion, two horses would

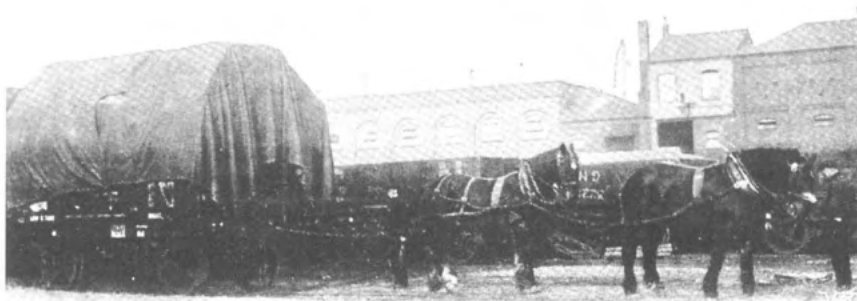
be employed for each engine in the conveyance of the traffic of some of the leading lines. And now that the iron horse itself is threatened with extinction by the progress of electricity, the devotees of the steam locomotive may find comfort in the oft-proved experience that a new invention frequently supplements rather than supersedes an old one.

There is, however, one sphere of railway work from which horses are very properly being withdrawn, as fast as science and capital can supply a mechanical substitute. I allude to the work of the shunting-yards. There are still a great many shunting-horses employed on our railways — the Great Eastern, for example, has 275 of them — and their life, particularly at the small country stations which abound on such a line as the Great Eastern, is easy and agreeable enough on the whole. But no one can ignore the risks to which horses engaged in shunting are exposed when their work has to be done in close proximity to lines of fast and frequent traffic. Intelligent though they are; and wonderfully wary as with experience they become, casualties amongst their number, as in the case of the shunters themselves, unhappily occur, not only by getting run over — which is a comparatively rare thing — but from their liability to catch their feet on or between the rails, or to trip over the numerous bars and wires which abound at busy junctions. Many a broken leg and sprained foot result from these causes, despite the care which is now taken by the engineers' departments to cover up obstructions and fill in holes at all places where shunting work has to be done. In all goods yards of modern design the shunting-horse is superseded by hydraulic or electric capstans, which do the work with greater efficiency and less cost; and at the present rate of progress in mechanical invention, it may be confidently predicted that the shunting-horse, like Othello, will soon find 'his occupation gone' at all but the quietest of country depôts and stations.

Most railway companies pay a good price for their

horses, buying them young and in the best of condition after they have been well broken in to work by a spell on a farm. The average working life of a railway horse is between five and six years, at the expiration of which time the animals still have sufficient work left in them to command a fair price for farm duty again. It is considered good policy for a railway company to have all its horses, as far as possible, in the pink of condition, and this can be achieved only by generous buying, good feeding, careful working, and constant attention to the health of the stud. Then when the time comes to sell, the horse superintendent is rewarded by getting back nearly a third of the money he originally paid for each horse. About £60 is considered a fair price to pay for recruits for a railway stud, and one of the companies gets on the average as much as £23 for each horse sold after nearly six years of regular service. This last figure is, however, rather above the average price realised on horses sold by the companies generally. Usually out of a large railway stud three or four at least are killed by accident during a year, whilst the number who die, or have to be destroyed, is about two per cent of the total kept. Even these, however, are not a total loss to the department, as the carcasses sell for about thirty shillings each. As to the uses to which the various parts of a dead horse are put, it will probably be well for our comfort not to inquire too closely; but it is interesting to know that the animal oil extracted from the carcass is re-sold to the horse-owner for use in the harness-room.

To stable hundreds of horses in great cities like London, Glasgow, Liverpool, Birmingham, or Leeds is a difficult thing for a railway company to do without incurring prohibitive expenditure for land; for the majority of the animals must be housed within a short distance of the central goods depôts. Companies whose lines run into great cities on viaducts find it economical to convert the arches into stables, whilst



Shunting-horses at work, GNR

in other cases accommodation for the horses has been provided underground beneath buildings erected by the companies for other purposes. Most of the modern stables, however, are constructed on the upper floors of premises devoted to other uses, or in buildings of several storeys specially constructed so as to give the maximum accommodation with the minimum occupation of land. At the Great Western stables near Paddington 626 of the 1,500 horses kept by that company in London are housed in a building having four floors of stables, whilst the Great Northern at Clerkenwell has three storeys of stables accommodating 189 horses in a building the ground floor of which is devoted to a goods warehouse. The animals make no difficulty of ascending and descending the inclined ways which lead from one floor to another, the fodder and bedding being taken up by mechanical hoists. For the erection of its newest stables the Great Northern has utilised a piece of waste land situated over the entrance to one of its London tunnels, and here nearly 200 horses are accommodated in a handsome triangular range of one-storey buildings. This company has stables in London underground, on the level and with several floors, and its horses thrive equally well in each of these types of home. The great thing is to give plenty of space and air to each animal; of exercise they get enough in their daily work.

A succession of visits to railway companies' stables has convinced me that in the treatment of horses expert opinions differ as widely as on most other subjects. Some stables, for instance, are fitted with hanging bales between the stalls, others with fixed partitions; and the exponents of each system are equally convinced that theirs is better than the other. As regards bedding, the diversity of opinion amongst railway horse superintendents is still greater, some using straw, others sawdust, others chips and shavings, and others moss-litter — a compressed form of peat, which used to be almost exclusively imported from Denmark, but is now dug largely out of the Yorkshire moors in the neighbourhood of Goole where, I am informed, a 'Danish village' has recently sprung up, the workers in the local moss-litter industry having been imported from that country. A great consideration is the selling price obtainable for the manure, and this no doubt influences some companies to employ straw, though the prejudice formerly existing against moss-litter manure amongst farmers has nearly died out — indeed, some now think it has special qualities as a soil-dressing. Where a railway horse superintendent can obtain a large

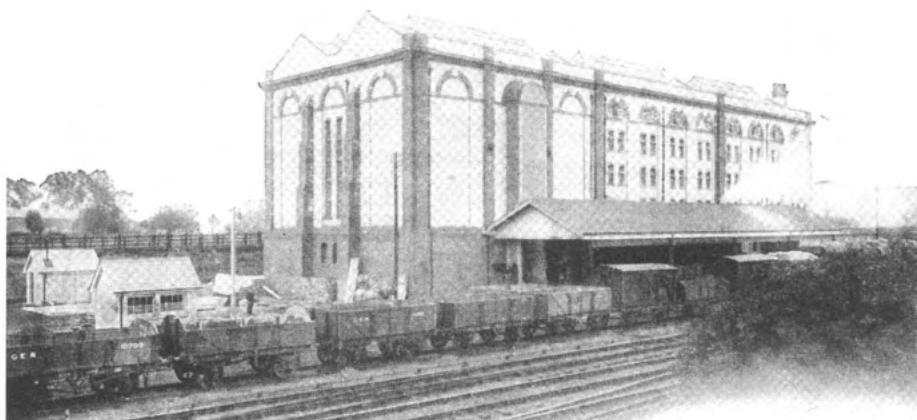
supply of sawdust or chips from his own company's carriage works at the bare cost of conveyance, there is, of course, an advantage in employing that form of bedding. The permanent-way department also sometimes makes its contribution to the stables by supplying old rails, which are used in various ways, especially for the construction of drains in the stalls. The stables themselves, too, are as a rule designed by the company's chief engineer and erected under his supervision.

Nor are stables by any means the only buildings which railway companies have found it necessary to erect for the purposes of their horse departments. Provender stores, shoeing forges, harness factories, and horse hospitals are all items of the extensive and varied plant required by our railways in their capacity as road carriers; and some of the best equipped buildings of these various kinds in the Kingdom are to be found amongst the heterogeneous property of railway shareholders. If the reader wishes to visit a place where the preparation of food for horses has been brought to the highest pitch of perfection, he cannot do better than ask permission from the Great Eastern Railway Company to visit their Provender Stores near Romford — an establishment which to the uninitiated in such matters is a revelation both of engineering skill and of the care which is bestowed upon the nourishment of that humble member of the brute creation — the carrier's horse.

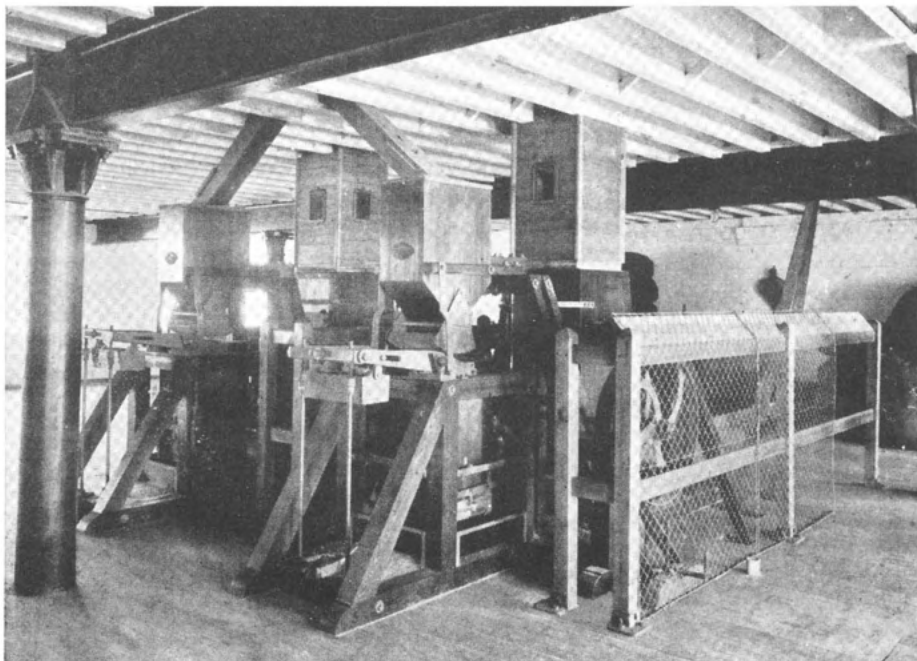
When the visitor alights from the train at the siding adjacent to these Stores, it is difficult for him to believe that the major part of the huge building confronting him is devoted to the purposes of a horses' kitchen, where the raw material of provender — hay, clover, sanfoin, oats, and beans — is cut or crushed, cleaned, sifted, and measured, so as to form the chopped mixture upon which the 1,745 horses belonging to the Great Eastern Company are fed. It is like one of the celebrated pork factories of Chicago, where the pig goes in at one end and the sausages come out at the other. On one side the trusses of hay and the sacks of oats and beans are taken in, at the other side come out the bags of mixed provender; and with the exception of the men who unload and load up the trucks at the sidings — pulling the raw material out of one set of wagons and piling the sacks of provender into another set — no human hand touches the corn or chaff during its passage through the store. There are four floors to the big building, and each floor is occupied by a different set of machines — cutters, crushers, sifters, cleaners, weighers, and measurers. Here and there we find a

man in attendance, but practically the whole thing is automatic. Conveyors of various types carry the stuff upwards from floor to floor — endless bands, worms and scoops, all driven by electric power — and by its own gravity it descends again through shoots of diverse shapes. Into each machine, as it continuously works, falls its due allowance of hay or corn or mixture, until the chaff, oats, and beans have been reduced to that combination and form of provender which experience has proved to be most acceptable to the palate and digestion of the hungry cart-horse. During the process rather more than one per cent of the raw material is extracted in the form of dust, whilst every few minutes any nails, screws,

pins, etc, which may have found their way into the ingredients, are sifted out by the magnet which unceasingly passes over the stream of provender at one point in its progress through this astonishing mechanical kitchen. Every week about 175 tons of provender are sent out from this Store, and the horse superintendent knows that every ounce of it is good, clean, nourishing food, freed from those gritty and metallic impurities which impair the digestions of the animals as surely as chalk or salt in water corrode the boiler of a steam engine. To Messrs E R and F Turner, Ltd, Engineers, of Ipswich, belongs the credit of having designed and supplied most of the machinery for the Great Eastern Company's Provender Stores.



*Provender stores
at Romford,
GER — a
railway horses'
kitchen*



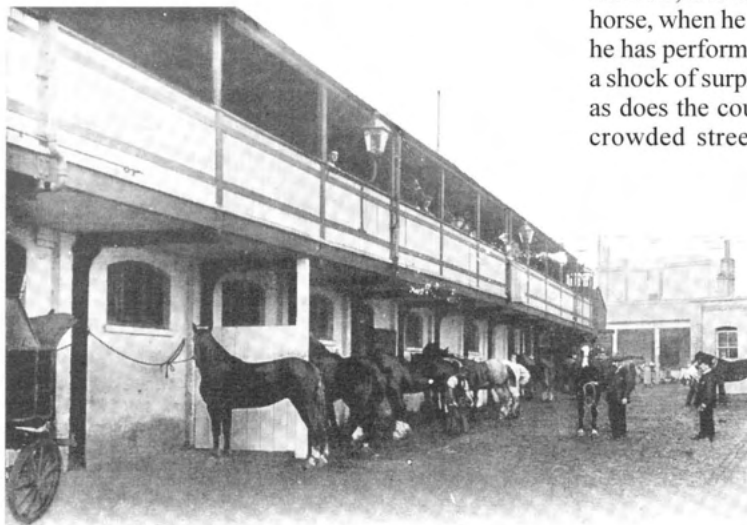
*View inside GER
provender stores
— showing two
machines,
manufactured
and patented by
Messrs E R & F
Turner, Ltd, for
weighing off and
mixing cut chaff
and crushed
corn in any
desired
proportions*

The Great Northern has a similar institution at Holloway, and the Great Western at Didcot; indeed, every one of our large railway companies has found it necessary to provide an establishment of the kind, and the Great Eastern's is specially mentioned here simply because it is the newest and therefore the most up-to-date in its mechanical appliances.

Notwithstanding the care taken in respect to food and stabling, and the fact that all the animals are in the prime of life, sickness amongst railway horses cannot be entirely prevented. The severity of their work, relieved though it be by frequent periods of rest, makes them specially liable to ailments of the feet and legs, whilst throat and lung troubles are also common, especially with those which work in towns. It is a noteworthy fact that almost all the young horses develop colds as soon as they arrive in town from the farms at which they have been bred. To provide accommodation for 'seasoning' these recruits and for the treatment of the sick, every large railway company has its special range of hospital stables at its headquarters, and most of them also have a country convalescent home within easy distance of their principal horse depôt. The Great Northern's horse hospital — to again give one example typical of the rest — is situated within a mile of King's Cross, on an elevated, breezy site at the summit of that remarkable region north of the Euston Road which is given up almost entirely to the occupation of the three great trunk lines running from London to the North. Miles and miles of sidings — of the existence of which passengers by these lines know next to



A serious case in hospital — the GNR Company's 'vet' administering oxygen to a horse suffering with pneumonia



nothing — testify to the immensity of the traffic in goods and coal which the needs of the Metropolis demand; and one can imagine that the young farm-horse, when he is discharged from the 'box' in which he has performed his journey to town, feels as great a shock of surprise at the change in his surroundings as does the country bumpkin on emerging into the crowded streets from one or other of the great passenger termini near by. A few weeks' rest in one of the quiet, cosy stalls of the 'reception stables' under the daily care of an experienced 'vet' soon sets him on his 'town legs'; indeed, this horse hospital in the heart of busy London is in some respects the counterpart of the farm from which he has come — so fragrant are the country smells, so homelike look its straw-yard and its ranges of well-filled stalls. Equally refreshing must this rural atmosphere be to

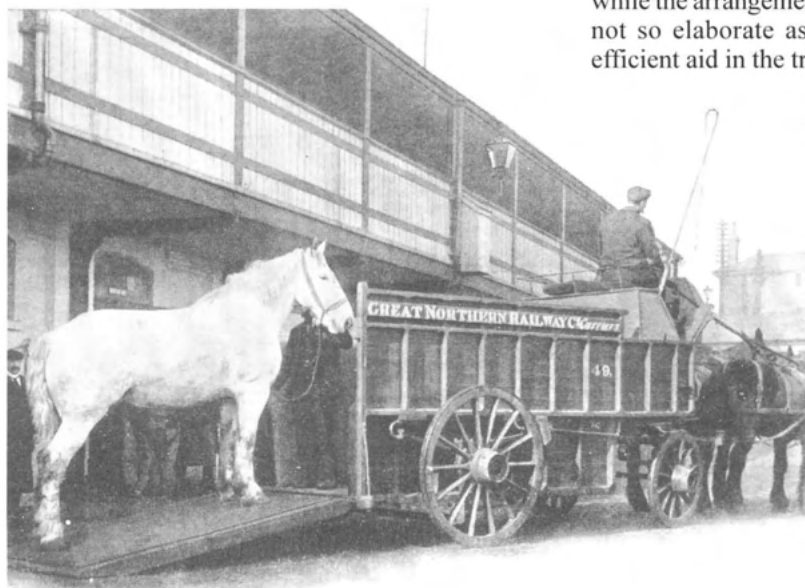


Horses bathing at GNR hospital — an efficient aid in the treatment of foot troubles

the invalids — gathered here from all parts of the Great Northern system — who occupy a homely looking, two-storeyed range of stables forming the

other wing of the hospital. Here every resource of veterinary science is at the service of the sick animals; even oxygen and chloroform are not denied them; while the arrangements for hydropathic treatment, if not so elaborate as at Matlock or Ilkley, are an efficient aid in the treatment of foot troubles. Even

the 'Turkish bath' is sometimes called into requisition for sweating sick horses, and at Totteridge, where the Great Northern has its convalescent home for horses, this was, until recently, part of the regular treatment in certain cases. Modern veterinary opinion,



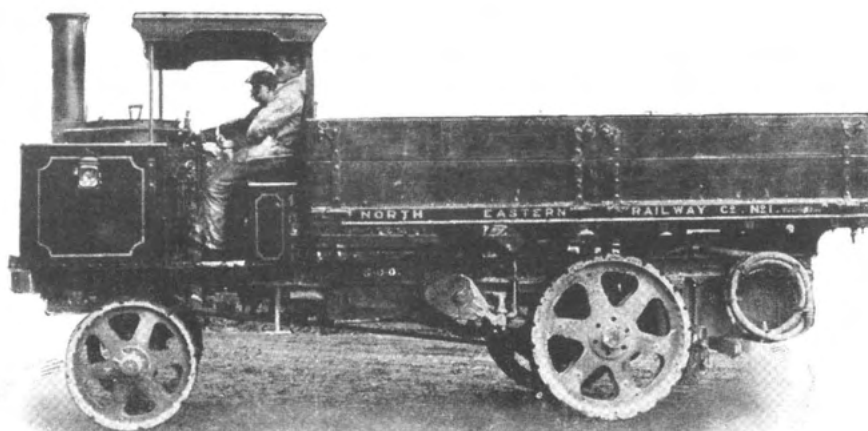
A horse ambulance — the GNR Company's cart for the conveyance of sick horses

however, favours hot baths of the 'Russian' variety, it having been found that horses sweat more freely under the application of steam than they do in a hot-air chamber.

Shoeing-forges and harness-making-shops are interesting auxiliaries to the horse departments of our railways. At small stations the shoeing is let out on contract, but at most large depots the railway companies find it more economical to have their own forges. As to harness, horse-collars, and nosebags, the practice varies, but some companies make all these articles in shops of their own, with the aid of the most approved types of labour-saving machinery. At King's Cross I saw a stitching-machine in the harness shop, driven by electric power supplied from the lighting works at Holloway, which did in twenty minutes an amount of work which it would have taken a man a day to do by hand, whilst near by was another machine, with the help of which eighty provender sacks were being turned out in a day, as compared with fourteen a day before its introduction. In another room a man was engaged in making horse-collars. This is a highly skilled form of work which requires a long apprenticeship, but a skilled operator can turn out seven a week. As showing the care exercised to prevent waste, it is interesting to know that those parts of the stuffing used for railway carriages which would otherwise be thrown away are sent on to the horse department for use in the making of these collars. To prevent the horses' necks becoming galled, the collars in use are dried after each day's work, and each horse has its own collar set apart for it, so as to ensure an easy fit. No detail, in short, is thought too trivial, if it conduces to the health of the animals or to economy in the work of the department.

The ordinary day's work of a railway cart-horse in town is thirteen hours; the average daily load moved per horse is two tons, and the average distance traversed is about twenty miles per day. Complaint is often made against railway carts that they block the streets in town by waiting about for long periods in front of offices and warehouses; and before the Royal Commission on London Traffic, now sitting, several witnesses have urged that railway companies ought to be prohibited from placing their receiving-offices in main thoroughfares, in consequence of the obstruction caused by the vans waiting outside these premises. It must not be forgotten, however, that a railway company is engaged in trade, and has an equal right with other traders to select the most suitable sites for carrying on its business. With equal force might it be contended that the existence of large and popular shops on important streets is an obstruction to traffic, as a great many vehicles stop outside these shops for long periods during business hours. In order to test this point, the authorities of the London and North-Western recently had statistics collected as to the number and duration of the stoppages of vehicles outside three of their London receiving-offices, as compared with those of the most frequented West End shops. It was found that not only did more vehicles stop at the shops than at the railway offices, but that they stopped considerably longer outside the former than the latter, the average duration being over ten minutes in the case of one of the shops, as compared with an average of from three to five minutes outside the receiving-offices. Yet no one thinks of suggesting that the big shops should be banished from the great thoroughfares in the interests of 'rapid transit'!

*North-Eastern
Railway steam
motor wagon — the
industrial salvation
of villages*





Great Western Railway motor char-à-banc

No doubt the competition which exists between railway companies in this country is responsible for a great many more vans being on the streets of our great towns than would be the case if goods and railway parcels, like letters and post-parcels, were all dealt with by one national organisation. On the other hand, competition promotes celerity. Were railway carriage of goods a monopoly, it is more than probable that the bulk of the work of collection and delivery would be performed by heavy, lumbering vans, horsed by two or more crawling animals, which would cause far more obstruction, team for team, than do the light, one-horse vans — always on the 'trot', when the road is open to them — in which the bulk of railway cartage is now done in large towns. Heavy vans are, of course, employed for special branches of the work — and even traction-engines have to be hired for exceptional loads — but the tendency is becoming stronger every year to lighten the loads and reduce the tare of the vehicles, so as to secure the quickest possible despatch. The modern type of railway van is designed to move quickly, and the 'crawler' amongst this class of vehicle is becoming a thing of the past.

The speed with which the town cartage work of railway companies has to be done has, up to the present, proved an insurmountable obstacle to the employment of motor-vehicles in place of horses and carts. This may seem at first sight a paradox, but a

short explanation will make my meaning clear. At a large city goods station the consignments for delivery begin to arrive soon after midnight, and by 7.30, when the horses are ready for work, the porters have loaded, perhaps, 200 vans, which by 8am are all despatched upon their rounds. There are (say) another 200 vans still available, and the loading of these is at once taken in hand and completed about 10.30. About this time the first set of vans are beginning to return empty, and all that has to be done is to transfer the returned teams to the newly loaded vehicles and send them out again. Thus the same teams provide the motive power for a double set of vans. Having delivered their second loads, they take on collecting orders, and return to the station a second time with their vans loaded with 'outwards' goods. Then the horses are taken to the stables and fed and rubbed down by the stable hands, while the drivers have their dinners. While this is taking place, the vans are being unloaded, and after dinner they can at once be taken out again for the afternoon collections. It will be readily seen that these arrangements would have to be entirely altered if motor-vehicles were employed, as the motors could not be detached from the vans, like the horses, to serve a double set of vehicles, and it would not pay to keep the motive machinery idle for long periods while the vans were being loaded and unloaded at the stations. In crowded streets a motor-vehicle has little advantage over a

Great Western Railway motor-'bus

horse in point of speed, whilst for backing up to warehouses and standing at the angles often desirable in busy thoroughfares, it is less suitable than the horse-van with its simple fore-arriage and possible sideways position of the horse. The stabling and cleaning of motor-vehicles, and the storage of the many gallons of petrol required, would also be 'hard nuts to crack', if the railway companies were to decide to substitute mechanical power for horse-propulsion in London and other great cities.

In country districts, on the other hand, motor traction has already become a useful auxiliary of the railway; but even there its utility has proved very limited so far as the collection and delivery of goods are concerned. For comparatively heavy weights, conveyed between fixed points in regular loads, a motor-wagon with a 'trailer' behind it is probably more economical than a pair-horse van or lorry, but such conditions only occur occasionally in railway work. The bulk of the business done, in country and in town, consists of the cartage of light loads, with a great deal of loading and unloading en route and consequently much waiting about. Under these conditions the weight carried per day per vehicle is very light, and the tendency is more and more against the employment of heavy vehicles except for special work. The sphere awaiting the motor is not so much in substitution for the horses and carts already employed, but as an alternative to the construction of a branch line to reach some place or places, a number of miles away from the railway, which are not adequately served under the established conditions. There is probably a good opening for automobilism to establish regular connections between our railways and some of the large villages which hitherto have been left 'high and dry' at a distance of ten or twelve miles from the nearest station. A regular service both of passenger and goods motor-cars, run by the railway company and connecting with its trains, is likely to prove the industrial salvation of places thus circumstanced, and



already several of the companies — notably the Great Western and the North- Eastern — have instituted some very interesting and praiseworthy experiments in this direction, which are being closely watched by the authorities of other lines. Should it fall to my lot in (say) ten years' time to write another article on 'Railway Companies as Road Carriers', I have little doubt but that the motor-car will bulk very largely in its pages.

Notes

Charles H Grindling was prolific writer on railway topics. The son of William Grindling, the Great Northern Railway's accountant from 1868 to 1896, he had served in his father's department. In 1895 he published a *History of the Great Northern Railway*, then the best history of any railway company.

The text of this article, which first appeared in the *Windsor Magazine* (pages 307-17) in 1905, has been reproduced unaltered except for putting in the *RGHS Journal's* standard style such matters as the way of presenting quotes. All the illustrations which accompanied the original article have also been reproduced, together with the original captions.

Who Designed the Stations on the Southampton & Dorchester Railway?

Philip A Brown

In 1975 a slim volume entitled *Castleman's Corkscrew: The Southampton and Dorchester Railway 1844-48* by J G Cox was published. It was a carefully researched work, based on primary sources as far as possible and fully referenced. It told the story of the eponymous railway's brief period of independent existence, from initial conception of the idea by the Dorset solicitor Charles Castleman to the point where the completed line was taken over by the neighbouring London & South Western Railway. Mr Cox's book remains the standard work on the subject to this day.

Unusually for a work of railway history published at that time, the author included a substantial section about the stations. In passing, he concluded that their architect was Sancton Wood, citing as evidence a payment of £21 made to Wood for the design of a station and recorded in the company's accounts journal. Many subsequent writers, not unreasonably, have repeated this attribution.



Lyndhurst Road Station house in 1972

Putting aside the thought that this begged the question of who might have been responsible for the design of the various other buildings on the railway — the goods sheds and engine sheds, the gate keepers lodges etc, not to mention the fact that the stations were not all to one standard design - the logic seemed unassailable. One had been taught the principle of Ockham's razor: essentially, given competing explanations, assume the most straightforward is the most likely to be right. How else could one

reasonably explain a financially prudent Board of Directors authorising such a payment to an architect?

There the matter rested for some 20 years and a couple of house moves, by which time the present author found himself living near an earlier railway by the S&D's engineer, Captain W S Moorsom. This was the Birmingham & Gloucester, opened in 1840-41. Exploration of the surviving infrastructure led to the discovery that Droitwich Station had been built to the same design as Lyndhurst Road, Holmsley Ringwood, Wimborne and Wareham on the S&D.

These stations were to a 'T'-shaped plan, two storeys tall, decorated in a mild domestic- Tudor style and featuring paired chimney stacks and an oriel window above the entrance porch. The stem of the T was orientated parallel to the railway track and the pitched roofs of the two parts of the building were separate constructions, so no internal communication between the roof spaces was possible. Francis Wishaw,¹ writing about the B&G, recorded that 'the



Droitwich Station house in 1998

buildings of the intermediate stations are erected in the Gothic style, very much like those on some of the Scotch railways recently opened to the public. An intermediate station-house consists of about four rooms, including a booking office and waiting room'.

Clearly Droitwich could not have been built to a plan as yet undrawn. Furthermore, there were strong design similarities between the lesser stations on the two lines, between the portals of the cut and cover tunnels at Moseley and Southampton and between

the gate lodges on the two railways. A further example of a station built to the Droitwich design was found in Ireland, at Thomastown on the Waterford and Kilkenny, another Moorsom line. The physical evidence pointed to the designs originating with Moorsom and being reused on each contract he undertook.

Supporting evidence for the design being Moorsom's was found in the writings of Herbert Spencer,² the philosopher and evolutionary theorist. As a young man he had worked for Moorsom as an assistant engineer on the B&G contract. His autobiography confirms that the design work was undertaken 'in house' by the engineer's staff. 'In the office at Worcester', Spencer wrote, 'there had been made not only drawings for engineering works, but also those for various buildings — stations, offices, engine-houses, and so forth. Naturally there occurred occasions for the discussion of architectural principles...'

In which case, why did the S&D pay Sancton Wood to design a station? When Mr Cox carried out his research, the company's minute book was not available to him. It has since come into the public domain and does contain a clue. It reveals that the idea of asking Sancton Wood to design a 'first class' station came from Samuel Clegg, Moorsom's resident engineer. A minute of 8 October 1845³ records that 'the resident engineer having expressed a wish that

an architect should be employed to draw a plan for a first class station, the Board directed this to be done without delay: the expense thereof to be defrayed by the Company'.

Quite what happened next must be conjecture since the minute book says no more on the subject. Whilst acutely aware that seemingly obvious deductions can prove mistaken, I suggest that Moorsom most likely intervened and insisted that his own design be used. It is noteworthy that no further expressions of wishes by Clegg are recorded in the minute book, whilst Moorsom reported to, or appeared in person, at subsequent Board meetings. As to Sancton Wood's design, whether it disappeared without trace or whether he reused it elsewhere, we will probably never know. I suspect that the attribution of the S&D stations to Sancton Wood will continue in circulation until someone produces a book to supersede Mr Cox's.

Notes and references

1. Francis Wishaw, *The Railways of Great Britain and Ireland*, 1842, reprinted David & Charles, 1969
2. Herbert Spencer, *An Autobiography*, Williams & Norgate, 1904
3. *Minute Book of the Southampton & Dorchester Railway*, Southampton Record Office, ref. D/X/416

13 April 2008 will see the centenary of the electrification of the railway from Morecambe to Heysham; the lines from those two places to Lancaster Green Ayre followed within the next two months. Unlike the Newcastle upon Tyne suburban lines of the North Eastern Railway, opened four years earlier, that had used a third-rail DC supply, the Morecambe lines used single-phase 25-cycle AC at 6600 volts through an overhead catenary. The system was the subject of a patent held by Siemens Brothers, and had been used earlier in Germany on the Hamburg-Altona Railway. The works were carried out under the direction of William Barton Worthington, Chief Engineer of the Midland Railway who owned the lines, and J Sayers, their Telegraph Engineer.

One problem that needed to be solved was the clearance under the pre-existing overbridges that, unlike the schemes of the 1960s, were allowed to remain. Generally the contact wire was 18ft-3in. above rail level, but despite being offset somewhat towards the centres of the bridges where there was more clearance, the height there was only 13ft-3in. Initially there was a horizontal 'stagger' of 4 feet, but after trials this was reduced to 2 feet. The catenary was generally supported on wooden posts. The power was supplied by enlarging the existing power station at Heysham, that had been built to work the cranes and other machinery at the harbour there.

Francis Wright, the Butterley Company and St Pancras

Toby Leadbetter

With the opening of the extended St Pancras Station in London it is opportune to examine the role of Francis Wright (1806–1873) in the creation of the original, magnificent edifice. It is extraordinary that one of the most influential philanthropists of mid-England should have been largely forgotten. Indeed, whenever anyone writes about St Pancras, his most famous and impressive of undertakings, there is little mention of the major driving force behind it. It is even more extraordinary when it is realised that beyond his impressive and active patronage of many churches, hospitals and schools, he was influential in the development of a national railway linking the mid-region of England to the capital. Francis Wright was one of the most successful businessmen of Nottinghamshire and Derbyshire: he was a director of the fast developing Midland Railway and chief executive of the Butterley Company.



Francis Wright (Trent College)

Was Francis Wright outstanding? Probably not, yet he absolutely epitomises all that was extraordinary about the nineteenth century. He saw the expanding

railways and engineering, as well as the large scale production of coal and iron, as means of controlling local communities through school, church, Sunday school, the magistracy and other necessary amenities. Indeed, such was his desire to improve standards amongst the working classes that he built entire villages and towns thereby giving a focus to the regeneration of religion, morality and a sense of community. This was a gospel which Wright applied to villages directly linked to his Midlands companies, to the founding of schools in line with his low-church beliefs, and the manner in which the northward and southward expansion of the Midland Railway brought improvements in living standards to many thousands of people across England. Whilst the industrial output of the Victorian age brought many advances and certainly large wealth for men like Wright, it also caused many problems, including slums and what he will have seen as immoral behaviour. Nevertheless for Francis Wright the massive increase in personal and company assets allowed him to focus even more on good works as well as railway and coal expansion in equal measure.

The Butterley Company

The Butterley Company was descended from Benjamin Outram & Company, which had been founded in 1790 by Benjamin Outram and Francis Beresford. They were joined early in 1791 by William Jessop and John Wright. Outram, Beresford and Jessop had come together in 1789 in promoting the Cromford Canal and exploiting the new wealth of opportunities which the canal would create by passing through an area with massive coal, limestone and ironstone reserves.¹ John Wright married Francis Beresford's eldest daughter Elizabeth in April and became a partner in his father-in-law's legal business. The coming together of these directors brought together great skills: two civil engineers (Jessop — able engineer and surveyor and Outram — innovator), the financier and solicitor (Beresford), and the prosperous and successful Nottingham banker, with experience in iron, (Wright). Whilst being the principal financier, Beresford was not involved in any

day-to-day matters. These four men had the foresight, business and financial acumen to buy the Butterley Hall Estate where Jessop and Outram had found large quantities of coal when digging and building the Butterley Tunnel for the Cromford Canal. Benjamin Outram & Company became the Butterley Company in 1807, following Outram's death in 1805.

The company primarily exploited the massive coal reserves. From the outset this became a massive concern: it was undoubtedly the largest concern in Nottinghamshire/Derbyshire and remained so, arguably, until the late 1800s. By 1793 the Works was producing almost 1000 tonnes of iron each year and with expansion in facilities this would increase to over 5000 tonnes annually: 'Between April and November of that year (1797) the mines on the Butterley estate produced 5,190 tonnes of coal'.²

John Wright bought out the Beresford share in 1806. The Jessop interest was more permanent³: Jessop's son, William junior inherited this interest on his father's death in 1814, and went to live at Butterley Hall (as his father had done following Outram's death nine years earlier). He signed a new partnership with Wright – one-third to two-thirds in Wright's favour. Wright also bought the Butterley Park estate on his own account, and the Butterley Hall estate (formerly a partnership asset) either on his own account or in trust for the new company.⁴ Though initially, like Beresford, he was tied to his own business interests, Wright had increasingly become the dominant player of the company.

The Butterley Company lasted from 1807 until 1968, when it was taken over by the Hanson Trust for £4.7 million and was split up to form Butterley Brick, Butterley Engineering and Butterley Aggregates, with Butterley Hall being sold off to become the headquarters for the Derbyshire Constabulary. Butterley Engineering still occupies the Butterley estate.

Francis Wright and Butterley

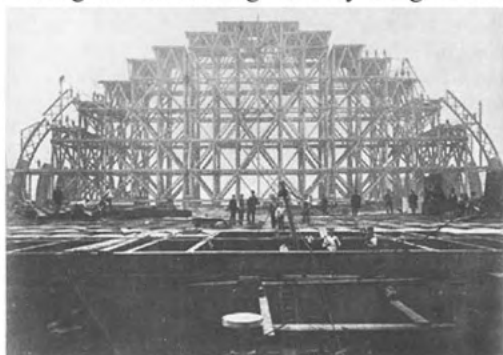
Francis Wright was born on 21 December 1806, the second son of John and Elisabeth Wright, and was named after his maternal grandfather, Francis Beresford of Osmaston. His education under Dr Arnold at Rugby was influential and engendered in him an even more staunchly evangelical ethic than was common with Victorian gentleman. Significant to his family's success was Francis' belief in 'busy hands keep the devil away': he was a zealous low churchman or old style evangelical. He had a strong belief in curbing the influences of low morals in the

lower divisions of Victorian society. He had a belief in hard work: indeed he adorned his houses and buildings for which he was patron with reminders of his protestant work ethic, for it was a godly pursuit. The terrace parapet of Osmaston Manor, the extraordinary pile he built in Derbyshire, still carries today the carved and pious words — 'The work of our hands is vanity but whatsoever God doeth it shall be forever', and on the clock tower further religious instruction — 'Work while it is day'. The grandeur and design of the house reveal the circles in which the Wrights now mixed — the Fitzherberts, Cavendishes and Vernons — i.e. the best Derbyshire families.

'A deeply religious man, his purse never closed against an appeal for the building, beautifying, and endowing of churches and schools'.⁵ He was responsible for ensuring better and more housing around Butterley for his workers, by developing a carefully designed community — Ironville — with its well-built terraces, shops, schools and church. He also built churches in Lenton and Osmaston, and then in Ashbourne as he did not like the high churchmanship of the parish church. Church attendance by all his workers was obligatory. Indeed it was reported in the British Association's visit to Butterley in 1866 that he also acted as patron 'of hospitals, schools, penitents' homes, churches, to say nothing of less public and familiar forms of charity'.⁶ He was a significant patron to Derbyshire Royal Infirmary, where he bailed the project out by donating £2000 to cover the over-expenditure.⁷ Central to this was his biggest educational project when, in 1866 with like-minded trustees, he founded Trent College, a boarding public-school for boys at Long Eaton, five miles from Nottingham. Originally he had planned to establish five similar colleges across the Midlands, to rival the Woodard schools, all with the aim of educating boys in body and mind with close adherence to Scripture and morals. The school's chapel built in 1875, two years after Francis' death, is a memorial to their founder.

Francis Wright held office as High Sheriff of Nottingham and a Deputy Lieutenant of Nottinghamshire and subsequently Derbyshire). As Chairman of the Ashbourne Bench he was stern, as shown by his attempt to ban the annual Shrovetide Game. This was a gentleman who did not see any contradiction between the acquisition and proliferation of personal wealth and his protestant principles as this enabled his extensive charitable work.

He took control at Butterley in 1830, when the value of the company was £30,000. One of his first initiatives was to pay £10,000 towards building railways between Derby, Nottingham and Leicester. With the fast-developing railways and the massive building structures which Butterley iron could provide, he was able to make big increases in employment at Butterley, as much as 30% by 1844: 'the population in the areas where the company had property trebled in the course of forty years'.⁸ By 1858 the company's assets stood at £436,000. The success of Butterley on the national stage saw it progress from the largest iron company in the East Midlands to one that was even more adventurous and progressive.⁹ It obtained contracts abroad, including that for the large railway bridge over the



St Pancras Station: staging for erection of roof

Maas at Dordrecht in Holland.

It was also one of the two leading coal production companies. The coal output from Butterley in 1862, from 14 shafts, was between 700,000 and 800,000 tonnes per annum, one fifth of the whole of Derbyshire.¹⁰ And yet this was a modest man, not at ease in public speech as he had a stammer, but courageous with a strong sense of duty and benevolence, who remained true to his beliefs in an age of extremes. He directed and left a company whose assets rose from £30,000 to nearly half a million. By the time of Francis' death in February 1873, the Butterley Company value had advanced to £½ million and his own estate was worth £1.4 million. Yet although Francis fully exploited the advances of the age to further Butterley's activities and success, little reference is made to him, if any, when the company is referred to today.

St Pancras Station

St Pancras still epitomises the times and works of Francis Wright. However, it is interesting how the debate moves on and opinions change. In September 1966, a debate ensued as to the future of St Pancras. J L F Wright, the Vice-chairman of the Butterley Company Ltd, wrote to *The Times* (10 September 1966) entering a debate between the *Times* Architectural Correspondent, who described it as 'unique and possessed of visual richness', and Sir Edward Playfair, a former senior civil servant, who 'positively loathes' the building, seeing its Victorian pinnacles and spires as 'Elizabethan vulgarity'.¹¹ It is extraordinary, now that the station has been grandly refurbished and extended that, only 40 years ago, it was under threat of being demolished.

How remote this threat seems from the original commissioning of St Pancras by the Midland Railway. By the 1860s it had become crucial for them to have their own direct route to and terminus in London to manage effectively the increasing traffic, such as coal and beer, from the Midlands. They could no longer guarantee a reliable service to the metropolis, depending as they did on access over the metals of either the London & North Western Railway or the Great Northern Railway, both of whose routes were becoming gridlocked. Neither arrangement worked and it was obvious to the Midland that they had to start buying up land in the parish of St Pancras so they could extend their own direct network from the



St Pancras Station roof

Derby, Nottingham and Leicester line. The works involved delays from tunnelling a canal beneath the site, removal of slums and a cemetery and relocating St Luke's Church and a gas works.

Butterley not only fabricated and built the station roof with its 240-foot tied arch, but also supplied the 60 million bricks for Sir Gilbert Scott's station

building and Midland Grand Hotel. Butterley supplied 9,000 tonnes of iron work.¹² The brick vaults below the station also stand on Butterley iron piles. The design and engineering of St Pancras were by W H Barlow, the brilliant railways engineer who conceived the idea, and Rowland Mason Ordish, another Derby-based engineer whose other projects included the great dome of the Albert Hall. However, the erection of the roof, the largest arch span of its time, was the responsibility of Sir John Alleyne, the equally brilliant Engineer and Manager of Butterley Company for 28 years, who transformed the idea into reality. Francis Wright was at least fortunate, if not visionary, in whom he had working for Butterley Company. Alleyne was already connected to Butterley, which he joined in 1852, as he was Francis Wright's brother-in-law. But this was no nepotistic appointment; Alleyne was according to all reports, a brilliant engineer.^{13, 14} He patented industrial machinery methods for manipulating iron, developed the Butterley Beam which gave a structural depth about twice that of the rolled joists of the time and also the Butterley Bulb — a shape devised and patented in 1858 for longitudinal riveted or fire-welded girders and beams of wrought iron, much of which at the time was leaving Butterley for the shipyards for the construction of iron battleships for the Royal Navy.

St Pancras Station was designed to handle 50 trains



per day and could cope with three times this amount — a scale impressively far-sighted. The budget for St Pancras Station, not including the roof, was £320,000 and the contract for the roof was awarded to Butterley for £117,000. This project was an immense national success for Butterley and tied together through Francis Wright all the varying interests: the expanding importance of a rail network, his directorships of the Midland Railway and of Butterley, as well as the social and educational improvements that could be brought by a busy rail network. It was as much Francis Wright's success,

as it was his progressive attitude and drive that placed Butterley in a firm position to take on such a prestigious national engineering project.

The vision of Francis Wright endures and so should his name along with many other Victorian philanthropists. His is a name that should conjure up the very spirit of the progressive and dynamic Victorian age. Mention of St Pancras or Butterley should give due merit to the importance of a driving force behind both successful concerns. Francis Wright must surely be judged to have been one of the great progressive industrialists, educators and benefactors of the nineteenth century.

Notes and references

This article is based on the following sources: Revd Gerard Smith (1873) In Memoriam, recollections of the late Francis Wright, Esq; R H Mottram & C Coote (1951) *Through Five Generations*, the history of the Butterley Company; R Meynell (1952) in *The Derbyshire Advertiser*, 12 September; Philip Riden (1990) *Butterley Company 1790-1830*; R Christian (1990) *Butterley Brick*, 200 years in the making; F Barnes (1993) *Priory Demesne* to University Campus; F W B Leadbetter (2002) *A Celebration of Trent College 1866-2002*; F W B Leadbetter (2007) *Francis Wright, Victorian philanthropist and Albert Ball, young hero and tragic loss*.

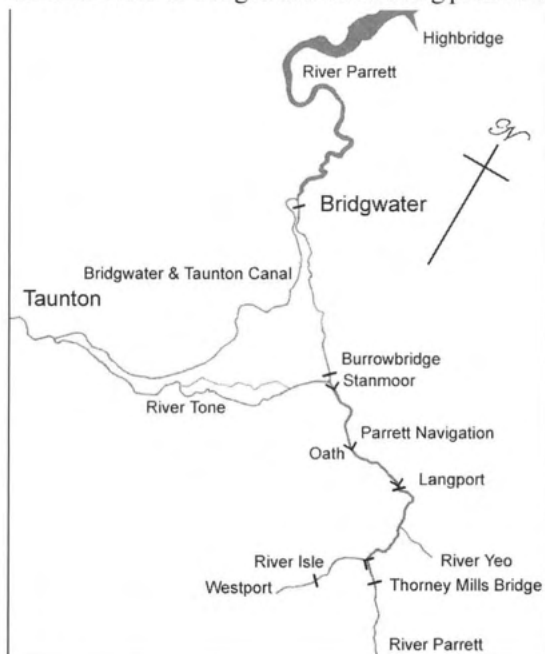
A longer version can be obtained from the author at Trent College

1. Barnes, 186
2. Christian, 28
3. Mottram and Coote, 48
4. *ibid*, 48
5. *ibid*, 54
6. *ibid*, 38, reporting on The British Association's Inspection, 1866
7. Smith, 52
8. Meynell, *Derbyshire Advertiser*, 12 September 12 1952
9. Barnes, 193
10. Mottram and CCoote, 77
11. *The Great St Pancras Controversy, Ad Rem*, 30, Spring 1967, 30
12. *ibid*, p30
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Brunel and the River Parrett's Half-lock at Stanmoor

Pat Jones

Sea-going ships have navigated the Somerset river Parrett for 19 miles from the Bristol Channel to Bridgwater on the tide, and until a century ago inland craft had traded for a further 12 miles to Langport, since 'time out of mind'. Langport was a Saxon town, occupying a narrowing of the river valley where the river could be bridged and the crossing protected,



situated just below the river's confluence with the river Yeo. There is some evidence to support the belief that the Romans had navigated the Parrett (*Vxela Fl*) and for eight miles up the Yeo to their garrison and fort at Ilchester (*Lindinis*). Langport's medieval 'Great Bow Bridge' was built upon a continuous raised foundation or 'sill' that retained a navigable depth upstream, but in later years impeded the onward passage of laden craft, making transhipment necessary.

In 1280 the burgesses of Bridgwater complained that, whereas they were used to tow their boats on the waterway of Parrett, along the moor-lands between Bridgwater and Langport, for the utility of the whole country of Bridgwater, now one of the

owners of Aller Moor (through which the Parrett passes) had prevented them towing their boats through, saying that a free passage depended on his goodwill. The jury's verdict was that both the burgesses and any others had had the right to tow boats from Bridgwater to Langport from time out of mind.¹

Sea levels — and the levels of tidal rivers — were at their highest in the thirteenth and fourteenth centuries, but they fell during the fifteenth to eighteenth centuries,² so that by the 1830s barges trading between Bridgwater and Langport and loaded to draw three feet of water could only operate on the highest spring tides, or when ordinary spring tides coincided with a moderately good flow. In ideal conditions seven return voyages could be completed in an eight-day period. They would leave Bridgwater on the first of the morning's flood; carry the tide for seven miles to Stanmoor where a horse took over, and return on the last of the ebb. The Environment Agency's 2005 Hydrograph (Figure 1) shows the combined effect of variable flow and tidal conditions on the river's surface level at West Sedgemoor Pumping Station, 1¼ miles upstream from Stanmoor.

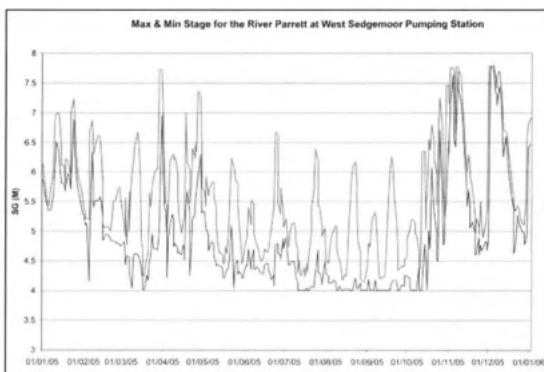


Figure 2. During times of drought the water level was about 4 m (13.1 feet) AOD and it may be assumed that the mean bed level is only slightly lower

In October 1835 the promoters of the Parrett Navigation instructed the engineer Joseph Jones to

devise a scheme that would enable barges to reach Langport at the time of neap tides, and extend navigation beyond Langport. In December of that year they engaged Isambard Kingdom Brunel to advise them, and to assist with the passage of their Bill through Parliament, for which he was later paid the sum of £132-16s-6d. Brunel gave evidence before a Commons' Committee on 10 May 1836, explaining in detail the functions of the proposed locks and floodgates. He stated that the first or lowest lock was to be just above the confluence of the Parrett and the Tone, at Stanmoor, 'although that would not properly speaking be a lock, it would be floodgates with a *half-lock*; floodgates for the purpose of allowing the freshes of the river to flow freely in times of fresh, and a half-lock pounding back the water of the river at other times ...'

The Parrett Navigation Act received the Royal Assent on 4 July 1836. William Gravatt, who was at that time a colleague and friend of Brunel, was appointed Engineer, and the works were constructed under the supervision of Charles Hodgkinson. The half-lock and floodgates at Stanmoor were operational by 4 July 1838, and a pound-lock 400 yards downstream from Langport Bridge was operational by 1 March 1839 (although its associated floodgates were still incomplete at that time). A temporary bridge was also erected during the early months of 1839 so that the Great Bow Bridge could be demolished and the height of its sill reduced. Sill and river levels have been as follows:

the 1839 survey recorded that 'the pen at the Stanmoor Gates [is] fixed at 1 foot below the sill of Langport Bridge' (13 feet above OD) and 'The sills of Stanmoor Lock are fixed below the sill of Langport Bridge 9 feet 3 inches' (4.75 feet above OD).

tide tables for 1971 show the *mean* height of high water at Bridgwater Town during spring tides to be 19.6 feet AOD; during neap tides the *mean* height falls to 10.1 feet AOD.⁵

when neap tides coincided with low-flow conditions laden craft could not reach Stanmoor.

When low-flow conditions coincided with neap tides the half-lock and floodgates at Stanmoor would, therefore, have been required to release a 'flash' to temporarily raise the level downstream, *and* to raise the surface level of the river for four and three-quarter miles upstream to at least 13 feet above OD. It was hoped that this could be achieved by compliance with the 'Directions to the Keeper of the Floodgates at Stanmoor' dated 7th September, 1838, which were

framed to conform to the requirements of the 1836 Navigation Act.⁶

THE highest Spring Tide is the fourth after the new and full Moon. The Gates are to be kept entirely open eight Tides before and eight Tides after the highest Tide.

At all other times except the River Water stands three feet deep at low water on the Shoal next below Borough Bridge, you are to close the Gates two hours and half before the computed time of the flowing of the Tide at the Floodgates, and keep them closed until the Boats nearly reach Borough Bridge by the first flow of the Tide; they are then to be opened, the empty Boats are to pass down, and the Floodgates are to remain open until all the Boats pass up through them with the Tide, for which you are to allow twenty minutes and no more from the arrival of the first Boat, if so long time shall be necessary; at the end of the twenty minutes, or before if the last Boat have passed up, you are to close the Gates and keep them closed four hours.

You may however, before the flow of the Tide, let off a portion of the waters by the paddles in the Floodgates when it may be necessary to deepen the tidal waters for bringing up the Boats to Borough Bridge.

You are not to open the Gates for any person, under any pretence whatever, during the time they are to be closed, two hours and half before tide.

Nor are you to open them during the four hours after Tide, unless you get Proof that all the Boats which have gone up have passed up beyond the Portmoor Reach.

The instruction that 'the empty Boats are to pass down' implies it was anticipated that the majority of the river's trade would be in an upstream direction. Presumably the 'four hours after [high] Tide' was the length of time that a horse was expected to require to haul a laden barge against the stream for four and three-quarter miles to Langport.

Stanmoor half-lock and floodgates had evidently ceased to exist when the OS 1st edition 1:2,500 map was surveyed in 1886, and its construction drawings have not been found. Apparently its gates could be opened against a head of water, but all that is known for certain about them is that they were 8 feet 3 inches high and (unlike the floodgates at Langport) they contained paddles. At Langport they comprised two pairs of gates; it seems likely that the Stanmoor works also comprised two pairs of gates, probably separated by a narrow island midstream, with the towing path side (left-bank) pair being used for navigation. Brunel intended the lock to be 14 feet wide,⁷ but his involvement with the undertaking had ceased by November 1836, when his bill was paid.

By 1 March 1839 it had become clear that in low-flow conditions the structure was not able to raise the level upstream to the required extent within the prescribed four hours. It was decided to ascertain whether the river's natural flow could be sufficiently augmented by opening the paddles of Langport Lock; if not, it would be necessary to erect a pound-lock and floodgates midway between Stanmoor and Langport. When Brunel had given evidence to the Lords' Committee on 14 June 1836, he was asked if he had taken into consideration the effect of such a lock. He replied that he 'did not see the object of having one there'. Brunel had misjudged the nature of the river;⁸ the experiment failed, and it became evident that additional navigation works were needed. A pound-lock and floodgates similar to the structures at Langport were built at Oath, and they entered service in October 1839.

After commercial navigation ceased Oath floodgates were rebuilt for irrigation and flood-control purposes, and the exact dimensions of the original gates are not known. The 1839 survey revealed the bed level at the intended site to be 4 feet 7 inches below the sill of Langport Bridge (8.4 feet above OD), and suggested the gates should 'pen within 4 inches of the sill of Langport Bridge' (13.7 feet above OD). This probably closely approximated to the natural river's low summer level there.⁹ The haste in which these works were completed suggests that the Langport drawings were reused without major revisions, particularly since the components determining the height of Langport's floodgates were iron castings. Assuming the gates were indeed identical to those at Langport (5.5 feet high) and the retained level was 13.7 feet above OD, the sills would have been 8.2 feet above OD. The structure at Oath almost halved the length of river the gates at Stanmoor were required to raise, and reduced the amount by which it had to be raised. New 'Instructions to the Lock-keepers at Oath and Stanmoor' — apparently revised as a result of operational experience — were issued in April 1840:

1st. Whenever the Tidal Waters would, in case there were no Locks or Dams at your respective stations, flow up beyond those several stations, you are to keep open the Gates and allow the tide waters to flow up freely. And in case the tide waters have flown up, you are to keep the Gates open the whole of the Neap* during the eight highest days of Spring Tide, and for eight hours of the Neap* during the rest of the tides. [* Presumably 'ebb' was intended.]

2nd. In case the tide is not expected to flow up beyond your stations, and does not in fact do so, you may, if

the Navigation requires it, keep your Locks and Floodgates closed the whole of the day, except as hereinafter mentioned.

3rd. At all times, when there is a less depth of water than three feet on Borough Shoal, two hours and half before the flow of the tide, and the Navigation will require an increase of water below Stanmoor, the Stanmoor Floodgates are to be closed two hours and half before the expected flow of the tide, and be kept closed two hours, and you are then to let down the water to afford additional depth between Stanmoor and Bridgwater.

The wording of the second paragraph (above) implies that the lock and floodgates at Oath had *not* enabled the structure at Stanmoor to always raise the level upstream to the required extent within the four hours prescribed by Clause 11 of the Parrett Navigation Company's Act (appendix A).

Commercial navigation declined following the opening of railways in 1853 and 1866, reducing the Parrett Navigation Company's toll income, which resulted in neglect of its navigation and drainage works. Navigation had almost ceased by 1875 when representatives of local landowners forced open the gates of Langport Lock, and insisted they must remain open to drain off floodwater upstream (appendix B). The lock gates were higher than their associated



A card postmarked 1905 showing two 'clinker-built' Parrett Barges moored above Bridgwater Town Bridge shortly before high tide. In the previous century similar craft would have traded to Langport. Note the 'drag-chains' on the foredeck, which could be paid-out over the bows to slow or stop the vessel on the tideway. The absence of a fore-hatch suggests that the crew's accommodation beneath the foredeck could not be accessed when the vessel was fully laden. (RCHS Collection)

floodgates, the tops of which were 20.6 feet AOD, so that in normal flow conditions the surface level approached 21 feet (6.4 metres) AOD, no higher than previously retained by the sill of Langport's medieval Great Bow Bridge. It may be assumed that the flood waters had covered the open floodgates, and that there was little difference between the water levels above and below the lock gates, otherwise it would not have been possible for them to have 'been opened by or on the part of the Landowners'. Clearly, in these circumstances opening the lock gates could have had little or no effect on the level of the floodwater. The EA's 2005 hydrograph for Westover (near Langport) shows flood levels occasionally exceeding 8.25 metres AOD. It is difficult to avoid the conclusion that the 1875 actions 'by or on the part of the Landlords' were intended to initiate the ruin of the struggling Parrett Navigation Company.

On 1 July 1878 the Somerset Drainage Commissioners assumed responsibility for the river and its navigation works downstream from Thorney

Mills Bridge; in 1881 the works at Stanmoor were said to be 'in a fair state', but by 1886 they had evidently ceased to exist. Barges occasionally traded to Langport during the early years of the twentieth century, but perhaps not without difficulty; in *Inland Cruising on the Rivers and Canals of England and Wales* (1908) George Westall wrote: 'The waterway is not adapted for pleasure boating in ordinary fresh-water craft'. In 1927 Oath floodgates were reconstructed and raised for irrigation purposes, thereby greatly improving the upper river's recreational potential. There are currently proposals to restore navigation on the Parrett and Tone; if Oath Lock were rebuilt pleasure craft could reach Oath on spring tides, and cruise to Langport and beyond. A twenty-first century version of Stanmoor floodgates and half-lock sited near Burrowbridge, *below the mouth of the Tone*, would enable craft to access both rivers on neap tides.

Notes and references

Much of this account has been drawn from David Greenfield's 'Locks and Floodgates on the Parrett Navigation – up to 1921' *R&CHS WHRG Reprint 16*, and supplementary information kindly contributed by David Greenfield, for which the writer is grateful. The writer is also grateful for the material listed in note 4, for figure 1, and for appendix B, contributed by John Rowlands, Keith Fifield, and Francis Farr-Cox of the Environment Agency (EA), Bridgwater.

1. Somerset Record Society, xlv: *Somerset Pleas from the Roll of the Itinerant Justices* p.199 quoted in P. Helm, 'The Somerset Levels in the Middle Ages', (1949) *Journal of the British Archaeological Association* 12, and by Douglas J. M. Caffyn in *The Right of Navigation on Non-tidal Rivers and the Common Law* (2004) section 2.10 'Opposition to the use of rivers' p.37.
2. A paper by G.D. Gaunt and M.J. Tooley 'Evidence for Flandrian Sea-level Changes in the Humber Estuary and adjacent areas' *Bulletin of the Geological Survey of Great Britain*, Vol. 48 (1974) pp 25-41, included a 'mean sea level curve' for north-west England, which showed the sea rising from a low of 20 metres below OD 9,000 years ago, to OD in a little over 6,000 years. During the past 3,000 years sea-level change is shown to be a regular cyclic phenomenon, represented by approximately trochoidal curves with peaks about 950 years apart, and amplitude approaching 1.5 metres.

The most recent peaks occurred in c.300 and c.1250 AD. An enlarged and re-annotated extract is reproduced on the right.

Similar changes occurred elsewhere around the coast of England. The *Calendar of Patent Rolls 1354-1358* (1909) 400, records that in 1356 it was claimed that the Humber tides flooded four feet higher than formerly. In his paper 'Iron Age and Roman Coasts around the Wash' in *Archaeology and Coastal Change*, Society of Antiquities – Occasional Paper (New Series) 1, Ed. F.H. Thompson, 1980, pp. 56-73 Brian Simmons wrote: '... there is an apparent drop in the sea-level of 5 ft. (1.5 m) during the 400 years or so of the periods discussed in this paper. This marine regression, Iron Age to Roman ... has been noted by other workers. One of the most recent of these researchers is Dr M.J. Tooley, who made a study of Morecambe Bay. His published graph gives a fairly similar situation for the period in question.' But note that data from south of a line from the Mersey to the Wash cited by A.C. and E. Waddelove in 'Archaeology and Research into Sea-Level during the Roman Era: Towards a Methodology Based on Highest Astronomical Tide' in *Britannia*, (1990) 253-266, implies that the rise in that era started from (and peaked at) a lower level in relation to OD.

3. *Levels of the river towards Bridgwater*. Somerset Record Office, Obridge, Taunton. D/RA 3/3/10. Pages headed 'Thorney Half Lock' and 'Oath Lock'. Anonymous and undated, but probably by William

- Gravatt and undertaken during spring or early summer 1839, since the page headed Oath Lock (which opened in October 1839) refers to its 'intended site'.
4. *Langport Lock to River Yeo Junction*, Survey dated 6 December 1888 by Cyrus Combes & Parsons, Engineers of Tisbury, Wiltshire, for the Somerset Drainage Commissioners. Contributed by John Rowlands of the EA, Bridgwater. Levels recorded related to OD (Liverpool), which at Langport is about 0.9ft higher than post-1921 OD (Newlyn). All levels given in this paper have been converted to OD Newlyn.
 5. *Reeds Nautical Almanac* (1971) 545-7, Bristol Channel, Cardiff and Bridgwater Bar. (1971 is the earliest year available to the writer, but it is to be doubted if figures for the nineteenth century would be very different.)
 6. Parrett Navigation Act, 6 & 7 William IV, c.101, RA 4 July 1836, Clauses 11 and 12 — see appendix A.
 7. Bristol University Library, Brunel Collection, General Calculation Book 1834-36, p.86.
 8. In a letter to the writer dated 14 June 2007, Francis Farr-Cox commented that 'Brunel ... (like many people today) thought that there was rather more water around in Somerset than is actually the case.'
 9. *Survey of the river Yeo from Ilchester to the river Parrett at the outfall of Portlake Rhine* (five and a half furlongs downstream from Langport Bridge). Somerset Record Office, Obridge, Taunton. D/RA 22. Anonymous and undated, but probably 1796. The survey datum can be related to OD, and it shows what was presumably the low summer level of the natural river Parrett to be a little more than 13 feet above OD.

Appendix A

Clause 11. Regulating construction of locks on the River Parrett, between Stanmoor Bridge and Langport.

Provided always, and be it further Enacted, That wherever it may be deemed advisable by the aforesaid Company of Proprietors hereby incorporated, to construct any lock, dam, weir, gate, sluice or other work or works on the line of the River Parrett between Stanmoor Bridge and any lock to be hereafter constructed within half a mile of the town of Langport aforesaid, such work or works shall be so contrived constructed and used as at all times to permit the flowing up the said river of the tidal waters from the sea, as fully and freely as if no such work or works had been constructed; and in like manner

during the time of ebb tide and reflux of the current, all locks, dams, weirs, gates, sluices or other works to be erected by virtue of this Act shall be thrown open by the said Company of Proprietors for the whole period of the ebb tide, during Eight days of the highest rise of each spring tide, and during the remainder of the spring and neap tides for at least Eight hours out of every Twelve, in such manner as to afford as wide and deep and as ample and convenient a way for the escape of the waters, whether tidal or otherwise, as if no such work or works existed (except as with the consent in writing to the contrary, of the said mayor aldermen and burgesses under their common seal, as also the consent in writing of the Taunton and Bridgwater Canal Company, under their common seal, be first had and obtained).

Clause 12. For preserving depth of water in main channel between Stanmoor Bridge and Burrow Bridge.

And for the purpose of giving increased facility to the navigation of the River Parrett from the confluence of the River Tone therewith to the port of Bridgwater at neap tides, when the said Company are empowered to close their locks as aforesaid; BE it further Enacted, That when the depth of the water in the main channel of the river on the shoal next below Burrow Bridge shall be less than Three feet,

the said Company shall and may, and they are hereby empowered, notwithstanding the provision hereinbefore contained as to the flow of the tidal waters, to pound back the waters of the said River Parrett Two hours and a half before the flowing of the tide, or computed time of the flowing of the tide, at Stanmoor Bridge, and keep them so pounded for the space of Two hours, when they shall open the locks and let off the water so pounded, in order to give a greater body of water, and thus increase the depth of water from Stanmoor Bridge aforesaid to Bridgwater.

Appendix B

Difficulties having arisen about the Parrett Navigation, the Locks at Langport were, in the early part of this year, opened by or on the part of the Landowners and Occupiers, under the provisions of the Parrett Navigation Company's Act, and in consequence the Barge Traffic and Tolls of the Company were practically abolished.

This and other matters were discussed at a Court of Sewers held at LANGPORT, on the 17th instant, and a Committee, consisting of Mr DICKINSON, Mr EDWARD BAGEHOT, Mr BICKNELL, Mr STUCKEY, Mr PITTARD, Mr EASTMENT, Mr MEAD, Mr PARSONS, were appointed to confer with the Navigation Company; and accordingly, at a Meeting held at the Offices of Mr. W. J. HILL, in LANGPORT, on the 24th instant, at which Mr DICKINSON, Mr MEAD, Mr STUCKEY, Mr EASTMENT, Mr BICKNELL on the part of the Committee and Mr. EDWARD BAGEHOT, Mr JAMES BROADMEAD and Mr T P

BROADMEAD as Proprietors of the Parrett Navigation, were present — It was agreed that it is expedient that the powers and duties of the Company should cease, and that the Works should be kept up by the Landowners interested, for their benefit, so far as the Works are suitable for that purpose; and that provision ought to be made for such other purposes as may be thought desirable for the benefit and protection of the Land as respects the River Parrett and the Streams that flow into it and the drainage through them.

And it was further agreed that this Resolution be sent to the principal Landowners with a view to their concurrence in a Public Meeting of Owners and Occupiers interested, to consider what definite steps should be taken to give effect to the Resolution, which Meeting it was thought very desirable should be held as soon as may be convenient.

Dated, Langport, 24th August, 1875.

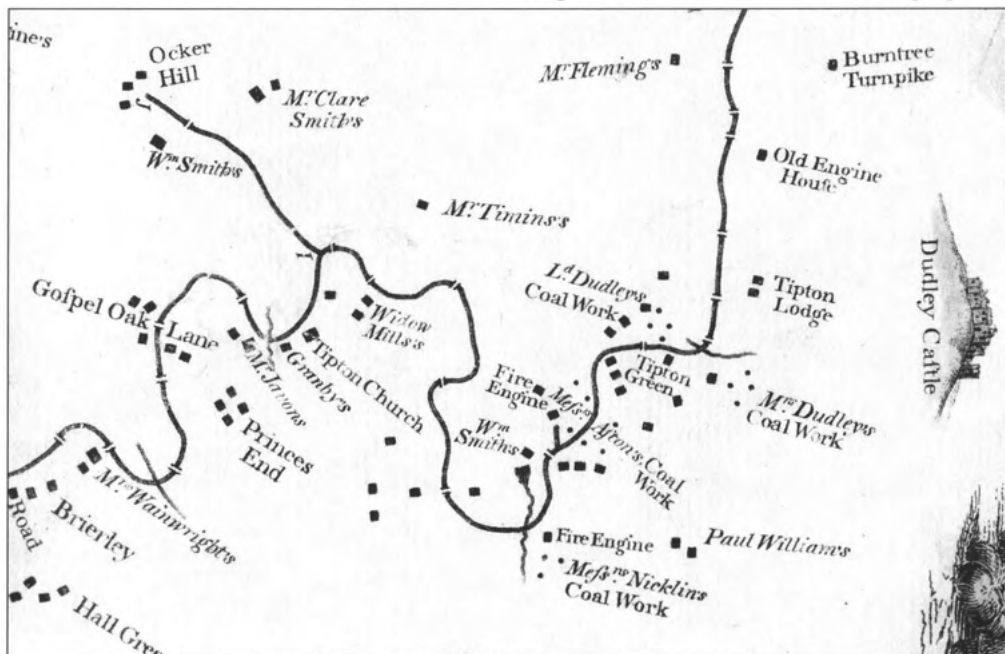
Mapping the Birmingham Canal Navigations

Richard Dean

A transport system as complex as the BCN needed maps for a variety of constructional, legal, administrative and trading purposes, and this article looks at the development of the network and of the associated cartography generated and used over the first couple of centuries of its existence. Particular reference is made to small scale printed official maps which the canal company would have produced or sponsored, although the exact purpose of some surviving items is a matter for speculation.

1767 at two inches to the mile from a drawing by John Wedge.²

After the canal had been authorised in 1768³ Brindley decided to avoid the tunnel by raising the principal level of the canal 15 feet, and crossing over the Smethwick ridge with a short summit. Traffic commenced from Wednesbury to Birmingham in 1769, but these changes are first recorded on the well-known map which appeared in the *Gentleman's Magazine* in 1771⁴; more details of the proposed Spon



Part of William Wright's remarkably accurate 1773 map, the earliest to show the canal as completed

The original proposal for a simple self-contained coal canal from the Wednesbury collieries to Birmingham soon grew to include an outside link by joining with the summit of the Staffordshire & Worcestershire Canal at Wolverhampton, and the Brindley/Simcock survey¹ produced several possible routes. That chosen in June 1767 included a continuous Wolverhampton to Birmingham summit entirely on one level, with the 438 foot contour maintained by keeping to the east of Bilston, and passing through the ridge of high ground at Smethwick by means of a tunnel just over a mile in length. This survey was engraved by Westwood in

Lane to Wolverhampton length are on a manuscript by John Snape⁵ done in the same year, this pound as built being a further three locks higher at the 473 foot level.

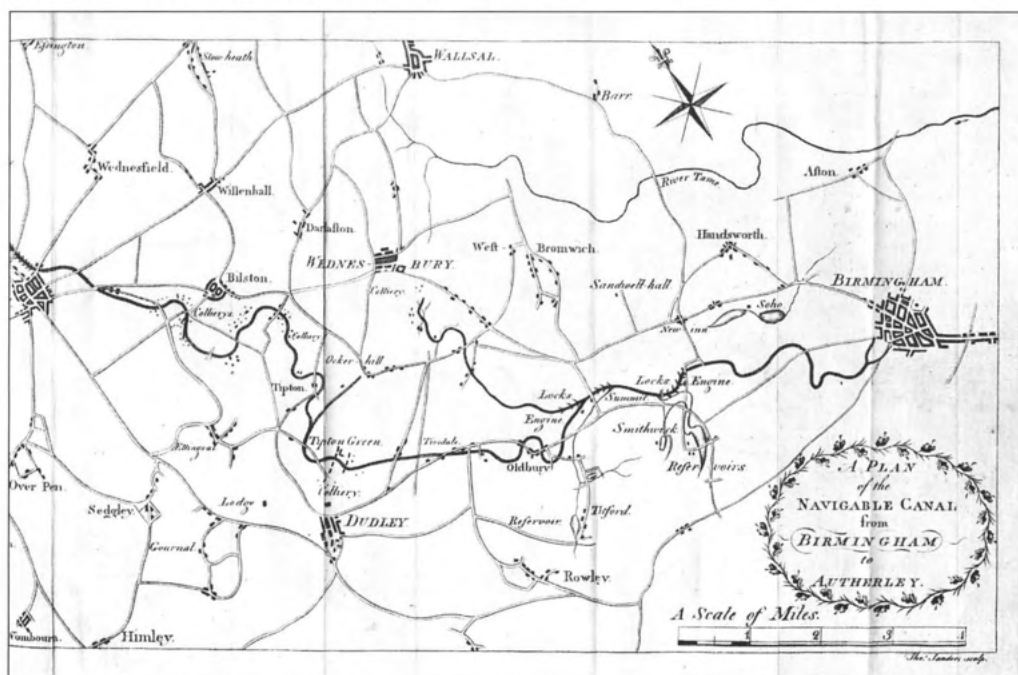
The earliest map of the whole canal as constructed appeared in 1773, the year the line was opened throughout to Aldersley Junction with the Staffordshire & Worcestershire Canal.⁶ Drawn by William Wright, his erratic lettering gives a false impression, as for its time this is an accurate representation of the canal, with bridges, locks, nearby buildings and collieries shown. In common with the other maps which had appeared so far there

is little in the nature of general topography: further detail became widely available on the publication of William Yates' one-inch Staffordshire map in 1775,⁷ and later maps gradually came to incorporate roads and settlements taken from this, from Sherriff's map of 1798,⁸ Greenwood's survey of 1820,⁹ and other county and general surveys.

During the year 1777 the Birmingham surveyor John Snape carried out an accurate survey of the Birmingham Canal on behalf of the Company, the work being plotted at a large scale on over forty sheets of beautifully drawn manuscript cartography bound up as an atlas.¹⁰ Done to the highest contemporary

shortly after as part of their opposition to a rival canal.¹²

Despite the extensive enlargement and improvements to the system which followed over the subsequent years, little new comprehensive mapping has survived, older material being constantly reworked with ad hoc correction and additions. For examples, see the numerous small outline maps generated by the attempted incursion of other waterways into the area after 1780 and the Birmingham Company's response by promotion of the nominally independent Birmingham & Fazeley Canal.¹³ Wright incorporated revision into a more



The engraved portion of the 1777 map by John Snape

standards this bears comparison with modern large scale surveys and is a magnificent record of the original canal and its water supply arrangements immediately prior to the first set of improvements. It is likely that the primary purpose was to measure and record the land taken, and the owner of each field is given with the area purchased and the payment made. The volume includes a reduced scale index map which seems to be the basis for an engraved map also issued under Snape's name¹¹ which appeared in the first edition of William Hutton's *History of Birmingham* in 1781; the plate was also used to illustrate a broadside put out by the canal company

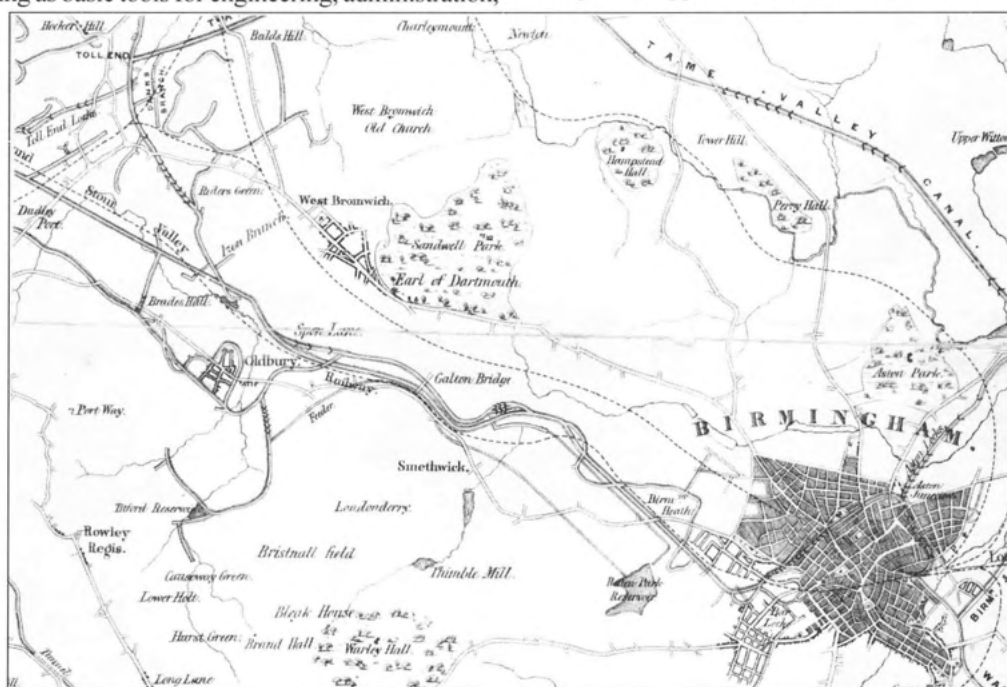
general smaller scale map in 1791¹⁴ but it is unlikely this had any official status.

Notwithstanding Snape's work, small scale maps of the canal were mainly to indifferent standards of accuracy until the Ordnance Survey finally published their one-inch map of the district in 1834, after 20 years of fieldwork, delays, and corrections.¹⁵ A BCN map issued in the following year is still a compilation of data from earlier surveys,¹⁶ and not until early in 1839 does the opportunity seem to have been grasped to utilise the accurate OS information as the basis for a canal map, in connection with the promotion of the Tame Valley line.¹⁷ Thereafter the

use of Ordnance Survey data became common, particularly so after the large scale plans became available later in the century.

During the 1870s and 1880s the company surveyed the whole of their system at the detailed scales of one and two chains to the inch, these manuscript plans serving as basic tools for engineering, administration,

retained over the next 40 years. The successive known issues are recorded in the bibliographic listing which follows. Curiously, when the map required reprinting or revising it was in many cases fully redrawn, rather than using the original stone or a transfer, and this has resulted in considerable changes in style and appearance between the editions. In 1901



John Hancox, 1850 (extract).

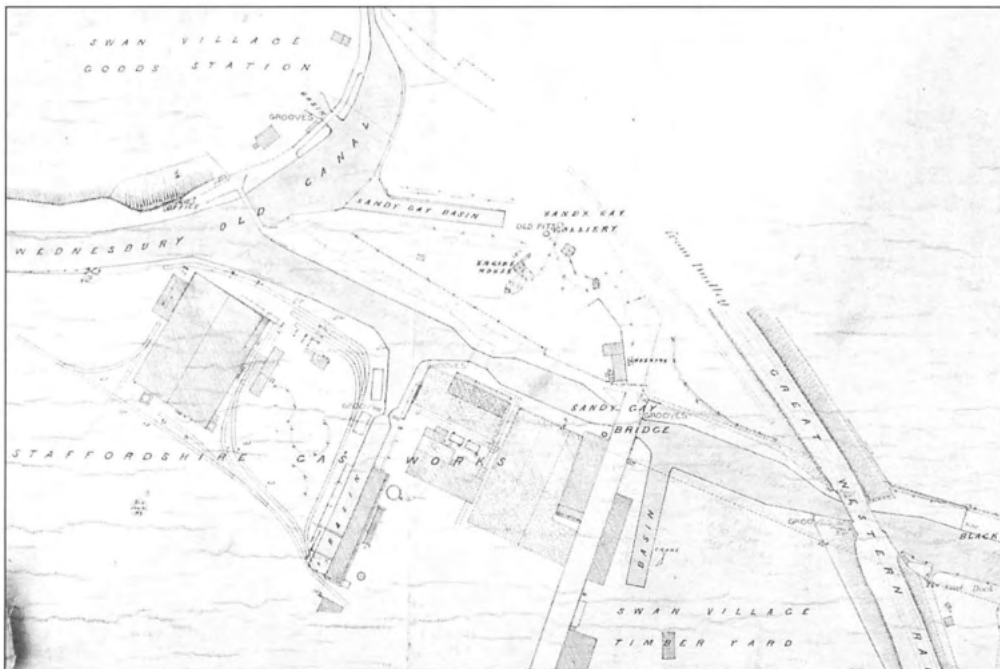
Note the spurious branch towards Hill Top, a mile or so north of Riders Green Junction

and estate management over the next hundred years.¹⁸

By the middle of the 19th century there was clearly a need for a general-purpose map including both the Tame Valley Extension, and the Dudley and Wyrley & Essington Canals which had been absorbed. A completely new OS-based drawing of the whole BCN system appeared in 1850 under the name of John Hancox, BCN Surveyor. This was the beginning of a dynasty of maps at the one-inch scale that was to serve the Company throughout its remaining existence. Showing rather more of the topography than its predecessors, its purpose as a guide for existing and potential customers is clear from the title — *Plan shewing those portions of the mineral districts of South Staffordshire, East Worcestershire, and North Warwickshire, intersected by the Birmingham Canal Navigations* — which was

the title was simplified to *Map of the Birmingham Canal Navigations*.

Soon after publication of Hancox's 1850 map, a much larger version was prepared, at the scale of about seven inches to the mile, but so far as is known this remained in manuscript.¹⁹ Although full of information, the content suggests that it derived from a compilation of existing sources rather than a comprehensive new survey. A similar process may have been used for a two-inch to the mile system map drawn in the 1920s, apparently for engineering use, of which photo-prints have survived.²⁰



*Two chain scale BCN survey, 1879. Part of the Ridgacre Branch
(Waterways Archive, Gloucester, 165/14/37/4)*

Notes & references

The author acknowledges with thanks assistance received from the Waterways Archive Gloucester and Birmingham Reference Library, and would welcome details of any other editions not on this list.

1. Staffordshire Record Office, D3186/8/2/1
2. A Plan of the intended Navigation from Birmingham in the County of Warwick to the canal at Aldersley near Wolverhampton in the County of Stafford (Birmingham Reference Library)
3. Birmingham Canal Act, 8 Geo 3 c38
4. A Plan of the Navigable Canal from Birmingham in the County of Warwick, to the Canal at Aldersley near Wolverhampton in the County of Stafford; with a Collateral Cut to the Coal Mines at Wednesbury, *Gentlemen's Magazine*, October 1771
5. A Plan of the Birmingham Canal Navigation From Spon Lane Lock to Wolverhampton, 1771 (Waterways Archive Gloucester)
6. A Plan of the Navigable Canal from Birmingham in the County of Warwick to the Canal at Autherley near W. Hampton in the County of Stafford, Surveyed 1773 (Canalmaps Archive)
7. A Map of the County of Stafford from an Actual Survey Begun in the Year 1769, and Finished in 1775
8. Map of upwards of Twenty-five Miles round Birmingham, 1798
9. Map of the County of Stafford, 1820
10. Waterways Archive, Gloucester (microfilm copy in Birmingham Archives, MS1424)
11. A Plan of the Navigable Canal from Birmingham to Autherley. Drawn by John Snape, engraved by Thomas Sanders. (Canalmaps Archive) This is not to the same standard as the manuscript — the canal route is less accurate and the Ocker Hill Branch badly positioned
12. Reasons Against a Bill intended to be brought into Parliament, for making a navigable canal from the collieries in the Neighbourhood of Bilstone, Tipton, and Wednesbury.....[to Birmingham & Fazeley] (Birmingham Archives)
13. There is a good selection of these in the Birmingham Archives
14. A Plan of the Navigable Canals, from Birmingham..... to the River Isis, at the City of Oxford. Laid down from actual surveys by William Wright, 1791. (Canalmaps Archive)

15. Sheet 62 (published in four quarters) covers the whole of the BCN
16. Plan of the Birmingham Canal Navigations, Dugdale Houghton, Surveyor, Birmingham, 1835. (Canalmaps Archive)
17. Case in Support of the Birmingham Canal Bill (Canalmaps Archive)
18. Various survey rolls split up in the Waterways Archive Gloucester, also a set of volumes retained by British Waterways
19. Birmingham Archives. Duplicate in Waterways Archive, Gloucester.
20. Staffordshire Record Office, TP.598

Plan shewing those portions of the mineral districts of South Staffordshire, East Worcestershire, and North Warwickshire, intersected by the Birmingham Canal Navigations. John Hancox Surveyor Navigation Office, 1850. T Underwood Lithographer Birmingham. 26.5 x 25. 1 inch = 1 mile. *A good clear map, canals shown with a double line and railways a broken line. BCN usually handcoloured in blue. Generally free from mistakes except that the Withymoor Branch, and part of Lord Ward's Pensnett Canal, are incorrectly positioned, and the road to Hilltop is wrongly shown as a branch of the Wednesbury Old Canal.*

— 1850. *Reprint with Withymoor Branch corrected, Broadwaters Arm added together with several wharves. On the copy seen the date has been amended in ink to 1856.*

— 1858. *Reprint with addition of Netherton Tunnel, Two Lock Line, Wyrley Bank Branch, Cannock Extension completed as far as Leacroft, and railway branches to Cannock and to Norton. Abandoned loop at Lodge Farm Reservoir deleted. Lithographers name removed*

— 1864. *Redrawn with improvements to date. Railways now a fine ladder symbol.*

— 1866. *Reprint with altered date and additions including Parker Branch, various basins, and new railways.*

— 1873. *Redrawn with corrections and additions. Pensnett Canal now repositioned, and mistaken branch to Hill Top omitted.*

— 1882. *G R Jebb Engineer, Hall & English, lithographers. Redrawn and printed in three colours. Roads omitted except within Birmingham.*

— 1886. *Redrawn with corrections and additions. Urban detail in Birmingham no longer shown.*

— 1896. *Reprint with altered date, corrections and additions.*

Map of the Birmingham Canal System. *G R Jebb, Engineer 1901. 26.5 x 25. Allday Ltd Lithographers, Birmingham. 1 inch = 1 mile. Redrawn from OS New Series mapping and printed in three colours. Extensive road system, and levels of main pounds shown.*

— 1903. *Reprint with altered date*

— 1918. *A. W. Willett, Engineer. Reprint with altered date and attribution.*

— 1920. *Reprint with altered date (reported but not seen)*

— 1924. *T A Henshaw, Manager, H K S Woodhouse, Engineer. Reprint with altered date and minor changes including alterations to railway names to reflect 1921 groupings.*

The James Patents

9. Epilogue: 'the Patent that never was'

Miles Macnair

In many ways, this 'phantom' of 1821 is the most intriguing, and controversial, of all the James patents, because it lurks in the background of one of the iconic developments in locomotive design; Robert Stephenson's *Rocket*.

When William James travelled to Northumberland in June 1821 for his first meeting with George Stephenson, he took with him his eldest son, William

Henry James, by that time a trained engineer aged 25. George Stephenson introduced his only son, Robert, then 17 years old, into the discussions. Their conversations covered William James's great visions of arterial railways across the whole country, and his ambitions for 'advanced locomotion' capable of hauling trains at speeds much higher than anything achieved so far. He placed an equal emphasis on the carriage of passengers to that of freight. A few days

earlier, he had visited Longridge's Ironworks at Morpeth and seen the rails being made there out of wrought iron, rolled into malleable sections several feet long. He recognised this as a major breakthrough, the key to unlocking speed and safety — particularly because he believed the rails could be welded together into continuous, joint-free lengths. Now he needed locomotives of much greater power and endurance, and saw in George Stephenson and his son the engineers most capable of developing them.

At some time in their discussions, William Henry James must have talked about his early experiments into tubular boilers as a means of getting greater heat transfer between the furnace gases and the water. Concluding that higher steam pressures, combined with greater safety, could best be got by containing the water and steam within tubes, rather than the other way round, William Henry James must have implied that he was about to patent his design. Some of the thermodynamics may have been too sophisticated for George Stephenson, but they would not have been lost on Robert.

The final outcome of the discussions between the two families was a formal partnership agreement. (It would be signed on 1 September 1821). George Stephenson recognised that William James, with his aristocratic contacts, could act as a valuable sales-agent for the Stephenson/Losh locomotives outside Northumbria, while William Henry James's patent might give them a technical edge on their competitors. William James, meanwhile, knew he had met a family with genius, having already dismissed the efforts of the other engineers he had visited, like Hedley, Blenkinsop, Chapman and Buddle.

'Know all men by these presents that we, William Losh, of the town and county of Newcastle-upon-Tyne, iron-founder, and George Stephenson, of Killingworth in the county of Durham, engineer, in consideration of £5, lawful money paid to us, and in consideration of William James Esq, of West Bromwich, miner and engineer, giving his recommendations and best assistance for the using and employing the locomotive engines for which we have obtained two letters patent; we have granted and assignedunto the said William James, his heirs,

administrators and assigns, one fourth part or share of our rights and patents in the exclusive use of the locomotive engine for working on railroads.....made, used or sold in that part of England and Wales lying south of a line drawn from the town of Liverpool to the town of Hull; to have and to hold such fourth part or share of the said patent right and profits from the date hereof unto the said William James during the term of the said letters patent.

And in consideration of such grant.....William James agrees to allow the said William Losh and George Stephenson to *adopt any improvements and the introduction of tubes to their boilers, as contained in the letters patent of William Henry James, son of the said William James, as granted to him in the reign of his present Majesty*'.

There it is; a momentous document that is seldom, if ever, mentioned in any biography of the Stephenson family. What happened to William Henry James's 'patent' of 1821? (his first water-tube boiler patent — 5186 — was not granted until 1825; see *RCHS Journal*, March 2007, 548) Did the last line in the agreement cover all and every patent that might have been filed by William Henry James during the King's lifetime?

There is perhaps another interpretation, namely that the Stephensons deliberately persuaded William Henry not to file the early patent, because publication would allow competitors to see the invention and excite them to make use of it themselves somehow. Better to keep it as a trade secret within the partnership. William Henry James and Robert Stephenson worked closely together in 1822 on William James's survey of the Liverpool & Manchester Railway, and it is impossible to imagine that during their many hours together they did not mull over the advantages of 'tubular boilers'.

William Henry James persevered with the holy grail of high pressure, safety and 'superheating' via the water-tube concept, a concept that was ultimately doomed. Robert Stephenson pursued the sounder, but less dramatic, route with fire-tubes as patented by Henry Booth, and the *Rocket* is the definitive example of pragmatic practicality over speculative imagination.

Dr Arthur Lionel Barnett (1908-2007)

Dr Arthur Barnett, the Society's President in 1980-82 and a Vice-president since 1986, died on 19 August 2007 in the Sheffield nursing home where he had lived since a severe fall at his home in 2005. He had been remarkably fit and active until then.

He was born in Southport — which he insisted was in Lancashire, not Merseyside; however, his father's work took the family to Glasgow in 1918, where he was educated at Hutcheson's Grammar School. In 1925 he took up medicine (although he really wanted to be an engineer) at the Glasgow School of Medicine (again he specified Glasgow University and not, in his words, 'that recent upstart', Strathclyde University). He qualified in 1930 at the early age of 22 — 'not possible today'. He had a choice of staying in Glasgow or moving to Stockton-on-Tees, and chose the latter, thus generating his interest in the railways of the North East. There he stayed for nine months and met his future wife, Jane, a nursing sister. Further moves took him to Barnsley, Askern, Palmers Green, Batley and finally Sheffield, where he set up his own practice and here Jane and Arthur married in 1933.

He said that he was probably the last person to ship a car by train from London to Batley, not relishing a 200-mile journey in mid-winter in an open MG. He had purchased this as soon as the marque came on the market but, when circumstances dictated covered transportation, he changed to the MG Mquette sports saloon, owning a series of these until the late '60s.

Arthur had been interested in the history of railways and canals since his youth and now began exploring those of South Yorkshire, becoming an expert on their history, development and impact on the industrial scene. He joined the RCHS in November 1954, attending what he thought was the second embryonic planning meeting of the Society in Preston. He had joined the Railway Correspondence & Travel Society in 1938 and was a founder member of the North Eastern Railway Association in 1961. He will be particularly remembered for the railtours he organised for the RCTS in the 1950s and '60s and for the many coach tours, walks and waterway cruises for all three

societies, principally in the North East. Many of these were annual events and, amongst those who were regular participants, Arthur's tours are now legendary. Arthur and Jane themselves enjoyed many canal-boat holidays over the years, but latterly patronised the hotel boats on the waterway system.

He was the author of two books and co-author of a further two: *The Hull & Barnsley Railway*, volume 1 (David & Charles, 1972) and volume 2 (Sheffield: Turntable Publications, 1980); *The Railways of the South Yorkshire Coalfield from 1880* (RCTS, 1984); and *The Light Railway King of the North* (RCHS, 1992). Over many years he compiled for this *Journal* annual lists of railway Acts of Parliament which had achieved their centenary.

Arthur seemed to have limitless energy. He was leading, or advising on, railway trackbed and canal towpath walks and waterway cruises until late in his life. Indeed, he led a five-mile walk for the Society's North East Group on his 90th birthday, which was also celebrated by a special train on the Worth Valley Railway organised by the RCTS Sheffield branch. A few years earlier he had led a series of three-day lecture-and-visit courses for Peak District National Park Centre at Lose Hill, Hope. His final walk was for the Railway Ramblers' Yorkshire Group in early 2003 around Potteric Carr near Doncaster — now a Yorkshire Wildlife Trust nature reserve, and a favourite area of his, with a varied complex of passenger and colliery lines. His last attendance at a NE Group meeting was in February 2005.

He was a highly-respected railway historian and will be remembered for his willingness to impart his extensive knowledge of the railways and canals of Yorkshire and the North East; this was a continuing advantage in the compilation of historical notes for walks and visits. His active support for the Society for over 50 years is unparalleled. Although Arthur could be forthright in his opinions, Society and NE Group officers remember him for his kindly support.

Jane died in 2003 shortly after their 70th wedding anniversary. Incredibly, both Jane and Arthur died at the age of 99 years, 6 months and 2 days. DBS

Roger Kidner (1914-2007)

With the passing of Roger Kidner on 14 September 2007, aged 93, the world of British transport history has lost one of its more remarkable figures. He was a member of the RCHS for many years and will be associated in the minds of many primarily as a co-founder of Oakwood Press in the 1930s and its later development; seventy-odd years later on it remains one of the major players in the transport history field. Roger however also touched transport history at other points.

Roger Wakely Kidner was born at Sidcup on 16 March 1914, the son of a senior civil servant, and was educated at Westminster School and for a year at the LSE, after which he worked in Fleet Street as reporter and sub-editor and in mainstream publishing for Benn. He delighted to recall that his interest in railways dated from being given a few of those fondly remembered Locomotive Publishing Company Postcards by a young girl at his primary school. He was at Westminster with another outstanding railway historian, the late Michael Robbins, and from 1931 the two jointly published a typescript magazine *Locomotion*, soon progressing to publishing books, the first being Canon Fellows' bibliography *A Railway Legacy* (1935).

The Robbins/Kidner enterprise, originally entitled Four Os (after the four Os in *Locomotion*) gave way to the name Oakwood Press, called after two houses Kidner lived in, 'The Oaks' and 'Southwood'. In 1936-37 came Oakwood's first classic, L T Catchpole's *Lynton & Barnstaple Railway* (then recently closed) whose initial print run was 125 (it has now had 14 reprints and nine editions and is Oakwood's best-seller). Other classics followed; not a few, on light or narrow-gauge lines and on the Southern Railway and its constituents, were by Kidner himself. Such titles established a pattern which Oakwood has maintained, of scrupulously researched, well written studies of smaller or lesser-known lines in A5 format. Though Ian Allan later were noted for them, Oakwood were first to publish a 'spotter's guide', Kidner's *How to Recognise Southern Railway Locomotives* (1938).

Oakwood was 'on hold' during World War II after Kidner and Robbins 'joined up'; the former started the war as a private in the Royal West Kents, later being commissioned in the Essex Regiment, ending the war as a major, Royal Artillery with 21 Army Group. He said that his commanders twice sent him

to be killed 'but each time the enemy failed to show up!'

Kidner's post-war career in mainstream publishing and public relations did not prevent him from reviving Oakwood, despite paper shortages and in due course Robbins' departure for a full-time position with London Transport. Not all Oakwood's publications were concerned with railways as many of its *Locomotion* Papers explored road transport topics like trams, buses and other petrol-driven vehicles. Kidner retired from his 'day job' in 1972 to concentrate on Oakwood, in which his wife Beryl (she died in 1995) greatly helped him on the administrative side. In 1984 he sold it (then with over 300 published titles to its credit) to Jane Kennedy, whom almost up to his death he supported, suggesting titles, vetting manuscripts and writing contributions notably on Welsh railways.

Latterly he lived in North Wales, near Aberystwyth, having previously resided in Kent, Surrey, Dorset and Wiltshire, locations largely in Southern Railway territory. The SR, along with light railways and old rolling stock, was one of his main interests; he was a Vice-president of the SR Society for many years. He is credited with 32 books and countless articles. Dare one hope for a full bibliography of his writings?

In 1991 Roger, then 78, was one of the earliest members of the RCHS's Road Transport Group. After each mailing he sent at least one paper of his own. Between 1992 and 2006 these totalled 40 (plus three jointly attributed) on subjects like early London buses, motor coach 'pet names', Post Office motors, early traffic censuses, in-house road transport books, hackney carriages, pantechinons, early lorries, road transport postcards and registration numbers. I was amazed at his memory and wide transport interests.

These qualities served him well when the *Companion to British Road Haulage History* appeared in 2003. To that pioneer volume he contributed six entries and part-contributed six more, mostly on steam lorries, another of his pet subjects. He also contributed two articles to the *Oxford Companion to British Railway History* (1997).

Roger, the most modest of men, made countless friends. Through Oakwood and its associated imprints he was a pioneer in the now relatively crowded transport history field. We mourn the passing of this truly remarkable man and salute his achievement.

PLS

Correspondence

Single-barrier Navigation Structures

(RCHS Journal July 2007, 583-589)

I grew up in Henley-on-Thames and the keeper of the nearby lock, Marsh Lock, once described to me how in the 1920s he used to take the boats through a flash lock near Oxford. I think it was Medley Weir. He described to me some flash-lock terminology, and what Pat Jones calls the main beam on the drawing on page 583 Mr Tame the lock keeper knew as the 'shythe beam'.

Pat Jones gives us interesting technical details of flash locks but he is unable to tell us of any personal experience of taking a boat through one. In his 1872 book *New Map of the River Thames* (republished in 1989 as *The Thames of Henry Taunt*), Taunt describes (pp 20-21) his experiences of negotiating a flash lock. What Mr Tame, the Marsh Lock keeper, describes as the shythe beam Taunt refers to as the 'bridge'. I shall use the term shythe beam.

Taunt describes going through Hart's Weir which apparently had a low water fall of nearly four feet. 'In winter there is a swift stream through, but very little fall, the weir paddles being all out; and the only thing to guard against in shooting is the bridge that carries the rymers'. For small boats to pass through in summer he explains that only a few of the paddles and rymers are taken out, but one must look out for the direct drop I water level as it passes through the small gap. 'Going down is somewhat dangerous (most of the weir pools being very deep); but having ascertained that everything is ready, pull gently on, and keep your boat's head straight to the centre of the opening, just before reaching which the oars must be shifted, yet keep ready to be used again the moment you are past, as the stream rushing through causes a strong back current'.

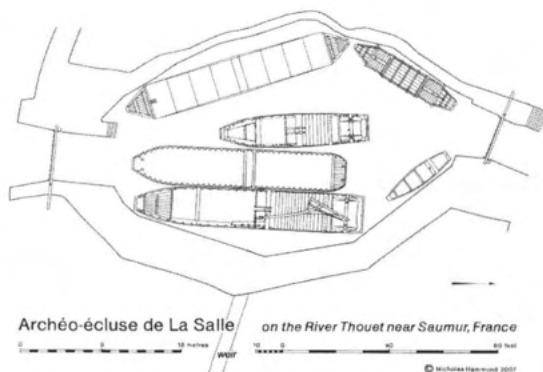
Strangely enough he hardly mentions using a flash lock going upstream, let alone the indispensable capstan winch. A flash lock was always placed so that there was a solid bank opposite the head stream and lined up with the current running through the flash weir. On this bank was situated a firmly anchored capstan from

which a stout rope would be floated down to be tied to the bow of the boat or barge coming upstream. Strong men would wind the capstan, forcing the barge through the opening against the current which by this time would be slackened, but not so much that there was no depth.

I would urge anyone making a serious study of all aspects of inland waterways to visit France. There are plenty of flash locks to see on the Rivers Loir, Yonne, Grand Morin etc, some in working order apparently. A good example of a flash gate in relation to where a capstan would have been is at Montreuil-Bellay on the River Thouet. Incidentally, the width of this flash lock is 15 feet, a very 'english' dimension!

I did a field survey of the Archeo-écluse de La Salle which is further downstream. This early design of lock consists of two paddle and rymer weir gates with an oddly shaped basin between. On the River Thouet some sort of navigation may have existed as early as 1430, though it was made navigable about 1600. The shythe beam at the tail at La Salle consisted of a rolled steel joist with the rymer brackets welded on – an archeo-antiquity indeed.

Nicholas Hammond



Variations of names

RCHS Journal, November 2007, 684

Michael Quick's letter reminds us of the pitfalls of seeking to tie down minute changes in station names. Inevitably, the clerical processes within the railway industry have produced occasional deviations from a norm (particularly of an 'elaborate' name), while time may also gradually have produced change. As a train timings compiler for the Gloucester District four and a half decades ago I was never sure whether to use Abbot's Wood Junction (which I see is what the Midland's 1913 distance diagram used), Abbots Wood Junction (as the 1960 sectional appendix had it) or Abbotswood Junction (which is what the current Network Rail sectional appendix favours) so there are doubtless documents 'out there' for the early '60s which will support the protagonist for any version! And probably Abbots Wood Junction, too. Likewise, the propensity for Bradshaw's Guide (particularly in its earlier years) to create its own version adds to the potential confusion.

However, as Michael admirably demonstrates with the Ettington example, what we are actually seeking is what the owning railway itself calls its property — not what some other authority or railway industry third party (whether the Railway Clearing House, Bradshaw or another railway) uses. In the case of the Leicestershire Waltham, notwithstanding the earlier evidence adduced, operating publications from a Great Northern signalling notice to a BR sectional appendix of 1960 seem to have been remarkably consistent in adopting the hyphenated singular (Waltham-on-the-Wold) version.

Richard Maund

Mussolini, Railways and Myth

(RCHS Journal, December 2007, 805-806)

Martin Gilbert (1997) *A History of the 20th Century, Volume 1* also has some relevance. Gilbert provides a quite detailed account of the events of 28/29 October 1922, adding in his 1928 chapter that Mussolini had already boasted 'under Fascism the trains run on time'. No attribution is given in either case.

Alan A Jackson

Reluctant Contractors

(RCHS Journal, November 2007, 674)

It is true that John Simpson agreed to become the sub-contractor for the construction of Ballater bridge at Telford's estimate of the cost of construction, and that he made a loss on this contract. It is a mistake to believe that 'no contractor would bid for the work.'

At least two contractors submitted unsuccessful bids; William Minto of Alford, Aberdeenshire, and a 'Mr Scott' of Aberdeen. Both bids were higher than Telford's estimated price. In addition (George?) Burn and William Ross submitted plans to replace the fallen bridge.

Telford based his price of the masonry for the new bridge on the cost of masonry construction used for the Caledonian Canal plus an addition of 30%. On the completion of Ballater Bridge Telford admitted a more realistic price would have been the masonry cost for the canal structures plus an addition of 60%. This admission by Telford puts into perspective Simpson's reluctance to become sub-contractor. Minto, who later became one of Telford's trusted contractors in Scotland, submitted two offers to construct the bridge. The second and lower offer was just 10% above the engineer's estimated cost of construction, and Minto subsequently may have been relieved that he was not awarded the contract!

For further details see T Day, 'Gentlemen Contractors: The Farquharsons of Monaltrie and the Construction of Ballater's Bridges, 1775-1812', *Northern Scotland*, 1996, 94. **Tom Day**

Legends on Rolling Stock

(RCHS Journal, July 2007, 619)

I can add another to Professor Hibbs' list of legends on rolling stock. Some years ago I saw a wagon at Amiens Street Station in Dublin. It boasted the words 'Not to be loose-shunted or loose shunted against'.

Bill Hollinson

Erratum (December 2007)

p747: *Hardham Canal Tunnel*

The opening date of the Lower Arun Navigation should have read Saturday 14 August 1790

Reviews

William James (1771-1837): The Man who Discovered George Stephenson — Miles Macnair

144 pp, 294x157mm, 13 colour plates, 12 monochrome plates, 14 figures in the text, hardback & paperback, Railway & Canal Historical Society, 4 Broadway, Lincoln LN2 1SH, 2007, ISBN 978 0 901461 55 1, £24.95 hardback, £19.95 paperback

This is a well-written, meticulously researched and highly readable book, with high quality plates that more than compensate for the rather small typeface. William James emerges as a remarkable man. Trained as a lawyer, he became a land-agent and, in the context of the unfolding industrial revolution, started exploiting the natural resources — mainly coal and iron ore — on his client's land. This led him to conclude that the country's inland transport system was strangling industrial development. At a time when his contemporaries viewed long-distance rail travel as fantastic as space travel, he developed a clear vision of England criss-crossed by railways. However, a modern railway required a suitable route, effective motive power and a track-bed. James's skills as a surveyor and geologist helped him with the first objective. Motive power was the second challenge and when James saw Richard Trevithick's *Catch-me-who-can* in 1808, he quickly recognised that steam traction offered a viable solution. Finally, there was the track-bed. James recognised that 'as long as rails were of cast iron, the locomotive had no practical

future'. Again he was the visionary who saw that the solution lay in malleable iron rails which he adopted for his pioneering railway of 1821 from the Midlands to London — even though only the part from Stratford to Moreton was completed. With these three ingredients, the age of railways had dawned.

So why has James received so little recognition? The book presents a well-balanced case. James — like many visionaries — was a law unto himself. He took on too many ill-chosen assignments and kept 'too many balls in the air'. Nor was he good at detail and his rather casual approach to accounting contributed to his downfall. In 1823 he was declared bankrupt, although he continued to work on many challenging projects until his death. Sadly, history is written by the victors and their reputable biographers. But many now agree with Lord Redesdale who, in a letter to the family stated 'Your late father had a greater claim to the title of 'Father of the Railways' than George Stephenson'.

IAN HEGGIE

Britain's Restored Canals — Roger Squires

192pp, 245x174mm, 87 photographs, 13 maps, paperback, Landmark Publishing Ltd, Ashbourne Hall, Cokayne Avenue, Ashbourne, Derbyshire DE6 1EJ, 2007, ISBN 13:978 1 84306 331 5, ISBN 10:1 84306 331 X, £16.99

Research the author embarked upon in 1977 has culminated 30 years later in this history of the modern day revival of the Inland Waterways of Great Britain. Beginning in 1946, it is an in-depth record of the successes and setbacks over the ensuing 50 years. It documents the changes in public attitudes and the increasing appreciation of the value of the recreational role of the canals, together with the gradual realisation by successive governments and canal side developers alike, that restoration may be a means to kick start urban regeneration.

Approximately two chapters chronicle each successive decade since the foundation of the Inland Waterways Association. The type face is very small

and, although the text is freely interspersed with photographs, the content is somewhat dry. The majority of the pictures are excellent but some are repetitive; there is limited interest in yet another boatload of VIPs opening a nondescript section of waterway or yet more volunteers laying bricks. The maps perhaps would have more worth if care had been taken with the keys; differentiation between new and former schemes is impossible on many of them. The book has a comprehensive bibliography and an index. A worthy effort probably of greatest appeal to the historians of the next generation.

JOHN HOWAT

***Fire and Steam: A New History of the Railways of Britain* — Christian Wolmar**

364pp, 230x155 mm, 43 illustrations (20 colour), 4 maps, hardback, Atlantic Books, Ormond House, 26-27 Boswell Street, London WC1N 3JZ, 2007, ISBN 9 78 1 84354 629 0, £19.99

Christian Wolmar is a well known commentator on the transport scene. Here, in a relaxed style that makes for easy reading, he traces railway development from the earliest times to 2007, so up to date that he bravely includes in the past tense events that at the time of writing have still to occur, thereby recording not just yesterday's history but tomorrow's as well. He treats his subject squarely in a social, economic and political context, and his account of the 1840s Railway Mania is particularly penetrating, while he is at his best in a perceptive analysis of the period from the 1923 Grouping to the present day which occupies nearly a quarter of the book.

As the author says in his introduction, a work of this magnitude has to be a myriad of judgments between information between information overload and conciseness, an inevitability on which he has to be congratulated for handling with considerable skill.

Refreshingly, he has wisely said very little about locomotives and mechanical engineering, topics that have more than enough being written about them elsewhere. On the other hand – and sadly – there is nothing about the dramatic impact made on this country by the railway's infrastructure; an impact still continuing to be made by HS1.

A book like this can only be based on secondary sources, most of which are referenced in copious notes which also include additional information and comments. Regrettably there are too many easily-avoidable slips, fortunately mostly minor, suggesting haste in compilation, while a number of the illustrations are well known. The book concludes with a comprehensive review of relevant literature for further reading, together with a very adequate index.

GORDON BIDDLE

***The Industrial Revolutionaries; the Creation of the Modern World, 1776-1914* — Gavin Weightman**

422pp, 220x160mm, 8pp b&w photographs, 4pp colour images, hardback, Atlantic Books, Ormond House, 26-27 Boswell Street, London WC1N 3JZ, 2007, ISBN 978 1 84354 584 2, £20.00 (plus p&p)

Some books, particularly those published in English, give the impression that the Industrial Revolution was a uniquely British phenomenon. Gavin Weightman's very accessible, easily read book offers a welcome balance and perspective. In its wide-ranging scope it covers key technical developments right around the world, in Europe, in North America, in Russia and Japan as well as Britain. It concentrates on the people who drove these developments forward and, while many were emigrants or visitors on assignment from the British Isles, the characters of the local-born entrepreneurs and inventors make a fascinating and less known story.

This book covers an extended time-scale as well, right through the 19th century and up to 1914. It

embraces aspects of the oil and chemical industries, as well as those of iron and steel; transport from the early steam pioneers to the internal combustion engine; the telegraph and wireless and the drive to make 'better' weapons. An interesting thread is the significance of industrial espionage and bribed recruitment ('poaching') in accelerating national goals.

A measure of the author's undertaking is the index, which covers 16 pages of dense type. There are useful source notes and an extensive bibliography. The style is journalistic rather than academic but, for those members wishing for a broad, global appreciation of the subject matter, this substantial book can be highly recommended.

MILES MACNAIR

***From Studium to Station: Rewley Abbey and Rewley Road Station, Oxford* — Julian Munby, Andy Simmonds, Ric Tyler and David R P Wilkinson**

viii + 105pp, A4, 29 photos & 43 line drawings (some coloured), paperback, Oxford Archaeology, Janus House, Osney Mead, Oxford OX2 0ES, 2007, ISBN 978 0 904220 40 7, £9.95

The first part of this book is a report of excavations on the site of the Cistercian abbey which housed one of the first Oxford colleges, founded in 1280. The second is a detailed architectural and archaeological study of the London & North Western Railway's Oxford terminal station built on part of this site in 1851. For speed of construction, the contract was given to Fox, Henderson & Co., the builders of the Crystal Palace, so that the prefabricated, modular, cast iron and wrought iron construction developed

for it a few months earlier with Joseph Paxton could be used. A notable feature of the book is a full set of drawings of the building and its modular components, showing very clearly what was original, what was changed in later alterations and how much has been retained or reconstructed in the surviving building. This was skilfully restored and re-erected at the Buckinghamshire Railway Centre, Quainton.

GRAHAME BOYES

***Somerset & Dorset – Life on the Bath to Bournemouth Line* — Colin G Maggs**

160pp, 254x202mm, 200 b&w photographs, hardback, Ian Allan Publishing Ltd., 4 Watling Drive, Hinckley, Leicestershire LE10 3EY, 2007, ISBN 978 0 7110 3185 2, £19.99

While it may be asked if another book on the Somerset & Dorset Joint Railway is wanted, it still remains a subject of popular interest. This book, from the prolific pen of Colin G Maggs, does not attempt to be a complete history. Its attention is slanted toward the northern end of the line, the area in which the author has always lived. It does however contain some new information and its six chapters give a brief history of the line, its construction (from

Evercreech Junction to Bath), passenger and goods services, locomotives and accidents (of which there were several). The book is well illustrated, with photographs (several new) which are supported by letters and memos. There is a small but useful bibliography but, unfortunately, no index. The book should have a wide appeal, especially to those interested in joint lines generally and the Somerset & Dorset in particular.

RODNEY HARTLEY

***Rails to Poole Harbour*, 2nd edition — Colin Stone**

208pp, A5, 263 b&w photographs, 15 maps and plans, paperback, The Oakwood Press, PO Box 13, Usk, Monmouthshire NP15 1YS, 2007, ISBN 978 0 85361 662 7, £14.95

Not only will this book extend the local historian's memory, it will be indispensable for the holiday visitor wanting to interpret the varied railway archaeology of the Poole and Hamworthy areas. It is a substantial enlargement and updating of the first edition published in 1999.

The first standard gauge railway in Dorset was Castleman's Corkscrew – the Southampton & Dorchester Railway of 1847 that had a branch to Poole Harbour at Hamworthy. A second branch

followed from Broadstone to Poole and a street tramway served the town quay. Holes Bay and Parkstone Bay were crossed by causeways as the metals extended eastward towards Bournemouth. These lines are well described by text and photograph but it is the coverage of some 24 private sidings, wharves and other industrial railways across the years that complete a well-presented account. Harbour traffic, including clay barged across the harbour from Purbeck's railways, is also mentioned.

STEPHEN ROWSON

***The Coniston Railway* — Robert Western**

96pp, A5, 63 photographs, 8 maps, paperback, Oakwood Press, PO Box 13, Usk, Monmouthshire NP 15 1YS, 2007, ISBN 978 0 85361 667 2, £8.05.

The impetus for constructing this railway was copper, but as soon as it opened in 1859, the Furness Railway exploited its tourist potential. The *Gondola* was launched on Lake Coniston in the same year. However other Lake District railways were better placed to attract visitors and Coniston was their poor relation. Its passenger service was similar to many other rural railways and it ceased in 1958; local roads were too narrow for heavy vehicles, but buses were allowed to use them, thus enabling the rail passenger

service to be withdrawn. The line closed completely in 1962.

The book describes the rail and lake services from promotion to cessation. Surviving rail structures are recorded, and a recommissioned *Gondola* still carries tourists. But this book does not add materially to information in the Cumbrian Railway Association's book on the same subject, which also explains the sequence of the Foxfield curve and mentions the development of adjoining lines.

ALLAN BRACKENBURY

***The Wye Valley Railway and the Coleford Branch*, 3rd edition — B M Handley and R Dingwall**

176pp, A5, 194 illustrations, 19 maps and diagrams, 4 timetables, paperback, Oakwood Press, P O Box 13, Usk, Monmouthshire NP15 1YS, 2007, ISBN 978 0 85361 665 8, £11.95 post free

This book describes two of the four railways which once linked Monmouth to the rest of the railway system. Previous editions were smaller (e.g. 40pp in the 1988 reprint) and many more photographs have been added to those published previously. Regular Oakwood readers will note the revised cover style. More familiar are the introductory chapters on the local district (including notes on river traffic) followed by an account of the rise and fall of the Wye Valley Railway with descriptions of the infrastructure. Novel for Oakwood is 22 pages entitled 'Reminiscences'

from people who travelled or worked on the line. This includes a possibly unique account of a camping coach holiday at Tintern in 1937.

The last 33 pages include an enlarged description of the Coleford Branch including the mineral traffic which lasted at the Coleford end until 1976. The tramroad predecessor of the Coleford line and the Tintern Wireworks Branch are described, followed by notes on the other lines serving Monmouth. Surprisingly, there is no timetable dated after 1910. The index of only one page might well have been longer.

RICHARD TYSON

***The Ventnor West Branch Line* — Peter A Harding**

32pp, A5, 49 b&w photographs, 6 maps and plans, facsimile timetables and tickets, gradient profile, paperback, Peter A Harding, 'Mossgiel', Bagshot Road, Knaphill, Woking, Surrey GU21 2SG, revised edition 2007, ISBN 978 0 9552403 1 7, £3.50 (p&p £0.50)

With a lifespan from 1897 to 1952, the branch from Merstone to Ventnor West had the distinction of being the last line to be built in the Isle of Wight and the first to be closed. This is a revised edition of a booklet, first published in 1990, in which the author has succeeded well in capturing the flavour of the branch. The text has extensive coverage of the origins and early history and there is a detailed

description of the route, including track plans of all the stations. It is weaker on train services and operations and there is nothing on freight traffic. There is a short bibliography. The changes since the first edition include the addition of some recent photographs of surviving buildings. At less than the price of a magazine, the booklet is excellent value for money.

TIM EDMONDS

***The Piccadilly Tube – A History of the First 100 Years* — Mike Horne**

144pp, 230x260mm, 115 photographs (12 in colour), 20 maps and diagrams, hardback, Capital Transport Publishing, PO Box 250, Harrow, Middlesex HA3 5ZH, 2007, ISBN 978 1 85414 305 1, £19.95

The histories of London Transport lines are notoriously complex and none more so than the Great Northern, Brompton and Piccadilly Railway, shortened to 'The Piccadilly' almost from the start. The author is, therefore, to be congratulated for organising this book to be clear and readable but without oversimplification. He does it basically by dealing with the line in its three main periods.

The first is its origins in the Edwardian 'tube boom' when no less than seven lines were proposed to link the City and West End with Hammersmith. At the outbreak of the First World War, it was entirely an urban railway.

The second covers the inter-war years with expansion into the open country of Middlesex to the north and west, helping to create the modern suburbs. One of the legacies of this period is the large number of then futuristic brick-and-concrete stations designed by Charles Holden. The Piccadilly now has by far

the largest number of listed buildings of any line on the Underground.

The third is the post-Second World War with another westward expansion. This came to include the only tube line to serve that world's busiest airport at Heathrow. There is a fascinating *exposé* of how lack of foresighted planning caused a problem accommodating Terminal Five. It could not be served by the existing trains as they could only serve the existing four terminals. T5 has to have a branch of its own.

The photographs are well reproduced and many are commendably large – across the whole page. Most of them appear to have been professionally taken. They include a wonderfully evocative picture of a gentleman manning an electricity supply control room – resplendent in Norfolk jacket, plus-fours and sturdy brogues. No brand image uniforms here.

BRIAN WESLEY

***The Cockermonth, Keswick and Penrith Railway* — Robert Western**

200pp, A5, 88 b&w illustrations including photographs, maps, plans and drawings, The Oakwood Press, P O Box 13, Usk, Monmouthshire NP15 1YS, 2007, ISBN 978 0 85361 564 4, £12.95

The briefest glance at a map of the Lake District reveals that this is the one line that penetrated anywhere near the heart of the world-famous tourist area. Other railways only nibbled at the edges. Further expansion was thwarted by a combination of topography and Wordsworthian objections. What drove the CK & P forward was that it was a product of industry, being the last section of a link between the coalfields of County Durham and the ironstone

industry of the Cumbrian coastal plain.

This book, a heavily revised edition of the 2001 original, is about as definitive a history as one is likely to get, covering most events both significant and trivial. The opportunity to update the postscript about plans to re-open part of the line has not been taken. Despite this, it is a worthy history of a fascinating cross-country line.

BRIAN WESLEY

***Rail Atlas Great Britain and Ireland, 11th edition, 30th Anniversary edition* — S K Baker**

130pp, 232x166 mm, 105 maps, hardback, Oxford Publishing Company, Midland Counties Publishing, 4 Watling Drive, Hinckley, Leicestershire LE10 3EY, 2007, ISBN 978 0 86093 602 2, £14.99

It seems incredible that it is 30 years since the first edition of this invaluable atlas appeared. It covers all the railways, including preserved and narrow gauge, of the UK and the Irish Republic. It distinguishes between single and multiple track and between freight and passenger lines.

Preserved lines are shown in purple, and the gauge is shown if not standard for the UK or Ireland.

London Transport and municipal lines are also distinguished as are tramways. Even peat-carrying industrial lines in Ireland are shown. The atlas also shows projected lines, as well as loco depots, carriage sidings, marshalling yards, industrial terminals and tunnels. It is an absolutely invaluable work of reference and beautifully produced.

WARWICK BURTON

***The Grand Experiment: The Birth of the Railway Age 1820-1845* — Stuart Hylton**

208pp, 235x135mm, over 100 illustrations and drawings, hardback, Ian Allan Publishing, 4 Watling Drive, Hinckley, Leicestershire LE10 3EY, 2007, ISBN 978 0 7110 3172 2, £19.99

While there are numerous books covering the early days of railway history, this one will be useful to those with a general or a particular interest in the subject and, indeed, in the Industrial Revolution.

Stuart Hylton draws upon many documents and illustrations in his narration of the birth of the railway age with its rapid technological advance. He describes how this helped to revolutionise the world, from 1820 when the majority of people (including Government Ministers) did not know what a locomotive was, through to 1845 when the basis of the modern railway network was in place. The places

of the Stephensons, Brunel and Hudson in railway history are discussed, as are the railway contractors, the navvies and the growth of the railway towns. The author considers the economic effects of the railways, state regulation, the broad gauge, the gauge war and the effects of politics on the railways. The advance of railway technology is studied with the progress of steam locomotives, the quest for speed, the first steps in signalling and the development of the telegraph.

There is an extensive bibliography and a comprehensive index. A well written, readable book well worth a place on the shelf. RODNEY HARTLEY

***The Red Dragon ... and Other Old Friends! A glimpse of post-war steam in and around Swansea* — Ieuan Daniel and others**

364pp, 240x270mm, 335 illustrations, maps on end-papers, hardback, LDR Publications, c/o 73 Pastoral Way, Tycoc, Swansea, SA2 9LY, 2006, ISBN 978 0 9553941 0 2, £28.00 (plus £5.70 p&p)

Do we really need yet another GWR photo album? The answer is 'yes' when it depicts an area that has received rather less attention than other parts of that system and when it makes available quality work from several hitherto unpublished photographers.

The quality of the photographs is shown in their technical competence and even more in their composition. There are classic three-quarter studies of locomotives, but many more are of locomotives and trains within the industrial or rural landscape and these have much historical value. Each of the

photographs is accompanied by a detailed caption. There is a descriptive and historical introduction to each section of the book, a detailed chronology, and a full index. A map appears on the front and back endpapers.

The price may be more than normal for an album of photographs, but it has been pitched realistically in relation to the costs of production and the compilers have generously undertaken to share any surplus between three registered charities.

PAUL REYNOLDS

***Industrial Railways and Locomotives of Hertfordshire and Middlesex* — Robin Waywell**

376pp, A5, 37 maps and 67 b&w photographs, Industrial Railway Society, 24 Dulverton Road, Melton Mowbray, Leicestershire LE13 0SF, 2007, ISBN 978 1 901556 46 9, £19.95 paperback, £24.95 hardback, both plus 10% p&p

The Leicestershire and South Derbyshire volume in this series was reviewed in this *Journal* in March 2007. This one follows a similar pattern. It mainly lists railway lines and the locomotives which worked on them in the context of industries, gravel pits and contractors. The index of locomotives and their location, where they are known to survive, makes it

user friendly. The maps are very clear and not cluttered with unnecessary information. Details of sources increase the value of the book and make it useful for reference. The publishers and editors welcome comments and additional information.

PETER RICHARDS

***In Time of Civil War: The Conflict on the Irish Railways 1922-23* — Bernard Share**

152pp, 260x239mm, approx. 75 b&w photographs, map, hardback, The Collins Press, West Link Park, Doughcloyne, Wilton, Cork, Ireland, enquiries@collinspress.ie, 2006, ISBN 1 905172 11 7, £18.99 or euros 25

The Irish Civil War 1922-23 was fought between two factions of the republican movement over the acceptance of the Anglo-Irish treaty of 1921. The treaty recognised the whole island except the six counties of Ulster as an independent state with dominion status in the British Empire.

The Irish railways after World War I and the Irish War of Independence were struggling and the Civil War brought them to the brink of economic disaster. Enormous ingenuity went into wrecking the railway system. Mallow Viaduct was rebuilt in a record 14 months – compare that to today despite the now available resources. As the anti-treaty forces were

gradually beaten, they turned more to guerrilla warfare with the railways getting most of their attention.

Bernard Share presents the book as a day to day narrative – use the book like a calendar. He concentrates on both the railway and social aspects of the events. Whilst the book was being written, glass plates recording the destruction were found in the archives of Iarnrod Eireann and a selection of them features.

The book appears to have been admirably researched; it is well presented and illustrated and can be recommended to everyone with any interest in Irish railways.

MICHAEL THOMSON

***London Main Line War Damage* — B W L Brooksbank**

144pp, A4, 80 photographs, hardback, Capital Transport Publishing, PO Box 250, Harrow, Middlesex HA3 5ZH, 2007, ISBN 978 1 85414 309 9, £19.95

Ben Brooksbank's earlier books on the East Coast Main Line will be well known to readers, and his latest work continues in the same informative style. Here we have a thorough chronicling of the damage suffered by the railways in London as a result of wartime air raids, mainly by enemy aircraft in 1940/41 and later by the flying bombs and rockets in 1944/45. All the main lines serving the capital sustained destruction of buildings and track, resulting in serious interruption to services and serious loss of life. Information is also provided about the activity involved in restoring services and there are interesting

extracts from official reports.

The text is supplemented by a selection of photographs, mostly taken soon after the action. For example, there are graphic illustrations of the damage caused at King's Cross when a bomb hit the main booking hall, and at Paddington, after a parachute mine had caused widespread destruction. The Southern Railway system, not least Waterloo Station, was particularly the target of flying bombs. Altogether, the author has provided a comprehensive study of hits difficult and often tragic period in railway history.

GEOFFREY HUGHES

***Festiniog 1946-1955: The Pioneers' Stories* — Michael Davies and Vic Mitchell**

96pp, 240x174mm, 90 b&w photographs, 1 map, hardback, Middleton Press, Easebourne Lane, Midhurst, West Sussex GU29 9AZ, 2007, ISBN 9781906008017, £14.95

Despite its inclusion in the Great Railway Eras series, this book represents a slight departure for Middleton Press. The usual historic photographs appear but there is a strong emphasis on text. This consists of 21 personal accounts by people who were involved in the early Festiniog revival, from historically significant figures like Leonard Heath Humphreys and Allan Garraway, to less-known enthusiasts. Many restoration pioneers were schoolboys (there are no memories from females), in contrast to the preponderance of the middle-aged and retired among many transport revival and enthusiast groups today.

Naturally, the accounts vary in quality and interest, but each one evokes an era now disappeared.

Voluntary working parties were very much ad hoc, written correspondence dominant, and enthusiasm both taken for granted among volunteers and the subject of bemusement outside. There are insights into personalities and decision-making, and some curiosities, such as Stephen Murfitt's careful examination of the myth that the Festiniog Railway Company had no power to abandon the line. The photographs also vary in quality, but depict the decrepitude and early revival work successfully. Some of the accounts are briefer than they might be and end inconclusively.

The book provides insights into experiences of a period that is fast-receding and worthy of its own history.

JOSEPH BOUGHEY

***An Illustrated History of the Festiniog Railway* — Peter Johnson**

160pp, 273x215mm, approx. 200 illustrations including maps, hardback, Ian Allan Publishing, 4 Watling Drive, Hinckley, Leicestershire LE10 3EY, 2007, ISBN 978 0 86093 603 9, £19.99

The Festiniog Railway is the best known of the narrow gauge lines in the UK and deserves to be so. Its early history is remarkable, its locomotives distinctive, its route and traffic fascinating - and all within the dramatic mountainous setting of North Wales.

There have been many books about the Festiniog before this one. It is written by a man who has had a long and close association with the railway. He was editor of the preservation society's magazine for many years and this is his third book about the FR. The results of much new research have gone into the text and, amazingly, many of the pictures have not been published before. Consequently, even the most dedicated FR enthusiast will find new material both written and pictorial in this book.

The first eleven chapters divide the history from 1800 until 1954 into distinct phases of management and surrounding issues. The last chapter is about the locomotives and rolling stock. There are six appendices containing original detailed material, a full bibliography and an index. The pictures are well reproduced and the whole layout of the book is handsome. A positive feature of the book is the breadth of the text and pictures. For example, as well as material about the railway, there is much about the slate industry and the quarries served by it. The use of Boston Lodge Works as a shell factory in the First World War is covered. The period after closure in 1946 is covered and demonstrates how high was the risk of abandonment, track lifting and total removal. Had this happened, restoration would have come very much later, if ever.

MARTIN BARNES

***Saga by Rail: Great Britain and the Isle of Man* — J I C Boyd**

192pp, A5, 232 b&w photographs, 1 map, paperback, Oakwood Press, PO Box 13, Usk, Monmouthshire, NP15 1YS, 2007, ISBN 978 0 85361 663 4, £14.95

The Festiniog Railway (1956), dedicated to the Headmaster who in 1933 had introduced James Boyd to Welsh narrow-gauge railways, noted that 'in

preparation' was *Saga by Rail*, a review of travels on minor railways. Even for such lines half a century is a long wait. Little personal information emerges from

the author's numerous and detailed railway histories; but these fragments, the earliest dating back 80 years, though slight and haphazardly organized present, almost in passing, glimpses of the privileged upbringing of a Mancunian businessman's son. The Cheshire Lines ran close to the family home and his prep school near Malvern, to which he returned after retiring from the family business, ran a miniature railway. When at boarding school near Blandford he learned to drive S&D locomotives. Wartime leaves,

including a honeymoon exploring the minor railways of Shropshire and an excursion to Inverness, were followed by visits to long-gone private lines and involvement in restoration projects. Reports suggest that Dorothy, too, enjoyed these trips.

Although there is little new history (and some loose ends are left dangling) this volume provides a pleasant reminder of times when schoolboys were allowed to wander and the Health & Safety Executive had not been invented.

DENNIS HADLEY

A, B, C and M: Road Numbering Revealed — Andrew Emmerson and Peter Bancroft

94pp, A5, 27 illustrations, 8 maps, 10 tables, paperback, Capital History, PO Box 250, Harrow HA3 5ZH, 2007, ISBN 9 781854 143075, £7.95

An informative and well-produced work with a wider scope than its title might suggest. It gives a potted history of the nomenclature of British main and secondary roads from Roman times to the present day. Although this includes the antiquarian inventions of the 18th century, such as the 'Via Devana', it omits turnpike names. Were these, such as 'Harlow Bush' and 'Stump Cross' ever widely used?

The bulk of the book is devoted to the rationale behind the current 'A' and 'B' road numbering and classification system and the modifications, both to

the scheme itself and to individual roads, required by changing circumstances since it was introduced in 1923. Devotees of the 'Public Notices' of minor road closures in local newspapers will be interested to learn that the MoT left designation of these ('C', 'D', 'U' and 'X') to the discretion of local authorities. Well-illustrated with road signs and contemporary publicity material, the book concludes with sections on 'oddities' (e.g. there are two A114s and three B198s) and numbering systems outside the UK mainland.

TONY KIRBY

Brunel's Timber Bridges and Viaducts — Brian Lewis

144pp, 254x203mm, approx. 150 b&w and colour photographs, plans and drawings, hardback, Ian Allan Publishing, 4 Watling Drive, Hinckley, Leicestershire LE10 3EY, 2007, ISBN 978 07110 3218 7, £24.99

Brunel's timber viaducts were not confined to Cornwall and Devon. Timber structures from every line engineered by Brunel are covered in this book. Construction details and dimensions are included for many.

In two introductory chapters, Brian Lewis extends Margary and Binding's classification for his wider coverage. This also includes modest bridges. Generic designs are defined and illustrated by Mike Jolly's clear drawings. Jolly has provided more than half the book's drawings and photographs.

Each railway is covered in turn. A brief historical description of the company is followed by a fully referenced table of the identified structures. There are no maps to suggest the missing bridges or the reasons why they did not involve timber. This geographic classification makes chronological

analysis of design development difficult. Comparison with contemporary timber constructions on non-Brunel railways would have been helpful. There is no analysis of Brunel's unused designs for two bridges over the Severn estuary.

For the book's scope, illustrations are relatively few and many small. The tonal quality of the photographs is superb. Close-ups to illustrate the detail described in the text would have been helpful. 16 complete original engineering drawings are reproduced in colour. However, at less than half a page each, a magnifying glass is needed to study them.

This book is an admirable appendix to John Binding's more rounded *Brunel's Cornish Viaducts*, but it could have been much more.

STEPHEN ROWSON

***Thomas Bouch; the Builder of the Tay Bridge* — John Rapley**

192pp, 250x170mm, 107 photographs, 16 diagrams and maps, paperback, Tempus Publishing Ltd, The Mill, Brimscombe Port, Stroud, Gloucestershire GL5 2QG, 2007, ISBN 978 07524 3695 1, £17.99

Thomas Bouch will always be associated with the bold but flawed design and construction of the Tay Bridge and with its subsequent devastating collapse. But, as the author stresses in his introduction to this well produced book, he deserves to be remembered for very much more. He was involved with 28 railway schemes in Scotland and England plus a pier and some street tramways and the large number of mostly successful (and often innovative) bridges and viaducts that bore his stamp.

Early chapters deal with his family background and his projects around Edinburgh. The story of the Tay Bridge, from its inception to the Court of Inquiry that led to Bouch's eclipse, occupies most of the last third of the book and adds little to the many recent publications on this subject.

The middle chapters of the book perhaps deserve most attention. As an independent consulting

engineer, he did many surveys, drafted Parliamentary Bills and designed his bridges, including a strange road bridge over the Tyne. All his designs were typified by a lightness (and therefore economy) of construction. The Deepdale and Belah viaducts on the line over Stainmore being his most memorable. It is fortunate that his proposal for a Forth Bridge, authorised in 1873, never got further than the foundation stone.

The author's style is quite workmanlike although sometimes repetitive. He has not included any source references, so the bibliography is merely a reading list and will not help researchers. The structure is episodic and lacks a chronological timeline. More maps would be an advantage. The best feature is the numerous illustrations and drawings and the publishers/printers deserve particular credit for the quality of their reproduction. MILES MACNAIR

***The Man who Buried Nelson – The Surprising Life of Robert Mylne* — Robert Ward**

219pp, 40 b&w illustrations and drawings, paperback, Tempus Publishing Ltd, The Mill, Brimscombe Port, Stroud, Gloucestershire GL5 2QG, 2007, ISBN 978 0 7524 -3922 8, £14.99

Little detail has been published on the life of Robert Mylne FRS (1733–1811), a founding member of the Society of Civil Engineers. Robert Ward, who recently wrote the history of the New River, has turned his detective skills to uncovering the surprising life of Mylne who, at the age of 26, was commissioned, in competition with Smeaton and others, to design and build the new Blackfriars Bridge.

Mylne was descended from a line of Scottish master masons. Whilst on the Grand Tour, he won a design competition in Italy. After completing Blackfriars Bridge he was appointed Surveyor to St Paul's Cathedral, Clerk of Works to Greenwich Hospital and Engineer to the New River Company (1771–1806). He assisted in improving the Severn Navigation (1790) and the Thames (1791–93). He

also designed many public buildings and bridges all over England.

His one great failure was the Gloucester & Berkeley Ship Canal where he was engineer with James Dadford as resident engineer. After five years and serious cost difficulties, Dadford complained and Mylne was dismissed. Work was stopped on the project and it was only completed 1827, long after Mylne's death.

The final masterly touch in Ward's extensive research was to uncover the facts about Mylne's involvement in preparation of the sarcophagus for Nelson in St Paul's, in which he arranged to secrete a hoard of coins and medals.

A book well worth reading for the new information uncovered about an architect who was also one of our early civil engineers. ROGER SQUIRES

***Charles Burling, Railway Signaller of Cromford* — Glynn Waite**

70pp, 298x205mm, 72 illustrations, 23 maps and diagrams, softback, Pynot Publishing, 56 Main Road, Holmesfield, Dronfield, Derbyshire S18 7WT for The Rowsley Association, 2007, ISBN 978 0 955 2251 4 7, £9.99.

It might seem ambitious to build a book from the brief contents of the two notebooks kept by Charles Burling between 1912-17 and 1925-1947, transcribed in three short chapters describing his railway career, the railway scene around Cromford and his transcriptions of a number of circulars and notices.

This book is important, firstly, as a rare survival from this period and, secondly, because the copious notes, well-chosen maps and illustrations and 19 appendices build into a comprehensive study of the

role of a signal box of the time and of the men who worked in it.

Apart from one small factual error relating to Cromford stationmasters, the only criticism is that the book does not convey the isolation of this signal box or the great beauty of its setting. It was a naturalist's paradise. I have a personal interest, as my father was one of the last signallers to work Cromford box.

WILLIAM FEATHERSTONE

***Crewe, A History* — Susan Chambers**

118pp, 250x170mm, 131 illustrations, some of old maps, hardback, Phillimore and Co. Ltd., Shopwyke Manor Barn, Chichester West Sussex PO20 2BG, 2007, ISBN 978 1 86077 472 0, £15.99

The L&NW Railway is incidental to this work which is primarily a social history of the townships that eventually came to be the town of Crewe. In small compass it covers the period from the Neolithic age to 2007 in nine chapters. The railway arrives in chapter seven, the effect on the social and political structure of the area is succinctly elucidated making for easier reading than previous, more detailed writings but containing the essentials. Railway

technology and practice are rightfully ignored. There are references to road and canal developments. The story is unfurled with clarity and compactness, frequently by examples of the personal experiences of individuals. Given that there is increasing interest in the social relations and effects of the transport industry, this brief exposition is to be welcomed although our members' interests do not predominate.

PAT MCCARTHY

Short Reviews

The Full Turn of the Wheel: the story of May's Motors of Elstead 1920-1997 — Peter May

236pp, 235x155mm, 95 illustrations, 29 in colour, paperback, Roads and Road Transport History Association, 124 Shenstone Avenue, Norton, Stourbridge, West Midlands DY8 3EJ, 2007, ISBN 978 0 955 2866 1 9, £16.00 incl. p&p

This is part family, part business history. May's were a well respected family firm, primarily road hauliers, though like countless similar enterprises, diversified into garage trade, motor agencies, even passenger transport: buses in the 1920s (Aldershot & District bought them out) and coaches (private hire and contract work) in the uncertain nationalisation period

1947-53. As small hauliers May's expanded steadily to some 20 vehicles, updating their fleet and developing continental trade. 'Small is beautiful', but changing circumstances forced its disposal.

Darlington to Newcastle via Durham — Roger R Darsley

124pp, 232x166 mm, 22 maps, 120 photographs, 1 gradient diagram, 10 ticket reproductions, hardback, Middleton Press, Easebourne Lane, Midhurst, West Sussex GU29 9AZ, 2007, ISBN 978 1 904474 98 2, £14.95 post free.

This book forms a good illustrated general history of the line and its stations. Darlington Bank Top is

dealt with in some detail as is Durham, but Newcastle is also covered in the Newcastle to Hexham volume in the same series. The maps are useful in charting the development of the route which, like so many, was not built in one go. The East Coast Main line north of Darlington was opened by the Newcastle and Darlington Junction Railway, under the auspices of George Hudson, in 1844. It avoided Durham and reached Newcastle via Leamside using a series of earlier lines, some of which had been built as mineral lines. It was not until 1871 that the present route via Durham came into use and 1906 that the King Edward Bridge over the Tyne was opened, obviating the need for Anglo-Scottish trains to reverse at Newcastle.

Historical DVDs

Canals and Things

83 minutes, Leeds and Liverpool Canal Society, 8 Green Bank Road, Barnoldswick, Lancashire BB18 6HX, 2007, £15 p&p included

This is a varied collection of thirteen short films spanning 1900 to 1978. The earliest is a long sequence of Royal Navy ships visiting Manchester via the Ship Canal with good scenes at the Barton Aqueduct and Swing Bridge. Three later clips feature wide boats on the Lancaster Canal and the Leeds & Liverpool Canal. Remarkable is footage of a 'legged' inspection trip in the Worsley mine canal tunnels using the original 'starvationer' boats. Another clip is of a pleasure trip on the Kennet & Avon around Newbury in 1959. A longer film is of a trip down the whole length of the Manchester Ship Canal in 1969. The latest film features a narrow boat working down the Anderton Lift in its unbuilt form in 1978. This includes rare shots of the subtleties of how the gates worked.

Quality varies but is basically very good and there are interesting notes with the DVD.

Steam Trails: Cotswolds and South Midlands — Michael Clemens

96pp, 191x247mm, 138 photographs, hardback, Ian Allan Publishing, 4 Watling Drive, Hinckley, Leicestershire LE10 3EY, 2007, ISBN 978 0 7110 3220 0, £16.99

This first in a series from the family photographic and film archive of the author and his father will sharpen even the most jaded, railway album surfeited, palate. The quantity, quality and rarity of this selection from the fifties and sixties, many in colour, are exemplary. Many of the views show services, stations and lines at the point of closure and capture an entire infrastructure just before it was swept away. It is an album to return to again and again.

Behind the Scenes – Traffic

70 minutes, Telerail, North West Video Productions, 9A New Street, Carnforth, Lancashire LA5 9BX, sales@telerrail.co.uk, 2007, £25.00

The fourth in this series of DVDs assembled by Andrew Dow from BR official films. All clips, as before, originate from the north east region and from the post WW2 period.

Scenes include spectacular staged mayhem in the cause of testing buffer stops, how a massive out of gauge load was actually handled, rerailing a Type 4 diesel which had plunged down an embankment, snow clearing in 1947 on the Stainmore line, renewal of Wiske Moor water troughs and others. One of attempting to clear snow using jet aero engines is particularly dramatic. Perhaps predictably, the jets tended to clear the ballast as well so the experiment was not a success.

A fascination of this series of DVDs is the huge extra dimension of reality which a moving picture has. For example, no photograph of the LNER's monster special wagon set for big and heavy loads could show, as we see for the first time here, how the load was slewed to get through bridges or how it all articulated when going round curves.

Notes for Contributors

The Editor welcomes the submission of interesting relevant articles. Potential contributors should contact him for a copy of the Guidance on writing for the Journal, including the style sheet. A copy is also available on the RCHS website, www.rchs.org.uk

Authors need not be members of the Society, though preference for publication is normally given to members.

Articles must be relevant to the aim of the Society, which is 'to encourage the study of the history of transport, with particular reference to railways, waterways and all matters associated with them'. Articles will therefore be considered on:

- any mode of transport (not just railways and canals);
- any historical aspect of transport, including social and economic; and
- subjects that would assist others in undertaking transport research.

Articles should be of potential interest to a significant proportion of the general membership. Thus, if they are on a particularly detailed or obscure subject, they should help to illuminate a wider topic.

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Letters

Letters are welcomed where they provide further information concerning topics arising from articles from articles published in the *Journal* or where they are, in effect, short articles of interest in their own right.

As the *Journal* is the Society's formal permanent record, letters appealing for information or concerning Society issues may be more appropriate for publication in the *Bulletin*. (The 'lead time' for the *Bulletin* is also shorter) Similarly, some letters submitted to the *Bulletin* may be more appropriate for publication in the *Journal*. If the Editor wishes to switch letters between publications, the author will be consulted.

Production

Preferably, articles should be submitted to the Editor in the form of a printed copy accompanied by a CD or 3.5-inch diskette produced by a word processor. The preferred format is MS Word, though Wordperfect or Rich Text Format can be accepted. The CD/diskette must be clearly labelled with the author's name and the title of the file including the extension showing the software format used. The CD/diskette must be clearly labelled with the author's name. It, together with any accompanying it, will be returned before the article is published.

Authors without access to word-processing equipment may submit their articles typed on white A4 paper, or clearly hand-written. Pages should be numbered. A covering letter should be sent, giving the author's name, address for correspondence, plus telephone number, fax number and e-mail address if available. Authors should keep a copy of their text, in case anything goes astray.

Detailed 'Guidance on writing for the Journal' for potential authors is available from the Editor, who would be grateful if authors would adhere to it as far as possible.

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